GENERAL CONDITIONS of CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2019 CALIFORNIA BUILDING CODE [CBC], UNIFORM BUILDING CODE [UBC], CAL–OSHA, CITY of SAN JOSE AND STATE OF CALIFORNIA REQUIREMENTS, THE GOVERNING BUILDING AUTHORITY, AND ANY SPECIAL REQUIREMENTS OF THE PD PERMIT, BUILDING PERMIT AND ANY OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OF ANY PORTION OF THE WORK, INCLUDING THE STATE OF CALIFORNIA DIVISION OF INDUSTIAL SAFETY, AND THOSE CODES AND STANDARDS LISTED IN THESE NOTES AND SPECIFICATIONS. ALL CODES, STANDARDS, AND SPECIFICATIONS SHALL BE AMENDED TO DATE. IN THE EVENT OF A CONFLICT BETWEEN ANY OF THE GOVERNING CODES, THE MORE STRICT INTERPRETATION SHALL GOVERN. ANY VIOLATION OF THESE CODES ON THE PART OF THE CONTRACTOR SHALL RESULT IN THE CONTRACTOR OF HIS/HER SUBCONTRACTORS BEING LIABLE FOR ANY COSTS ASSOCIATED WITH REWORK AND DELAYS.

2. THE DRAWINGS AND SPECIFICATIONS DESCRIBE IN GENERAL THE QUALITY AND CHARACTER OF THE MATERIALS, SHAPE AND CONFIGURATION OF STRUCTURES AND METHOD OF INSTALLATION. MISCELLANEOUS ITEMS OF WORK, MATERIAL, EQUIPMENT, ETC. NECESSARY TO COMPLETE THE INSTALLATION SHALL BE PROVIDED BY THE CONTRACTOR WHETHER OR NOT MENTIONED IN THESE NOTES OR SHOWN ON THE DRAWINGS. SPECIFIC NOTES AND DETAILS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. TYPICAL DETAILS AND GENERAL NOTES ARE MINIMUM REQUIREMENTS TO BE USED WHEN CONDITIONS ARE NOT SHOWN. OTHERWISE WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT.

3. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL AND ERECT THE CONSTRUCTION AS REQUIRED TO PROPERLY COMPLETE THE WORK. THE CONTRACTOR SHALL PROVIDE TEMPORARY ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC. FOR ALL MEMBERS AS REQUIRED FOR THE STABILITY OF THE STRUCTURE(S) DURING ALL PHASES OF CONSTRUCTION ADEQUATELY DESIGNED FOR THE IMPOSITION OF ALL LOADS DURING CONSTRUCTION. THE DRAWINGS SHOW THE FORM OF THE COMPLETED STRUCTURE(S) EXCLUSIVE OF ANY PROVISIONS FOR BRACING OF SHORING DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND ARCHITECT OF ANY CONDITION WHICH MIGHT ENDANGER THE STABILITY OF THE STRUCTURE(S) OR CAUSE DISTRESS OF THE STRUCTURE(S). THE ENGINEER AND ARCHITECT AND/OR DESIGNER (TYP.) ARE NOT RESPONSIBLE FOR INSPECTION OF THE ELEMENTS DESCRIBED ABOVE, NOR WILL THE ENGINEER AND ARCHITECT BE RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES OR SEQUENCES OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE(S) PRIOR TO THE APPLICATION OF ALL OBSERVATION VISITS BY THE ENGINEER AND ARCHITECT SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.

4. ANY REVISIONS OR ADDITIONAL WORK REQUIRED AS A RESULT OF FIELD CONDITIONS OR LOCAL GOVERNING AUTHORITIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND THE ARCHITECT BEFORE PROCEEDING REGARDLESS OF COST, TIME, OR MATERIAL INCREASE. ANY ADDITIONAL WORK PERFORMED BY THE CONTRACTOR WITHOUT WRITTEN AUTHORIZTION SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR WHO SHALL BEAR ALL COSTS ATTRIBUTABLE THERETO.

5. FIELD INVESTIGATE, VERIFY AND BE RESPONSIBLE FOR ALL CONDITIONS, EVEVATIONS AND DIMENSIONS OF THE PROJECT, AS SHOWN ON OR REFERENCED ON THE DRAWINGS, AND NOTIFY THE ENGINEER AND ARCHITECT ABOUT ANY CONDITION REQUIRING MODIFICATION OR CHANGE PRIOR TO CONTRACT. THE GENERAL CONTRACTOR AND EACH SUB–CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK, AND SHALL NOTIFY THE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES. EXAMINE THE DRAWINGS AND SPECIFICATIONS AND CLEARLY UNDERSTAND THE EXISTING CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED PRIOR TO PROVIDING A CONTRACT PRICE TO THE OWNER. ENTERING INTO AN AGREEMENT WITH THE OWNER INDICATES THAT THE CONTRACTOR HAS VISITED THE SITE, FAMILARIZED HIM/HERSELF WITH THE EXISTING CONDITIONS, HAS READ THE CONDITIONS OF APPROVAL PROVIDED BY THE LOCAL JURISDICTION, AND HAS REVIEWED THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. NO ALLOWANCES OF ANY KIND WILL BE MADE FOR ANY EXTRA COST DUE TO THE CONTRACTOR'S FAILURE TO INFORM THE OWNER, ARCHITECT, AND ARCHITECT OF DISCREPANCIES IN TIME TO ISSUE CORRECTIVE ADDENDA PRIOR TO CONTRACT. THE CONTRACT DOCUMENTS ILLUSTRATE THE INTENT OF THE WORK TO BE PERFORMED.

6. IT IS AGREED THAT THE PROFESSIONAL SERVICES OF THE ARCHITECT AND ENGINEER DO NOT EXTEND TO OR INCLUDE THE REVIEW OR SITE OBSERVATION OF THE CONTRACTOR'S WORK OR PERFORMANCE.

7. ANY AND ALL REVISIONS TO THE CONSTRUCTION DOCUMENTS SHALL BE IN WRITTEN CHANGE ORDER FORM AND APPROVED AND AUTHORIZED BY THE ARCHITECT AND OWNER BEFORE BEGINNING WORK.

8. THE CONTRACTOR SHALL MAINTAIN A CURRENT AND COMPLETE SET OF CONSTRUCTION DOCUMENTS OF THE JOBSITE DURING ALL PHASES OF CONSTRUCTION FOR USE OF ALL TRADES AND SHALL PROVIDE ALL SUB–CONTRACTORS WITH CURRENT CONSTRUCTION DOCUMENTS, INCLUDING APPROVED BUILDING SETS, RFI'S, CONTRACT REVISIONS, AND SIGNED CHANGE ORDERS. CONSTRUCTION DOCUMENTS NOT IDENTIFIED AS "ISSUED FOR CONSTRUCTION" ON ANY OR ALL SHEETS MAY BE SUBJECT TO REVIEW. THIS REVIEW MAY RESULT IN THE FINAL CONSTRUCTION SET WHICH WILL BE IDENTIFIED AS "ISSUE FOR CONSTRUCTION" DRAWINGS. WORK NOT IN FULL CONFORMANCE WITH THE "ISSUE FOR CONSTRUCTION" DRAWINGS SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE ARCHITECT.

9. ALL WORK LISTED, SHOWN, OR IMPLIED ON ANY CONSTRUCTION DOCUMENTS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR, EXCEPT WHERE NOTED OTHEWISE. THE CONTRACTOR SHALL CLOSELY COORDINATE THE WORK WITH THAT OF OTHER SUB–CONTRACTORS OR EQUIPMENT VENDORS TO ASSURE THAT ALL SCHEDULES MEET AND THAT ALL WORK IS DONE IN CONFORMANCE TO MANUFACTURERS REQUIREMENTS.

10. ALL CONSTRUCTION DOCUMENTS ARE COMPLIMENTARY, AND WHAT IS CALLED FOR BY AND WILL BE AS BINDING AS IF CALLED FOR BY ALL. ANY WORK SHOWN OR REFERRED TO ON ANY CONSTRUCTION DOCUMENT SHALL BE PROVIDED AS THOUGH ON ALL RELATED DOCUMENTS.

11. MATERIALS ARE SPECIFIED BY THEIR BRAND NAMES TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE. ANY REQUEST FOR SUBSTITUTIONS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW AND APPROVAL BEFORE THE COMMENCEMENT OF WORK. SUBSTITUTE MATERIALS SHALL NOT BE PURCHASED OR INSTALLED WITHOUT WRITTEN APPROVAL OF THE ARCHITECT.

12. THE DRAWINGS AND SPECIFICATIONS CREATED BY THE ARCHITECT/ENGINEER AND HIS CONSULTANTS ARE FOR USE ON THIS PROJECT. THE CONTRACTOR AND SUB–CONTRACTORS ARE FORBIDDEN FROM THE USE OF THESE PRODUCTS ON ANY OTHER PROJECT.

13. TO THE FULLEST EXTENT PERMITTED BY LAW, THE CONTRACTOR SHALL INDEMINITY AND HOLD HARMLESS THE ARCHITECT AND ENGINEER, ALL DESIGN SUBCONSULTANTS AND THEIR AGENTS, FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES, AND EXPENSES, INCLUDING BUT NOT LIMITED TO REASONABLE ATTORNY'S FEES ARISING FROM THE PERFORMANCE OF THE WORK, PROVIDED THAT ANY SUCH CLAIM, DAMAGE, LOSS OR EXPENSE: A) IS ATTRIBUTABLE TO BODILY INJURY TO, OR SICKNESS, DISEASE OR DEATH OF PERSONS; B) OR TO INJURY TO, OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN THE WORK ITSELF) INCLUDING THE LOSS OF USE RESULTING THEREFROM; C) IS CAUSED IN WHOLE OR IN PART BY EITHER 1) NEGLIGENT OR OMISSION OF GENERAL CONTRACTOR, ANY SUB–CONTRACTOR, OR ANYONE DIRECTLY EMPLOYED BY ANY OF THE CONTRACTORS MAY BE LIABLE REGARDLESS OF WHETHER OR NOT A PARTY INDEMIFIED HEREUNDER IS PARTIALLY NEGLIGENT OR 2) ARISES OUT OF OPERATION OF LAW OR THERWISE AS A CONSEQUENCE OF ANY ACT OR OMISSION OF THE GENERAL CONTRACTOR, ANY SUB–CONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANDY OF THEM, OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, REGARDLESS OF WHETHER ANY OF THEM HAS BEEN NEGLIENT, PROVIDED HOWEVER THAT NO PARTY SHALL BE ENTITLED TO INDEMINIFICATION WITH RESPECT TO HIS/HER OWN NEGLIGENCE.

14. UNLESS EXPRESSLY STIPULATED AND ACCEPTED BY THE ARCHITECT IN WRITING, NO ADDITIONAL ALLOWANCE SHALL BE MADE IN FAVOR OF THE CONTRACTOR BY VIRTUE OF ERRORS, OMISSIONS, AMBIGUITIES, DECREPANCIES, AND/OR CONFLICTS WHICH SHOULD HAVE BEEN DISCOVERED DURING PREPARATION OF THIS CONSTRUCTION PRICING AND SUB–CONTRACTOR BIDDING AND DIRECTED TO THE OWNER OR ARCHITECT'S ATTENTION IN A TIMELY MANNER.

15. IF THE CONTRACTOR PERFORMS ANY WORK OR PERMITS SUB–CONTRACTORS OR SUPPLIERS TO PERFORM THEIR WORK, KNOWING IT TO BE CONTRARY TO APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS WITHOUT PRIOR NOTICE TO THE ARCHITECT AND THE OWNER, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY AND SHALL BEAR ALL COSTS ATTRIBUTABLE HERETO.

16. NOTHINGWITHSTANDING ANY OMISSIONS, IT SHALL BE THE SOLE DUTY AND RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE ACTUAL CONSTRUCTION DETAILS AND FABRICATE AND INSTALL SAID DESIGN IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE AND PROCEDURE AND TO LET THE ARCHITECT KNOW BEFORE THE AGREEEMENT IS EXECUTED IF THE DRAWINGS AND DETAILS ARE NOT PRACTICAL OR STRUCTURALLY SOUND IN THEIR INTENT AND PURPOSE.

17. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT REGARDING THE AVAILABILITY OF SPECIFIED MATERIALS AT THE TIME OF BIDDING, SHOULD NOT NOTIFICATION BE GIVEN, IT WILL BE ASSUMED THAT MATERIALS ARE AVAILABLE.

18. ALL NON–SPECIFIED MATERIALS SHALL BE THE BEST OF THEIR RESPECTIVE TYPES, AND ALL LABOR INSTALLATION SHALL BE PERFORMED IN THE BEST POSSIBLE MANNER BY SKILLED WORKMEN.

19. THE LAYOUT OF ALL ELEMENTS OF CONSTRUCTION AS SHOWN ON THE DRAWINGS IS GENERALLY DIAGRAMMATIC UNLESS SPECIFICALLY DIMENSIONED. THE CONTRACTOR IS RESPONSIBLE FOR THE CORRECT LOCTIONS OF ALL WORK TO SUIT BUILDING CONDITIONS. COORDINATE ALL WORK BETWEEN TRADES; PHYSICALLY ARRANGE ALL SYSTEMS TO FIT IN THE SPACES AVAILABLE AT THE ELEVATIONS REQUIRED WITH CONSIDERATION FOR PROPER CLEARANCES AND ACCESSIBILITY. FIRLD RESOLVE [OR IF SPECIFIED, THROUGH THE GENERATION OF SHOP DRAWINGS] ALL CONFLICTS BETWEEN TRADES IN EQUIPMENT LOCATION, INCLUDING BUT NOT LIMITED TO PIPING, DUCTWORK, CONDUIT RUNS, FIXTURES, DIFFUSERS, GRILLES, FIRE SPRINKLERS, COMMUNICATIONS, ALARMS, STRUCTURAL AND ARCHITECTURAL FEATURES. NO ALLOWANCES OF ANY KIND WILL BE MADE FOR ANY EXTRA COSTS FROM ADDITIONAL WORK ON ACCOUNT OF THE CONTRACTOR'S TRADE COORDINATION RESPONSIBILITY.

20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK NECESSARY TO IMPLEMENT AN OWNER–APPROVED, CONTRACTOR–SUGGESTED OPTION, AND THE CONTRACTOR SHALL COORDINATE ALL DETAILS. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE COST OF ALL ADDITIONAL DESIGN OR REVIEW WORK BY THE ARCHITECT AND ENGINEER(S) DUE TO THE IMPLEMENTATION OF AN OPTION, SUBSTITUTION OF MATERIALS, OR DUE TO ERRORS AND/OR OMISSIONS IN CONSTRUCTION, CAUSED BY THESE CHANGES, BY THE CONTRACTOR.

21. THE CONTRACTOR SHALL INSPECT ALL STRUCTURAL WORK FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS. STRUCTURAL CONSTRUCTION OBSERVATION PROVIDED BY OTHERS DOES NOT RELIEVE THE CONTRACTOR OF THIS RESPONSIBILITY. THE STRUCTURAL CONSTRUCTION OBSERVER IS NOT AUTHORIZED TO DIRECT OR APPROVE ANY CHANGES FROM THE CONTRACT DOCUMENTS OR STOP OR DELAY WORK. IF THE CONTRACTOR ELECTS TO CONTINUE WITH A CERTAIN WORK AFTER BEING NOTIFIED BY THE STRUCTURAL CONSTRUCTION OBSERVER THAT SUCH WORK IS UNACCEPTABLE, THE CONTACTOR DOES SO AT HIS OWN RISK. THE CONTRACTOR SHALL PROVIDE SAFE ACCESS TO THE WORK FOR THE STRUCTURAL CONSTRUCTION OBSERVER.

22. APPROVAL BY THE INSPECTOR DOES NOT MEAN APPROVAL OR ALLOWABLE FAILURE TO COMPLY WITH THE PLANS AND SPECIFICATIONS. ANY DESIGN WHICH FAILS TO BE CLEAR OR IS AMBIGUOUS MUST BE REFERRED TO THE ARCHITECT FOR INTERPRETATION OR CLARIFICATION.

23. IN THE EVENT OF CONFLICT BETWEEN THE ARCHITECTURAL GENERAL AND THE STRUCTURAL GENERAL NOTES, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN.

24. ALL STRUCTURAL SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.

25. REFER TO THE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS AND THE SIZE AND LOCATION OF ALL FLOOR AND WALL OPENINGS. FLOOR FINISHES, ETC. REFER TO THE MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR THE SIZE AND LOCATION OF ALL OPENINGS REQUIRED FOR DUCTS, PIPES, AND ALL PIPE SLEEVES, ELECTRICAL CONDUITS, AND OTHER ITEMS TO BE EMBEDDED IN CONCRETE OR OTHERWISE INCORPORATED INTO THE STRUCTURAL WORK.

26. PROVIDE OPENINGS AND SUPPORTS FOR HEATERS, MECHANICAL EQUIPMENT, VENTS, DUCTS, PIPING, ETC. ALL SUSPENDED MECHANICAL, ELECTRICAL OR PLUMBING EQUIPMENT TO BE STAYED OR LATERALLY BRACED IN ACCORDANCE WITH THE GOVERNING BUILDING CODE. ALL EQUIPMENT SHALL BE FIRMLY ATTACHED TO THE STRUCTURE. ISOLATORS, FASTENERS, AND ANY OTHER EQUIPMENT MUST BE APPROVED BY THE ICBO OR GOVERNING AGENCY AND TRANSFERRING A SHEAR LOAD EQUIVALENT TO AT LEAST 0.3 TIMES THE OPERATING WEIGHT OF THE EQUIPMENT.

27. OBSERVATION VISITS TO THE SITE BY THE ARCHITECT OR ENGINEER SHALL NOT INCLUDE INSPECTIONS OF THE CONTRACTOR'S PROTECTIVE MEASURES OR CONSTRUCTION PROCEDURES. ANY SUPPORT SERVICES PERFORMED BY THE ARCHITECT OR ENGINEER DURING THE CONSTRUCTION PHASE SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES. THESE SUPPORT SERVICES PERFORMED BY THE ARCHITECT AND ENGINEER, AND WHETHER PERFORMED PRIOR TO, DURING, OR AFTER COMPLETION OF CONSTRUCTION, ARE PERFORMED SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING CONFORMANCE WITH CONTRACT DOCUMENTS, BUT DO NOT GUARANTEE THE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
*** PLEASE NOTE THAT ISE RECOMMENDS PERIODIC SITE VISITS DURING THE CONSTRUCTION PHASE TO VERIFY THE CONSTRUCTION PROCESS AND THE PLACEMENT OF STRUCTURAL MEMBERS TO COMPLY WITHIN GENERAL CONFORMANCE TO THE APPROVED PLANS (BUILDING DEPARTMENT APPROVED) AND SPECIFICATIONS HEREIN. NOTE THAT SITE VISITS (INSPECTIONS or STRUCTURAL OBSERVATIONS) BY THE PROJECT ENGINEER DURING CONSTRUCTION IS NOT REQUIRED BY ISE OR PART OF THE SCOPE OF WORK, AND SUCH INSPECTIONS ARE NOT INCLUDED IN THE CONTRACT ORIGINAL AGREEMENT BETWEEN OWNER & ENGINEER. UNLESS SPECIFICALLY NOTED BY THE BUILDING DEPARTMENT; IF SPECIAL INSPECTIONS or SPECIAL OBSERVATIONS BY THE PROJECT ENGINEER ARE REQUIRED BY THE BUILDING DEPARTMENT, THEN IT IS THE OWNER AND/OR CONTRACTOR'S SOLE RESPONSIBILITY TO PROPERLY NOTIFY THE PROJECT ENGINEER PRIOR TO CONSTRUCTION. ***

28. WHERE CONSTRUCTION MATERIALS ARE TEMPORARILY STORED ON FLOORS OR ROOFS, THEY SHALL BE DISTRIBUTED SO THAT THE LOADS DO NOT EXCEED DESIGN LIVE LOADS.

29. THE CONTRACTOR SHALL TAKE ALL MEASUREMENTS AT THE BUILDING AND SHALL VERIFY ALL DIMENSIONS AND CONDITIONS BEFORE PROCEEDING WITH ANY WORK. SHOULD ANY VARIATION BE FOUND, THE MATTER SHALL BE REFERRED TO THE ARCHITECT FOR CLARIFICATION. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE PROPER FITTING OF THE WORK IN PLACE.

30. IF IN THE OPINION OF THE CONTRACTOR, ANY WORK IS SHOWN ON THE DRAWINGS OR DETAILS IN A MANNER AS WILL MAKE IT IMPOSSIBLE TO PRODUCE A FIRST QUALITY PIECE OF WORK, OR SHOULD DISCREPANCIES APPEAR BETWEEN THE DRAWINGS AND DETAILS, THE CONTRACTOR SHALL REFER THE CONDITION TO THE ARCHITECT FOR INTERPRETATION AND DIRECTION BEFORE PROCEEDING WITH THE WORK. IF THE CONTRACTOR FAILS TO CONSULT THE ARCHITECT, NO EXCUSE WILL THEREAFTER BE ENTERTAINED FOR FAILURE TO CARRY OUT THE WORK IN A SATISFACTORY MANNER, AS DIRECTED.

31. FIGURED DIMENSIONS SHALL TAKE PREFERENCE OVER SCALE DIMENSIONS. DETAILS TAKE PREFERENCE OVER SMALLER DETAILS OR SCALE DRAWINGS. FOR FIELD LAYOUT PURPOSES, DO NOT SCALE THE STRUCTURAL DRAWINGS. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE FINISHED DIMENSIONS OF CONSTRUCTION AND BUILD ACCORDINGLY. MISPLACED WORK IS SUBJECT TO THE REMOVAL OF COMPLETE WORK.

32. CUTTING AND DRILLING OF HOLES IN STRUCTURAL MEMBERS TO FACILITATE CONSTRUCTION DETAILS, AS PER TRADITION OF CONTRACTOR'S PRACTICES OR FOR OTHER TRADES TO PROCEED, SHALL BE DONE ONLY AFTER THE ENGINEER'S WRITTEN AUTHORIZATION.

33. THE CONTRACTOR SHALL KEEP AT THE SITE OF THE WORK ONE COPY OF PLANS AND SPECIFICATIONS SIGNED AND APPROVED BY THE BUILDING DEPARTMENT AND SHALL AT ALL TIMES GIVE THE ARCHITECT AND ENGINEER AND OTHERS APPROPRIATE PARTIES ACCESS THERETO.

34. ALL WORK, ALL MATERIALS, WHETHER INCORPORATED IN THE WORK OR NOT, ALL PROCESSING OR MANUFACTURER, AND ALL METHODS OF CONSTRUCTION, SHALL BE AT ALL TIMES AND PLACES, SUBJECT TO INSPECTION OF THE ARCHITECT, WHO SHALL BE THE FINAL JUDGE OF THE QUALITY AND SUITABILITY OF THE WORK. SHOULD THE WORK FAIL TO MEET THE ARCHITECT'S APPROVAL, IT SHALL BE FORTHWITH RECONSTRUCTED, MADE GOOD, REPLACED, AND/OR CORRECTED AS THE CASE MAY BE, BY THE CONTRACTOR AT THE CONTACTOR'S OWN EXPENSE. ACCEPTANCE OF WORKMANSHIP AND MATERIALS BY THE OWNER SHALL NOT RELIEVE THE CONTRACTOR FROM LEGAL RESPONSIBILITY PERTAINING TO THE STRUCTURAL INTEGRITY OF THE PROJECT.

35. UPDATE ALL ITEMS PERTAINING TO THE SCOPE OF WORK TO MEET CODE. ALL ITEMS REQUIRED TO MEET APPLICABLE CODE REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, EVEN IF THE REQUIRED ITEMS ARE NOT SPECIFICALLY CALLED OUT IN THE PLANS, SPECIFICATIONS, GC–SCOPE OF WORK, ETC.

PROJECT DESCRIPTION

SCOPE OF WORK: The Owners plan to demolish an existing detached garage (approx 367 SQ. FT.) and build a new two story structure with a two car garage (648 SQ. FT.) at the ground floor. An Accessory Dwelling Unit (ADU – 509 SQ. FT. Heated) at the second story above the garage, plus stairs & bath part of the ADU (156 SQ. FT. Non–Heated) for a total of (665 SQ. FT.). 5

CONSULTANT DIRECTORY

Design & Structural Engineering	ISE Ingram Structural Engineering Jeffery Ingram, P.E. C66222 2570 N. First Street, Suite #200 San Jose, CA 95131 Mobile: (408) 836–6602 DesignTeam@IngramSE.com
Title 24 Consultant	Nick Bignardi FRI Energy Consultant 21 N. Harrison Ave, Suite 210 Cambell, CA 95008 (408) 866–1620
Soil Engineer	ROMIG ENGINEERS 1390 El Camino Real, 2nd Floor San Carlos, CA 94070 (650) 591–5224 Report #5729–1, 12/7/2021

REAR YARD COVERAGE TABULATIONS

REAR YARD COVERAGE (WITH FUTURE 2–STORY ADDITION)			
GROSS SITE AREA	=	8365.5 ft^2	= 0.192 Acres
(N) ACCESSORY COVERAGE			
Detached Garage	=	648 ft^2	
ADU (Stairs + Landing) + Bath	=	156 ft^2	=117 ft^2 + 39 ft^2
Covered ADU (BEHIND GARAGE)	=	201 ft^2	
COVERAGE TOTALS	=	1005 ft^2	5
REAR YARD AREA	=	4095 ft^2	
ALLOWED ACCESSORY COVERAGE	=	4095 ft^2 x 40% =	1638 ft^2
REAR YARD COVERAGE	=	1005 ft^2 <	1638 ft^2 OK

SJ Municipal Code Section 20.30.510 A. B.

FLOOR AREA TABULATIONS

GROSS SITE AREA = 8365.5 FT^2 0.192 Acres

MAX. ALLOW. FLOOR AREA = 3764 FT^2 45% of Lot Area

EXISTING FLOOR AREA		Heated	Non-heated	Total
(E) Main Floor (to remain)	=	1173 FT^2	0 FT^2	1173 FT^2
(E) Detached Garage (remove)	=	0 FT^2	367 FT^2	367 FT^2
(E) RESIDENCE TOTAL	=	1173 FT^2	367 FT^2	1540 FT^2
FLOOR AREA RATIO	=	1173 FT^2	OKAY <	3764 FT^2

SJ Municipal code section 20.100

PROPOSED DETACHED GARAGE FLOOR AREA		Heated	Non-heated	Total
(P) Detached Garage (replace existing)	=	0 FT^2	648 FT^2	648 FT^2
(P) GARAGE TOTALS	=	0 FT^2	648 FT^2	648 FT^2
TOTAL PROPOSED GARAGE FLOOR AREA	=	648 FT^2	OKAY <	650 FT^2

SJ Municipal code section 20.30.500 Table 20–70

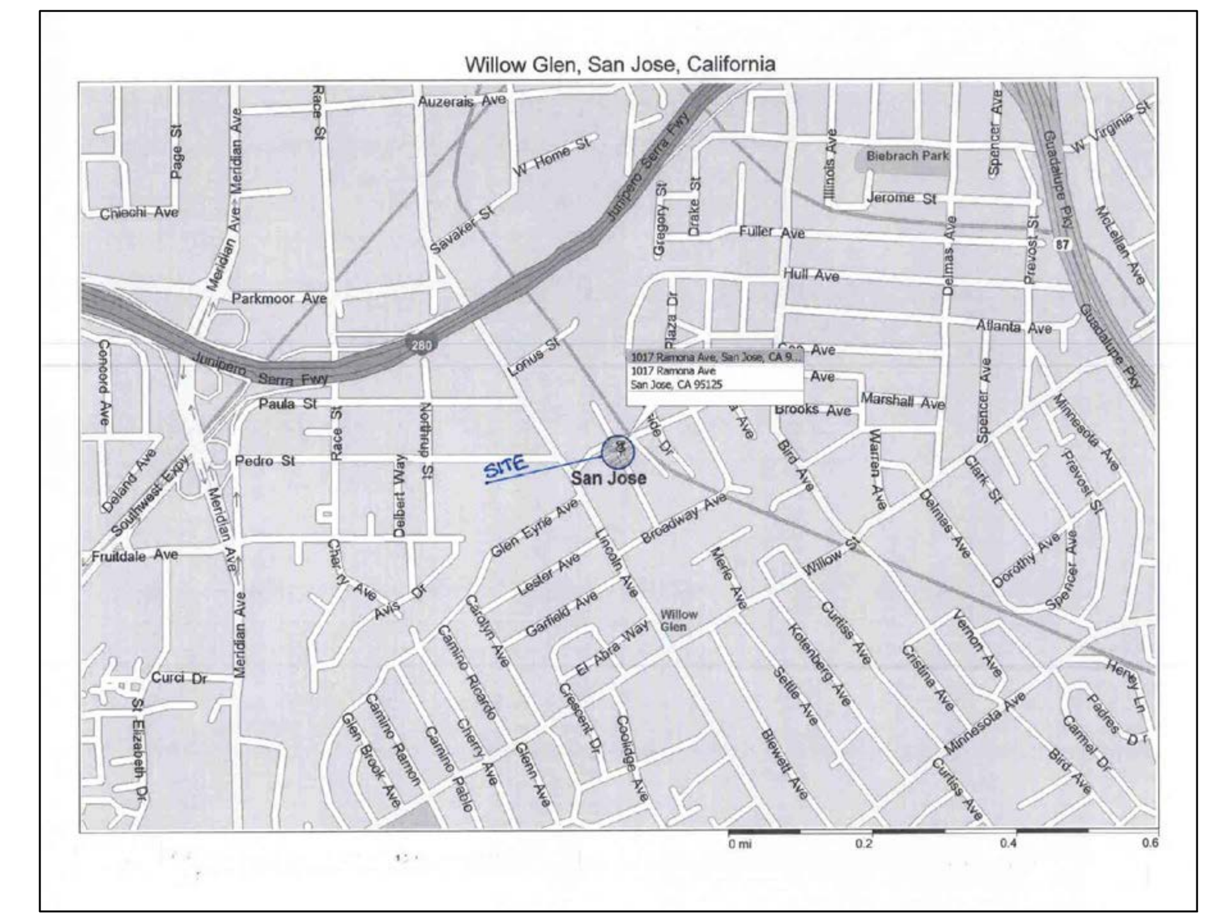
PROPOSED ADU FLOOR AREA	Heated	Non-heated	Total
ADU 2nd Story	=584 FT^2	0 FT^2	584 FT^2
Lower stairs/entry	= 44 FT^2	0 FT^2	44 FT^2
1/2 Bath	= 39 FT^2	39 FT^2	39 FT^2
ADU TOTALS	=628 FT^2	39 FT^2	667 FT^2
ALLOWED ADU FLOOR AREA	=		1000 FT^2
TOTAL PROPOSED ADU FLOOR AREA	=667 FT^2 < 1000 FT^2 ok		

SJ Municipal code section 20.30.460 C.

5

REFERENCE SHEET A1.2 FOR AREA CALCULATIONS

VICINITY MAP



GENERAL NOTES

1. Verification — Contractor and all subcontractors shall establish all building lines, floor levels, etc., and shall verify all grades, conditions, dimensions, and data at the site prior to start of work; errors resulting from failure to verify all figures shall be the responsibility of the contractor and each subcontractor.

2. Dimensions — Do not scale these drawings. — Written dimensions take precedence over scaled drawings. The contractor shall notify the designer immediately of any conflicts or discrepancies, however minor.

3. Discrepancies — Minor discrepancies between the drawings & actual conditions are to be expected. — Any and all conditions requiring even minor clarification shall be brought to the attention of the designer immediately, a minimum of 48 hours prior to the beginning any demolition or construction sequence.

4. Codes — All work shall be in corformance with the following codes, as well as all applicable state codes & local city or county ordinances. — Building Codes:
2019 California Building Code – CCR Title 24 Part 2
2019 California Residential Code – CCR Title 24 Part 2.5
2019 California Electric Code – CCR Title 24 Part 3
2019 California Mechanical Code – CCR Title 24 Part 4
2019 California Plumbing Code – CCR Title 24 Part 5
2019 California Historical Bld'g Code – CCR Title 24 Part 8
2019 California Existing Bld'g Code – CCR Title 24 Part 10

5. Manufacturer's Specifications — All manuals to be compiled in a indexed binder format. — Contractor and all subcontractors shall install or apply, and protect all products, materials, processes, methods, coatings, equipment, appliances, hardware, software, etc. in strict accordance with the manufacturer's specifications, details, & instructions, typical. All manuals or instructions provided by these manufacturers for proper operation & maintenance of the above are to be delivered to the owner at the completion and final inspection of the project.

PROJECT DATA

PROPERTY OWNERS	ALBERTO & KRISTIN MASSAROTTO
PROJECT ADDRESS	1017 RAMONA AVE., SAN JOSE, CA 95125
PHONE	(408) 835–3126
PARCEL #	264–53–024
SITE AREA	8365.5 SQ. FT. 0.192 ACRE
ZONING	R1–8 SINGLE FAMILY RESIDENTIAL CITY OF SAN JOSE
CONSTRUCTION TYPE	V–B
OCCUPANCY	R–3 & U

DETACHED 2–STORY ACCESSORY DWELLING UNIT

REQUIRED SETBACKS		
	FRONT:	45 FT.
	SIDE:	4 FT.
	REAR:	4 FT.
	MAX. HEIGHT:	24 FT.

GARAGE AND 2–STORY ADU COMBO.

PROPOSED SETBACKS		
	FRONT:	138 FT.–3 IN.
	LEFT SIDE:	3 FT.–2.5 IN. FIRE DEPT. APPROVED
	RIGHT SIDE:	5 FT.
	REAR:	21 FT.
	MAX. HEIGHT:	23 FT.–6 IN.

DRAWING INDEX

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

REGISTERED PROFESSIONAL ENGINEER
Jeffery Alan Ingram
No. C 66222
Exp. 6/30/2024
CIVIL
STATE OF CALIFORNIA

Massarotto ADU/Garage
1017 Ramona Ave.
San Jose, CA 95125

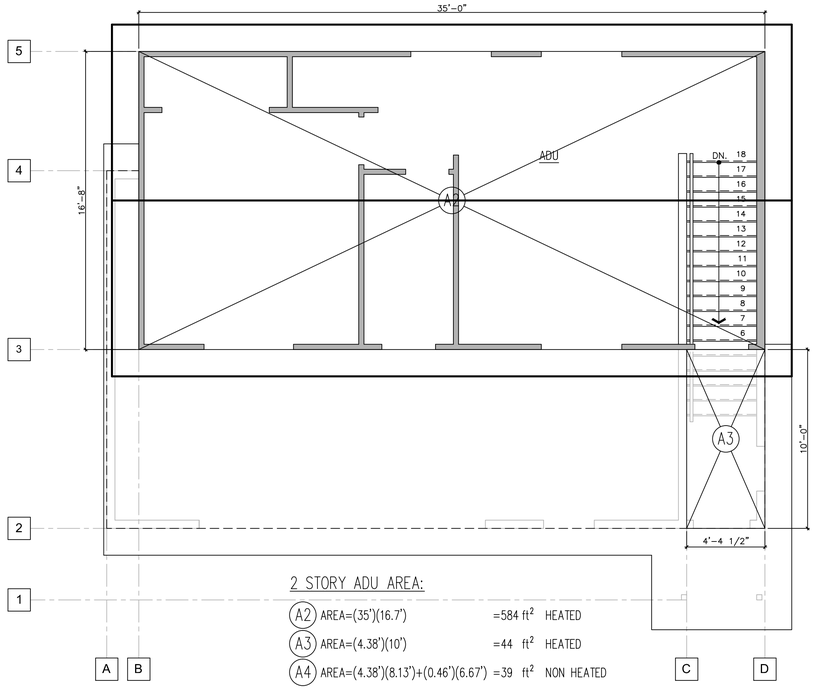
DATE ISSUE:
3/4/2021

Rev.	Date	Description
1	8/10/2022	PER BUILDING DEPARTMENT PLAN CHECK
2	11/9/2022	PER PLANNING DEPARTMENT PLAN CHECK
3	3/6/2023	PER FIRE DEPARTMENT PLAN CHECK
4	10/30/2023	PER BUILDING DEPARTMENT PLAN CHECK
5	10/30/2023	DESIGN/ENGINEERING REVISIONS

PROJECT #: 719	SCALE: 1/4"=1'-0"
DRAWN BY: JI, YI	
PROJECT MANAGER: YI	
ENGINEERED BY: JI	
REVIEWED BY: JI	

Title Sheet
General Notes

A1.1



2 STORY ADU AREA:

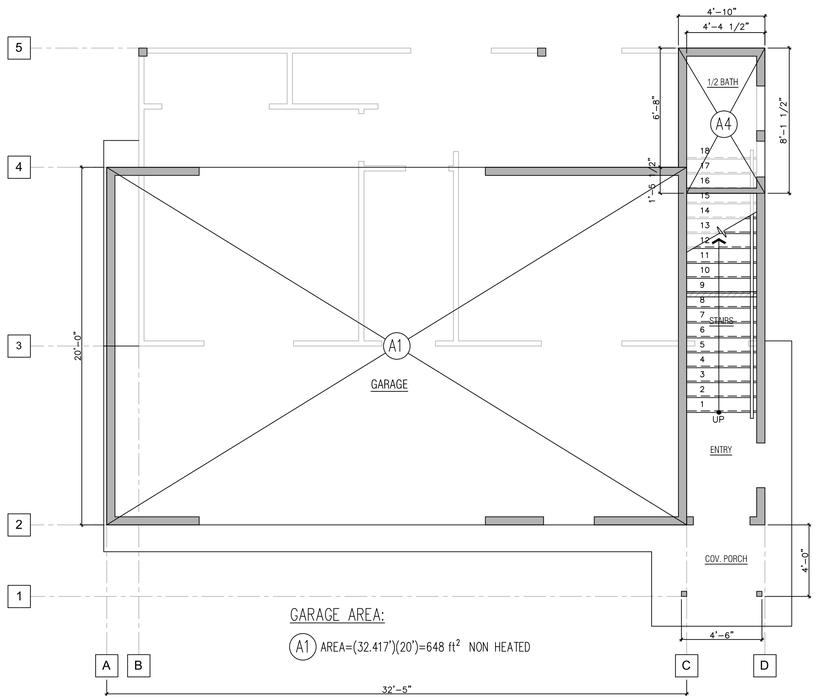
(A2) AREA=(35')(16.7') =584 ft² HEATED

(A3) AREA=(4.38')(10') =44 ft² HEATED

(A4) AREA=(4.38')(8.13')+(0.46')(6.67') =39 ft² NON HEATED

ADU

Scale 1/4 "=1'-0"



GARAGE AREA:

(A1) AREA=(32.417')(20')=648 ft² NON HEATED

GARAGE

Scale 1/4 "=1'-0"

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY
Planning, Building and Code Enforcement

BULLETIN #213 11/14/2019 SUBJECT TO CHANGE — SINGLE-FAMILY PROPERTIES

Inspection Checklist for ADUs

Avoid costly mistakes by planning ahead for a successful inspection

This bulletin is intended for the licensed general contractor of the accessory dwelling unit (ADU). It addresses the most common concerns found during inspections of ADU projects. Learn more about ADUs at www.sanjoseca.gov/ADUs.

IMPORTANT: Read this bulletin before you begin the mechanical, electrical, and plumbing elements of the project. Elements improperly designed at the start of the project can result in significant addtional project costs.

INSTRUCTIONS: Complete this checklist and provide the completed checklist and Site Plans as indicated to the Building Inspector at the first inspection.

	Enter Information Here or Check When Completed
SECTION A. ELECTRICAL	
Note: Main Service Panel ampacity rating must meet or exceed the combined calculated load of the Main Residence plus the ADU.	
1. Enter an electrical load calculation (amp rating) for the Main Residence:	amps
2. Enter ampacity rating for the Main Electrical Panel of the Main Residence: Main Breaker Size in amps, example: 100 amps, 150 amps, etc.	amps
3. Enter electrical load calculation (amp rating) for the new ADU:	amps
4. Enter amperage rating of the Feeder Disconnect serving the ADU (panel electrical breaker size):	amps
5. Enter size of the Electrical Feeder Circuit Wiring from the electrical panel at the Main Residence (Disconnect Breaker) to the ADU:	volts
SECTION B. PLUMBING - WATER	
6. Quantity of Plumbing Fixtures (sinks, toilets, showers, hose bibs, etc.) in the Main Residence:	qty
7. Quantity of Plumbing Fixtures for the new ADU:	qty
8. Water Pressure in the main line:	psi
9. Distance from the Water Meter to the furthest plumbing fixture in the ADU:	feet
10. Size of Water Service Line from the water meter to the Main Residence.	inches
11. Size of Water Service Line from the water meter to the ADU.	inches
12. Size of Water Branch Line between ADU and the Main Residence, only if supplying the ADU from the Main Residence water piping. *Leave blank if not applicable.*	inches
13. Provide a Site Plan showing the Water Service Lines. If connecting to the Main residence water piping, show the Point of Connection. For both water service lines, show Pipe Size and Type of Material to be installed.	CHECK

continued >

	Enter Information Here or Check When Completed
SECTION C. PLUMBING - WASTEWATER/VENT	
Note: A 4-inch Sewer Line is required if there are 4 or more Toilets or if a Sewage Ejector Pump is used.	
14. Provide a Site Plan showing the Point of Connection to the Sewer Line. Show the Pipe Size and the Type of Material to be installed.	CHECK
15. The California Plumbing Code requires an ADU to have a Clothes Washer Connection. Show the location of the Clothes Washer Connection on the Plot Plan.	CHECK
SECTION D. PLUMBING - GAS	
EFFECTIVE JANUARY 1, 2020: NATURAL GAS INFRASTRUCTURE IS BANNED IN ALL SINGLE-FAMILY AND ADU CONSTRUCTION. ATTACHED ADUs AND THE CONVERSION OF AN EXISTING STRUCTURE TO AN ADU ARE EXEMPT. Note: If connecting to the Main Residence Gas System, you must perform a Gas Pressure Test on the complete system.	
16. Enter total BTU Demand of all Gas Appliances for the ADU:	BTU
17. If connecting the ADU to the Gas Line of the Main Residence gas piping system, enter the total BTU Demand for the existing gas appliances in the Main Residence: *Leave blank if not applicable*	BTU
18. If providing a Dedicated Gas Line from the Main Residence gas meter to the ADU, enter the total Developed Length from the Gas Meter to the furthest Gas Appliance Outlet in the ADU.	feet
19. Enter the Size of the Gas Line from the Main Residence to the ADU:	Inches
20. Provide a Site Plan that shows the Point of the Gas Connection from the Main Residence to the Point of Connection at the ADU.	CHECK
21. Provide a Detail of Underground Gas Piping Material and Burial Depth. Underground gas piping must be approved for direct burial. Note: Installation of Gas Service Laterals under or through Structures, Building, Foundations, or Decks is prohibited.	CHECK
SECTION E. MECHANICAL	
22. Bathroom Exhaust Fans shall be listed/rated for a minimum of 25cfm for continuous use and 50cfm for intermittent use.	CHECK
23. Bathroom Exhaust Fans must be equipped with a Humidity Control.	CHECK
24. Kitchen Exhaust Fans must be listed for the intended use and must be a minimum of 100 cfm.	CHECK
25. Kitchen Exhaust must be ducted to the Exterior of the Dwelling and be equipped with a Backdraft Damper.	CHECK
26. The ADU must have an independent Heating Source. The return air is prohibited from communicating with the Main Residence.	CHECK
27. Ventilation air is required per California Mechanical Code (CMC) section 402.1. For new structures, provide outside air at a minimum rate of 0.06 cfm per square foot of Habitable Area.	CHECK
28. Infiltration shall not be considered in an attached ADU to meet outdoor air requirements.	CHECK

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

REGISTERED PROFESSIONAL ENGINEER
Jeffery Alan Ingram
No. C 66222
Exp. 6/30/2024
CIVIL
STATE OF CALIFORNIA

Massarotto ADU/Garage
1017 Ramona Ave.
San Jose, CA 95125

DATE ISSUE:

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PROJECT #: 719

DRAWN BY: JI, YI

PROJECT MANAGER: YI

ENGINEERED BY: JI

REVIEWED BY: JI

Inspection Checklist ADUs
Area Calcs.

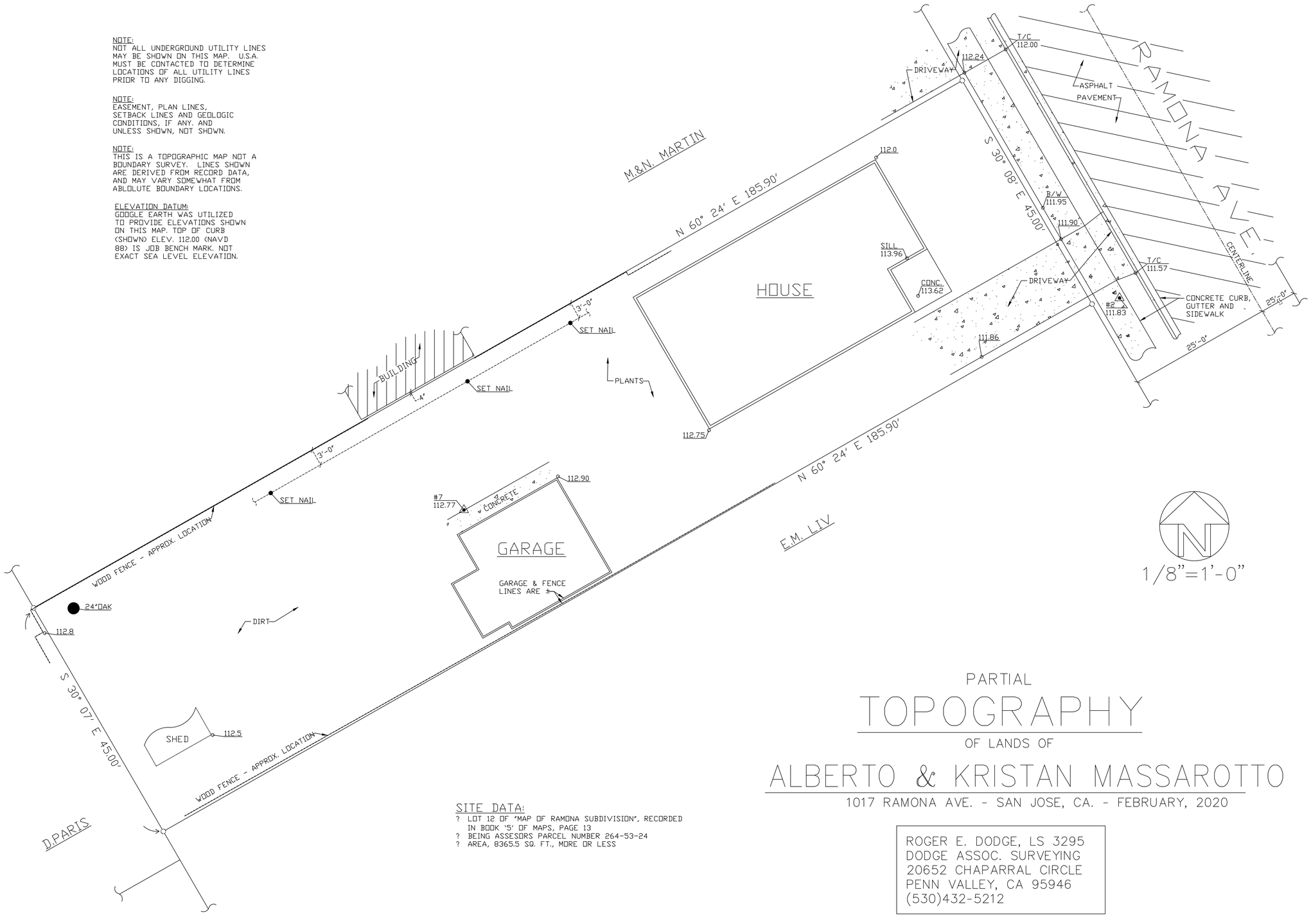
A1.2
4

NOTE:
NOT ALL UNDERGROUND UTILITY LINES MAY BE SHOWN ON THIS MAP. U.S.A. MUST BE CONTACTED TO DETERMINE LOCATIONS OF ALL UTILITY LINES PRIOR TO ANY DIGGING.

NOTE:
EASEMENT, PLAN LINES, SETBACK LINES AND GEOLOGIC CONDITIONS, IF ANY. AND UNLESS SHOWN, NOT SHOWN.

NOTE:
THIS IS A TOPOGRAPHIC MAP NOT A BOUNDARY SURVEY. LINES SHOWN ARE DERIVED FROM RECORD DATA, AND MAY VARY SOMEWHAT FROM ABLOLUTE BOUNDARY LOCATIONS.

ELEVATION DATUM:
GOOGLE EARTH WAS UTILIZED TO PROVIDE ELEVATIONS SHOWN ON THIS MAP. TOP OF CURB (SHOWN) ELEV. 112.00 (NAVD 88) IS JOB BENCH MARK. NOT EXACT SEA LEVEL ELEVATION.



SITE DATA:
? LOT 12 OF "MAP OF RAMONA SUBDIVISION", RECORDED IN BOOK "S" OF MAPS, PAGE 13
? BEING ASSESSORS PARCEL NUMBER 264-53-24
? AREA, 8365.5 SQ. FT., MORE OR LESS

1/8"=1'-0"

PARTIAL
TOPOGRAPHY
OF LANDS OF
ALBERTO & KRISTAN MASSAROTTO
1017 RAMONA AVE. - SAN JOSE, CA. - FEBRUARY, 2020

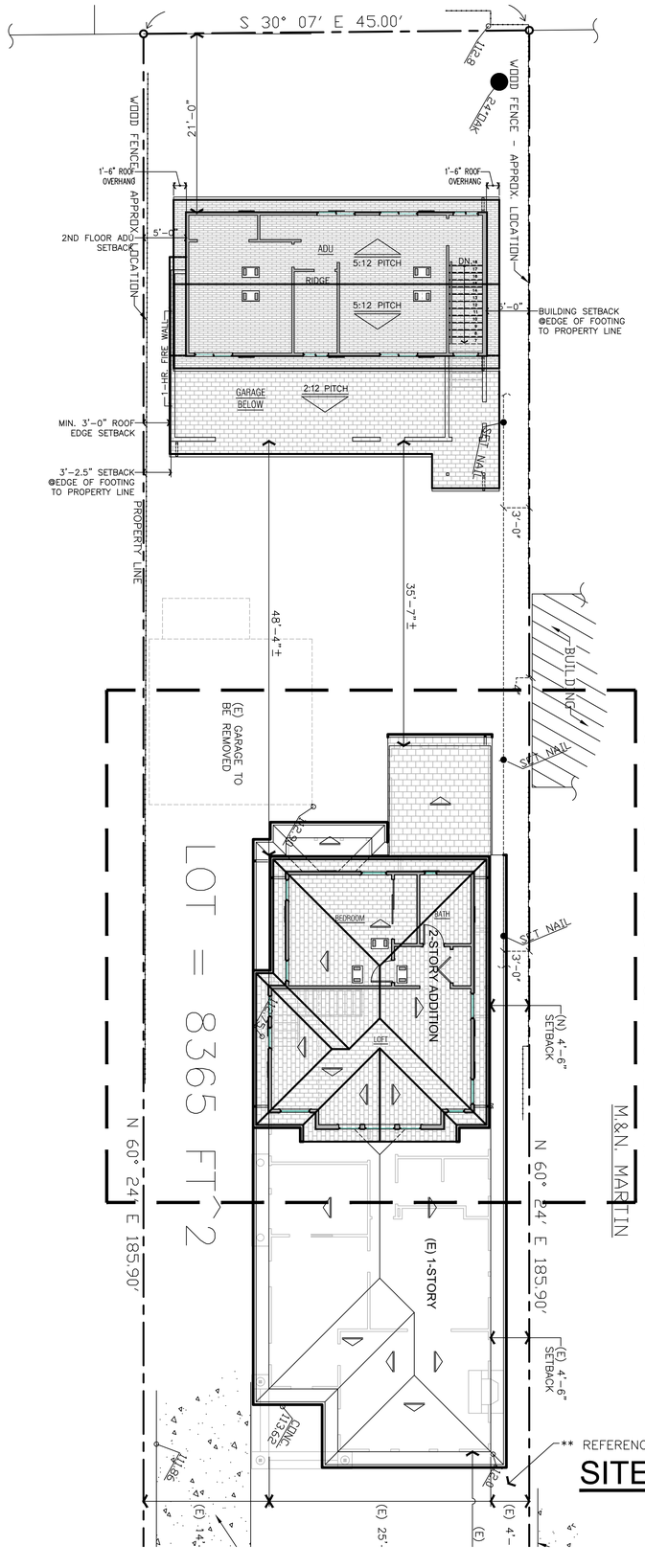
ROGER E. DODGE, LS 3295
DODGE ASSOC. SURVEYING
20652 CHAPARRAL CIRCLE
PENN VALLEY, CA 95946
(530)432-5212

JOB TITLE
Massarotto Residence
1017 Ramona Ave.
San Jose, CA 95125

DATE ISSUE:

Partial Topography

A2



SITE PLAN NOTES

1. Existing Driveway

   A. Existing driveway: protect existing concrete driveway from damage during construction. maintain in usable condition at all times, and keep clear during construction as much as is possible and practical, typical, u.n.o. b. patch and repair (e) concrete driveway: as required upon completion of the project, patch and repair existing concrete driveway affected by the work (match existing), typical, u.n.o.

   Verify on site re: locations of any existing underground drainage or other utility lines prior to excavations.

2. Grading, General Surface Drainage, and Erosion Control

   See site plan for more information.

   Storm water drainage & retention during construction shall be per sec. R300.1, 2019 CRC, and grading & paving shall be per 2019 CRC sec. R300.2, w/both in accordance w/ 2019 CGBSC, chapter 4, Division 4.1, typical, u.n.o.

   A. grading/cut & fill:(less than 3 cu. yds.) all grading, excavation, and re-compaction shall comply w/San Jose Public Works Dept. standards, typical, u.n.o. all grading shall be performed in a manner as to be in compliance with standards established by Bay Area Air Quality Management District for airborne particulates. See sheet A-0.1 for Dust Control info.

   B. Surface drainage: provide rough & finish grading for 5% min. slope (2% min. at paved areas) for 10' away from all structures (min.) per sec. R401.3, 2019 CRC. provide 2% min. positive drainage swales as shown, typical, u.n.o.

   C. Erosion control per 2019 CGBSC sec. 4.106.2, and per BMP sheet A0.1. see note #11 below for more info.

3. Landscaping & Irrigation

   NOTE: Prior to Building Permit Final Approval, the property shall be in compliance with vegetation clearance from all new structures shall be in compliance w/requirements prescribed in sec. 4906, 2019 CFC & sec. R327.1.5, 2019 CRC, including California Public Resources Code 4291 or California Government Code 51182, & 2019 CBC, sec. 701A.3.2.4 and per City of San Jose Fire Marshal regulations.

   A. Landscaping refer to landscape plans, provide new hardscape (walks, paths, patios) & new landscaping (trees, shrubs, plantings, etc.) per landscape "L-" sheets.

   B. New automatic irrigation system: new developments w/aggregate landscape equal of greater than 500 s.f. to comply with one of the following options:

   1.) Local water efficient landscape ordinance or the current CA Dept. of Water Resources Model Water Efficient Landscape Ord. (MWELO), which ever is more stringent, OR

   2.) Projects with aggregate landscape area less than 2,500 s.f. may comply with MWELO's Append. D Prescriptive Compliance Option, per 2019 CGBSC, sec. 4.304

   3.) Weather- or soil moisture-based controllers that automatically adjust irrigation in response to plant needs as weather conditions change, or

   4.) Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired, or wireless rain sensor, which connects or communicates with the controller.

4. Trees

   NOTE: Any trenching within the drip line of any and all trees to be hand dug, typical.

   Protect existing trees shown to remain from damage during construction, including those trees located on adjacent properties. all ordinance protected trees as shown to remain shall be protected from damage during construction with 6' tall chain link temporary protective fencing at drip line where shown, typical, u.n.o. no traffic, material storage, or activity allowed inside fenced area, typ., u.n.o. no ordinance size tree, or street tree, shall be removed without a tree removal permit from the City of San Jose, typical, u.n.o.

5. Perimeter Fences

   Protect all existing perimeter fencing shown to remain from damage during construction. coordinate w/owner and neighbors for any changes to perimeter fences.

6. Utilities

   Verify that existing feeds for telephone, cable tv, and electrical power are adequate, and as required by P.G.&E. and the City of San Jose.

   Owner to pay any and all engineering and connection fees as required by new work.

   Contractor to provide and install, as required by new work, an accessible listed and approved type backwater valve on drainage piping per 2019 CPC, sec. 710.0 7.

   A. Electrical/phone/cable: protect existing 200 amp meter/main panel and protect existing weatherhead/existing overhead wire feeds from existing power pole at street per P.G.&E. specs. see electrical/lighting plans & landscape plans for more info., typical, u.n.o.

   B. Domestic water: existing domestic water meter is to remain. per sec. 605, 2019 CPC, the supply piping to an existing single family residence, and the new ADU shall have a shut-off valve on the discharge side of the meter within (1)-one foot of the meter box, typical, u.n.o. confirm if upgrade to main is required for fire sprinklers.

   C. Sanitary sewer contractor to verify th□ Ç□ Ç□at existing sewer line is adequate to service the existing main house and proposed ADU project as required by the City of San Jose Sanitation Dept. Plumbing□ Ç□ Ç□□ sub- "□ to be advised to verify existing (or provide new) 2 sewer cleanouts- (1)-within 2' of the main house perimeter, and (1)-within 3' or less of the front property line to city sewer main. See site plan for more info., typical, u.n.o.

   D. Natural gas existing gas meter location to remain as shown on site plan & elec./mech. plan, typical, u.n.o. contractor to verify size of gas line as adequate to service existing residence and proposed ADU as required per P.G.&E. specs, and the City of San Jose, typical, u.n.o.

7. Steps, Conc. Porches, Patios & Decks

   all stoops shall conform to sec. R311.3, 2019 CRC, and sec. 1008.1.4 & sec. 1008.1.5 2019 CBC, typical.

   All paving shall be per sec. R300.2, 2019 CRC in accordance w/ 2019 CGBSC, chapter 4, Division 4.1, typ., u.n.o.

   A. Existing patios/walks: carefully sawcut & remove existing concrete patio where indicated or required by new work, and protect existing concrete driveway and paving to remain where shown, typical, u.n.o.

   B. New rear terrace/pool patio: provide new 5" thick concrete slab on grade with score and/or construction joints at approx. 48" o.c. ea. way, w/#4 bars @ 18" o.c. each way o/ 15 mil StegoWrap® (or Moistop®) vapor barrier, o/ 6" (min.) of non-expansive compacted Caltrans Class II aggregate baserock, o/ properly premoistened & compacted subgrade, typical, u.n.o.

8. Roof Downspouts

   Slope grade away at 5% from building for 10 feet.

   Setback Verification prior to first city inspection of foundation.

   Provide new galv. iron downspouts where shown on site plan, roof plan, and exterior elevations. terminate all downspouts to @ grade splash blocks or paved areas such as driveways or patios, typical, u.n.o.

   Contractor to have a licensed surveyor verify and stake out new building corner locations, and provide written certification that all building setbacks are per the approved plans, typical.

9. Address Numbers & Premises Identification

   Per sec. R319.1, 2019 CRC, sec. 501.2, 2019 CBC & sec. 505, 2019 CFC.

   Approved address numbers shall be placed on the new ADU building in such a position as to be plainly visible and legible from the street, or road fronting the property, and contrasting to its background. address numbers shall be a min. of 4" high, w/ a min. illuminated stroke width of 1/2". typical, u.n.o.

10. Public Works Notes

    Per City of San Jose Engineering Dept. requirements.

    All building & construction related activities shall adhere to "Storm Water Pollution Prevention Plan - Best Management Practices" as adopted by City of San Jose for the purpose of preventing storm water pollution. provide any erosion control measures during construction as noted see sheet A-0.1 for more information. on the site plan and required per sheet A0.1, typical, u.n.o.

11. Maintain Public Right of Way Improvements

    All adjacent property, public or private, shall be
12. maintained in a clean, safe & usable condition, typical.

    It shall be the responsibility of the owner & contractor to protect the existing paving and sidewalks in the public right of way, & maintain the streets, sidewalks, curb & gutter in a clean, safe, & usable condition at all times. all spills of soil, rock, gravel, or construction debris shall be removed from the right of way during construction & upon completion of project. NOTE: In the event that any work is required in the Public Right of Way, the Contractor is required to obtain an encroachment permit from the City of San Jose Engineering Dept. at (408) 535-8300

OWNER AND THEIR CONTRACTOR SHALL FIELD VERIFY ALL SETBACKS PRIOR TO CONSTRUCTION. TO PROPERLY VERIFY EXISTING PROPERTY LINES AND SETBACKS, A BOUNDARY SURVEY BY A LICENCED LAND SURVEYOR SHOULD BE DONE.

** REFERENCE SHEET A4 FOR FULL SITE PLAN **

SITE PLAN

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

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
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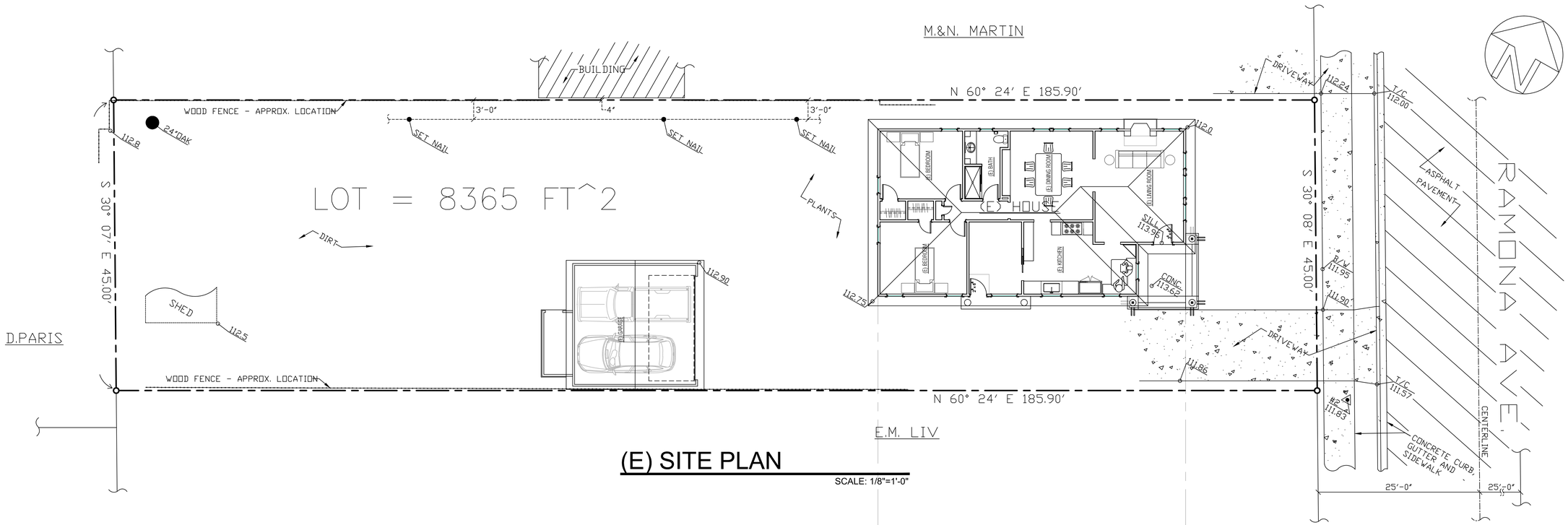
PROJECT #: 719	SCALE: 1/8"=1'-0"
DRAWN BY: JI, YI	
PROJECT MANAGER: YI	
ENGINEERED BY: JI	
REVIEWED BY: JI	

Site Plan & General Notes

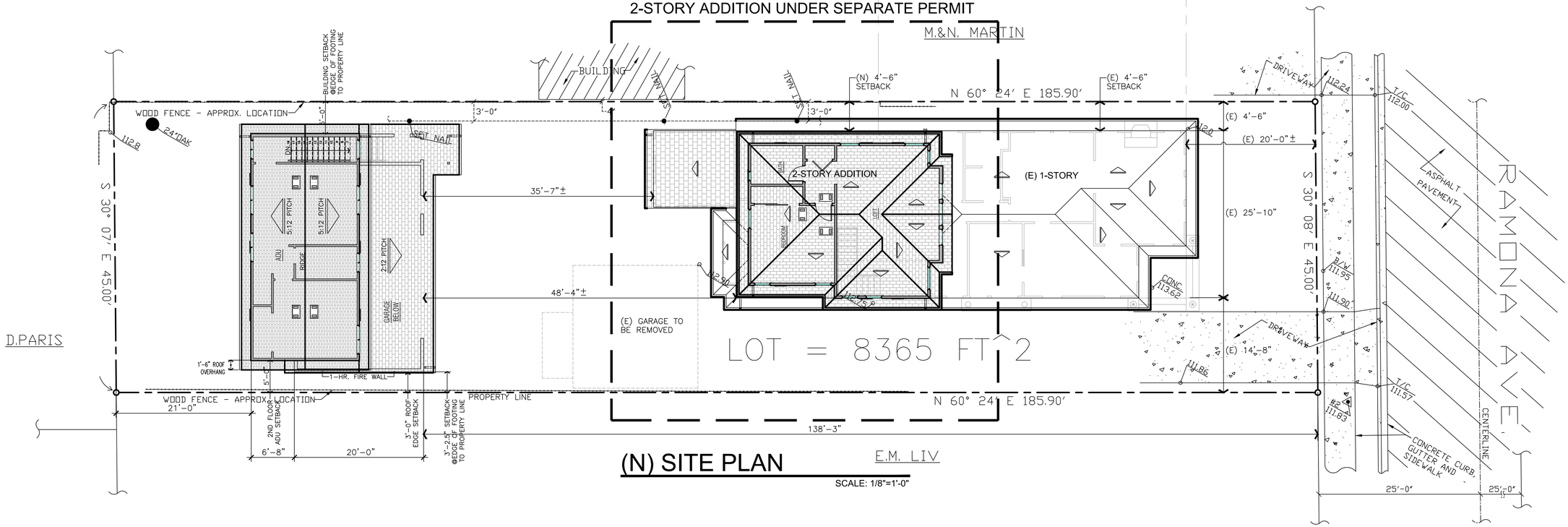
A3



(E) SITE PLAN

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

2-STORY ADDITION UNDER SEPARATE PERMIT



(N) SITE PLAN

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

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

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Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
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(E) & (N) Site Plan

A4

ADU FLOOR PLAN NOTES

Smoke Detector Requirements
California Residential Code CRC Section R314
Smoke detectors shall be installed per this code and in accordance with the manufacturer's installation instructions.
Dwelling units, congregate residences, hotels/motels, lodges of any kind, and guest rooms that are used for sleeping purposes must have smoke detectors. The detectors must sound an alarm that is audible in all sleeping areas of the individual dwelling unit in which they are located.
Smoke detectors and inspections are required:
– In new construction
– When one or more sleeping rooms are added or created in existing residential buildings
– Whenever an addition, alteration or repair to a house or residential unit requires a building permit
(excluding issuance of a permit for exterior surface repairs such as chimney repairs and reroofing projects)

LOCATION OF SMOKE DETECTORS
When required, smoke detectors in dwelling units are to be located:
1. In each sleeping room
2. Outside each sleeping area in the immediate vicinity of the bedrooms
3. On each additional story of the dwelling, including basements and habitable attics and not including crawl spaces and uninhabitable attics. In dwellings, or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
4. Smoke alarms shall be installed not less than 3 feet horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by this section.
5. Where stairs lead to other occupied levels, a smoke alarm or smoke detector shall be loated so that smoke rising in the stairway cannot be prevented from reaching the smoke alarm or smoke detector by an intervening door or obstruction.
6. For tray–shaped ceilings (coffered ceilings), smoke alarms and smoke detectors shall be installed on the hightest portion of the ceiling or on the sloped portion of the ceiling withing 12 inches vertical;lt down from the hightest point.
6. Place a minimum of:
20 feet away from cooking appliances
3 feet away from bathrooms with tubs or showers
3 feet away from air supply registers
3 feet away from ceiling fans with paddles

SMOKE AND CARBON MONOXIDE ALARM REQUIREMENTS

A. SMOKE ALARMS SHALL BE INSTALLED IN ALL SLEEPING ROOMS, EACH AREA/HALLWAY AJACENT TO SLEEPING ROOMS. ENSURE SMOKE ALARMS ARE PROVIDED IN HALLWAYS OUTSIDE OF ALL SLEEPING ROOMS.
B. CARBON MONOXIDE (CO) ALARMS SHALL BE INSTALLED ON THE CEILING OR WALL IN EACH AREA/HALLWAY ADJACENT TO SLEEPING ROOMS.
C. SMOKE ALARMS AND CARBON MONOXIDE ALARMS ARE REQUIRED TO BE LISTED BY THE CALIFORNIA STATE FIRE MARSHAL.
D. SMOKE DETECTORS AND CARBON MONOXIDE SHALL BE INTERCONNECTED 110V, EACH WITH BATTERY BACKUP.
E. SMOKE ALARMS SHALL BE INSTALLED A MINIMUM OF 20 FEET HORIZONTAL DISTANCE FROM A PERMINENTLY INSTALLED COOKING APPLIANCE. EXCEPTION: IONIZATION SMOKE ALARMS WITH AN ALARM SILENCING SWITCH OR PHOTOELECTRIC SMOKE ALARMS SHALL BE INSTALLED MINIMUM OF 10 FEET AWAY FROM A PERMINENTLY INSTALLED COOKING APPLIANCE.

SMOKE ALARMS- CRC 314 (SD)

INSTALL SMOKE ALARMS IN EACH SLEEPING ROOM; OUTSIDE EACH SEPERATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS; AND ON EACH ADDITIONAL STORY OF THE DWELLING INCLUDING BASEMENTS AND HABITABLE ATTICS

CARBON MONOXIDE ALARMS- CRC 315 (CO)

INSTALL CO ALARMS OUTSIDE OF EACH SEPERATE DWELLING UNIT SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS; AND ON EVERY LEVEL OF THE DWELLING UNIT INCLUDING BASEMENTS

F15. ADU Interior Stair, Handrail and Guardrail
See details for more info.
final design and shop drawings for exterior stair and handrail design to be handled as a deferred submittal by General Contractor and submitted to Building Dept., owner, and architect for approval prior to fabrication, typical, u.n.o.
all guardrails to have attachment devices and supporting structure to transfer this loading to appropriate structural elements of the building. see architectural details for bolted/welded connections, typical.\–

a. ADU exterior stair
Provide/install full width hardwood treads (approx. 11", 10" min.) and risers (approx. 7."–max.) per 2019 CBC sec. 1009 and 2019 CRC sec. R311.7.
provide stained mahogany cap rail, w/ stainless steel 1.5" sq. newel posts where shown @ approx. 36" o.c. Infill w/custom horiz. 3/16" dia. stainless steel Cable–Rail, cable railings @ 3" o.c. installed per manuf. specs., typical.
b. handrail code specs
Handrail to be btwn. 34" and 38" above nosing of tread and be continuous for full length of stair. hand grip portion of handrail to be not less than 1." nor more than 2" in cross sectional diameter, w/clearance from the wall per 2019 CBC sec. 1009.10, sec. 1012, and sec. 1607A.7, and 2019 CRC, sec. R311.7.7.3, typical, u.n.o.
c. Interior guard railing
42" tall min. guard railing – provide stained mahogany cap rail, w/ stainless steel 1.5" sq. newel posts @ approx. 36" o.c. Infill w/custom horiz. 3/16" dia. stainless steel Cable–Rail, cable railings @ 3" o.c. installed per manuf. specs. guardrail system shall conform to 2019 CRC sec. R312 and 2019 CBC sec. 1013, sec. 1607A.7 and sec. 1607.7.1 for 200 lb. concentrated loading applied in any direction at any point along top rail.

EGRESS:
EVERY (N) SLEEPING ROOM SHALL BE PROVIDED WITH AN EMERGENCY EGRESS WINDOW OR DOOR, TO PROVIDE THE FOLLOWING:
(A) A MINIMUM NET CLEAR OPENING OF 5.7 SQUARE FEET
(B) A MINIMUM NET CLEAR OPENING HEIGHT OF 24 INCHES
(C) A MINIMUM NET CLEAR OPENING WIDTH OF 20 INCHES
(D) A FINISHED SILL HEIGHT OF 44 INCHES MAXIMUM

Safety glazing (tempered) is required at the following locations:
1. Windows adjacent to and within 24 inches of either edge of door.
2. Any glass in any door.

ALL (N) EXIT DOORS:
EXIT DOORS SHALL BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.

NEED EXHAUST 100CFM IN KITCHEN; 50 CFM IN BATHS (HUMIDITY CONTROLLED) WITH TERMINATIONS MIN 3' FROM AN OPENING

22" CLEAR MIN WIDTH AND OUTSWING SHOWER DOORS

F9. ADU Entry Trellis/Sunshade
see architectural details for more info.

F10. Plywood Shearwalls and Hardi–Frames In Wall
see structural notes and details. provide shop drawings for review by engineer and architect prior to fabrication.

F11. Bath Accessories
see interior elevations and interior designer specs for more info.

F12. Finishes/Special Ceiling Treatments

F13. Thermal Insulation and Sound Insulation
all batt insulation to be Roxul ComfortBatt ® unfaced formaldehyde–free fire resistant stone wool insulation, typical, u.n.o.
all open cell spray foam to be Foam–Lok FL 5500 Open Cell Spray Foam Insulation by LaPolla Industries, Inc. (ICC–ES Eval. Report #ESR– 2847) and installed by Certified Nozzle men for spraying of foam as required by code.

F8. Patios/Porches/Stoops
all stoops shall conform to sec. R311.3 2019 CRC, and sec. 1008.1.4 and sec. 1008.1.5, 2019 CBC, typical.
all paving shall be per sec. R300.2, 2019 CRC in accordance w/ 2019 CGBSC chapter 4, Division 4.1, typical, u.n.o.

Steel I beams, secured back to ADU w/ steel cable supports and flat roof over 2x6 tongue and groove cedar decking per arch't/struct. details and exterior elevations, typical, u.n.o.

a. Plywood shearwalls:
See foundation and framing plans for all shearwall panels and holdown locations. See shearwall schedule for edge and field nailing for shearwall panels. typical, u.n.o.
b. Hardi–Frames: install prefab steel Hardiframes in walls per manuf. specs and details where shown, typical, u.n.o.

Verify all colors, sizes, finishes, etc. of bath accessories, towel bars, roll holders, medicine cabinets, etc. w/ interior designer, typ., u.n.o. provide new 2x8 solid blocking @ 34" A.F.F. to center line of block for future grab bars @ all water closets, showers, and baths typical u.n.o.

a. Finishes
Verify w/interior designer and owner for all final wall, floor, and ceiling finishes, typical.
b. Ceiling treatments
See framing plans, cross sections, interior elevations, and architectural details for all dropped, beamed, and soffited ceilings.

a. Garage ceiling/ADU floors:
9" min. (R–32.8) open cell spray foam between all ADU floor joists over unheated garage/storage, typical, u.n.o.
b. Flat ceilings/roofs:
(R–42) 3" thick (average) H–Shield Hunter Panels (R–17) over 7" min. (R–25) open cell spray foam btwn. All roof/ceiling joists at flat roofs. attic ventilation not required per 2019 CRC sec. 806.4, typical.
c. Exterior walls:
5." (R–23) unfaced Roxul ComfortBatt stone wool batts @ all new 2x6 exterior walls, typical, u.n.o.
d. Interior sound walls:
3." (R–13), or 5." (R–21)) "Rockwool" batts at all interior "sound" walls where indicated on floor plan, and between floors as shown on cross sections and architectural details, typical, u.n.o.

Verify all colors, sizes, finishes, etc. of bath accessories, towel bars, roll holders, medicine cabinets, etc. w/ interior designer, typ., u.n.o. provide new 2x8 solid blocking @ 34" A.F.F. to center line of block for future grab bars @ all water closets, showers, and baths typical u.n.o.

F1. EGRESS
per sec. R310.1, 2019 CRC.

F2. Splash Areas
per 2019 CBC sec. 1115B.2, sec. 1210.3, and sec. 1405.2, and 2019 CRC sec. R702.3.8.

F3. Post In Wall
see foundation and framing plans, typical.

F4. ADU Shower and Enclosure
all wall and ceiling tile to be installed o/ water–proofing, o/ moisture resistant underlayment (per note #F2 above) to a height of 72" min. above drain inlet per 2019 CRC sec. R307.2 and sec. R702.3.8.

F5. Cabinetry, Fixtures, Closet Packages, and Appliances

F6. HVAC System
Coordinate all supply and return air ducts, zones, thermostat locations, and power requirements of mechanical units and systems with Electrical, Mechanical and Plumbing contractors, typical.

F7. Water Heater

All bedrooms shall have windows or doors meeting egress requirements. All egress windows with two or more latches shall have the latches interconnected and operable from the lowest latch, typical, u.n.o.

NO GREENBOARD ALLOWED!! provide water resistant 5/8" Dens–Shield by Georgia–Pacific or HardieBacker board by JamesHardie, o/ asphalt saturated felt paper, o/ 2x6/2x4 Douglas Fir Larch studs at all water splash areas, typical, u.n.o.

Install double studs, 4x and 6x Douglas Fir Larch posts in walls where shown/required. see details and structural drawings for holdown specs, typical, u.n.o.

Shower @ ADU
Job–built curb–less accessible shower w/slot drain, tile floor, bench seat, walls, niches, ceiling, and Chloraloy CPE shower pan liner, as manuf. by Noble Co., to +18" high min. on walls, for entire bathroom floor where curbless showers occur typical, u.n.o. provide and install clear 7/16" thick clear TEMPERED Low Iron frameless glass door and enclosures w/hardware and trim per owner's specs. and sec. R308, 2019 CRC, typical, u.n.o.

Contractor and cabinet maker shall verify all final design details and materials w/owner as well as all room dimensions and rough openings for fixtures and appliances, prior to fabrication and installation, typical, u.n.o.

See electrical/mechanical plan, notes, and schedules for more info. Run line sets from FAU to a.c. condenser location per site plan. New high efficiency Mitsubishi ducted mini–split heat pump, at mechanical closet/pool equip. room location below ADU, w/ cooling coil to provide A.C. to ADU. All new ducting and registers are as shown on building cross sections and electrical mechanical plan, typical.

Gas–fired tankless – see electrical/mechanical plan drawings for more info., typical, u.n.o.

A1	Washer/Dryer	LG stacking front loading washer & dryer. Provide recessed plumbing niche for hookups at washer in wall boot location, provide electric 220v/110v hookups.
M1	Dryer Exhaust Vent Screens shall not be installed at duct termination.	Smooth metal exhaust duct from dryer in raised floor crawel space or cabinet space back–draft damper at exterior wall, and per 2019 CMC sec. 905,4, sec. 504.3.2, 504.4 Clothes Dryer, Provide 'Oatey' in wall exhaust vent boot for tight–to–wall dryer installation.
P1	Plumbing vents per sec. 510.5.2, sec. 906.1 & sec. 906.2 2019 CPC	All new plumbing vents to be located a min. of 10' from or 3' above all roof or wall openings. Provide new g.i. roof jacks & neoprene gaskets.
M2	LED Light/Exhaust Fan Combo fan to be capable of providing 5 air changes per hour, per sec. 1203.4.2.1, 2019 CBC and sec. 402.3 2019 CMC	Panasonic "WisperGreen Select" One Fan/Light (or equal), ceiling mounted 50/80/110 or 110/130/150 cfm LED light and variable speed exhaust fan combo on humidistat. Run 6" dia. duct to vent from fan through roof or eave vent to exterior. Exhaust fans in all baths are to have humidity control, per sec. 4.506.1 2019 CGBSC
E1	In all areas specified in sec. 210.52, 2019 CEC all 125–volt, 15 & 20 amp receptacles shall be listed tamper–resistant receptacles in dwelling units per 2019 CEC sec. 406.11	A. motor loads @kitchen appliances: N.A. B. Small kitchen appliances: N.A. C. Laundry: Provide one (minimum) separate dedicated 20 amp circuit per sec. 210.11(c)(2) & sec. 210.52(f), 2019 CEC D. Bathrooms: N.A.

GARAGE FLOOR PLAN NOTES

F1 Utilities: see site plan.
See Electrical notes for more info. on electrical plan, typical.

F2 Concrete Garage Slab:
a) 6" thick reinforced concrete slab–on–grade (sloped @1/8" per ft. to drain towards vehicle door @garage) with #5 bars GR60 @16" o.c. each way, over 15 mil visqueen vapor barrier, over 6" min. of clean, durable, Class II aggregate baserock, over clean compacted subgrade, see struct. dwg's
b) Provide score joints for crack control (10'–0" o.c. min. each way at garage slab, see found. plan), typical U.O.N.

F3 Exterior Concrete Slab:
a) 4" thick reinforced concrete slab–on–grade (sloped @1/4" per ft. to drain away from garage) with #4 bars GR40 @18" o.c. each way, over 4" min. of clean, durable, Class II aggregate baserock, over clean compacted subgrade, provide score joints for crack control (10'–0" o.c. min. each way at patio slab, 5'–0" o.c. min. @walks), typical U.O.N.

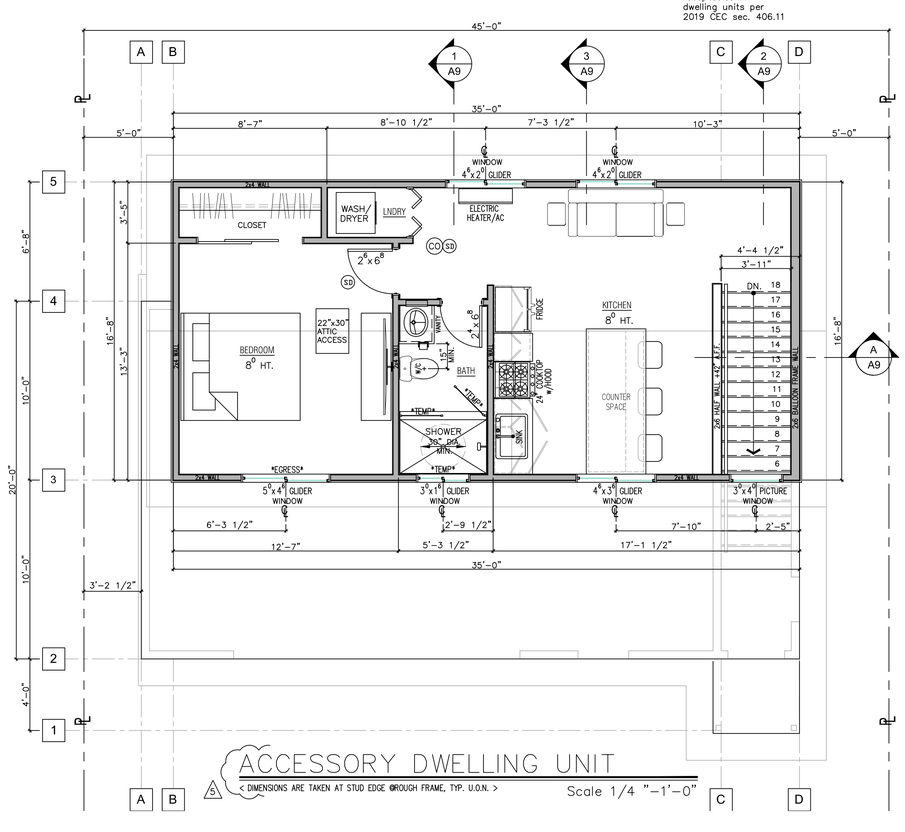
F4 Plywood Shear Walls:
a) See foundation & framing plans for all shear wall panels & holdown locations. See shear wall schedule for nailing requirements per wall symbol, typical U.O.N.
b) Hardy Frames: Install prefab steel frames directly on concrete unless otherwise noted by structural details. Use Hardy Frame template for proper bolt alignment, see Hardy Frame typical detail sheets for more info.

F5 Windows:
– See floor plan & exterior elevations for window sizes & types. Final color of window cladding & aluminum frame screens to be confirmed by owner prior to ordering wdws. & doors, typ.
a) Kolbe Window Co., or equiv., aluminum clad (verify cladding color w/owner prior to ordering) wood frame casement, awning or fixed windows, w/paint grade pine finish @interior and 7/8" Colonial simulated divided lites & spacer bars. Provide aluminum frame insect screens at all operable windows.

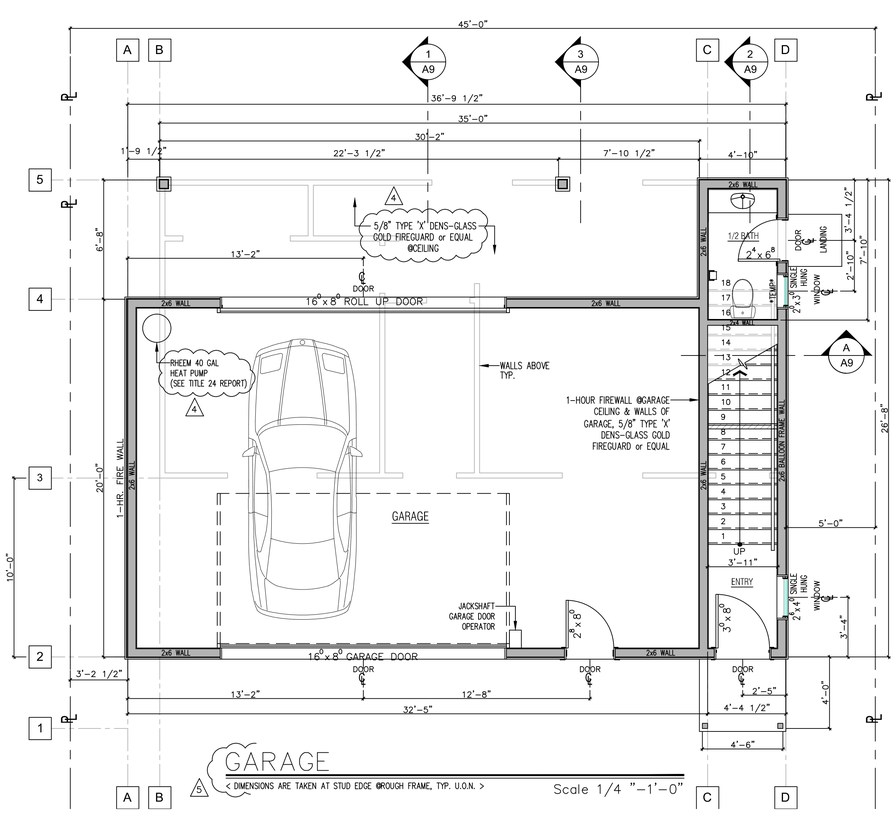
F6 Garage Vehicle Door:
– Roll–up garage door, provide shop drawing for review by owner. Make & model per owner. See floor plan & elevations for more info.

F7 Gypsum Board Interior Finish:
a) Use 1/2" gypsum board @walls, typical for all non–fire walls. Use 1/2" min. (5/8" max.) gypsum board @ceiling.
b) @1–hour fire rated walls, use Dens–Glass Gold Fireguard 5/8" type 'x', taped at all interior faces of exterior stud walls (& ceilings if applicable), all fire rated assemblies shall have joints taped per code.

F8 Exterior Walls: @1–hour fire walls
Use 7/8" thick 3–coat stucco finish (to match texture at main house), over wire mesh, over 2 layers of class 'd' building paper, over Tyvek, over 1–layer Dens–Glass Gold Fireguard 5/8" type 'x' gypsum board sheathing, over 1/2" Structural I C–D or OSB Struc. I shear sheathing, over 2x4 studs @16" o.c., with weep screed @base... and Dens–Glass Gold Fireguard 5/8" type 'x' gypsum wall board @inside face of studs.



5 ACCESSORY DWELLING UNIT
< DIMENSIONS ARE TAKEN AT STUD EDGE @ROUGH FRAME, TYP. U.O.N. > Scale 1/4 "–1'–0"



5 GARAGE
< DIMENSIONS ARE TAKEN AT STUD EDGE @ROUGH FRAME, TYP. U.O.N. > Scale 1/4 "–1'–0"

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

REGISTERED PROFESSIONAL ENGINEER Jeffery Alan Ingram No. C 66222 Exp. 6/30/2024 CIVIL STATE OF CALIFORNIA

Massarotto ADU/Garage
1017 Ramona Ave.
San Jose, CA 95125

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5 10/30/2023 DESIGN/ENGINEERING REVISIONS

PROJECT #: 719 SCALE: 1/4"=1'-0"
DRAWN BY: JI, YI
PROJECT MANAGER: YI
ENGINEERED BY: JI
REVIEWED BY: JI

GARAGE AND ADU FLOOR PLANS

A5

0 2' 4' 6' 8' 10' 12'

EXTERIOR ELEVATION NOTES

12. Roof/Attic Venting
See details for more info.

None required or provided at new flat roofs per sec. 806.4, 2019 CRC. use open cell spray polyurethane foam insulation at attic/roof. see arch'l. details & cross sections for more info.

13. Patios/Porches/Stoops
all stoops shall conform to sec. R311.3, 2019 CRC, and sec. 1008.1.4 & sec. 1008.1.5, 2019 CBC, typical.
all paving shall be per sec. R300.2, 2019 CRC in accordance w/ 2019 CGBSC chapter 4, Division 4.1, typ.

Install all concrete slabs o/15 mil Stegowrap® vapor barrier, o/ 6" (min.) of non-expansive compacted Caltrans Class II aggregate baserock, o/ properly compacted and pre-moistened subgrade, typical, u.n.o.
a. new pool terrace/walks/stoops:
new 5" thick reinf. concrete w/ #4 bars @ 18" o.c. each way, slope ." per foot to drain, see details & site plan for more info,
typical, u.n.o.

14. Site Grading
see site plan for more info.

a. Existing grade to be cut/excavated only as required for crawlspace at new addition, and remove spoils from site, typical u.n.o.
b. finish grade to slope 5% min. away from base of building at soil and 2% min. at paving, per sec. R300.2, 2019 CRC in accordance with 2019 CGBSC, chapter 4, Division 4.1, typical, u.n.o.

15. Address Numbers &
Premises Identification
per sec. R319.1, 2019 CRC, sec. 501.2, 2019 CBC & sec. 505, 2019 CFC.

Approved ADU address numerals shall be placed on the building in such a position as to be plainly visible and legible from the street, or road fronting the property, and contrasting to its background. address numbers shall be a min. of 4" high, w/ a min. illuminated stroke width of 1/2" typical, u.n.o.

6. Exterior Painting
Provide paint samples to match existing house for Owner approval, typical. apply all paint and stain finishes strictly per manufacturer's specs, typical, u.n.o.
back-prime all fascias and trim prior to installation.

7. Windows
Refer to window schedule for more info. typical

8. Exterior Swinging Doors
refer to door schedule for more info. typical.

9. Fascia Board & Eave Soffit
see arch'l. details for more info., typical.

10. ADU Entry Trellis Sunshade
see arch'l. details for more info.

11. Mechanical Room Doors
provide anodized aluminum threshold and weatherstripping at head & jambs.

a. Surface preparation:
thoroughly clean exterior surfaces of all dirt, dust, grease, etc. prior to painting/staining. thoroughly caulk, spackle, fill, and sand smooth all cracks, splits, holes, etc. at all affected areas prior to painting, typical, u.n.o.

b. Exterior siding & trim:
provide one coat primer, two coats Sherwin Williams, or equiv. flat latex zero VOC at stucco siding (two colors to match existing house).

c. Exterior trim:
provide one coat primer, two coats semi-gloss paint at all eaves, trim, soffits, barge board, posts/columns, window/door trim, etc.

Milgard Window Co. "Thermal Break" anodized aluminum frame windows, w/dual glazed low e2 glass, typical u.n.o.

Milgard Window Co. "Thermal Break" anodized aluminum frame sliding patio doors with tempered dual glazed low e2 glass, typical, u.n.o.

Cont. bonderized gutter, per note 2(a) above, o/ 2x8 paint grade kiln-dried S4S clear cedar, or paint grade Advantage Plus treated fascia board by Kelleher Corp., w/ 1x6 t&g stain grade kiln-dried (back-primed) nickel slot cedar soffit @ underside of all eaves (to match existing house eaves), o/ 2x6 d.f. rafter tails, typical, u.n.o

Steel trellis beams, secured back to ADU w/ steel cable supports and flat roof over 2x6 stain grade kiln-dried S4S clear cedar decking per arch'l. details & exterior elevations, typical, u.n.o.

Stain grade exterior wood siding (per ext. elev. note 5b above) o/ 1." solid core flush exterior door as shown on exterior elevations. provide 12" x 18" black painted metal louvered vents at top & bottom with ." welded wire mesh for mechanical ventilation, typical, u.n.o.

4. Flashing
Flashing per sec. R905.12, 2019 CRC for single ply membrane roofing systems see roof plan and arch'l. details for more info., typical, u.n.o.

A. Step & pitchbreak flashing
single ply roof membrane cover strip (hot air welded per manuf. specs.) per sec. R905.12, 2019 CRC. typical, u.n.o.

b. Window/door head flashing
26 ga. g.i. "Z" flashing above windows & doors, typical, u.n.o.

c. Flashing installation
install flashing in a manner to prevent entry of water into the wall cavity or penetration of water to the building structural framing components per 2019 CRC sec. R703.8, typical, u.n.o.

Exterior wall sheathing is either 15/32" plywood, or 1/2" ext. grade OSB Struct. I sheathing per 2019 CRC sec. R703.2 & sec. R703.6, o/ 2x studs @ 16" o.c., typical, u.n.o. see structural plans.

5. Exterior Siding & Trim
Install gyp. bd. per sec. R702.3, 2019 CRC. all trim lumber to be stain grade kiln-dried S4S clear cedar

a. Exterior stucco siding
7/8" thick min. 3-coat stucco w/3rd coat to be BMISika 500 Acrylic Fine Finish w/steel trowel smooth texture, o/heavy duty wire lath, o/ antifracture membrane, o/2 layers class "d" bldg paper or Tyvek, o/wall sheathing w/weep screed @ base per 2019 CRC sec. R703.7.2.1, typical, u.n.o.

b. Hardie Horizontal Lap Siding:
7" t.t.w. x 7/16" HardiePanel Horizontal Lap Siding-Smooth o/2 layers grade D 60 minute kraft waterproof bldg paper (or Tyvek), o/sheathing.

c. exterior wood trim:
1x / 2x paint grade trim @ new fascias, and misc. trim where occurs, typical, u.n.o.

1. Class A Roofing System

See roof plan, cross sections, roof framing plan, and arch'l. eave details for more info., typical, u.n.o.

New "Presidential TL" or Equal per owner 40 year Class A asphalt/fiberglas composition shingle roofing (max. weight not to exceed 4.0 psf- see structural roof plan), over 30# felt underlayment, over Ice & Watershield self-sealing waterproof roof membrane (by W.R. Grace) or equivalent, over 15/32" CD-X plywood or 1/2" OSB sheathing, over 2x DF-L rafters (see structural drawings for info).

2. Gutters & Downspouts

See eave details for more info., typical, u.n.o.
see site plan for more surface drainage info., typical, u.n.o.

Finalize all downspout locations w/walk through in field with architect & owner.

a. Gutters
All new 4" rectangular 24 ga. bonderized metal fascia gutters w/ "Green Screen" gutter cover screen mesh as required to prevent accumulation of leaves/debris in gutters per sec. R327.5.4, 2019 CRC. typical, u.n.o.

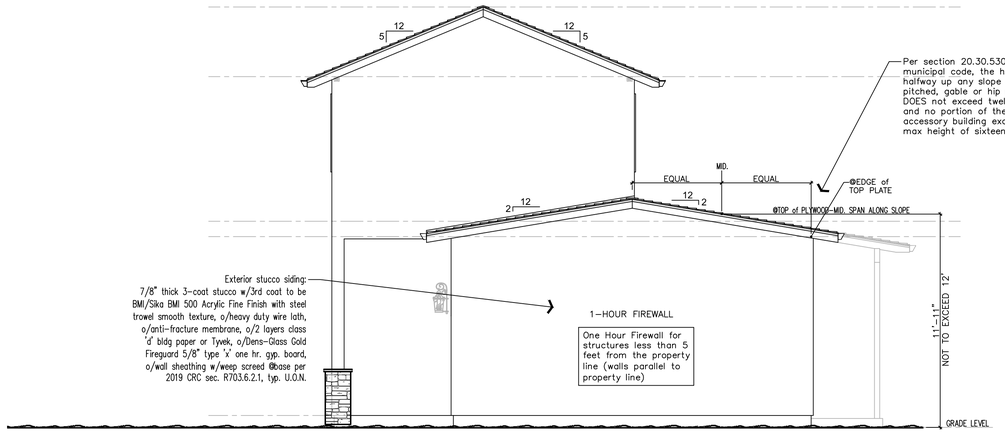
b. Downspouts
2"x3" rectangular 24 ga. bonderized metal downspouts. run downspouts to concrete splash blocks at grade per Site Plan, typical, u.n.o.

3. Roof Jacks

Provide neoprene gaskets & g.i. roof jack/ rain cap. paint to match roof color & locate where not visible from street wherever possible, and to avoid future solar panel array, typical, u.n.o.

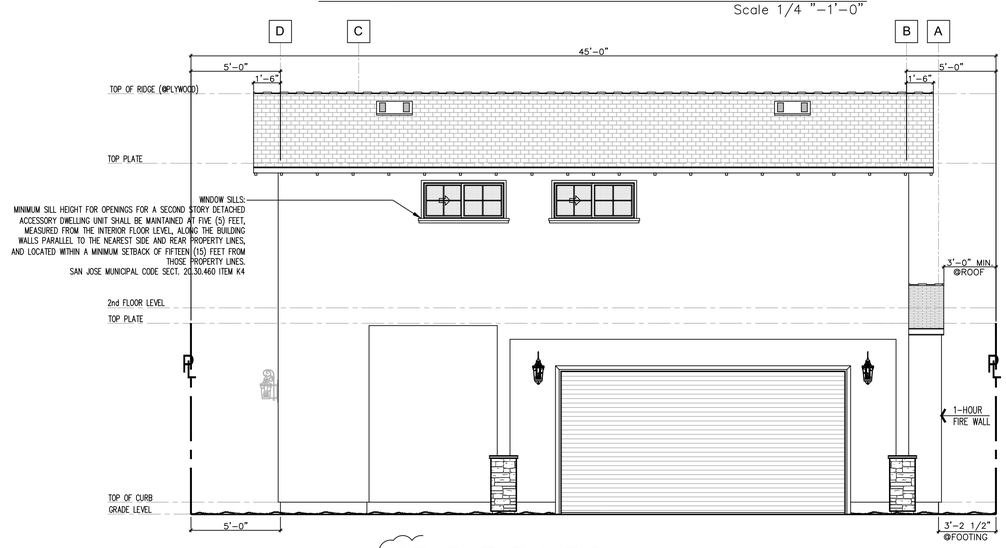
a. Exhaust vents
All exhaust vents shall be located a min. of 3' from or 1' above all roof or wall openings per 2019 CMC sec. 504.5, sec. 510.8.2 & sec. 510.8.3, typical, u.n.o.
b. Plumbing vents
all plumbing vents to be located a min. of 10' from or 3' above roof or wall openings per sec. 510.5.2, sec. 906.1, & sec. 906.2, 2019 CPC, typical, u.n.o.

Premises Identification – The address of the residence shall be provided and placed in position that is readily visible and legible from the street fronting the property. Note that this address sign should be minimum 4" high with ½" strike.



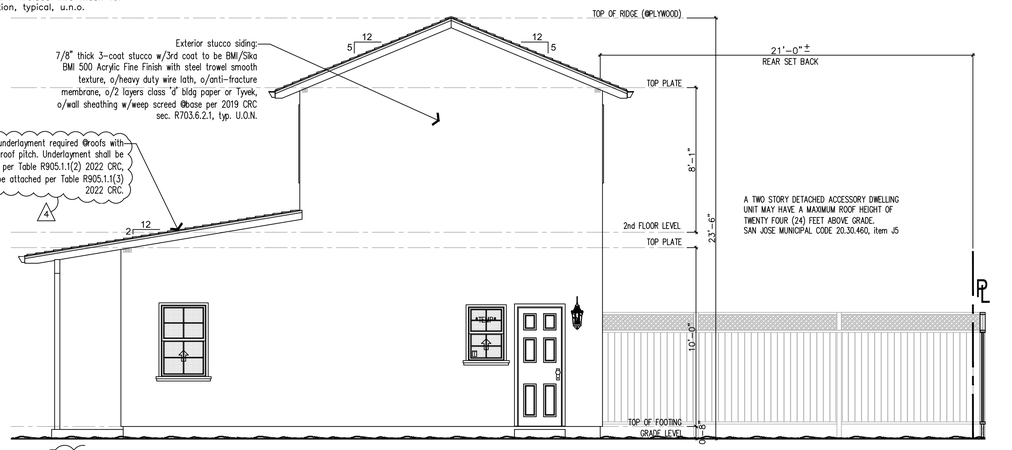
LEFT ELEVATION

Scale 1/4 "-1'-0"



REAR ELEVATION

Scale 1/4 "-1'-0"



RIGHT ELEVATION

Scale 1/4 "-1'-0"

OWNER AND THEIR CONTRACTOR SHALL FIELD VERIFY ALL SETBACKS PRIOR TO CONSTRUCTION. TO PROPERLY VERIFY EXISTING PROPERTY LINES AND SETBACKS, A BOUNDARY SURVEY BY A LICENCED LAND SURVEYOR SHOULD BE DONE.

FRONT ELEVATION

Scale 1/4 "-1'-0"

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

REGISTERED PROFESSIONAL ENGINEER
Jeffery Alan Ingram
No. C 66222
Exp. 6/30/2024
CIVIL
STATE OF CALIFORNIA

Massarotto ADU/Garage
1017 Ramona Ave.
San Jose, CA 95125

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PROJECT #: 719 SCALE: 1/4"=1'-0"
DRAWN BY: JI, YI
PROJECT MANAGER: YI
ENGINEERED BY: JI
REVIEWED BY: JI

Elevations

A6

0 2' 4' 6' 8' 10' 12'

MECHANICAL NOTES [M]

M1. Codes — 2019 California Mechanical Code (CMC) (based on 2019 Uniform Mechanical Code).

M2. Combustion Air — Verify existing, or provide new outside combustion air at gas-fired furnaces, boilers, & water heaters, as required per secc. 701.1, 2019 CMC.

M3. Cold Air Returns — verify exact locations in field w/owner — Ceiling or high wall mounted cold air return registers where noted on plan, or verify verify exact locations in field w/owner.

M4. Supply Ducts and Registers

a. Ducting:
U.O.N. use R-6 insulated flexible supply air ducts in attic locations as required to supply register locations, size ducts as required for proper distribution/air flow, protect/seal all ducts during construction from all dust & debris.
b. Wall, Floor, Ceiling mounted registers:
-painted metal registers at walls/ceilings.
-flush hardwood registers @hardwood floors.
c. Typ. registers at toe kick locations:
provide sheet metal transition from round supply duct to rectangular heat register grille at cabinet toe kick where occurs.
d. Ductwork penetrating seperation wall:
all ductwork penetrating seperation between the garage wall and/or floor of the living space shall be constructed of not less than 26 ga. galv. steel & be cont. without openings or non-metallic connections per sec. 302.4, 2019 CMC, and sec. R302.5.2, 2019 CRC.
e. Penetrations of the floor, or top plates:
all mechanical penetrations of the floor, or top plates shall be caulked with a residential rated fire caulk with an ASTM E136 rating.

M5. Thermostats — Provide digital/programmable setback thermostats, verify all seperate mechanical zones & thermostats w/owner prior to final installation.

M6. Exhaust Vents — All new exhaust vents shall be located a min. of 3' from or 1' above all roof or wall openings per sec. 504.5, sec. 510.8.2 & sec. 510.8.3 2019 CMC, provide neoprene gaskets for g.i. roof jacks & rain caps, and locate where not visible from street whenever possible.

M7. Dryer Exhaust Vent — screens shall not be installed at duct termination. — Smooth metal exhaust duct from dryer in raised floor crawl space or cabinet space to back-draft damper at exterior wall per 2019 CMC sec. 905.4, sec. 504.3.2 & sec. 504.4 provide "Oatey" or equiv. in wall exhaust vent boot for tight-to-wall dryer installation.

M8. Hood Exhaust Vent — install per sec. 504.2 & sec. 504.5, 2019 CMC — U.O.N. by owner, use (Vent A Hood 36") stainless steel hood liner w/600 cfm hood mounted exhaust fan installed per manuf. specs. (with 8" dia. duct thru kitchen wall & roof jack mounted vent termination), install system per manuf. specs, verify duct size w/hood manuf. and provide makeup air system as required by code.

M9. Design, Testing and Balancing — It shall be the ressponsibility of the mechanical contractor to design the forced air ducting system & specify all duct sizes, fan coil units, dampers, thermostats, etc., for proper distribution of air conditioning, mechaical contractor shall upon completion of installation, continuously run the entire heating system as required to demonstrate good working order & proper balance system.

M10. New HVAC Unit in Attic — See title-24 for min. requirements.
High efficiency furnace with cooling coil, provide (R-6) minf. insulated ducting as required to new registers at ceiling wall register and cold air return locations. at attic locations provide vibration isolators, 22"x30" (min.) attic access door ladder, switch & light @access opening, receptacle at furnace, with 1/2" plywood pathway & service platform for furnace unit per sec. 904.11, 2019 CMC.

M11. HVAC Unit Installation

a. provide (n) gas shut off at furnace.
b. provide furnace installation per manuf. specs., & 2019 CMC, including clearances, electrical light switch at entrance, and outlet for furnace.
c. provide solid connection for gas in furnace (with flex line to shut off).
d. provide venting thru roof.
e. provide accessible electrical disconnect.
f. provide watertight corrosion resistant metal pan below attic furnace, w/secondary drainline that must be located at a point it can be readily observed per sec. 312.2, 2019 CMC.

per City of San Jose, natural gas is banned for new construction. New built single family residential.

Additions to existing residential homes are permitted for use of natural gas.

DETACHED GARAGES CONSTRUCTED NEAR PROPERTY LINE:

Setback requirements for detached accessory buildings and structures (except swimming pools):
ZONING REGULATIONS-
* 60-foot minimum setback from the front property line.
* Zero setback is allowed at side and rear property lines U.O.N. by Fire Department.
* 9-foot side yard setback from the accessory building or structure to the side property line on the street side of a corner lot.

BUILDING REGULATIONS-
* If accessory building or structure exceeds 120 sq. feet and is less than 5 feet from the property line, walls parallel to the property line must be built with a 1-hour fire protection.
Note: Openings are not allowed within 3 feet of the property line.
Note: Overhangs are not allowed closer than 2 feet to the property line.
* A detached accessory building or structure that has a minimum separation of 6 feet from other structure and is less than 120 sq. feet in area, may be built on the property line without firewalls.

NOTES:
a) Read and review all General Notes on both sheets T1 & SD.1 prior to commencing any work.
b) All shear wall framing to continue through attic to plywood at roof.
c) All smoke detectors to be 110V powered, hard wired, with battery backup.
d) Light fixtures in tubs and showers to be labeled "Suitable for damp locations" per NEC Article 110-16.
e) Incandescent lighting fixtures recessed into insulated ceilings to be I.C. rated.
f) Maintain working clearances in front of main electrical panels and all subpanels per NEC Article 110-16.
g) Water resistant gypsum board is to be used under all tile work at all showers and baths to a minimum height of 70 inches above the drain inlet.
h) Escape or rescue windows shall have a minimum net clear openable area of 5.7 square feet. The minimum net clear height dimension shall be 24 inches. The minimum net clear openable width shall be 20 inches. When windows are provided as a means of escape or rescue, they shall have a finished sill height not more than 44 inches above the floor.
i) Toilet spaces shall be at least 30 inches wide, with at least 24 inches clear in front of water closet, per Section 2904.
j) All tub and shower valves to be approved pressure-balanced or thermostatic mixing type adjusted to 120 degrees maximum.
k) Base material beneath shower pans shall be sloped to drain as per UPC Section 410.5.
l) Fluorescent general lighting shall be provided in bathrooms and kitchens, activated by the first switch inside the door.
m) All electrical receptacles within 6 feet of a sink shall be GFCI protected per NEC Article 210-8 A5.
n) Electrical outlet receptacles for fixed appliances to be accessible.
o) All hose bibs to include non-removable backflow prevention devices.
p) Water heaters to include pressure relief valves and seismic anchors or straps per UPC Section 520.5. Provide a corrosion resistant watertight pan under water heaters with 3/4" minimum diameter drain to approved area per UPC Section 510.7.
q) Combustion air openings at all furnace room locations shall comply to UMC 702. One opening shall be located within the upper 12" of the enclosure and one opening shall be located within the lower 12" of the enclosure. Combustion air shall be supplied from outside the furnace room at second floor. All walls shall be insulated, with weather stripped doors.
r) Clothes dryer exhaust shall be constructed of smooth metal duct with backdraft damper and shall extend to the outside.

SECTION R806
ROOF VENTILATION
R806.1 Ventilation required. Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain or snow. Ventilation openings shall have a least dimension of 1/16 inch (1.6 mm) minimum and 1/4 inch (6.4 mm) maximum. Ventilation openings having a least dimension larger than 1/4 inch (6.4 mm) shall be provided with corrosion-resistant wire cloth screening, hardware cloth or similar material with openings having a least dimension of 1/16 inch (1.6 mm) minimum and 1/4 inch (6.4 mm) maximum. Openings in roof framing members shall conform to the requirements of Section R802.7. Required ventilation openings shall open directly to the outside air.

R806.2 Minimum vent area. The minimum net free ventilating area shall be 1/150 of the area of the vented space.
Exception: The minimum net free ventilation area shall be 1/300 of the vented space provided one or more of the following conditions are met:
1. In Climate Zones 14 and 16, a Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.
2. Not less than 40 percent and not more than 50 percent of the required ventilating area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the required ventilation provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.

R806.3 Vent and insulation clearance. Where eave or cornice vents are installed, insulation shall not block the free flow of air. Not less than a 1-inch (25 mm) space shall be provided between the insulation and the roof sheathing and at the location of the vent.

Unvented attics or sloped ceilings: CRC R806.4
Fill rafter bays with spray-applied closed cell polyurethane insulation, JM CORBOND III, install per listing UES ER-146 & manufacturers instructions.

ROOF PLAN NOTES [R]

1. New "Presidential TL" or Equal per owner 40 year Class A asphalt/fiberglas composition shingle roofing (max. weight not to exceed 4.0 psf- see structural roof plan), over 30# felt underlayment, over Ice & Watershield self-sealing waterproof roof membrane (by W.R. Grace) or equivalent, over 15/32" CD-X plywood or 1/2" OSB sheathing, over 2x DF-L rafters (see structural drawings for info).

   Note: double underlayment required for roof pitch less than 4:12. Minimum roof pitch for asphalt composition shingles is 2:12.

2. Class A "flat" low slope roof system:
   Class A- 1B Roof Systems "Tan" Single Ply Mechanically Attached Membrane Roofing System w/heat welded seams, or eqivalent waterproof roofing system per Contractor, over 15/32" exterior grade OSB/C-D plywood sheathing o/roof joists per structural plans.
   (UL-R15546 & ICC-ES Evaluation Report ESR-2852)

3. Flashing: 24 ga. g.i. flashing per Sec. R905.2.8, 2019 CRC for asphalt shingle roofing systems.
   a. valley flashing: 26 ga. g.i. "W" flashing over cont. 36" wide (min.) extra layer of 30# felt @ all valleys, per sec. R905.2.8.2(2), 2019 CRC, typical, u.n.o.
   b. rake flashing: 26 ga. g.i. "L" flashing per details at roof & under exterior wall siding, and per sec. R905.2.8.3, 2019 CRC, typical, u.n.o.
   c. step & pitch break flashing @flat roof: single ply Class A cap sheet heat welded (per manuf. specs.), o/Class A single ply roof membrane and under siding and paper and paper at all wall to flat roofs.
   d. cricket flashing: 24 ga. g.i. flashing over 1/2" cdx plywood sheathing, over 2x4 d.f. framing @ 24" o.c. (as occurs), 1/4"/ft. min. slope to drain, typ., u.n.o.
   e. window/door head flashing: 26 ga. g.i. "Z" flashing above windows & doors, typical, u.n.o.
   f. wall to roof flashing: 24 ga. g.i. "L" flashingall wall to flat roofs per sec. R905.2.8.4, 2019 CRC, typical u.n.o.

4. Exterior stucco siding & trim:
   a. 7/8" thick 3-coat stucco w/3rd coat to be BMI/Sika BMI 500 Acrylic Fine Finish with steel trowel smooth texture, o/heavy duty wire lath, o/anti-fracture membrane, o/2 layers class 'd' bldg paper or Tyvek, o/wall sheathing w/weep screed @base per 2019 CRC sec. R703.7.2.1, typ. U.O.N.
   b. @FIREWALL:
   7/8" thick 3-coat stucco w/3rd coat to be BMI/Sika BMI 500 Acrylic Fine Finish with steel trowel smooth texture, o/heavy duty wire lath, o/anti-fracture membrane, o/2 layers class 'd' bldg paper or Tyvek, o/Dens-Glass Gold Fireguard 5/8" type 'x' one hr. gyp. board, o/wall sheathing w/weep screed @base per 2019 CRC sec. R703.6.2.1, typ. U.O.N.
   c. exterior wood trim: (match existing house) or (N) 1x/2x kiln-dried paint grade cedar trim (back primed) or equal @new windows & doors, typ. U.O.N.

5. Attic/Roof Exhaust Vents: (to match existing or new)
   a. O'Hagin rectangular attic vents (or equal): use O'Hagin Composition Shingle Vent for vaulted roof (or equal brand) (24" wide, 17" long, 2" high with 69.22 sq. in. vent area) roof mounted vents, where shown, and as required for attic/ceiling ventilation per Sec. R806.1 & R806.2 & R806.3 2019 CRC.
   b. eave vents: @each structural block, provide 4-2" dia. eave block hole to achieve attic ventilation area equal to 1/150 of the attic square footage per Sec. R806.2 2019 CRC.

6. Roof Jacks
   provide neoprene gaskets and g.i. roof jack/ rain cap. paint to match roof color & locate where not visible from street wherever possible, typical, u.n.o.
   a. exhaust vents: all exhaust vents shall be located a min. of 3' from or 1' above all roof or wall openings per sec. 504.5, sec. 510.8.2 & sec. 510.8.3, 2019 CMC typical, u.n.o.
   b. plumbing vents: all plumbing vents to be located a min. of 10' from or 3' above roof or wall openings per sec. 510.5.2, sec. 906.1, & sec. 906.2, 2019 CPC, typical, u.n.o.

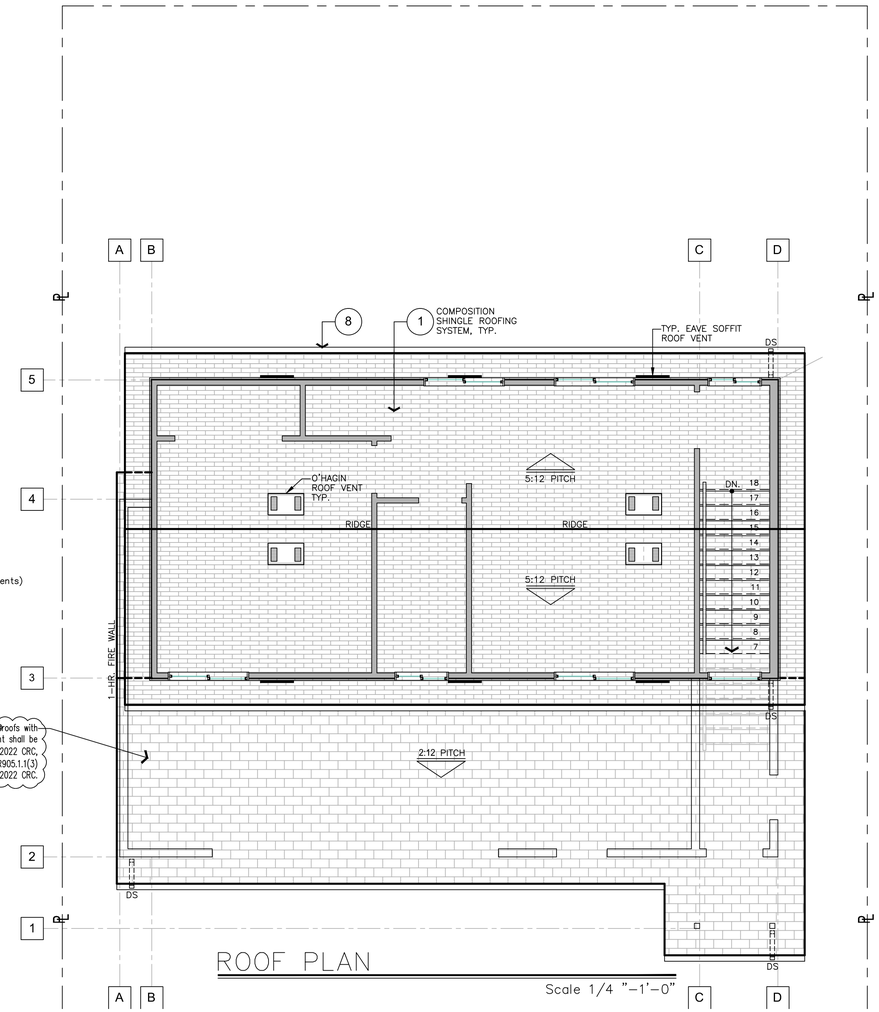
7. a. Floors and landings at exterior doors: R311.3
   There shall be a landing on each side of each exterior door. The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches measured in the direction of travel. Exterior landings shall be permitted to have a slope not to exceed 1/4 unit vertical in 12 units horizontal (2%). Exception: exterior balconies less than 60 sq. ft. and only accessible from a door are permitted to have a landing less than 36 inches measured in the direction of travel.
   b. Floor elevations at the required egress doors: R311.3.1
   Landings or floors at the required egress door shall not be more than 1-1/2" lower than the top of the threshold. Exception: the exterior landing or floor shall not be more than 7-3/4" below the top of the threshold provided the door does not swing over the landing or floor.
   c. Floor elevations for other exterior doors: R311.3.2
   Doors other than the required egress door shall be provided with landings or floors not more than 7-3/4" below the top of the threshold. Exception: a landing is not required where a stairway of two or fewer risers is located on the exterior side of the door, provided the door does not swing over the stairway.

8. (N) Gutters & Downspouts:
   a. gutters: provide/install new 4-1/4" bonderized metal "ogee" gutters (or equal to match existing house), and/or areas affected by new work, typical U.O.N.
   b. downspouts: provide/install new 2" dia. round bonderized metal (or equal) downspouts at new addition, and at areas affected by new work. Maintain existing underground drain line system/splash blocks as/if occurs, typical U.O.N.

O'Hagin Vent — Net free area =72 sq. in.

Eave Soffit Vent — 22.25"x5.5" Galvanized wire mesh. Net free area=68 sq. in.

ADU ROOF/ATTIC VENTING REQUIRED:
Attic area = 583 ft^2
Venting required = (583/150)x144 =560 in^2
Split 50% upper roof vents & 50% soffit eave vents.
Soffit eave vents req. = 280/68 = 4.1, (min. 5 soffit eave vents)
O'Hagin vents req. = 280/72 = 3.8, (min. 4 O'Hagin vents)



ROOF PLAN
Scale 1/4 "-1'-0"

Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

REGISTERED PROFESSIONAL ENGINEER
Jeffery Alan Ingram
No. C 66222
Exp. 6/30/2024
CIVIL
STATE OF CALIFORNIA

Massarotto ADU/Garage
1017 Ramona Ave.
San Jose, CA 95125

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5	10/30/2023	DESIGN/ENGINEERING REVISIONS

PROJECT #: 719 — SCALE: 1/4"=1'-0"
DRAWN BY: JI, YI
PROJECT MANAGER: YI
ENGINEERED BY: JI
REVIEWED BY: JI

Roof Plan

A7

0 2' 4' 6' 8' 10' 12'

ELECTRICAL SCHEDULE

E

E11. Switches/Dimmers Leviton or equiv. w/ night lite at each room. all switch plate covers at entire house to be Decora or Diva to match those at existing main house, typical. verify plate colors in field w/owner prior to ordering.

E12. Plugs/Outlets duplex 3–prong, install per sec. 210.52, 2019 CEC. see lighting plan for all switched outlets. provide GFCI plugs with flap covers (where occurs) at exterior locations shown as "WP", typical. all branch circuits that supply 125 volt, 15 & 20 amp outlets for receptacles, lights, & smoke alarms installed in bedrooms shall be protected by an arc–fault circuit interrupter (AFCI) listed to provide protection of the entire branch circuit per sec. 210.12, 2019 CEC. in all areas specified in sec. 210.52, 2019 CEC all 125–volt, 15– and 20–ampere receptacles shall be listed tamper–resistant receptacles in dwelling units per sec. 406.11, 2019 CEC.

E13. Dedicated Circuits provide dedicated 20 amp circuits and CAT 5 cable where shown or required by owner for computer and/or networking equipment, per sec. 210.11 & sec. 220.14, 2019 CEC. in all areas specified in sec. 210.52, 2019 CEC all 125–volt, 15– and 20–ampere receptacles shall be listed tamper–resistant receptacles in dwelling units per 2019 CEC sec. 406.11.

E14. Doorbell/Chime Low voltage

E15. Surface Mounted Light Fixtures verify all model numbers w/owner in field prior to installation, typical, u.n.o. per 2019 CEC sec. 210.70.

E16. LED Strip Lights verify all model numbers w/owner in field prior to installation, typical, u.n.o Custom fabricated per inch – field measure and specify exact lengths when ordering, and install per manuf. specs, typical, u.n.o.

E17. Exterior/Porch Lighting provide motion sensor units & photo elec. cells where shown on plan (coordinate with owner in field). all exterior light fixtures are to be wet listed, typical.

E18. Fluorescent Lighting enclosed full spectrum elements shall conform with 2019 CEC, sec. 410–8.

E19. High Efficacy LED Can Lighting provide can light fixtures approved for zero clearance insulation cover (IC rated), with label certifying air tight (AT rated) construction at all insulated ceilings, typical, u.n.o. or Juno 5" LED can, model #IC20LED–3K

E20. Wire Management & Power Strip Systems install per manufacturer's specs, typical, u.n.o.

E21. Security Alarm System final specs TBD

E22. Landscape Lighting verify in field w/owner actual # of circuits required at front and rear yards.

E23. Photo–Voltaic Solar Panel Generator System Contractor to provide shop drawings/submittal package of final array configuration, panel & inverter cut sheets, & single line diagrams as req'd as a deferred submittal for approval by bldg official, once manuf. & model numbers are known.

E24. Elect. Vehicle (EV) charging Outlets see also Cal Green Building Standard sheets for more info.

a. Typical Diva/Decora rocker switches, wall mounted @ +48" above finish floor, typical, u.n.o.
b. Dimmers w/ occupancy sensors Diva/Decora vertical sliding type, wall mounted @ +48" above finish floor with motion sensors per Title 24, typical, u.n.o.
c. Exterior security lighting three position rocker switch to dual lamp spots
1. Off, 2. On, 3. Motion Detector per Title 24, typical, u.n.o.

Provide option for screwless Lutron Diva or Decora or equiv. light almond plates.
a. typical AFCI required at all rooms of dwelling units, u.n.o.
Wall mounted @ approx. +12" above fin. flr., so that no point along floor line in any wall space is more than 6'–0" measured horiz. from any outlet in that space, typical, u.n.o.
provide arcfault circuit interrupter for receptacle outlets installed in all rooms, per 2019 CEC, sec. 210.12(B), typical, u.n.o.
b. Kitchen (GFCI as req'd by elect. note E3a.) install arc–fault circuit interrupter (AFCI) wall mounted @ +48" above finish floor so that no point along the wall line is more than 24" measured horiz. from any outlet in that space. Island/peninsula countertops shall have at least one outlet for each 48" of countertop, typ u.n.o. all branch circuits that supply outlets installed in a dwelling unit kitchen shall be protected by an arc–fault circuit interrupter (AFCI) per 2019 CEC, sec. 210.12, typical, u.n.o. see also note E13(a) & E13(b) below for add'l info.
c. Baths (GFCI/AFCI required) wall mounted @ +48" above finish floor in tile backsplash (verify exact height in field with architect/owner). provide ground–fault circuit interrupter for receptacle outlets installed in all bathrooms per 2019 CEC, sec. 210.8(A)(1) & sec. 210.52(D), typical, u.n.o.
d. USB charging outlets Doug Mockett USB outlets, four (4) total locations to be verified in field w/owner, typ.

a. Motor loads @ kitchen appliances:
Provide all motor loads on dedicated circuits (dishwasher, disposals, all ovens, refrig, hood, etc.), where required by manuf., typical.
b. Small kitchen appliances:
Provide two (min. req'd.) small appliance branch circuits for the kitchen that are limited to supplying wall and counter space outlets for the kitchen, pantry, nook, or similar areas per 2019 CEC sec. 210.11(c)(1) & sec. 210.52(b).
c. Laundry:
provide one separate dedicated 20 amp circuit per sec. 210.11(c)(2) & sec. 210.52(f) 2019 CEC.
d. At office & bedrooms:
Provide dedicated 20 amp circuits and CAT 6e cable where shown or required by owner for computer and/or networking equipment, per 2019 CEC sec. 210.11 & sec. 220.14.
e. Laundry:
provide separate dedicated 20 amp circuit per sec. 210.11(c)(2) & sec. 210.52(f), 2019 CEC.
f. Bathrooms:
provide a dedicated 20–amp circuit to serve the receptacle outlets in each bathroom. this circuit cannot supply other receptacles/lights/ fans, per sec. 210.11(c)(3), 2019 CEC, typical.

Provide allowance/install new doorbells & chimes at entry door, as manuf. by Ring or equiv. per owner selection, typical, u.n.o.

a. Wall sconce fixtures:
Model #'s to be selected/provided by owner, contractor to install & provide allowance. mounting heights to be verified in field.
b. Surface mounted/hanging fixtures: model #'s to be selected by owner, contractor to install & provide allowance. mounting locations and heights to be verified in field.

a. LV Strip LED under cabinet fixtures: Ultra BlazeTM LED Tape Light 2700k WR Coating– for Wet Location in kitchen
b. LV Strip LED under cabinet fixtures: AION LED 4000 Series linear fixtures model–#4000–XW27–WR lamp– LED 3Watts/foot at 2700K low voltage– class 2 – 12V, use compatibl□ a□ B□e AION drivers WR Coating– for Wet Lo□]—]–□cation in kitchen and laundry, typical, u.n.o.

Exterior wall mounted light fixtures per owner's selection, typical, u.n.o. all fixtures to be high efficacy luminaries (4 pin LED), or are controlled by occupant sensors, with integral photo control certified to comply w/ sec. 410.0, 2019 CEC & sec. 132(a)&(b), 2019 Calif. Energy Code, typical, u.n.o.

a. Strip LED at closets:
Lithonia, Wellmade, or eq. 4'–0" long header mounted single tube strip LED fixtures w/ diffuser enclosed elements @ general lighting in closets, typical, u.n.o.
b. Strip LED at garage lighting:
New 4' long 2 tube LED strip ceiling mount fixtures w/ wire guard diffusers by Lithonia, Wellmade, or equiv., typical.

a. typical
LED can light fixtures are as manuf. by HALO, model #H455ICAT120D 15 watt (dimmable) LED Downlight, 2700K, w/model #TL40WH open reflector/baffle trim, typical, u.n.o.
b. Wet listed @ shower locations
LED can light fixtures are as manuf. by HALO, model #H455ICAT120D 15 watt (dimmable) LED Downlight, 2700K, w/ model #TL402WHS Solite regressed lens reflector & baffle trim, w/antimicrobial finish, typical, u.n.o. for any LED lights to qualify as high efficacy kitchen lighting, they must be certified by the California Energy Commission, & be listed on their database at www.appliances.energy.ca.gov Contractor must provide evidence of this certification and compliance with California Energy Code sec. 150(k) for lighting.

Provide allowance for Doug Mockett or equiv. grommets, wire management troughs, power strips, etc. verify model numbers/sizes w/owner prior to ordering and installation, typical, u.n.o.

General contractor to have "_____" or equiv. alarm system or (owners choice) sub coordinate with owner to specify and install new alarm and surveillance system throughout the house per owner's specs.

Provide switch at interior & stub out junction box in exterior wall for future low voltage landscape lighting (or other elec. needs) where shown or required. coordinate w/ owner. refer to landscape plans and lighting plans for more info, typical, u.n.o.

Separate permit/deferred submittal required: a. typical roof mounted solar panels see roof plan & site plan for preliminary layout of PV solar panels fastened to black aluminum stand–off tilt racks. roofer to coordinate w/electrician & solar installer to run wiring to combiner boxes, micro–inverters, & provide conduit thru water tight roof jacks as required. provide disconnect panels as required by code. b. inverter/control panels verify exact mech. room location in field with owner, and run conduit (size as required) in walls from roof to mechanical room.

Provide one (min.) 50 amp EV charger station for future EV with a listed raceway to accommodate a dedicated 208/240 volt branch circuit originating from sub– or main panel to a listed termination. the electrical panel breaker switch and raceway termination shall be permanently/visibly labeled as "EV CAPABLE" per 2019 CGBSC sec. 4.106.4.1.

ELECTRICAL NOTES

E

E1. Codes

E2. Ground, Sub Panels & Main Service Panel electrician to provide one line diagram as a deferred submittal. penetrations of floor or top plates: all mechanical, plumbing, electrical, and similar penetrations of the floor, or top plates shall be caulked with a residential rated fire caulk with an ASTM E136, or E814 rating.

E3. GFCI Outlets as required per 2019 CEC, sec. 210.8(a). provide GFCI plugs with flap covers (where occurs) at exterior locations shown as "WP", per sec.406.8(b), 2019 CEC typical. tamper resistant plugs: in all areas specified in sec. 210.52, 2019 CEC, all 125–volt, 15– and 20–ampere receptacles shall be listed tamper–resistant receptacles in dwelling units per sec. 406.11, 2019 CEC.

E4. Title 24 Lighting Requirements all lighting to conform to NEC, sec. 210.70 & sec. 220.12, & 2019 CEC sec. 410.0. NOTE: high efficacy fixtures can be pin–based CFL, pulse–start MH, HPS, GU–24 sockets other than LEDs, LED luminaires w/ integral source, etc., or other Title 24 compliant fixtures per 2019 CEC, Table 150.0A. A completed CF–2R–LTG–01–E form shall be provided to the building inspector prior to the final inspection.

E5. Wiring use metal nail protection plates at studs where required. use romex per 2019 CEC, chapter 3 (14–3 or larger wire, drill thru studs with 7/8" bit).

E6. AV/TV/Stereo Cable

E7. Structured Wiring install owner's router for wireless internet system throughout the ADU.

E8. Smoke Detectors/ Carbon Monoxide Alarms all new detectors to be interconnected.

E9. Design & Installation

E10. Walk Through with owner

2019 California Electrical Code (C.E.C.) (based on 2017 National Electrical Code)

a. Main panel/meter existing main 200 amp electrical service panel to remain at existing location per site plan to serve existing residence, and provide new 125 amp sub–panel for new ADU/detached garage.

b. Sub–panels provide new sub–panel where sh0wn w/sizes as required. electrician to verify all exact subpanel locations in field with owner, typical. sub–panels cannot be located in closets, bathrooms, o/ steps of a stairway, or recessed in garage firewall, per 2019 CEC sec. 110.26, sec. 240.24(d), sec. 240.24(e), sec. 240.24(f). bottom of all electrical panels at +48" max a.f.f., typical.

c. UFER ground provide/install new UFER ground for relocated main panel. provide install copper ground cathode to steel reinforcing at new foundation per sec. 250.50, 2019 CEC.

a. Typical plugs install ground–fault circuit interrupter outlets where shown on plan & where required within 6'–0" of all sinks, typical, u.n.o.

b. Bathrooms install ground–fault/arc–fault circuit interrupter outlets where shown on plan & where required by code, typical, u.n.o. provide a dedicated 20– amp circuit to serve the receptacle outlets in each bathroom. this circuit cannot supply other receptacles, fans, or lights, per sec. 210.11(c)(3) 2019 CEC, typical, u.n.o.

c. Exterior balconies, decks & porches per sec. 210.52(e)(3), 2019 CEC, install groundfault circuit interrupter outlets where shown on plan & where required, typical, u.n.o.

d. Exterior GFCI plugs install at least one–(1) ground–fault circuit interrupter outlet at the front and rear of the dwelling, per sec. 210.52(e)(1), 2019 CEC, typical, u.n.o.

a. Typical lighting @ indoor rooms all installed luminaires shall be high efficacy in accordance with 2019 CEC, Table 150.0–A.

b. Bathroom/garage/laundry rooms all fixtures shall be high efficacy fixtures with at least one light fixture to be controlled by vacancy sensor per 2019 CEC, sec. 150(k)2J, typical u.n.o.

c. Closets 2'–0"
Long header mounted strip LED fixtures w/ diffuser enclosed elements @ general lighting in closets, per 2019 CEC, sec. 410.16., closets less than 70 s.f. are exempt from lighting requlations, typical, u.n.o.

d. Exterior lighting all installed luminaires shall be high efficacy in accordance w/2019 CEC Table 150.0–A, typ, u.n.o. for single family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on same lot, shall meet the requirements in item i & those in either item ii or item iii, per 2019 CEC, sec. 150(k)3:

i. Controlled by a manual ON & OFF switch that does not override to ON the automatic actions of items ii or iii below; and
ii. Controlled by photocell & motion sensor, or
iii. Controlled by one of the following methods:

a. Photo–control & automatic time switch control, or

b. Astronomical time switch control; or

c. Energy management control system in accordance with sec. 110.9, 2019 CEC; and meets the Installation Certification requirements in sec. 130.4, 2019 CEC.

Provide conduit at exterior wiring runs, as required by code, with additional empty conduits as shown or required by owner, typical, u.n.o.
NOTE: annular spaces around pipes, conduits, electric cables, or other openings in the sole or bottom plates at exterior walls shall be protected against the passage of rodents by closing such openings w/cement mortar, concrete masonry, or similar acceptable methods per sec. 4.406.1, 2019 CGBSC.

See note E7 below. coordinate exact □ locations w/owner, typical, u.n.o.

Verify number of required TV & phone lines with owner, and provide double gang mud ring & box for "Communications Bundle", typical, u.n.o.
(2) – RG–6 cables for television cable/satellite
(2) – CAT–5 cables for telephone/internet.

Kidde Firex model #KN–COPE–I, or equiv. (UL#2034 and UL#217, NFPA72 and NFPA101) AC wire–in 110v ac/dc type smoke detectors and carbon monoxide alarms with battery back up, wall or ceiling mounted as indicated on plan, per sec. R314 and R315, 2019 CRC, typical, u.n.o. all carbon dioxide devices must be listed and approved by the State Fire Marshal, and contractor must provide evidence of approval and listing to City Building Inspector prior to installation, per sec. R315.1.4, 2019 CRC.

It shall be the responsibility of the Electrical Contractor to assess & identify all electrical loads necessary for proper operation of all electrical appliances, outlets, fixtures, etc. & to design & install the electrical system for proper distribution of loads so as to prevent overloading of the system, typical, u.n.o.

Electrical contractor to verify exact locations of all fixtures, outlets, jacks, switches, etc. prior to final wiring & final installation of all fixture locations, typical, u.n.o.

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

REGISTERED PROFESSIONAL ENGINEER
Jeffery Alan Ingram
No. C 66222
Exp. 6/30/2024
CIVIL
STATE OF CALIFORNIA

Massarotto ADU/Garage
1017 Ramona Ave.
San Jose, CA 95125

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PROJECT #: 719
DRAWN BY: JI, YI
PROJECT MANAGER: YI
ENGINEERED BY: JI
REVIEWED BY: JI

ELECTRICAL NOTES

A8.1

PLUMBING SCHEDULE

P

P9. provide allowances & installation of all fixtures, faucets, & fittings as selected by owner. Verify all plumbing fixture model #'s w/owner and interior designer prior to ordering!

P10. Water Closet per State of California Health & Safety Code, sec. 17921.3 (b). typical, u.n.o. use Harvey's No-Seep bol wax at all flange connections.

New plumbing fixtures shall comply with 2019 CGBSC sec. 4.303.3. all water closets to have Sloan Power Assist, or eq. internal canister valve. 1.28 gallon GPF white Toto model #_____, floor mounted dual flush water closet, typical, u.n.o.

* provide add alternate estimate for wall hung water closets per interior designer specs. *

P11. ADU Bathroom Lavatory see note P14 below for additional code info.

White rectangular undermount lavs by Kohler – provide $800 total fixture allowance for each sink & faucet, typical of 1.

P12. ADU Kitchen Sink see note P14 below for more code info. see interior Designer's plumbing fixture schedule for more info.

Provide $1,000 fixture allowance for sink, faucet, air gap, disposal air switch, typical, u.n.o. at all dishwashers: provide an approved air gap fitting at the discharge side of d.w. machine, installed with the flood level marking at or above flood level of sink or drain-board, whichever is higher, per sec. 807.4, 2019 CPC, typical.

P13. Washer Installation by Specialty Products, Oatey, or equiv.

Provide/install new recessed plastic washing machine box for water supply faucets & drain, typical, u.n.o.

P14. Showers, Tubs, Faucets, & Lavatories max. prescriptive flow rates per sec. 4.303, 2019 CGBSC manuf. & model #'s to be selected by Owner and Interior Designer.

All new plumbing fixtures shall comply with 2019 CGBSC, sec. 4.303.1, sec. 4303.2 & sec. 4.303.3, & 2019 CPC, sec. 403.7 in that all fixtures/faucets shall have a max. prescriptive flow rate as follows:
– lav sinks = 1.2 g.p.m. @ 60 p.s.i. (min. not less than 0.8 gpm at 20 p.s.i.)
– kitchen sinks = 1.8 g.p.m. @ 60 p.s.i
– showers/tubs = 1.8 g.p.m. @ 80 p.s.i. (single or multiple heads combined)
– toilets=1.28 g.p. flush (urinals = 0.5 g.p.f.) all showers & tubs shall have pressure balanced or thermostatic mixing control valves, & shall be adjusted per manuf. specs. to deliver a max. hot water setting of 120° F. (49° C.) per 2019 CPC sec. 408.3, sec. 414.5 & sec. 418, typical, u.n.o.

P15. Shower at ADU Bath see note P14 above for more code info.

Job-built curbless tile shower w/ Chloraloy CPE shower pan liner, as manuf. by Noble Co., at shower pan, seat, and to +18" high min. on walls, and at back wall of shower install PROLINE slot drain, as manuf. by Quickdrain USA, typical. see plumbing fixture schedule by Owner
– provide $500 allowance for heads, valves, and hand held unit, typical, u.n.o. verify exact heights of valves, heads, & nozzles in field, w/ owner, typical, u.n.o.

P16. Fire Sprinkler System upgrade existing water main as required to service domestic water and new automatic fire sprinkler system at ADU. prior to setting head layout, perform walk through with architect & interior designer to adjust layout to avoid conflicts with lights fixtures, hvac registers, beams, moldings, etc.

a. Fire sprinkler system: provide/install an automatic fire sprinkler system throughout per Bureau of Fire Prevention & NFPA Standard #13D, Latest Edition requirements. Fire sprinkler subcontractor to submit system design, hydraulic calculations, & shop drawings for approval by the San Jose Bureau of Fire Prevention and in compliance with NFPA Standard #13–d, 2019 CFC. Drawings are to include locations of all new heads, risers, valves, pipe sizes, layouts, required pressures, alarms, details, etc.

b. Fire sprinkler water: as required, provide new 2" dia. water meter. provide new 2" dia. underground copper fire sprinkler water main feed (w/ blue plastic protective jacket) where shown, typical.

PLUMBING NOTES

P

P1. Codes – Codes 2019

P2. Cleanouts, Vent, Waste & Drain Piping drain piping to be per sec. 701, 2019 CPC , and vent piping to be per 2019 CPC. sec. 510.6, sec. 906, & 910. use a.b.s. pipe w/sizes & connections per code, typical, u.n.o. NOTE: annular spaces around pipes, electric cables, conduits, or other openings in the sole/bottom plates at exterior walls shall be protected against the passage of rodents by closing such openings w/cement mortar, concrete masonry, or similar acceptable methods per sec. 4.406.1, 2019 CGBSC.

P3. Domestic Water Supply & Piping protect existing piping system as much as possible. insulate all hot & cold water lines with min. 1" thick foam insulation, typ., u.n.o. provide/install bonding (electrical) at hot and cold metal pipes. NOTE: annular spaces around pipes, electric cables, conduits, or other openings in the sole/bottom plates at exterior walls shall be protected against the passage of rodents by closing such openings w/ cement mortar, concrete masonry, or similar acceptable methods per sec. 4.406.1, 2019 CGBSC.

P4. Gas Meter owner to pay all City of San Jose & P.G. & E. engineering fees.

P5. Fuel Gas Piping galvanized (exterior) or black iron (interior) pipe, typical, u.n.o. provide/install bonding (electrical) at gas metal pipes.

P6. Hose Bibs per sec. 603.0, 2019 CPC.

P7. Plumbing Vents per sec. 510.5.2, sec. 906.1 & sec. 906.2, 2019 CPC.

P8. Water Heater Installation Specs Navien model #NPN–160E high efficiency condensing tankless water heater to be installed wall mounted where indicated at pool equipment closet. see notes P3 & P5 above, and M11 for more info. see P3 notes above for domestic water piping system.

2019 California Plumbing Code (CPC) (based on the 2018 Uniform Plumbing Code) and 2019 Cal Green Building Standards Code (CGBSC).

a. Typical
Verify existing or provide/install new cleanouts with sizes, configurations, & clearances per sec. 707.4, 2019 CPC. locate new cleanouts so as to be accessible from the exterior of the building wherever possible. where cleanouts must be installed in the foundation crawl space, locate within 20 feet of nearest underfloor access per 2019 CPC sec. 707.10 & 719.0, typ., u.n.o.

b. Sewer cleanouts provide new, or verify (2) – sewer cleanouts,
(1) – within 2' of the main house perimeter, and
(1) – within 3' or less of the front/rear property line to sewer (city) main. see site plan.

c. Backwater valve requirements if required provide an approved backwater valve on drainage piping serving fixtures that have flood level rims less than 12" above the elevation of the next upstream manhole, per sec. 710.1, 2019 CPC, typical, u.n.o.

d. Embedment of piping direct embedment of piping in concrete, or masonry walls/footings is prohibited. provide rigid foam block outs in footings to create pipe chases per sec. 313.10, 2019 CPC. wrap all pipes w/ pliable foam pipe wrap prior to pouring concrete infill.

a. Domestic water supply lines water pipe & fittings shall be of brass, cast iron, copper, galvanized malleable iron, galvanized wrought iron, or galvanized steel, w/ 1" dia. (min.) size. all potable water systems on the discharge side of the meter shall be copper (ream all pipe interiors prior to using lead free solder). the underground portion of any potable water system shall be type "L", or better, typical, u.n.o. direct embedment of piping in concrete, or masonry walls/footings is prohibited.

b. Supply piping shut–off valve per sec. 605, 2019 CPC, verify that the supply piping to a single family residence, and the buildings accessory thereto, shall have a shutoff valve on the discharge side of the meter within (1)–one foot of meter box, typical, u.n.o.

c. Piping penetrating fire separation wall all piping penetrating the separation between the garage wall and/or floor of the living space shall be constructed of not less than 26 gauge galv. steel & be cont. without openings or nonmetallic connections, including pipes exposed in the garage per sec. 313.7 & Chapter 15, 2019 CPC, and sec. R302.5.3, 2019 CRC, typical, u.n.o.

d. Anti–hammer devices provide anti–hammer devices (accessible) at all clothes washers, dishwashers, typical, u.n.o.

e. Penetrations of the floor, or top plates all mechanical, plumbing, electrical, and similar penetrations of the floor, or top plates shall be caulked with a residential rated fire caulk with an ASTM E136, or E814 rating.

f. Re–circulating hot water system provide option: for Armstrong "E" Series, or equiv. 1/4 hp recirculating pump & return loop hot water piping (insulated) on motion sensor.

Existing gas meter to remain at existing location as shown on plan. contractor to coordinate with PG&E and the City of San Jose to verify that existing gas meter is of adequate size to serve existing residence, proposed remodel and addition as required by code, typ., u.n.o.

Plumbing Contractor to verify existing or provide new gas line sizes per 2019 CPC, sec. 1217 and CPC table 12–8 with connections per code for fireplaces, appliances, mech. units, future bbq, etc. where shown on plan, typical, u.n.o. use yellow MDPE pipe w/ heat fused joints at below grade locations, typical.

Remove existing hose bibs where noted and protect existing hose bibs wherever possible. provide non–removable back–flow preventers □ü□□□B□at all hose bibs, & tee w/ ball valve at ground level bibs for future irrigation, typical, u.n.o.awin PA S

All new plumbing vents to be located a min. of 10' from or 3' above all roof or wall openings. provide new g.i. roof jacks & neoprene gaskets, typical, u.n.o.

a. Seismic anchors at top & bottom of unit per sec. 508.2, 2019 CPC.

b. Solid gas pipe connection to unit, run flex line to gas shut off valve at water heater.

c. Min. R–12 insulation wrap per title 24.

d. Combustion air per sec. 507.0, 2019 CPC and 2019 CMC, including clearances & elec. outlets as req'd for proper operation of unit.

e. Approved dielectric insulators at water piping connections where required by sec. 316.2.4, 2019 CPC.

f. G.I. pan & pressure relief valve with drains to exterior where installed at interior per sec. 508.4 & sec. 608.3, 2019 CPC.

g. 3" pvc exhaust vent, Category III or IV, or type B vent for water htr. w/straight vent thru side wall or roof w/clearances per code.

h. A condensate drain that is no more than 2" higher than the base of the installed water heater, and allows natural draining.

i. First hour rating of water heater to be 80 gph. per sec. 501 & table 5–1, 2019 CPC.

j. Per sec. 150.0(n), 2019 CEC, provide a gas supply line with a capacity of at least 200,000 Btu/hr., or as required for tankless.

k. 18" (min.) high platform where installed at garage locations per 2019 CPC, sec. 508.14 including clearances & elec. outlets as req'd for proper operation of unit.

MECHANICAL NOTES

M

M1. Codes

2019 California Mechanical Code (C.M.C.) (based on 2018 Uniform Mechanical Code).

M2. Combustion Air

Provide new outside combustion air at gas–fired furnaces, boilers, & water heaters, as required, per sec 701.1, 2019 CMC, typical.

M3. Cold Air Returns verify exact locations in field w/owner & architect, typ.

Floor or low wall mounted cold air return registers where shown on plan. verify exact locations in field w/ owner & architect, typical.

M4. Supply Ducts and Registers provide low wall & floor mounted metal registers w/ paint finish to match adjacent surfaces. verify in field typical u.n.o. use duct mastic sealer on all duct joints and seams. All duct openings and related air distribution components shall be covered & protected from dust and debris during construction per sec. 4.504, 2019 CGBSC. Design per 2019 ACCA Manual J, S, and D.

a. Ducting: use R–6 insulated flexible supply air ducts in ADU floor space locations as required to new supply register locations as shown on plan. size ducts as req'd for proper distribution/air flow.
b. wall, floor, ceiling mounted registers: –painted metal registers at walls/ceilings –flush hardwood registers at hardwood floors
c. typical registers at toe kick locations provide sheet metal transition from round supply duct to rectangular heat register grille at cabinet toe kick locations where shown.
d. ductwork penetrating separation wall all ductwork penetrating separation between the garage wall and/or floor of the living space shall be constructed of not less than 26 ga. galv. steel & be cont. without openings or non–metallic connections per 2019 CRC sec. 302.4, 2019 CMC & sec. R302.5.2, typical, u.n.o.
e. penetrations of the floor, or top plates all mechanical penetrations of the floor, or top plates shall be caulked with a residential rated fire caulk with an ASTM E136 rating.

M5. Thermostats 1 zone: at ADU

Provide new digital/programmable setback thermostats. verify all separate mechanical zones & thermostats with owner & architect prior to final installation, typical, u.n.o.

M6. Exhaust Vents see roof plan for more info.

All new exhaust vents shall be located a min. of 3' from or 1' above all roof or wall openings per sec. 504.5, sec. 510.8.2 & sec. 510.8.3 2019 CMC. provide neoprene gaskets for g.i. roof jacks & rain caps, & locate where not visible from street whenever possible, typical, u.n.o.

M7. Dryer Exhaust Vent screens shall not be installed at duct termination !

Smooth metal exhaust duct from dryer in raised floor crawl space or cabinet space to back–draft damper at exterior wall or soffit as indicated per plan, and per 2019 CMC sec. 905.4, sec. 504.3.2 & sec. 504.5, typical, u.n.o. provide Oatey or equiv. in wall exhaust vent boot for tight–to–wall dryer installation.

M8. Hood Exhaust Vent install per sec. 504.2 & sec. 504.5, 2019 CMC.

Over–the–range microwave w/300 cfm hood exhaust fan install per manuf. specs. (with 8" dia. duct thru roof jack mounted vent termination), typical. install system per manuf. specs, verify duct size w/ hood manuf. and provide makeup air system as required by code, typical.

M9. Design, Testing and Balancing

It shall be the responsibility of the mechanical contractor to design the forced air ducting system & specify all duct sizes, fan coil units, dampers, thermostats, etc. for proper distribution of air conditioning. mechanical contractor shall, upon completion of installation, continuously run the entire heating system as required to demonstrate good working order & properly balance system.

MECHANICAL SCHEDULE

M10. New ADU HVAC Unit Energy Star® verify exact locations of condenser w/owner & architect prior to line set installation.

ADU – Ducted Mini–Split Heat Pump System: Mitsubishi model #PUMY–HP36NKMU heat pump and Mitsubishi model #PEAD–A12AA7 fan/coil unit, or approved equiv., typical. attic access, and passageway, must be at least as large as the largest component of the new attic furnace.as shown on Mechanical Plans, install per manuf. specs, typical, u.n.o.

M11. HVAC Unit Installation protect existing plenums, sheet metal boots, etc. from damage during construction.

a. Provide furnace installation per manuf. specs., & 2019 CMC, including clearances, electrical light switch at entrance, and 220v outlet for furnace.

b. Provide venting thru roof, or thru wall of pool equipment closet.

c. Provide accessible electrical disconnect.

d. Provide watertight corrosion resistant metal pan below attic furnace, w/ secondary drain line that must be located at a point where it can be readily observed per sec. 312.2, 2019 CMC.

M12. LED Light/Exhaust Fan Combo – Energy Star! fan to be capable of providing 5 air changes per hr., per sec. 1203.4.2.1, 2019 CBC & sec. 402.3 2019 CMC

Panasonic "WhisperGreen Select" One Fan/Light– model no. FV–11–15VKL1, white ceiling mounted 110/130/150/0 cfm LED light & variable speed exhaust fan combo on humidistat. run 6" dia. duct to vent from fan thru roof or eave vent to exterior. exhaust fans in all baths are to have humidity control, per sec.4.506.1, 2019 CGBSC, typical, u.n.o.

M13. Typical Exhaust Fans fan to be capable of providing 5 air changes per hr., per sec. 1203.4.2.1, 2019 CBC & sec. 402.3 2019 CMC Energy Star!

Casablanca, Hunter, or equiv. ceiling fan (light combination where occurs per owner specs). electrical boxes at ceiling–suspended fan outlets which are used as the sole support of the fixture shall be listed and marked by the manuf. as suitable for this installation per sec. 314.27(c), 2019 CEC, typical, u.n.o.

M14. Ceiling Mounted Circulating Fan/Lights – Energy Star! install separate wall switching for light & fan as provided by manuf.

Add Alternative option for Nu–Heat mattes by Pentair, or equiv. electric standard radiant mattes installed under tile per manuf. specs, with programmable digital wall mounted timer switch @ ADU bathroom floor, typical, u.n.o.

M15. Radiant Floor Heat

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

REGISTERED PROFESSIONAL ENGINEER
Jeffery Alan Ingram
No. C 66222
Exp. 6/30/2024
CIVIL
STATE OF CALIFORNIA

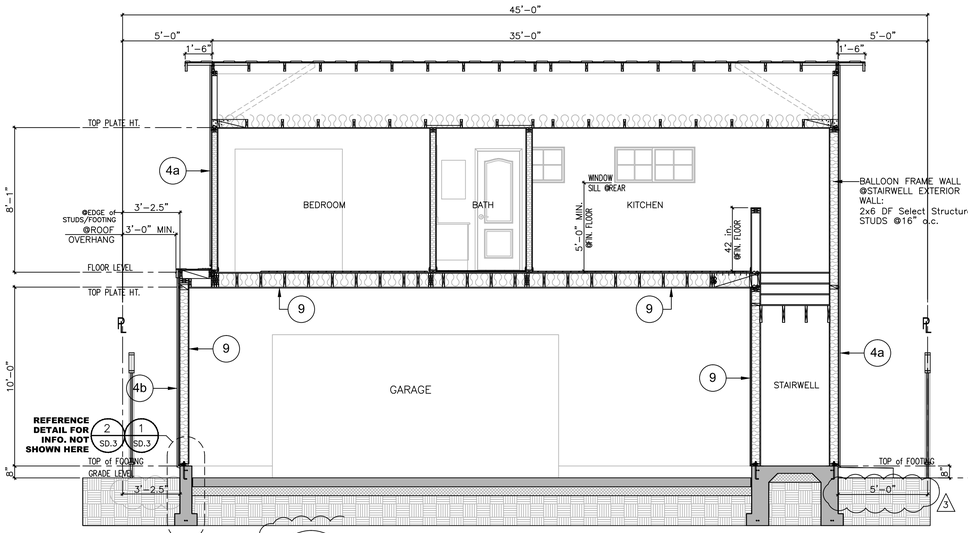
Massarotto ADU/Garage
1017 Ramona Ave.
San Jose, CA 95125

DATE ISSUE:
3/4/2021
1 8/10/2022 PER BUILDING DEPARTMENT PLAN CHECK
2 11/9/2022 PER PLANNING DEPARTMENT PLAN CHECK
3 3/6/2023 PER FIRE DEPARTMENT PLAN CHECK
4 10/30/2023 PER BUILDING DEPARTMENT PLAN CHECK
5 10/30/2023 DESIGN/ENGINEERING REVISIONS

PROJECT #: 719
DRAWN BY: JI, YI
PROJECT MANAGER: YI
ENGINEERED BY: JI
REVIEWED BY: JI

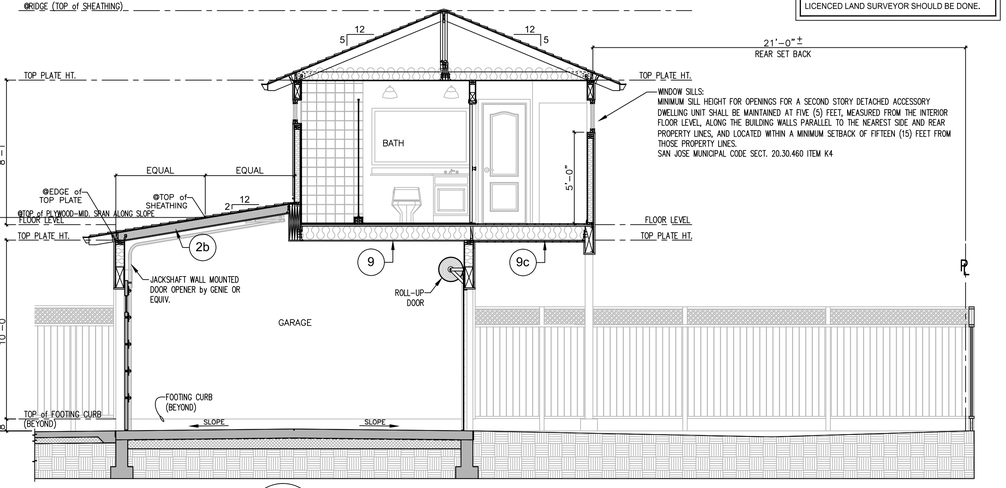
MECHANICAL & PLUMBING NOTES

A8.2



A Cross Section

1/4"=1'-0"



1 Cross Section

1/4"=1'-0"

OWNER AND THEIR CONTRACTOR SHALL FIELD VERIFY ALL SETBACKS PRIOR TO CONSTRUCTION. TO PROPERLY VERIFY EXISTING PROPERTY LINES AND SETBACKS, A BOUNDARY SURVEY BY A LICENCED LAND SURVEYOR SHOULD BE DONE.

9 One Hour Firewall at Ceiling & Walls of Garage & Under Stairs:
Dens-Glass Gold Fireguard 5/8" type 'x' one hr. rated gyp. bd. fire-rated assemblies shall have all joints & nail heads taped with taping compound per sec. 2508.4, 2019 CBC @:
a. all walls & ceilings/beams of garage, or up common wall between garage & living space to underside of roof sheathing system, and
b. at all walls & ceilings of storage space under interior stairs, and
c. at ceilings where living space is above.
d. @covered patio less than 5' from property line; at exterior sides & bottom of roof joists, and wood beams/posts.

All penetrations in common firewall shall be protected by an approved firestop as tested per 2019 CRC sec. R302.4.1.2. Ducts in the garage and ducts penetrating the common firewall shall be made of 26 gauge sheet metal or other approved materials, and shall have no openings into the garage per 2019 CRC sec. R302.5.2.

FIREBLOCKING REQUIRED IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS: VERTICALLY AT THE CEILING AND FLOOR LEVELS. HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET (3048 mm); AT INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, DROP CEILING AND COVE CEILINGS.

4 1 HR. RATED FLOOR:
5/8" TYPE-X GYPSUM WALLBOARD ..... 40 min. 2022 CBC Tbl. 722.6.2(1)
FASTENED TO FLOOR JOISTS (CEILING)
2x FLOOR JOISTS @16" o.c. ..... 10 min. 2022 CBC Tbl. 722.6.2(2)
19/32" MIN. WOOD STRUCTURAL PANEL ..... 15 min. 2022 CBC Tbl. 722.6.2(1)
o/JOISTS BONDED w/EXTERIOR GLUE
TOTAL TIME = 65 min. > 1hr. (OK)

1 HR. RATED EXTERIOR & INTERIOR WALLS:
2x6 WOOD STUDS @16" o.c. with DOUBLE TOP PLATES, SINGLE BOTTOM PLATE; EXTERIOR & INTERIOR SIDES COVERED with 5/8" TYPE X GYPSUM WALLBOARD, 4" WIDE, APPLIED VERTICALLY WITH ALL JOINTS OVER FRAMING OR BLOCKING AND FASTENED WITH 2-1/4" TYPE S DRYWALL SCREWS, SPACED AT 12" o.c. R-19 MINERAL FIBER INSULATION INSTALLED IN STUD CAVITY. NOTE FOR SHEAR WALLS, INSTALL GYPSUM BOARD OVER SHEATHING.
2022 CBC Tbl. 721.1(2), Item #15-1.13

6 Roof Jacks
provide neoprene gaskets and g.i. roof jack/ rain cap. paint to match roof color & locate
where not visible from street wherever possible, typical, u.n.o.
a. exhaust vents: all exhaust vents shall be located a min. of 3' from or 1' above all roof or wall openings per sec. 504.5, sec. 510.8.2 & sec. 510.8.3, 2019 CMC typical, u.n.o.
b. plumbing vents: all plumbing vents to be located a min. of 10' from or 3' above roof or wall openings per sec. 510.5.2, sec. 906.1, & sec. 906.2, 2019 CPC, typical, u.n.o.

7 a. Floors and landings at exterior doors: R311.3
There shall be a landing on each side of each exterior door. The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches measured in the direction of travel. Exterior landings shall be permitted to have a slope not to exceed 1/4 unit vertical in 12 units horizontal (2%).
Exception: exterior balconies less than 60 sq. ft. and only accessible from a door are permitted to have a landing less than 36 inches measured in the direction of travel.
b. Floor elevations at the required egress doors: R311.3.1
Landings or floors at the required egress door shall not be more than 1-1/2" lower than the top of the threshold. Exception: the exterior landing or floor shall not be more than 7-3/4" below the top of the threshold provided the door does not swing over the landing or floor.
c. Floor elevations for other exterior doors: R311.3.2
Doors other than the required egress door shall be provided with landings or floors not more than 7-3/4" below the top of the threshold. Exception: a landing is not required where a stairway of two or fewer risers is located on the exterior side of the door, provided the door does not swing over the stairway.

8 (N) Gutters & Downspouts to match existing:
a. gutters: provide/install new 4-1/4" bonderized metal "ogee" gutters (or equal) at addition, and/or areas affected by new work, typical U.O.N.
b. downspouts: provide/install new 2" dia. round bonderized metal (or equal) downspouts at new addition, and at areas affected by new work. Maintain existing underground drain line system/splash blocks as/if occurs, typical U.O.N.

4 Exterior stucco siding & trim:
a. 7/8" thick 3-coat stucco w/3rd coat to be BMI/Sika BMI 500 Acrylic Fine Finish with steel trowel smooth texture, o/heavy duty wire lath, o/anti-fracture membrane, o/2 layers class 'd' bldg paper or Tyvek, o/wall sheathing w/weep screed @base per 2019 CRC sec. R703.7.2.1, typ. U.O.N.
b. @FIREWALL:
7/8" thick 3-coat stucco w/3rd coat to be BMI/Sika BMI 500 Acrylic Fine Finish with steel trowel smooth texture, o/heavy duty wire lath, o/anti-fracture membrane, o/2 layers class 'd' bldg paper or Tyvek, o/Dens-Glass Gold Fireguard 5/8" type 'x' one hr. gyp. board, o/wall sheathing w/weep screed @base per 2019 CRC sec. R703.6.2.1, typ. U.O.N.
c. exterior wood trim: (match existing house) or (N) 1x/2x kiln-dried paint grade cedar trim (back primed) or equal @new windows & doors, typ. U.O.N.

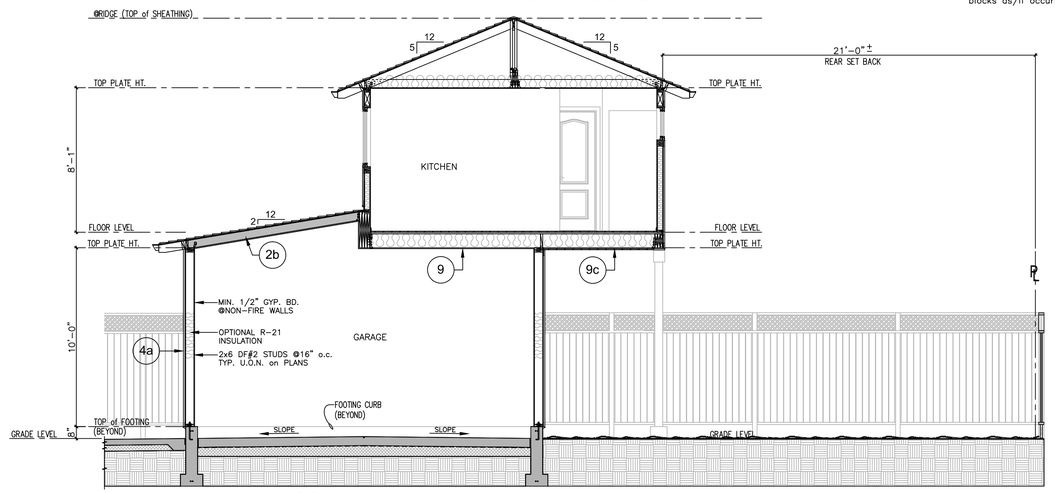
5 Attic/Roof Exhaust Vents: (to match existing or new)
a. O'Hagin rectangular attic vents (or equal): use O'Hagin Composition Shingle Vent for vaulted roof (or equal brand) (24" wide, 17" long, 2" high with 69.22 sq. in. vent area) roof mounted vents, where shown, and as required for attic/ceiling ventilation per Sec. R806.1 & R806.2 & R806.3 2019 CRC.
b. eave vents: @each structural block, provide 4-2" dia. eave block hole to achieve attic ventilation area equal to 1/150 of the attic square footage per Sec. R806.2 2019 CRC.

1 New "Presidential TL" or Equal per owner 40 year Class A asphalt/fiberglas composition shingle roofing (max. weight not to exceed 4.0 psf- see structural roof plan), over 30# felt underlayment, over Ice & Watershield self-sealing waterproof roof membrane (by W.R. Grace) or equivalent, over 15/32" CD-X plywood or 1/2" OSB sheathing, over 2x DF-L rafters (see structural drawings for info).

2a CLASS A "FLAT" ROOFING SYSTEM: Less than 2:12 roof pitch
Class A-1B Roof Systems (UL-R15546 & ICC-ES Evaluation Report ESR-2852), "Tan" Single-Ply Mechanically Attached Membrane Roofing System w/heat welded seams, over prefab. tapered polyisocyanurate foam core panels by Hunter Panels or equal (1/4" per ft. slope-min.) installed per maunf. specs., over 15/32" CD-X or OSB roof sheathing, see structural plans for sheathing & framing info., typ. U.O.N.

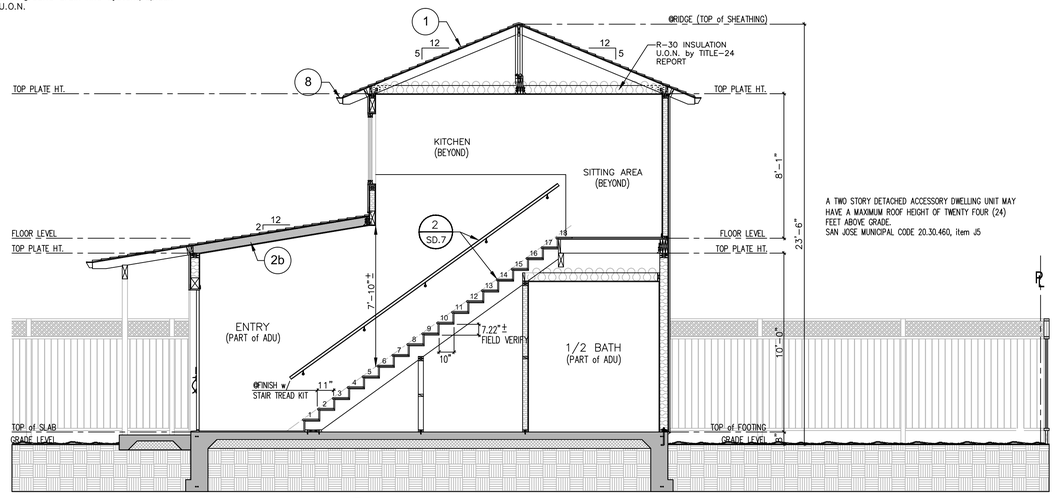
2b Unvented attics or sloped ceilings: CRC R806.4
Fill rafter bays with spray-applied closed cell polyurethane insulation, JM CORBOND III, install per listing UES ER-146 & manufacturers instructions.

3 Flashing: 24 ga. g.i. flashing per Sec. R905.2.8, 2019 CRC for asphalt shingle roofing systems.
a. valley flashing: 26 ga. g.i. "W" flashing over cont. 36" wide (min.) extra layer of 30# felt @ all valleys, per sec. R905.2.8.2(2), 2019 CRC, typical, u.n.o.
b. rake flashing: 26 ga. g.i. "L" flashing per details at roof & under exterior wall siding, and per sec. R905.2.8.3, 2019 CRC, typical, u.n.o.
c. step & pitch break flashing @flat roof: single ply Class A cap sheet heat welded (per manuf. specs.), o/Class A single ply roof membrane and under siding and paper and paper at all wall to flat roofs.
d. cricket flashing: 24 ga. g.i. flashing over 1/2" cdx plywood sheathing, over 2x4 d.f. framing @ 24" o.c. (as occurs), 1/4"/ft. min. slope to drain, typ., u.n.o.
e. window/door head flashing: 26 ga. g.i. "Z" flashing above windows & doors, typical, u.n.o.
f. wall to roof flashing: 24 ga. g.i. "L" flashingall wall to flat roofs per sec. R905.2.8.4, 2019 CRC, typical u.n.o.



3 Cross Section

1/4"=1'-0"



2 Cross Section

1/4"=1'-0"

Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

REGISTERED PROFESSIONAL ENGINEER
Jeffery Alan Ingram
No. C 66222
Exp. 6/30/2024
CIVIL
STATE OF CALIFORNIA

Massarotto ADU/Garage
1017 Ramona Ave.
San Jose, CA 95125

DATE ISSUE:
3/4/2021

1	8/10/2022	PER BUILDING DEPARTMENT PLAN CHECK
2	11/9/2022	PER PLANNING DEPARTMENT PLAN CHECK
3	3/6/2023	PER FIRE DEPARTMENT PLAN CHECK
4	10/30/2023	PER BUILDING DEPARTMENT PLAN CHECK
5	10/30/2023	DESIGN/ENGINEERING REVISIONS

PROJECT #: 719 SCALE: AS NOTED
DRAWN BY: JI, YI
PROJECT MANAGER: YI
ENGINEERED BY: JI
REVIEWED BY: JI

Sections

A9

0 2' 4' 6' 8' 10' 12'

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

Project Name: Massarotto ADU **Calculation Date/Time:** 2021-09-03T10:57:20-07:00 **(Page 1 of 9)**

Calculation Description: Title 24 Analysis **Input File Name:** 0210762 Massarotto ADU.ribd19x

GENERAL INFORMATION					
01	Project Name	Massarotto ADU			
02	Run Title	Title 24 Analysis			
03	Project Location	1017 Ramona Ave			
04	City	San Jose	05	Standards Version	2019
06	Zip code	95125	07	Software Version	EnergyPro 8.2
08	Climate Zone	4	09	Front Orientation (deg/ Cardinal)	315
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	NewConstruction	13	Number of Bedrooms	1
14	Addition Cond. Floor Area (ft^2)	0	15	Number of Stories	1
16	Existing Cond. Floor Area (ft^2)	n/a	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft^2)	453	19	Glazing Percentage (%)	24.61%
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a
22	Is Natural Gas Available?	Yes			

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

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

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ENERGY DESIGN RATING				
	Energy Design Ratings		Compliance Margins	
	Efficiency[1] (EDR)	Total[2] (EDR)	Efficiency[1] (EDR)	Total[2] (EDR)
Standard Design	62.1	34.5		
Proposed Design	62.1	34.5	0	0

RESULT: [3] COMPLIES

1: Efficiency EDR includes improvements to the building envelope and more efficient equipment
2: Total EDR includes efficiency and demand response measures such as photovoltaic (PV) systems and batteries
3: Building complies when efficiency and total compliance margins are greater than or equal to zero

- Standard Design PV Capacity: 1.63 kWdc
- PV System resized to 1.63 kWdc (a factor of 1.635) to achieve Standard Design PV PV scaling

ENERGY USE SUMMARY				
Energy Use (kTDV/ft^2-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	30.17	19.57	10.95	36.1
Space Cooling	32.93	40.55	-7.62	-23.1
IAQ Ventilation	11.94	12.35	-0.41	-3.4
Water Heating	41.33	43.94	-2.61	-6.3
Self-Utilization/Flexibility Credit	n/a	0	0	n/a
Compliance Energy Total	**116.52**	**116.21**	**0.31**	**0.3**

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

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REQUIRED SPECIAL FEATURES
The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.
• Indoor air quality, balanced fan • Insulation below roof deck • Window overhangs and/or fins • Variable capacity heat pump compliance option (verification details from VCHP Staff report, Appendix B, and RA3) • 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
Building level Verifications: • Indoor air quality ventilation • Kitchen range hood Cooling System Verifications: • Verified Refrigerant Charge • Airflow in habitable rooms (SC3.1.4.1.7) Heating System Verifications: • Verified heat pump rated heating capacity • Wall-mounted thermostat in zones greater than 150 ft2 (SC3.4.5) • Ductless indoor units located entirely in conditioned space (SC3.1.4.2.9) HVAC Distribution System Verifications: • -- None -- Domestic Hot Water System Verifications: • -- None --

BUILDING - FEATURES INFORMATION						
01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft^2)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Massarotto ADU	453	1	1	1	0	1

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ZONE INFORMATION						
01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
ADU	Conditioned	HVAC System1	453	8	DHW Sys 1	N/A

OPAQUE SURFACES							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)
Northwest Wall	ADU	R-15 Wall	315	Front	126	20	90
Northeast Wall	ADU	R-15 Wall	45	Left	228	0	90
Southeast Wall	ADU	R-15 Wall	135	Back	126	10.5	90
Southwest Wall	ADU	R-15 Wall	225	Right	228	81	90
Roof	ADU	R-38 HP Attic	n/a	n/a	453	n/a	n/a
Raised Floor (ub)	ADU	R-19 Floor No Crawlspace	n/a	n/a	453	n/a	n/a

ATTIC						
01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic ADU	Attic RoofADU	Ventilated	5	0.1	0.85	No	No

FENESTRATION / GLAZING													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
Door	Window	Northwest Wall	Front	315			1	20	0.3	NFRC	0.23	NFRC	Bug Screen
Window	Window	Southeast Wall	Back	135			1	2.5	0.3	NFRC	0.23	NFRC	Bug Screen
Window 2	Window	Southeast Wall	Back	135			1	8	0.3	NFRC	0.23	NFRC	Bug Screen
Window 3	Window	Southeast Wall	Right	225	2	3	1	6	0.3	NFRC	0.23	NFRC	Bug Screen

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

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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 (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
Window 4	Window	Southwest Wall	Right	225	5	5	1	25	0.3	NFRC	0.23	NFRC	Bug Screen
Window 5	Window	Southwest Wall	Right	225	5	5	1	25	0.3	NFRC	0.23	NFRC	Bug Screen
Window 6	Window	Southwest Wall	Right	225	5	5	1	25	0.3	NFRC	0.23	NFRC	Bug Screen

OVERHANGS AND FINS													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Window	Overhang					Left Fin				Right Fin			
	Depth	Dist Up	Left Extent	Right Extent	Flap Ht.	Depth	Top Up	Dist L	Bot Up	Depth	Top Up	Dist R	Bot Up
Window 3	1	0.1	2	2	9	0	0	0	0	0	0	0	0
Window 4	1	0.1	2	2	9	0	0	0	0	0	0	0	0
Window 5	1	0.1	2	2	9	0	0	0	0	0	0	0	0
Window 6	1	0.1	2	2	9	0	0	0	0	0	0	0	0

OPAQUE SURFACE CONSTRUCTIONS							
01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-15 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.095	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Exterior Finish: 7 Coat Stucco

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

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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
Attic RoofADU	Attic Roofs	Wood Framed Ceiling	2x6 @ 24 in. O. C.	R-19	None / None	0.059	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/Sheathing/decking Cavity / Frame: R-13.0 / 2x6 Around Roof Joists: R-6.0 insul.
R-38 HP Attic	Ceilings (below attic)	Wood Framed Ceiling	2x6 @ 24 in. O. C.	R-38	None / None	0.025	Over Ceiling Joists: R-29.3 insul. Cavity / Frame: R-9.1 / 2x6 Inside Finish: Gypsum Board
R-19 Floor No Crawlspace	Exterior Floors	Wood Framed Floor	2x6 @ 16 in. O. C.	R-19	None / None	0.052	Floor Surface: Carpeted Floor Deck: Wood Siding/Sheathing/decking Cavity / Frame: R-19 in 5 1/2 in. (R-18) / 2x6

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

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

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WATER HEATERS											
01	02	03	04	05	06	07	08	09	10	11	12
Name	Heating Element Type	Tank Type	# of Units	Tank Vol. (gal)	Energy Factor or Efficiency	Input Rating or Pilot	Tank Insulation R-value (int/Ext)	Standby Loss or Recovery Eff	1st Hr. Rating or Flow Rate	NEEA Heat Pump Brand or Model	Tank Location or Ambient Condition
DHW Heater 1	Heat Pump	n/a	1	40	NEEA	n/a	n/a	n/a	80 gal	Rheem(PROPH40 T2 RH3751S (40 gal)	Outside

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

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

HVAC - HEAT PUMPS										
01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Number of Units	Heating			Cooling		Zonally Controlled	Compressor Type	HERS Verification
			HSPF/COP	Cap 47	Cap 17	SEER	EER/CEER			
Heat Pump System 1	VCHP-ductless	1	8.2	20000	10000	14	11.7	Not Zonal	Single Speed	Heat Pump System 1 hers-Hpump

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

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

IAQ (INDOOR AIR QUALITY) FANS					
01	02	03	04	05	06
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness (%)	IAQ Recovery Effectiveness - SRE
SFam IAQVentRpt 1-1	40	0.575	Balanced HRV	66	n/a

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
I, I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Adam Bailey	Documentation Author Signature: *Adam Bailey*
Company: FRI Energy Consultants, LLC.	Signature Date: 2021-09-03 11:02:35
Address: 21 N. Harrison Ave,	CEA/ HERS Certification Identification (If applicable):
City/State/Zip: Campbell, CA 95008	Phone: 408-866-1620

RESPONSIBLE PERSON'S DECLARATION STATEMENT	
I certify the following under penalty of perjury, under the laws of the State of California: 1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance. 2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations. 3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.	
Responsible Designer Name: Yolanda Ingram	Responsible Designer Signature: *Yolanda Ingram*
Company: ISE Ingram Structural Engineering	Date Signed: 2021-09-03 11:03:14
Address: 338 BURNING TREE DRIVE	License: N/A
City/State/Zip: SAN JOSE, CA 95119	Phone: 408-836-6604

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FRI Energy Consultants, LLC
21 N. Harrison Avenue, Suite 210
Campbell, Ca. 95008
Phone: 408-866-1620 Fax: 408-866-6832

MASSAROTTO ADU
1017 RAMONA AVE
SAN JOSE, CA 95125

T24-1

2019 Low-Rise Residential Mandatory Measures Summary

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

Building Envelope Measures:	
§ 110.6(a)1:	**Air Leakage.** Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283 or AAMA/WDMA/CSA 101/I.S.2/A440-2011.*
§ 110.6(a)5:	**Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).
§ 110.6(b):	**Field fabricated exterior doors and fenestration** products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped.*
§ 110.7:	**Air Leakage.** All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	**Insulation Certification by Manufacturers.** Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	**Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(i):	**Roofing Products Solar Reflectance and Thermal Emittance.** The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CF1R.
§ 110.8(j):	**Radiant Barrier.** When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	**Ceiling and Rafter Roof Insulation.** Minimum R-22 insulation in wood-frame ceiling; or the weighted average U-factor must not exceed 0.043. Minimum R-19 or weighted average U-factor of 0.054 or less in a rafter roof alteration. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a continuous roof or ceiling which is sealed to limit infiltration and exfiltration as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling.*
§ 150.0(b):	**Loose-fill Insulation.** Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c):	**Wall Insulation.** Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150.1-A or B.*
§ 150.0(d):	**Raised-floor Insulation.** Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor.*
§ 150.0(f):	**Slab Edge Insulation.** Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have a water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	**Vapor Retarder.** In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to § 150.0(d).
§ 150.0(g)2:	**Vapor Retarder.** In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(q):	**Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.58; or the weighted average U-factor of all fenestration must not exceed 0.58.*
Fireplaces, Decorative Gas Appliances, and Gas Log Measures:	
§ 110.5(e)	**Pilot Light.** Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1:	**Closable Doors.** Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(e)2:	**Combustion Intake.** Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device.*
§ 150.0(e)3:	**Flue Damper.** Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.*
Space Conditioning, Water Heating, and Plumbing System Measures:	
§ 110.0-§ 110.3:	**Certification.** Heating, ventilation and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission.*
§ 110.2(a):	**HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-K.*
§ 110.2(b):	**Controls for Heat Pumps with Supplementary Electric Resistance Heaters.** Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone; and in which the cut-on temperature for compression heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating.*
§ 110.2(c):	**Thermostats.** All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.*
§ 110.3(c)4:	**Water Heating Recirculation Loops Serving Multiple Dwelling Units.** Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(c)4.
§ 110.3(c)6:	**Isolation Valves.** Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.
§ 110.5:	**Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (except appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu per hour); and pool and spa heaters.*
§ 150.0(h)1:	**Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)2.

2019 Low-Rise Residential Mandatory Measures Summary

§ 150.0(h)3A:	**Clearances.** Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer.
§ 150.0(h)3B:	**Liquid Line Drier.** Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0(j)1:	**Storage Tank Insulation.** Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, must have a minimum of R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.
§ 150.0(j)2A:	**Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in Section 609.11 of the California Plumbing Code. In addition, the following piping conditions must have a minimum insulation wall thickness of one inch or a minimum insulation R-value of 7.7: the first five feet of cold water pipes from the storage tank; all hot water piping with a nominal diameter equal to or greater than 3/4 inch and less than one inch; all hot water piping with a nominal diameter less than 3/4 inch that is: associated with a domestic hot water recirculation system, from the heating source to storage tank or between tanks, buried below grade, and from the heating source to kitchen fixtures.*
§ 150.0(j)3:	**Insulation Protection.** Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by Section 120.3(b). Insulation exposed to weather must be water retardant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve.
§ 150.0(n)1:	**Gas or Propane Water Heating Systems.** Systems using gas or propane water heaters to serve individual dwelling units must include all of the following: A dedicated 125 volt, 20 amp electrical receptacle connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within three feet of the water heater without obstruction. Both ends of the unused conductor must be labeled with the word "spare" and be electrically isolated. Have a reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words "Future 240V Use"; a Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; a condensate drain that is no more than two inches higher than the base of the water heater, and allows natural draining without pump assistance; and a gas supply line with a capacity of at least 200,000 Btu per hour.
§ 150.0(n)2:	**Recirculating Loops.** Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3(c)5.
§ 150.0(n)3:	**Solar Water-heating Systems.** Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the Executive Director.
Ducts and Fans Measures:	
§ 110.8(d)3:	**Ducts.** Insulation installed on an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement.
§ 150.0(m)1:	**CMC Compliance.** All air-distribution system ducts and plenums must meet the requirements of the CMC §§ 601.0, 602.0, 603.0, 604.0, 605.0 and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to a minimum installed level of R-6.0 or a minimum installed level of R-4.2 when ducts are entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8). Portions of the duct system completely exposed and surrounded by directly conditioned space are not required to be insulated. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than ¼ inch, the combination of mastic and either mesh or tape must be used. Building cavities, support platforms for air handlers, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms must not be compressed to cause reductions in the cross-sectional area.*
§ 150.0(m)2:	**Factory-Fabricated Duct Systems.** Factory-fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures; joints and seams of duct systems and their components must not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.
§ 150.0(m)3:	**Field-Fabricated Duct Systems.** Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(m)7:	**Backdraft Damper.** Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(m)8:	**Gravity Ventilation Dampers.** Gravity ventilating systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.
§ 150.0(m)9:	**Protection of Insulation.** Insulation must be protected from damage, sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service. For example, protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellular foam insulation must be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation.
§ 150.0(m)10:	**Porous Inner Core Flex Duct.** Porous inner core flex ducts must have a non-porous layer between the inner core and outer vapor barrier.
§ 150.0(m)11:	**Duct System Sealing and Leakage Test.** When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with § 150.0(m)11 and Reference Residential Appendix RA3.
§ 150.0(m)12:	**Air Filtration.** Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filters for space conditioning systems must have a two inch depth or can be one inch if sized per Equation 150.0-A. Pressure drops and labeling must meet the requirements in §150.0(m)12. Filters must be accessible for regular service.*
§ 150.0(m)13:	**Space Conditioning System Airflow Rate and Fan Efficacy.** Space conditioning systems that use ducts to supply cooling must have a hole for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 350 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.45 watts per CFM for gas furnace air handlers and ≤ 0.58 watts per CFM for all others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3.*

2019 Low-Rise Residential Mandatory Measures Summary

Requirements for Ventilation and Indoor Air Quality:	
§ 150.0(o)1:	**Requirements for Ventilation and Indoor Air Quality.** All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(o)1.
§ 150.0(o)1C:	**Single Family Detached Dwelling Units.** Single family detached dwelling units, and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow provided at rates determined by ASHRAE 62.2 Sections 4.1.1 and 4.1.2 and as specified in § 150.0(o)1C.
§ 150.0(o)1E:	**Multifamily Attached Dwelling Units.** Multifamily attached dwelling units must have mechanical ventilation airflow provided at rates in accordance with Equation 150.0-B and must be either a balanced system or continuous supply or continuous exhaust system. If a balanced system is not used, all units in the building must use the same system type and the dwelling-unit envelope leakage must be ≤ 0.3 CFM at 50 Pa (0.2 inch water) per square foot of dwelling unit envelope surface area and verified in accordance with Reference Residential Appendix RA3.8.
§ 150.0(o)1F:	**Multifamily Building Central Ventilation Systems.** Central ventilation systems that serve multiple dwelling units must be balanced to provide ventilation airflow for each dwelling unit served at a rate equal to or greater than the rate specified by Equation 150.0-B. All unit airflows must be within 20 percent of the unit with the lowest airflow rate as it relates to the individual unit's minimum required airflow rate needed for compliance.
§ 150.0(o)1G:	**Kitchen Range Hoods.** Kitchen range hoods must be rated for sound in accordance with Section 7.2 of ASHRAE 62.2.
§ 150.0(o)2:	**Field Verification and Diagnostic Testing.** Dwelling unit ventilation airflow must be verified in accordance with Reference Residential Appendix RA3.7. A kitchen range hood must be verified in accordance with Reference Residential Appendix RA3.7.4.3 to confirm it is rated by HVI to comply with the airflow rates and sound requirements as specified in Section 5 and 7.2 of ASHRAE 62.2.
Pool and Spa Systems and Equipment Measures:	
§ 110.4(a):	**Certification by Manufacturers.** Any pool or spa heating system or equipment must be certified to have all of the following: a thermal efficiency that complies with the Appliance Efficiency Regulations; an on-off switch mounted outside of the heater that allows shutting off the heater without adjusting the thermostat setting; a permanent weatherproof plate or card with operating instructions; and must not use electric resistance heating.*
§ 110.4(b)1:	**Piping.** Any pool or spa heating system or equipment must be installed with at least 36 inches of pipe between the filter and the heater, or dedicated suction and return lines, or built-in or built-up connections to allow for future solar heating.
§ 110.4(b)2:	**Covers.** Outdoor pools or spas that have a heat pump or gas heater must have a cover.
§ 110.4(b)3:	**Directional Inlets and Time Switches for Pools.** Pools must have directional inlets that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.
§ 110.5:	**Pilot Light.** Natural gas pool and spa heaters must not have a continuously burning pilot light.
§ 150.0(p):	**Pool Systems and Equipment Installation.** Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves.*
Lighting Measures:	
§ 110.9:	**Lighting Controls and Components.** All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*
§ 150.0(k)1A:	**Luminaire Efficacy.** All installed luminaires must meet the requirements in Table 150.0-A.
§ 150.0(k)1B:	**Blank Electrical Boxes.** The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.
§ 150.0(k)1C:	**Recessed Downlight Luminaires in Ceilings.** Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C.
§ 150.0(k)1D:	**Electronic Ballasts for Fluorescent Lamps.** Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.
§ 150.0(k)1E:	**Night Lights, Step Lights, and Path Lights.** Night lights, step lights and path lights are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided they are rated to consume no more than 5 watts of power and emit no more than 150 lumens.
§ 150.0(k)1F:	**Lighting Integral to Exhaust Fans.** Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k).*
§ 150.0(k)1G:	**Screw based luminaires.** Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8.*
§ 150.0(k)1H:	**Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1I:	**Light Sources in Drawers, Cabinets, and Linen Closets.** Light sources internal to drawers, cabinetry or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit no more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.
§ 150.0(k)2A:	**Interior Switches and Controls.** All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.
§ 150.0(k)2B:	**Interior Switches and Controls.** Exhaust fans must be controlled separately from lighting systems.*
§ 150.0(k)2C:	**Interior Switches and Controls.** Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned ON and OFF.*
§ 150.0(k)2D:	**Interior Switches and Controls.** Controls and equipment must be installed in accordance with manufacturer's instructions.
§ 150.0(k)2E:	**Interior Switches and Controls.** Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the control is installed to comply with § 150.0(k).
§ 150.0(k)2F:	**Interior Switches and Controls.** Lighting controls must comply with the applicable requirements of § 110.9.

2019 Low-Rise Residential Mandatory Measures Summary

§ 150.0(k)2G:	**Interior Switches and Controls.** An energy management control system (EMCS) may be used to comply with control requirements if it: provides functionality of the specified control according to § 110.9; meets the Installation Certificate requirements of § 130.4; meets the EMCS requirements of § 130.0(e); and meets all other requirements in § 150.0(k)2.
§ 150.0(k)2H:	**Interior Switches and Controls.** A multiscene programmable controller may be used to comply with dimmer requirements in § 150.0(k) if it provides the functionality of a dimmer according to § 110.9, and complies with all other applicable requirements in § 150.0(k)2.
§ 150.0(k)2I:	**Interior Switches and Controls.** In bathrooms, garages, laundry rooms, and utility rooms, at least one luminaire in each of these spaces must be controlled by an occupant sensor or a vacancy sensor providing automatic-off functionality. If an occupant sensor is installed, it must be initially configured to manual-on operation using the manual control required under Section 150.0(k)2C.
§ 150.0(k)2J:	**Interior Switches and Controls.** Luminaires that are or contain light sources that meet Reference Joint Appendix JA8 requirements for dimming, and that are not controlled by occupancy or vacancy sensors, must have dimming controls.*
§ 150.0(k)2K:	**Interior Switches and Controls.** Under cabinet lighting must be controlled separately from ceiling-installed lighting systems.
§ 150.0(k)3A:	**Residential Outdoor Lighting.** For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must meet the requirement in item § 150.0(k)3Ai (ON and OFF switch) and the requirements in either § 150.0(k)3Aii (photocell and either a motion sensor or automatic time switch control) or § 150.0(k)3Aiii (astronomical time clock), or an EMCS.
§ 150.0(k)3B:	**Residential Outdoor Lighting.** For low-rise residential buildings with four or more dwelling units, outdoor lighting for private patios, entrances, balconies, and porches; and residential parking lots and carports with less than eight vehicles per site must comply with either § 150.0(k)3A or with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)3C:	**Residential Outdoor Lighting.** For low-rise residential buildings with four or more dwelling units, any outdoor lighting for residential parking lots or carports with a total of eight or more vehicles per site and any outdoor lighting not regulated by § 150.0(k)3B or § 150.0(k)3D must comply with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)4:	**Internally illuminated address signs.** Internally illuminated address signs must comply with § 140.8; or must consume no more than 5 watts of power as determined according to § 130.0(c).
§ 150.0(k)5:	**Residential Garages for Eight or More Vehicles.** Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in Sections 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.
§ 150.0(k)6A:	**Interior Common Areas of Low-rise Multifamily Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals 20 percent or less of the floor area, permanently installed lighting for the interior common areas in that building must be comply with Table 150.0-A and be controlled by an occupant sensor.
§ 150.0(k)6B:	**Interior Common Areas of Low-rise Multifamily Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals more than 20 percent of the floor area, permanently installed lighting for the interior common areas in that building must: i. Comply with the applicable requirements in Sections 110.9, 130.0, 130.1, 140.6 and 141.0; and ii. Lighting installed in corridors and stairwells must be controlled by occupant sensors that reduce the lighting power in each space by at least 50 percent. The occupant sensors must be capable of turning the light fully on and off from all designed paths of ingress and egress.
Solar Ready Buildings:	
§ 110.10(a)1:	**Single Family Residences.** Single family residences located in subdivisions with 10 or more single family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which do not have a photovoltaic system installed, must comply with the requirements of § 110.10(b) through § 110.10(e).
§ 110.10(a)2:	**Low-rise Multifamily Buildings.** Low-rise multi-family buildings that do not have a photovoltaic system installed must comply with the requirements of § 110.10(b) through § 110.10(d).
§ 110.10(b)1:	**Minimum Solar Zone Area.** The solar zone must have a minimum total area as described below. The solar zone must comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 9 or other parts of Title 24 or in any requirements adopted by a local jurisdiction. The solar zone total area must be comprised of areas that have no dimension less than 5 feet and are no less than 80 square feet each for buildings with roof areas less than or equal to 10,000 square feet or no less than 160 square feet each for buildings with roof areas greater than 10,000 square feet. For single family residences, the solar zone must be located on the roof or overhang of the building and have a total area no less than 250 square feet. For low-rise multi-family buildings the solar zone must be located on the roof or overhang of the building, or on the roof or overhang of another structure located within 250 feet of the building, or on covered parking installed with the building project, and have a total area no less than 15 percent of the total roof area of the building excluding any skylight area. The solar zone requirement is applicable to the entire building, including mixed occupancy.*
§ 110.10(b)2:	**Azimuth.** All sections of the solar zone located on steep-sloped roofs must be oriented between 90 degrees and 300 degrees of true north.
§ 110.10(b)3A:	**Shading.** The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted equipment.*
§ 110.10(b)3B:	**Shading.** Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the distance, measured in the horizontal plane, of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane.*
§ 110.10(b)4:	**Structural Design Loads on Construction Documents.** For areas of the roof designated as a solar zone, the structural design loads for roof dead load and roof live load must be clearly indicated on the construction documents.
§ 110.10(c):	**Interconnection Pathways.** The construction documents must indicate: a location reserved for inverters and metering equipment and a pathway reserved for routing of conduit from the solar zone to the point of interconnection with the electrical service; and for single family residences and central water-heating systems, a pathway reserved for routing plumbing from the solar zone to the water-heating system.
§ 110.10(d):	**Documentation.** A copy of the construction documents or a comparable document indicating the information from § 110.10(b) through § 110.10(c) must be provided to the occupant.
§ 110.10(e)1:	**Main Electrical Service Panel.** The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(e)2:	**Main Electrical Service Panel.** The main electrical service panel must have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation. The reserved space must be permanently marked as "For Future Solar Electric".

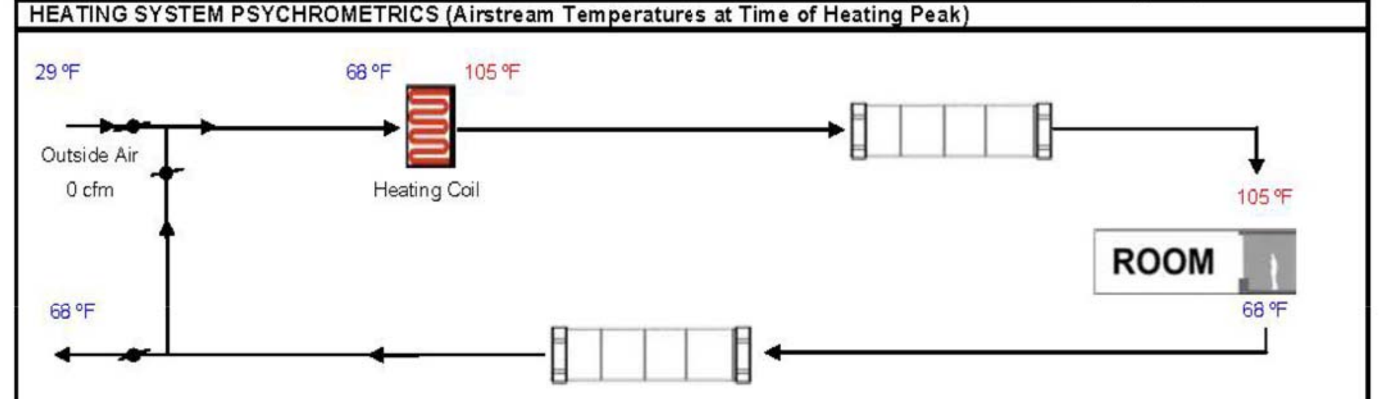
HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name: Massarotto ADU	Date: 9/3/2021
System Name: HVAC System	Floor Area: 453

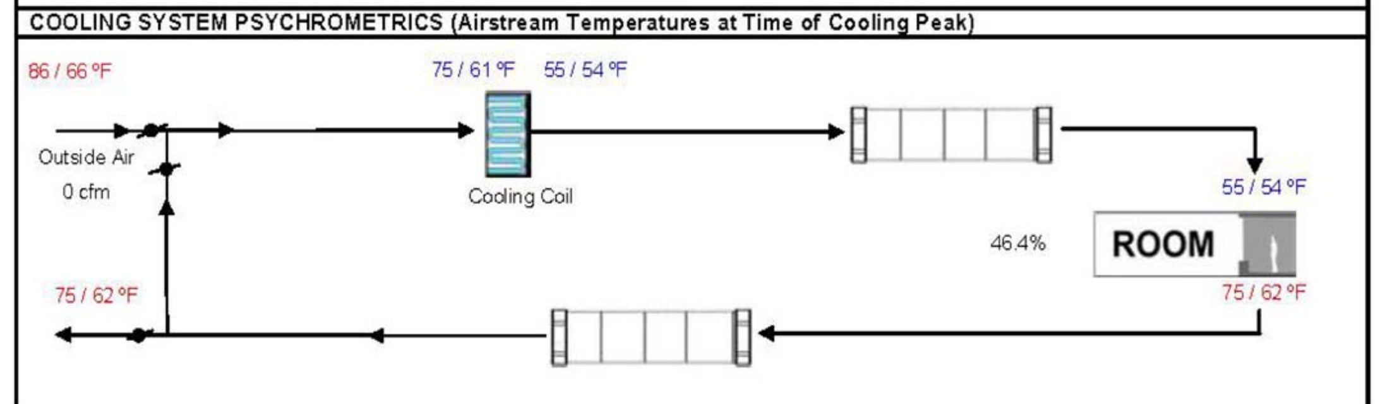
ENGINEERING CHECKS	
Number of Systems	1
Heating System	
Output per System	20,000
Total Output (Btuh)	20,000
Output (Btuh/sqft)	44.2
Cooling System	
Output per System	12,000
Total Output (Btuh)	12,000
Total Output (Tons)	1.0
Total Output (Btuh/sqft)	26.5
Total Output (sqft/Ton)	453.0
Air System	
CFM per System	0
Airflow (cfm)	0
Airflow (cfm/sqft)	0.00
Airflow (cfm/Ton)	0.0
Outside Air (%)	0.0%
Outside Air (cfm/sqft)	0.00
Note: values above given at ARI conditions	

SYSTEM LOAD	COIL COOLING PEAK			COIL HTG. PEAK	
	CFM	Sensible	Latent	CFM	Sensible
Total Room Loads	190	4,105	203	134	5,359
Return Vented Lighting		0			
Return Air Ducts		0			0
Return Fan		0			0
Ventilation	0	0	0	0	0
Supply Fan		0			0
Supply Air Ducts		0			0
TOTAL SYSTEM LOAD		4,105	203		5,359
HVAC EQUIPMENT SELECTION					
Ductless Heat Pump		11,484	0		13,529
Total Adjusted System Output (Adjusted for Peak Design conditions)		11,484	0		13,529
TIME OF SYSTEM PEAK		Aug 3 PM			Jan 1 AM

HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)



COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)



FRI Energy Consultants, LLC
21 N. Harrison Avenue, Suite 210
Campbell, Ca. 95008
Phone: 408-866-1620 Fax: 408-866-6832

MASSAROTTO ADU
1017 RAMONA AVE
SAN JOSE, CA 95125

T24-2

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

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

Y | N/A | RESPON. PARTY

CHAPTER 3
GREEN BUILDING
SECTION 301 GENERAL

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

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

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

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

SECTION 302 MIXED OCCUPANCY BUILDINGS

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

ABBREVIATION DEFINITIONS:

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

CHAPTER 4
RESIDENTIAL MANDATORY MEASURES
DIVISION 4.1 PLANNING AND DESIGN
SECTION 4.102 DEFINITIONS
4.102.1 DEFINITIONS
The following terms are defined in Chapter 2 *(and are included here for reference)*

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

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

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

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

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

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

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

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

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

Exception: Additions and alterations not altering the drainage path.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Notes:

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

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

TABLE 4.106.4.3.1

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

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

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

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

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

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

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

DIVISION 4.2 ENERGY EFFICIENCY
4.201 GENERAL
4.201.1 SCOPE. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory standards.

DIVISION 4.3 WATER EFFICIENCY AND CONSERVATION
4.303 INDOOR WATER USE
4.303.1 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the sections 4.303.1.1, 4.303.1.2, 4.303.1.3, and 4.303.4.4.

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

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

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

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

4.303.1.3 Showerheads.

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

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

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

4.303.1.4 Faucets.

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

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

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

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

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

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

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

TABLE - MAXIMUM FIXTURE WATER USE

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

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

NOTES:

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

DIVISION 4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY
4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE
4.406.1 RODENT PROOFING. Annular spaces around pipes, electric cables, conduits or other openings in sole/bottom plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or a similar method acceptable to the enforcing agency.

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

Exceptions:

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

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

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

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

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

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

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

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

Notes:

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

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

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

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

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

DIVISION 4.5 ENVIRONMENTAL QUALITY
SECTION 4.501 GENERAL
4.501.1 Scope
The provisions of this chapter shall outline means of reducing the quality of air contaminants that are odorous, irritating and/or harmful to the comfort and well being of a building's installers, occupants and neighbors.

SECTION 4.502 DEFINITIONS
5.102.1 DEFINITIONS
The following terms are defined in Chapter 2 *(and are included here for reference)*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable or SCAQMD Rule 1168 VOC limits, as shown in Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products, as specified in Subsection 2 below.
2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than 1 pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of *California Code of Regulations*, Title 17, commencing with section 94507.

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

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

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

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

TABLE 4.504.1 - ADHESIVE VOC LIMIT[1,2]

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

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

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

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

TABLE 4.504.2 - SEALANT VOC LIMIT

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

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

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

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

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

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

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

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

TABLE 4.504.5 - FORMALDEHYDE LIMITS[1]

MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION

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

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

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

DIVISION 4.5 ENVIRONMENTAL QUALITY (continued)
4.504.3 CARPET SYSTEMS. All carpet installed in the building interior shall meet the testing and product requirements of at least one of the following:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

4.506 INDOOR AIR QUALITY AND EXHAUST
4.506.1 Bathroom exhaust fans. Each bathroom shall be mechanically ventilated and shall comply with the following:

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

Notes:

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

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

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

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

CHAPTER 7
INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS

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

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

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

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

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

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

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

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

CG-2

SHEAR WALL SCHEDULE (See Notes)

2x SILL

SHEAR WALL TYPE	STRUCTURAL I SHEATHING (17)	EDGE NAILING (2,13) (14,15)	JOISTS or BLOCKS TO TOP PLATE	SOLE PLATE TO JOISTS or BLK'G	SILL BOLTS TO CONCRETE	per AWC SDPWS–15 Table 4.3A		USED IN CALCULATIONS
(SEE PLANS)	APA STRUCT 1 DOC PS 1 or PS 2	10d Common Nails	SIMPSON ANCHOR Note (i)	16d COMMON NAILS	$\frac{5}{8}$"ø x 12" at (1,3,15,16,18) Note (j)	NOMINAL UNIT SHEAR	ALLOWABLE UNIT SHEAR	ALLOWABLE UNIT SHEAR
◇6	15/32"	@6" o.c.	A34 at 16" o.c. OR A35 at 24" o.c.	@8" o.c.	4'–0" o.c. 2x SILL PLATE	680 lb/ft	340 lb/ft	325 lb/ft
◇4	15/32"	@4" o.c. (1), (15)	A35 at 16" o.c.	@5½" o.c.	3'–0" o.c. 2x SILL PLATE	1020 lb/ft	510 lb/ft	490 lb/ft
◇3	15/32"	@3" o.c. (1), (15)	A35 at 12" o.c.	@4" o.c.	2'–3" o.c. 2x SILL PLATE	1330 lb/ft	665 lb/ft	650 lb/ft
◇2	15/32"	@2" o.c. (1), (15)	(2) A35 at 16" o.c.	@3" o.c.	1'–8" o.c. 2x SILL PLATE	1740 lb/ft	870 lb/ft	870 lb/ft
◇4	15/32" EACH SIDE	@4" o.c. (1), (4), (15)	← (SEE DETAILS) →			2040 lb/ft	1020 lb/ft	1020 lb/ft
◇3	15/32" EACH SIDE	@3" o.c. (1), (4), (15)	← (SEE DETAILS) →			3480 lb/ft	1740 lb/ft	1500 lb/ft
ALL FIELD NAILING SHALL BE 10d COMMON at 12" o.c.								

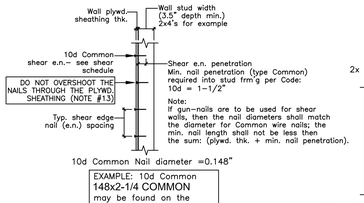
(i) AT ROOF, SPACE SHEAR CLIP BETWEEN EACH RAFTER BAY @PERIMETER EXTERIOR WALLS, U.O.N. (j) SILL ANCHOR BOLTS SHALL BE HOT-DIPPED GALVANIZED.

NOTES: (CONTRACTOR SHALL READ & UNDERSTAND THESE NOTES BEFORE CONSTRUCTION)

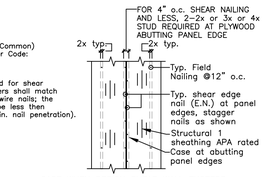
(1) In Seismic Design Category D, E, or F, (SEE NOTE #20 FOR SEISMIC DESIGN CATEGORY for THIS PROJECT) where shear design values exceed 350 pounds per linear foot, all framing members receiving edge nailing from ABUTTING PANELS shall not be less than a single 3–inch nominal member, USE 3x or 4x (DEPTH TO MATCH WALL FRAMING) MEMBER @SHEAR ABUTTING PANEL EDGES.
(2) Nails shall be 10d COMMON (0.148"x2–1/4" COMMON) with minimum 1.5–inch nail penetration into framing members or blocking.
(3) Foundation sill plates shall be Pressure Treated Douglas–Fir Larch No. 2 or equal lumber; See shear schedule for sill plate size. All sill plates bolted to concrete with 5/8" diameter x12" bolts spaced not more than 4'–0" o.c., with a minimum of two bolts for each piece of sill plate. Anchor bolts shall have a 4.5" minimum and a 12" maximum clearance to the end of the sill plate, and 7" minimum embedment into concrete or masonry.
Sill plate size & anchorage in Seismic Design Category D, E, or F: Plate washers shall be minimum 0.229" x 3" x 3" in size, between sill plate & nut. The hole in the plate washer is permitted to be diagonally slotted with a width of up to 3/16" larger than the bolt diameter and a slot length not to exceed 1–3/4", provided a standard cut washer is placed between the plate washer and the nut. Sill plates resisting a design load greater than 350 plf using ASD shall not be less than a 3–inch nominal member. See note (16) for exception.
(4) Where panels applied on both faces of a wall AND nail spacing is less than 6" o.c. on either side, panel joints shall be offset to fall on different framing members, or framing shall be 3–inch nominal or thicker at adjoining panel edges and nails on each side shall be staggered.
(5) All shear wall sheathing shall extend to the bottom of the roof sheathing U.O.N. by the structural details.
(6) Provide stud or blocking at unsupported panel edge.
(7) Extend shear sheathing over all openings for continuous shear support & uniform wall thickness.
(8) Shear wall panels shall not be less than 24" in either direction; EXCEPTION: Shear plywood panel may be less than 24" provided that all edges of the supported sheets are supported by and fastened to framing members or blocking.
(9) Panel edges backed with 2–inch nominal or wider framing. Install panels either horizontally or vertically. Space fasteners maximum 12" o.c. on intermediate supports for studs spaced @16" o.c.
(10) All posts receiving hold–downs shall have shear edge nailing full height.
(11) Floor plywood shall be glued and fastened to the rim joist or blocking for the use of 16d COMMON shear wall bottom plate fasteners. Glue shall meet the requirements of the APA adhesive spec. AFG–DI, and shall be applied as per manufactur's recommendations; glue may be applied manually or with pneumatic or electric equiptment.
(12) VOID
(13) If gun nails (power driven fasteners) are used, then adjust the power such that the nail head does not penetrate the plywood sheathing. The head of shear wall nails shall not penetrate the plywood.
(14) When ordering large quanties of nails, verify the carton label or with the manufacturer that the nails have the same length & diameter values as the nails specified in note #2.
(15) Framing at adjoining panel edges shall be 3 inches nominal or wider, and nails shall be staggered.
(16) VOID
(17) Shear plywood sheathing shall be APA rated STRUCTURAL I, DOC PS–1 or PS–2 (APA or TECO Performance–Rated) or OSB STRUCTURAL I, 24/0 SPAN RATING for 3/8" 3–ply sheathing, 32/16 span rating for 15/32" Structural 1 sheathing (5–ply or OSB). See plans for more information.
(18) Sill plate and anchor bolt is designed as per 2018 NDS Table 12E. For 2x sill plate with 5/8" bolt, allowable shear parallel to grain is (930 lb x1.6)=1490 lb; for 3x and larger 5/8" bolt, allowable shear is (1180 lb x1.6)=1890 lb.
(19) Plywood shear wall nominal unit shear data was obtained from AWS SDPWS–15 Table 4.3A. Allowable shear equals the nominal shear divided by 2.0 as per SDPWS Section 4.3.3. Allowable shears for 3/8" are permitted to be increased for 15/32" plywood with same nailing provided: (A) Studs are spaced a maximum of 16" on center, or (B) If panels are applied with long dimension across studs. SDPWS–15 Table 4.3A footnote 2.
(20) Seismic Design Category = D

ADDITIONAL SHEAR WALL NOTES:

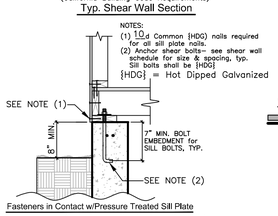
1. CONTRACTOR SHALL REVIEW ALL TYPICAL SHEAR WALL CONNECTION DETAILS & NOTES PRIOR TO CONSTRUCTION.
2. A) SAME as NOTE #2 ABOVE.
   B) [HDG]=HOT–DIPPED GALVANIZED NAILS SHALL BE USED FOR ALL SILL PLATE NAILING (i.e. TO P.T. LUMBER, TYP.)
3. A) ALL SHEAR WALL PLYWOOD NAILING EDGES SHALL BE FASTENED TO SOILD FRAMING MEMBERS or BLOCKING.
   B) SHEAR PLYWOOD SHALL BE FASTENED DIRECTLY TO THE STUDS, AND STUDS SHALL BE SPACED NOT MORE THAN 16" o.c.
   C) DO NOT 'OVER–NAIL' THE SHEAR WALL, SPACE NAILING IN ACCORDANCE TO THE SHEAR WALL SCHEDULE.
   D) DO NOT 'OVER–SHOOT' THE NAILS INTO THE PLYWOOD, THE HEAD OF THE NAILS SHOULD BE FLUSH WITH THE FACE OF PLYWOOD. IF POWER–DRIVEN NAILING IS DONE, RECOMMEND ADJUSTING THE POWER SUCH THAT THE HEAD OF THE NAILS DO NOT PENETRATE THROUGH THE PLYWOOD, AND THE USE OF A HAMMER TO FINISH OFF THE NAILING.
   E) AT SHEAR WALL ABUTTING PANEL EDGES, RECOMMEND 4x (DEPTH TO MATCH WALL FRAMING) TO RECEIVE NAILING FROM EACH PLYWOOD SHEET. MINIMUM ONE 2x STUD IS ACCEPTABLE FOR TYPE 1 SHEAR WALL ONLY @ABUTTING PANEL EDGES. FOR SHEAR WALL TYPES 2, 3, 4, ... ETC. 3x OR 4x MEMBER IS MANDATORY AT ABUTTING PANEL EDGES.
4. AT EXISTING FOUNDATION CONDITIONS FOR SILL "SHEAR" BOLTS: USE 5/8" diameter [HDG] ALL–THREAD x7" EMBEDMENT, DRILL & CLEAN–OUT HOLES & USE SIMPSON SET–XP ADHESIVE, NOTE THAT SOME CITY BUILDING DEPARTMENTS MAY WANT SPECIAL INSPECTION DURING THIS PROCESS– THIS SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO THE PLACEMENT OF EPOXY. IN LIEU of THE USE OF EPOXY for SILL ANCHOR SHEAR BOLTS ONLY, 5/8" dia. x(7" EMBED.) Titen HD SCREWS MAY BE USED; Titen BOLTS SHALL BE HOT–DIPPED GALVANIZED and THE TYPICAL 3"x3"x1/4" [HDG] PLATE WASHERS SHALL BE USED.
5. AT EXISTING FOUNDATION CONDITIONS FOR EPOXY RETROFIT HOLDOWNS– SPECIAL INSPECTION IS MANDATORY DURING THE INSTALLATION, REFERENCE DETAILS or PLANS FOR INSTALLATION INFO.
6. ALL SIMPSON PRODUCTS ARE TO BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.
7. A) LENGTH OF SHEAR WALL IS DEFINED AS THE EDGE OF PLYWOOD SHEET, AND THE MINIMUM SHEAR WALL LENGTH IS SPECIFIED ON THE PLANS.
   B) PROVIDE E.N.=EDGE NAILING AT EACH PLYWOOD SHEET PERIMETER; AT CONDITIONS WHERE HOLDOWN OCCURS, E.N. to BOTH THE HEADER BEARING STUD(S) AND TO THE FULL–HT. POST RECEIVING THE HOLD–DOWN.



(California Building Code Requirements)
Typ. Shear Wall Section

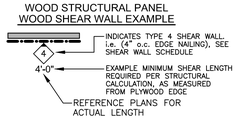


(California Building Code Requirements)
Partial Shear Wall Elevation



All sill anchor bolts (and all connection hardware that will be in contact to pressure treated lumber) shall be HOT–DIPPED GALVANIZED or an approved equal corrosion resistant material.

WOOD STRUCTURAL PANEL
WOOD SHEAR WALL EXAMPLE



<<< Use 10d COMMON nails for shear wall nailing >>>
<<< Use 10d COMMON HOT–DIPPED GALVANIZED nails for shear sill plate nailing >>>

SHEAR WALL SCHEDULE

ROOF PLYWOOD SHEATHING

Roof Sheathing: 15/32" DOC PS–1 or DOC PS–2 Sheathing, EXP 1 with 32/16 Span Rating, APA Rated Plywood or OSB, Use 10d nails: 0.148"x2–1/4" HDG Gun nail @6" o.c. at BOUNDARY & EDGES & 12" o.c. IN THE FIELD; blocked @intermediate panel.

FLOOR PLYWOOD SHEATHING

Floor Sheathing: 23/32" APA Rated DOC PS 1 or DOC PS 2 STURD–I –FLOOR sheathing; 48/24 SPAN RATING w/EXPOSURE 1 GLUE; USE 10d COMMON 0.148"x2–3/8" GALVANIZED RING SHANK NAILS @6" o.c. at BOUNDARY & EDGES & 12" o.c. IN THE FIELD; unblocked @ intermediate panel edges U.O.N. on plans.

SHEAR WALL PLYWOOD SHEATHING

Shear wall plywood sheathing: 15/32" STRUCTURAL 1 DOC PS–1 or PS–2 (APA or TECO Performance–Rated) Sheathing (or OSB STRUCT. 1), 32/16 SPAN RATING; Use 10d nails– 0.148" x2–1/4" HDG Gun nail; Reference shear wall schedule for shear wall type & notes.

NOTES:

1. HEADERS: SEE HEADER SCHEDULE SHEET SD.2, TYP. U.O.N. on PLANS.
2. PROVIDE 2x SOLID BLOCKING BELOW ALL BEARING WALLS PERPENDICULAR TO JOISTS.
3. PROVIDE DBL. JOISTS BELOW ALL BEARING WALLS PARALLEL TO JOISTS.
4. SEE SHEET SD.1 FOR GENERAL NOTES & STRUCTURAL SPECIFICATIONS.
5. FIELD VERIFY ALL EXISTING DIMENSIONS IN FIELD PRIOR TO CONSTRUCTION, ANY SIGNIFICANT DISCREPANCIES, STOP CONSTRUCTION & NOTIFY ARCHITECT & ENGINEER IN WRITING.
6. SEE ARCHITECTURAL PLANS FOR DIMENSIONS.
7. ALL METAL ANCHORS, FASTENERS, CONNECTORS, ETC. THAT WILL BE IN CONTACT WITH PRESSURE TREATED LUMBER (or EXPOSED TO WEATHER CONDITIONS) SHALL BE HOT–DIPPED GALVANIZED, SILICONE BRONZE, STAINLESS STEEL or COPPER.
8. ALL HARDWARE TO BE "SIMPSON" or EQUAL PRODUCT U.O.N. on PLANS.

AVOIDING TROUBLES & PROBLEMS NOTES:

1. If a discrepancy arises between the drawings and field conditions, or where a detail is doubtful of interpretation or an unanticipated field condition is encountered, the engineer shall be immediately contacted for procedure to be followed. Such instructions shall be confirmed in writing and distributed to all affected parties, see "disclaimer" @right–side of sheet.
2. Wherever there is a conflict between details and specifications, or between details, or where doubtful of interpretation, the most restrictive shall govern as determined by the Engineer of Record.

ENGINEERED LUMBER:

SPECIE	MANUFACTURER	F_v (psi)	F_b (psi)	Ex10^6 (psi)	ICC–ESR REPORT
PARALLAM PSL 2.2E	WEYERHAEUSER	290	2900	2.2E	ESR–1387
MICROLLAM LVL 2.0E	WEYERHAEUSER	285	2600	2.0E	ESR–1387
RIGIDLAM LVL 2.1E–3100F_b	ROSEBURG	290	3100	2.1E	ESR–1210
VERSA–LAM 3100F_b	BOISE CASCADE	285	3100	2.0E	ESR–1040
REDLAM LVL 2.0E–2900F_b	REDBUILT	285	2900	2.0E	ESR–2993
PACIFIC WOODTECH LVL	ALLIANCE LUMBER	285	3100	2.0E	ESR–2909
SOLIDSTART LVL	LOUISIANA PACIFIC	285	2900	2.0E	ESR–2403

CONVENTIONAL LUMBER:

SPECIE		F_v (psi)	F_b (psi)	Ex10^6 (psi)
DF#2	4x & LESS	180	900	1.6E
DF#1	4x & LESS	180	1000	1.7E
DF#1 & Btr.	4x & LESS	180	1200	1.8E
DF S.S.	4x & LESS	180	1500	1.9E
DF#1	6x & GREATER	170	1350	1.6E

F_v = ALLOWABLE SHEAR STRESS
F_b = ALLOWABLE BENDING STRESS
E = MODULUS of ELASTICITY

ALLOWABLE BEAM SUBSTITUTIONS:

SPECIE (per PLAN)	SPECIE SUBSTITUTION
2–1.75"x14" MICROLLAM 2.0E	3.5"x14" PARALLAM 2.2E
3–1.75"x14" MICROLLAM 2.0E	5.25"x14" PARALLAM 2.2E
2–1.75"x11.875" MICROLLAM 2.0E	3.5"x11.875" PARALLAM 2.2E
3–1.75"x11.875" MICROLLAM 2.0E	5.25"x11.875" PARALLAM 2.2E
2–1.75"x9.25" MICROLLAM 2.0E	3.5"x9.25" PARALLAM 2.2E
3–1.75"x9.25" MICROLLAM 2.0E	5.25"x9.25" PARALLAM 2.2E

ALL 2.0E LVL BUILT–UP BEAMS MAY BE SUBSTITUTED WITH EQUAL SIZE PARALLAM 2.2E BEAM, TYP. U.O.N.

BEAM & JOIST NOTES:

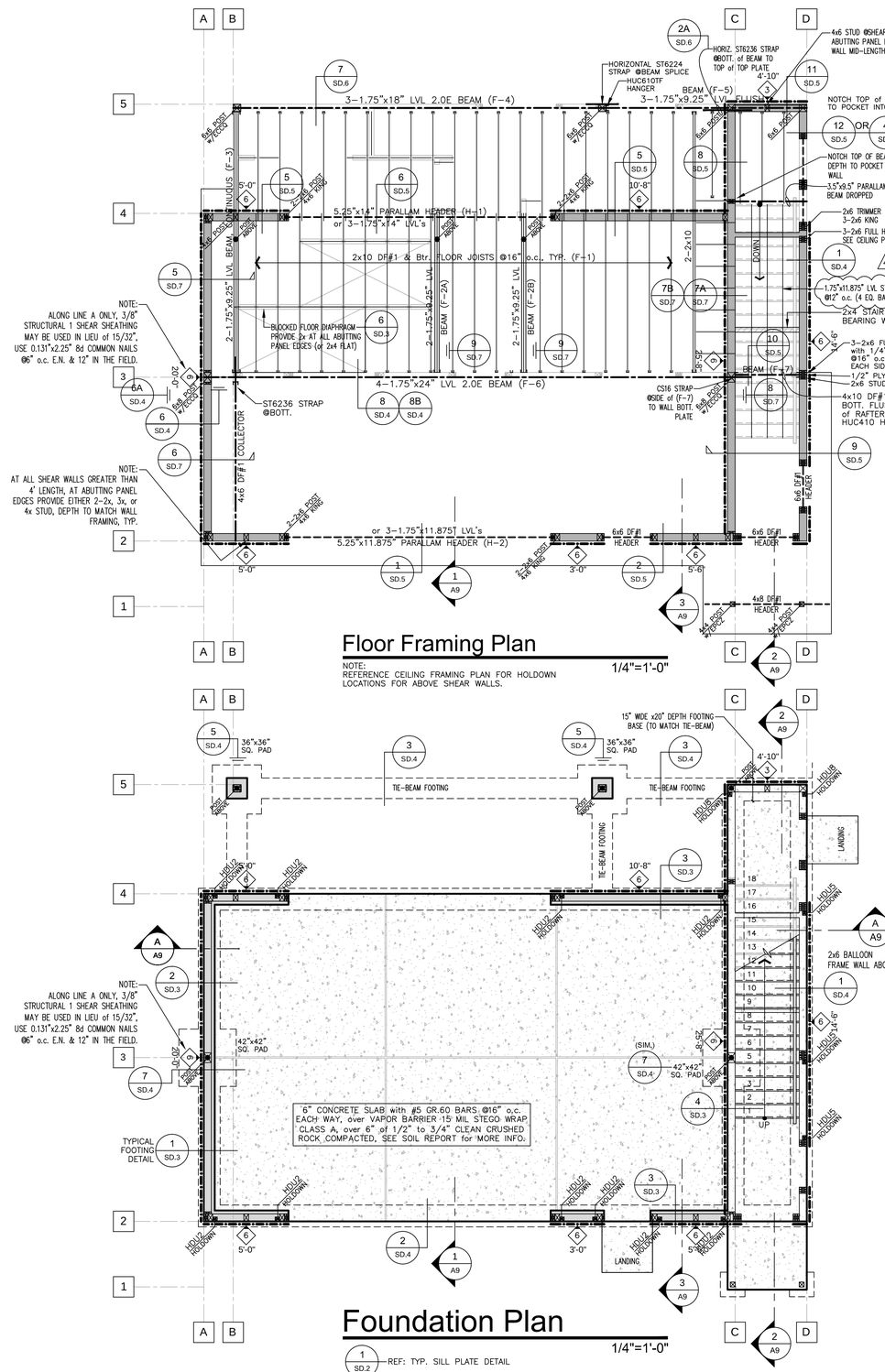
1. FOR LVL "LAMINATED VENEER LUMBER" SEE ABOVE ENGINEERED LUMBER TABLE ALLOWABLE MANUFACTURERS TO ORDER LUMBER FROM, FOR EXAMPLE MAY USE MICROLLAM LVL 2.0E by WEYERHAESER, OR PACIFIC WOODTECH LVL, ETC.
2. ALL PARALLAM BEAMS U.O.N. ON PLAN ARE CALCULATED USING 2.0E, WHEN ORDERING PARALLAMS PLEASE SPECIFY 2.2E.
3. MULTIPLE LVL's FASTENING: FOR BEAMS UP TO 14" DEPTH, U.O.N. ON PLANS or DETAILS
   a. 3–1.75" LVL's: 3–16dx3.5" COMMON NAILS @16" o.c. EACH SIDE, PLACED 2" FROM TOP, CENTER, AND 2" FROM BOTT.
   b. 2–1.75" LVL's: 3–16dx3.5" COMMON NAILS @16" o.c., PLACED 2" FROM TOP, CENTER, AND 2" FROM BOTT.

EARTHWORK:

EARTHWORK SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE FOUNDATION INVESTIGATIONS by: ROMIG ENGINEERS

Earthwork, slab subgrade and non–expansive fill preparation, foundation and slab construction, basement excavation, basement wall drainage and backfilling, subsurface drainage, utility trench backfilling, pavement construction, and site drainage should be performed in accordance with the geotechnical report prepared by Romig Engineers, Inc., dated December 7, 2021, Project #5729–1.
Romig Engineers should be notified at least 5 days in advance of any earthwork and should observe and test during earthwork and foundation construction as recommended in the geotechnical report.
Romig Engineers should be notified at least 5 days prior to earthwork, trench backfill and subgrade preparation work to allow time for sampling of off–site soil and laboratory compaction curve testing to be preformed prior to on–site compaction density testing.

NOTE:
REFERENCE ARCHITECTURAL (OR DESIGNER'S) PLANS for ALL WRITTEN DIMENSIONS. ALL WALL LAYOUTS ARE TO BE TAKEN FROM THE ARCH. PLANS. DO NOT SCALE THE STRUCTURAL PLANS for HOLD–DOWN PLACEMENTS AS IT WILL NOT YIELD ACCURATE RESULTS. THERE SHALL BE ONLY ONE SOURCE OF DIMENSIONS FOR WALL LAYOUT, AND SHOULD BE SHOWN and TAKEN FROM THE ARCH/DESIGN PLANS.



Floor Framing Plan

1/4"=1'–0"

NOTE:
REFERENCE CEILING FRAMING PLAN FOR HOLDOWN LOCATIONS FOR ABOVE SHEAR WALLS.

Foundation Plan

1/4"=1'–0"

1 SD.2 — REF: TYP. SILL PLATE DETAIL
2 SD.2 — REF: TYP. HOLDOWN DETAIL

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

REGISTERED PROFESSIONAL ENGINEER
Jeffery Alan Ingram
No. C 66222
Exp. 6/30/2024
CIVIL
STATE OF CALIFORNIA

Massarotto ADU/Garage
1017 Ramona Ave.
San Jose, CA 95125

DATE ISSUE:
3/4/2021

1	8/10/2022	PER BUILDING DEPARTMENT PLAN CHECK
2	11/9/2022	PER PLANNING DEPARTMENT PLAN CHECK
3	3/6/2023	PER FIRE DEPARTMENT PLAN CHECK
4	10/30/2023	PER BUILDING DEPARTMENT PLAN CHECK
5	10/30/2023	DESIGN/ENGINEERING REVISIONS

PROJECT #: 719	SCALE: 1/4"=1'–0"
DRAWN BY: JI, YI	
PROJECT MANAGER: YI	
ENGINEERED BY: JI	
REVIEWED BY: JI	

ADU & Garage
Structural Plan

S1
5

0 2' 4' 6' 8' 10' 12'

SHEAR WALL SCHEDULE (See Notes)

2x SILL PL

SHEAR WALL TYPE	STRUCTURAL I SHEATHING (17)	EDGE NAILING (2,13) (14,15)	JOISTS or BLOCKS TO TOP PLATE	SOLE PLATE TO JOISTS or BLK'G	SILL BOLTS TO CONCRETE	per AWC SDPWS–15 Table 4.3A		USED IN CALCULATIONS
(SEE PLANS)	APA STRUCT 1 DOC PS 1 or PS 2	10d Common Nails	SIMPSON ANCHOR Note (i)	16d COMMON NAILS	$\frac{5}{8}$"ø x 12" at (1,3,15,16,18) Note (j)	NOMINAL UNIT SHEAR	ALLOWABLE UNIT SHEAR	ALLOWABLE UNIT SHEAR
6	15/32"	@6" o.c.	A34 at 16" o.c. OR A35 at 24" o.c.	@8" o.c.	4'–0" o.c. 2x SILL PLATE	680 lb/ft	340 lb/ft	325 lb/ft
4	15/32"	@4" o.c. (1), (15)	A35 at 16" o.c.	@5½" o.c.	3'–0" o.c. 2x SILL PLATE	1020 lb/ft	510 lb/ft	490 lb/ft
3	15/32"	@3" o.c. (1), (15)	A35 at 12" o.c.	@4" o.c.	2'–3" o.c. 2x SILL PLATE	1330 lb/ft	665 lb/ft	650 lb/ft
2	15/32"	@2" o.c. (1), (15)	(2) A35 at 16" o.c.	@3" o.c.	1'–8" o.c. 2x SILL PLATE	1740 lb/ft	870 lb/ft	870 lb/ft
4	15/32" EACH SIDE	@4" o.c. (1), (4), (15)	(SEE DETAILS)			2040 lb/ft	1020 lb/ft	1020 lb/ft
3	15/32" EACH SIDE	@3" o.c. (1), (4), (15)	(SEE DETAILS)			3480 lb/ft	1740 lb/ft	1500 lb/ft

ALL FIELD NAILING SHALL BE 10d COMMON at 12" o.c.

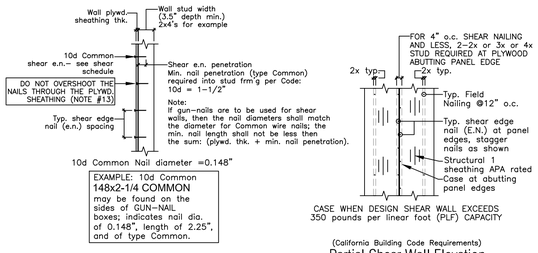
(i) AT ROOF, SPACE SHEAR CLIP BETWEEN EACH RAFTER BAY @PERIMETER EXTERIOR WALLS, U.O.N. (j) SILL ANCHOR BOLTS SHALL BE HOT-DIPPED GALVANIZED.

NOTES: (CONTRACTOR SHALL READ & UNDERSTAND THESE NOTES BEFORE CONSTRUCTION)

(1) In Seismic Design Category D, E, or F, (SEE NOTE #20 FOR SEISMIC DESIGN CATEGORY for THIS PROJECT) where shear design values exceed 350 pounds per linear foot, all framing members receiving edge nailing from ABUTTING PANELS shall not be less than a single 3–inch nominal member, USE 3x or 4x (DEPTH TO MATCH WALL FRAMING) MEMBER @SHEAR ABUTTING PANEL EDGES.
(2) Nails shall be 10d COMMON (0.148"x2–1/4" COMMON) with minimum 1.5–inch nail penetration into framing members or blocking.
(3) Foundation sill plates shall be Pressure Treated Douglas–Fir Larch No. 2 or equal lumber; See shear schedule for sill plate size. All sill plates bolted to concrete with 5/8" diameter x12" bolts spaced not more than 4'–0" o.c., with a minimum of two bolts for each piece of sill plate. Anchor bolts shall have a 4.5" minimum and a 12" maximum clearance to the end of the sill plate, and 7" minimum embedment into concrete or masonry.
Sill plate size & anchorage in Seismic Design Category D, E, or F: Plate washers shall be minimum 0.229" x 3" x 3" in size, between sill plate & nut. The hole in the plate washer is permitted to be diagonally slotted with a width of up to 3/16" larger than the bolt diameter and a slot length not to exceed 1–3/4", provided a standard cut washer is placed between the plate washer and the nut. Sill plates resisting a design load greater than 350 plf using ASD shall not be less than a 3–inch nominal member. See note (16) for exception.
(4) Where panels applied on both faces of a wall AND nail spacing is less than 6" o.c. on either side, panel joints shall be offset to fall on different framing members, or framing shall be 3–inch nominal or thicker at adjoining panel edges and nails on each side shall be staggered.
(5) All shear wall sheathing shall extend to the bottom of the roof sheathing U.O.N. by the structural details.
(6) Provide stud or blocking at unsupported panel edge.
(7) Extend shear sheathing over all openings for continuous shear support & uniform wall thickness.
(8) Shear wall panels shall not be less than 24" in either direction; EXCEPTION: Shear plywood panel may be less than 24" provided that all edges of the undersized sheets are supported by framing members or blocking.
(9) Panel edges backed with 2–inch nominal or wider framing. Install panels either horizontally or vertically. Space fasteners maximum 12" o.c. on intermediate supports for studs spaced @16" o.c.
(10) All panels receiving hold–downs shall have shear edge nailing full height.
(11) Floor plywood shall be glued and fastened to the rim joist or blocking for the use of 16d COMMON shear wall bottom plate fasteners. Glue shall meet the requirements of the APA adhesive spec. AFG–DI, and shall be applied as per manufactur's recommendations; glue may be applied manually or with pneumatic or electric equiptment.
(12) VOID
(13) If gun nails (power driven fasteners) are used, then adjust the power such that the nail head does not penetrate the plywood sheathing. The head of shear wall nails shall not penetrate the plywood.
(14) When ordering large quanties of nails, verify the carton label or with the manufacturer that the nails have the same length & diameter values as the nails specified in note #2.
(15) Framing at adjoining panel edges shall be 3 inches nominal or wider, and nails shall be staggered.
(16) VOID
(17) Shear plywood sheathing shall be APA rated STRUCTURAL I, DOC PS–1 or PS–2 (APA or TECO Performance–Rated) or OSB STRUCTURAL I, 24/0 SPAN RATING for 3/8" 3–ply sheathing, 32/16 span rating for 15/32" Structural 1 sheathing (5–ply or OSB). See plans for more information.
(18) Sill plate and anchor bolt is designed as per 2018 NDS Table 12E. For 2x sill plate with 5/8" bolt, allowable shear parallel to grain is (930 lb x1.6)=1490 lb; for 3x and larger & 5/8" bolt, allowable shear is (1180 lb x1.6)=1890 lb.
(19) Plywood shear wall nominal unit shear data was obtained from AWS SDPWS–15 Table 4.3A. Allowable shear equals the nominal shear divided by 2.0 as per SDPWS Section 4.3.3. Allowable shears for 3/8" are permitted to be increased for 15/32" plywood with same nailing provided: (A) Studs are spaced a maximum of 16" on center, or (B) if panels are applied with long dimension across studs. SDPWS–15 Table 4.3A footnote 2.
(20) Seismic Design Category = D

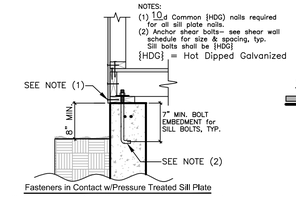
ADDITIONAL SHEAR WALL NOTES:

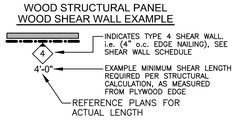
1. CONTRACTOR SHALL REVIEW ALL TYPICAL SHEAR WALL CONNECTION DETAILS & NOTES PRIOR TO CONSTRUCTION.
2. A) SAME as NOTE #2 ABOVE.
   B) [HDG]=HOT–DIPPED GALVANIZED NAILS SHALL BE USED FOR ALL SILL PLATE NAILING (i.e. TO P.T. LUMBER, TYP.)
3. A) ALL SHEAR WALL PLYWOOD NAILING EDGES SHALL BE FASTENED TO SOILD FRAMING MEMBERS or BLOCKING.
   B) SHEAR PLYWOOD SHALL BE FASTENED DIRECTLY TO THE STUDS, AND STUDS SHALL BE SPACED NOT MORE THAN 16" o.c.
   C) DO NOT "OVER–NAIL" THE SHEAR WALL, SPACE NAILING IN ACCORDANCE TO THE SHEAR WALL SCHEDULE.
   D) DO NOT "OVER–SHOOT" THE NAILS INTO THE PLYWOOD, THE HEAD OF THE NAILS SHOULD BE FLUSH WITH THE FACE OF PLYWOOD. IF POWER–DRIVEN NAILING IS DONE, RECOMMEND ADJUSTING THE POWER SUCH THAT THE HEAD OF THE NAILS DO NOT PENETRATE THROUGH THE PLYWOOD, AND THE USE OF A HAMMER TO FINISH OFF THE NAILING.
   E) AT SHEAR WALL ABUTTING PANEL EDGES, RECOMMEND 4x (DEPTH TO MATCH WALL FRAMING) TO RECEIVE NAILING FROM EACH PLYWOOD SHEET. MINIMUM ONE 2x STUD IS ACCEPTABLE FOR TYPE 1 SHEAR WALL ONLY @ABUTTING PANEL EDGES. FOR SHEAR WALL TYPES 2, 3, 4, ... ETC. 3x OR 4x MEMBER IS MANDATORY AT ABUTTING PANEL EDGES.
4. AT EXISTING FOUNDATION CONDITIONS FOR SILL "SHEAR" BOLTS: USE 5/8" diameter [HDG] ALL–THREAD x7" EMBEDMENT, DRILL & CLEAN–OUT HOLES & USE SIMPSON SET–XP ADHESIVE, NOTE THAT SOME CITY BUILDING DEPARTMENTS MAY WANT SPECIAL INSPECTION DURING THIS PROCESS– THIS SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO THE PLACEMENT OF EPOXY. IN LIEU of THE USE OF EPOXY for SILL ANCHOR SHEAR BOLTS ONLY, 5/8" dia. x(7" EMBED.) Titen HD SCREWS MAY BE USED; Titen BOLTS SHALL BE HOT–DIPPED GALVANIZED and THE TYPICAL 3"x3"x1/4" [HDG] PLATE WASHERS SHALL BE USED.
5. AT EXISTING FOUNDATION CONDITIONS FOR EPOXY RETROFIT HOLDOWNS– SPECIAL INSPECTION IS MANDATORY DURING THE INSTALLATION, REFERENCE DETAILS or PLANS FOR INSTALLATION INFO.
6. ALL SIMPSON PRODUCTS ARE TO BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.
7. A) LENGTH OF SHEAR WALL IS DEFINED AS THE EDGE OF PLYWOOD SHEET, AND THE MINIMUM SHEAR WALL LENGTH IS SPECIFIED ON THE PLANS.
   B) PROVIDE E.N.=EDGE NAILING AT EACH PLYWOOD SHEET PERIMETER; AT CONDITIONS WHERE HOLDOWN OCCURS, E.N. TO BOTH THE HEADER BEARING STUD(S) AND TO THE FULL–HT. POST RECEIVING THE HOLD–DOWN.



(California Building Code Requirements)
Typ. Shear Wall Section

(California Building Code Requirements)
Partial Shear Wall Elevation





<<< Use 10d COMMON nails for shear wall nailing >>>
<<< Use 10d COMMON HOT–DIPPED GALVANIZED nails for shear sill plate nailing >>>

SHEAR WALL SCHEDULE

Plywood sheathing (floor, & shear walls) shall not be less than 24" in either direction unless all edges of the undersized sheets are supported by and fastened to framing members or blocking.

ROOF PLYWOOD SHEATHING

Roof Sheathing: 15/32" DOC PS–1 or DOC PS–2 Sheathing, EXP 1 with 32/16 Span Rating, APA Rated Plywood or OSB, Use 10d nails: 0.148"x2–1/4" HDG Gun nail @6" o.c. at BOUNDARY & EDGES & 12" o.c. IN THE FIELD; blocked @intermediate panel.

FLOOR PLYWOOD SHEATHING

Floor Sheathing: 23/32" APA Rated DOC PS 1 or DOC PS 2 STURD–I –FLOOR sheathing; 48/24 SPAN RATING w/EXPOSURE 1 GLUE; USE 10d COMMON 0.148"x2–3/8" GALVANIZED RING SHANK NAILS @6" o.c. at BOUNDARY & EDGES & 12" o.c. IN THE FIELD; unblocked @ intermediate panel edges U.O.N. on plans.

SHEAR WALL PLYWOOD SHEATHING

Shear wall plywood sheathing: 15/32" STRUCTURAL 1 DOC PS–1 or PS–2 (APA or TECO Performance–Rated) Sheathing (or OSB STRUCT. 1), 32/16 SPAN RATING; Use 10d nails– 0.148" x2–1/4" HDG Gun nail; Reference shear wall schedule for shear wall type & notes.

NOTES:

1. HEADERS: SEE HEADER SCHEDULE SHEET SD.2, TYP. U.O.N. on PLANS.
2. PROVIDE 2x SOLID BLOCKING BELOW ALL BEARING WALLS PERPENDICULAR TO JOISTS.
3. PROVIDE DBL. JOISTS BELOW ALL BEARING WALLS PARALLEL TO JOISTS.
4. SEE SHEET SD.1 FOR GENERAL NOTES & STRUCTURAL SPECIFICATIONS.
5. FIELD VERIFY ALL EXISTING DIMENSIONS IN FIELD PRIOR TO CONSTRUCTION, ANY SIGNIFICANT DISCREPANCIES, STOP CONSTRUCTION & NOTIFY ARCHITECT & ENGINEER IN WRITING.
6. SEE ARCHITECTURAL PLANS FOR DIMENSIONS.
7. ALL METAL ANCHORS, FASTENERS, CONNECTORS, ETC. THAT WILL BE IN CONTACT WITH PRESSURE TREATED LUMBER (or EXPOSED TO WEATHER CONDITIONS) SHALL BE HOT–DIPPED GALVANIZED, SILICONE BRONZE, STAINLESS STEEL or COPPER.
8. ALL HARDWARE TO BE "SIMPSON" or EQUAL PRODUCT U.O.N. on PLANS.

AVOIDING TROUBLES & PROBLEMS NOTES:

1. If a discrepancy exists between the drawings and field conditions, or where a detail is doubtful of interpretation or an unanticipated field condition is encountered, the engineer shall be immediately contacted for procedure to be followed. Such instructions shall be confirmed in writing and distributed to all affected parties, see "disclaimer" @right–side of sheet.
2. Wherever there is a conflict between details and specifications, or between details, or where doubtful of interpretation, the most restrictive shall govern as determined by the Engineer of Record.

ENGINEERED LUMBER:

SPECIE	MANUFACTURER	F_v (psi)	F_b (psi)	Ex10^6 (psi)	ICC–ESR REPORT
PARALLAM PSL 2.2E	WEYERHAEUSER	290	2900	2.2E	ESR–1387
MICROLLAM LVL 2.0E	WEYERHAEUSER	285	2600	2.0E	ESR–1387
RIGIDLAM LVL 2.1E–3100F_b	ROSEBURG	290	3100	2.1E	ESR–1210
VERSA–LAM 3100F_b	BOISE CASCADE	285	3100	2.0E	ESR–1040
REDLAM LVL 2.0E–2900F_b	REDBUILT	285	2900	2.0E	ESR–2993
PACIFIC WOODTECH LVL	ALLIANCE LUMBER	285	3100	2.0E	ESR–2909
SOLIDSTART LVL	LOUISIANA PACIFIC	285	2900	2.0E	ESR–2403

CONVENTIONAL LUMBER: F_v F_b Ex10^6

SPECIE		(F_v psi)	(F_b psi)	(Ex10^6 psi)
DF#2	4x & LESS	180	900	1.6E
DF#1	4x & LESS	180	1000	1.7E
DF#1 & Btr.	4x & LESS	180	1200	1.8E
DF S.S.	4x & LESS	180	1500	1.9E
DF#1	6x & GREATER	170	1350	1.6E

ALLOWABLE BEAM SUBSTITUTIONS:

SPECIE	SPECIE SUBSTITUTION
3.5"x14" PARALLAM 2.0E	2–1.75"x14" MICROLLAM 2.0E
5.25"x14" PARALLAM 2.0E	3–1.75"x14" MICROLLAM 2.0E
3.5"x11.875" PARALLAM 2.0E	2–1.75"x11.875" MICROLLAM 2.0E
5.25"x11.875" PARALLAM 2.0E	3–1.75"x11.875" MICROLLAM 2.0E
3.5"x9.5" PARALLAM 2.0E	2–1.75"x9.5" MICROLLAM 2.0E
5.25"x9.5" PARALLAM 2.0E	3–1.75"x9.5" MICROLLAM 2.0E

F_v = ALLOWABLE SHEAR STRESS
F_b = ALLOWABLE BENDING STRESS
E = MODULUS of ELASTICITY

BEAM & JOIST NOTES:

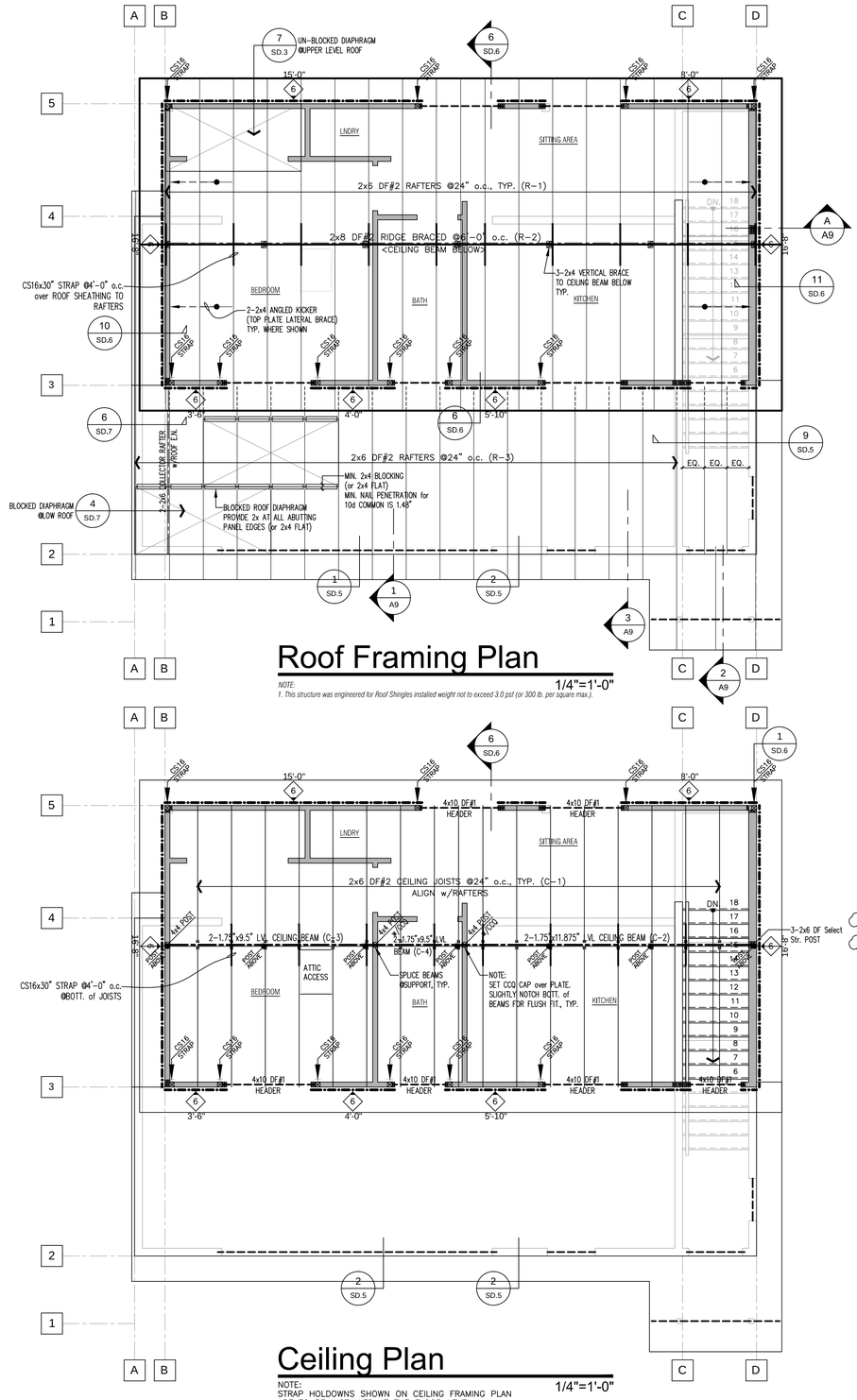
1. FOR LVL "LAMINATED VENEER LUMBER" SEE ABOVE ENGINEERED LUMBER TABLE ALLOWABLE MANUFACTURERS TO ORDER LUMBER FROM, FOR EXAMPLE MAY USE MICROLLAM LVL 2.0E by WEYERHAESER, OR PACIFIC WOODTECH LVL, ETC.
2. ALL PARALLAM BEAMS U.O.N. ON PLAN ARE CALCULATED USING 2.0E, WHEN ORDERING PARALLAMS PLEASE SPECIFY 2.2E.
3. MULTIPLE LVL's FASTENING: U.O.N. ON PLANS or DETAILS
   a. 3–1.75" LVL's: 3–16dx3.5" COMMON NAILS @16" o.c. EACH SIDE, PLACED 2" FROM TOP, CENTER, AND 2" FROM BOTT.
   b. 2–1.75" LVL's: 3–16dx3.5" COMMON NAILS @16" o.c., PLACED 2" FROM TOP, CENTER, AND 2" FROM BOTT.

EARTHWORK:

EARTHWORK SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE FOUNDATION INVESTIGATIONS by: ROMIG ENGINEERS

Earthwork, slab subgrade and non–expansive fill preparation, foundation and slab construction, basement excavation, basement wall drainage and backfilling, subsurface drainage, utility trench backfilling, pavement construction, and site drainage should be performed in accordance with the geotechnical report prepared by Romig Engineers, Inc., dated December 7, 2021, Project #5729–1.
Romig Engineers should be notified at least 5 days in advance of any earthwork and should observe and test during earthwork and foundation construction as recommended in the geotechnical report.
Romig Engineers should be notified at least 5 days prior to earthwork, trench backfill and subgrade preparation work to allow time for sampling of off–site soil and laboratory compaction curve testing to be preformed prior to on–site compaction density testing.

NOTE:
REFERENCE ARCHITECTURAL (OR DESIGNER'S) PLANS for ALL WRITTEN DIMENSIONS. ALL WALL LAYOUTS ARE TO BE TAKEN FROM THE ARCH. PLANS. DO NOT SCALE THE STRUCTURAL PLANS for HOLD–DOWN PLACEMENTS AS IT WILL NOT YIELD ACCURATE RESULTS. THERE SHALL BE ONLY ONE SOURCE OF DIMENSIONS FOR WALL LAYOUT, AND SHOULD BE SHOWN and TAKEN FROM THE ARCH/DESIGN PLANS.



Roof Framing Plan

1/4"=1'–0"

NOTE:
1. This structure was engineered for Roof Shingles installed weight not to exceed 3.0 psf (or 300 lb. per square max.).

Ceiling Plan

1/4"=1'–0"

NOTE:
STRAP HOLDOWNS SHOWN ON CEILING FRAMING PLAN ARE TO BE INSTALLED AT THE FLOOR LEVEL.

Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

REGISTERED PROFESSIONAL ENGINEER Jeffery Alan Ingram No. C 66222 Exp. 6/30/2024 CIVIL STATE OF CALIFORNIA

Massarotto ADU/Garage
1017 Ramona Ave.
San Jose, CA 95125

DATE ISSUE:
3/4/2021

1	8/10/2022	PER BUILDING DEPARTMENT PLAN CHECK
2	11/9/2022	PER PLANNING DEPARTMENT PLAN CHECK
3	3/6/2023	PER FIRE DEPARTMENT PLAN CHECK
4	10/30/2023	PER BUILDING DEPARTMENT PLAN CHECK
5	10/30/2023	DESIGN/ENGINEERING REVISIONS

PROJECT #: 719 SCALE: 1/4"=1'–0"
DRAWN BY: JI, YI
PROJECT MANAGER: YI
ENGINEERED BY: JI
REVIEWED BY: JI

ADU & Garage
Structural Plan

S2 5

0 2' 4' 6' 8' 10' 12'

GENERAL NOTES

–THE FOLLOWING SPECIFICATIONS SHALL CONFORM TO THE 2019 CALIFORNIA BUILDING CODE AND ANY OTHER CITY ORDINANCES WHICH ARE IN FORCE AT THE TIME OF THIS PROJECT.

–CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND CONDITIONS PRIOR TO STARTING ANY FIELD WORK.

–ANY DEVIATION CALLED BY THE FIELD CONDITIONS, OR ANY CONDITIONS DIFFERENT FROM THOSE INDICATED ON PLANS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION. ANY DISCREPANCY NOT REPORTED TO THE ENGINEER, WILL ABSOLVE THE ENGINEER FROM ANY LIABILITY.

–TYPICAL DETAILS SHALL APPLY WHERE NO SPECIFIC DETAILS OR SECTIONS ARE PROVIDED.

–DIMENSIONS SHOWN ON PLANS OR DETAILS TAKE PRECEDENCE OVER SCALES SHOWN.

–THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SATISFACTORY COMPLETION OF ALL WORK IN ACCORDANCE WITH THE PROJECT PLANS AND SPECIFICATIONS.

–THE CONTRACTOR SHALL PROVIDE ADEQUATE FLASHING AND WATERPROOFING TO PREVENT ANY ROOF AND/OR BALCONY RAIN WATER SEEPAGE.

–IF TRUSSES ARE TO BE USED IN LIEU OF CONVENTIONAL FRAMING, SHOP DRAWINGS AND CALCULATIONS SHALL BE PROVIDED TO THE CITY FOR APPROVAL BEFORE FABRICATION.

–IF AN ALTERNATE SHEAR WALL TIEDOWN SYSTEM IS TO BE USED IN LIEU OF SIMPSON HOLDOWNS, SHOP DRAWINGS AND CALCULATIONS SHALL BE PROVIDED TO THE CITY FOR APPROVAL BEFORE FABRICATION.

STRUCTURAL STEEL

–STRUCTURAL STEEL SHALL CONFORM TO A.S.T.M. (A–36) SPECIFICATIONS AND TO THE A.I.S.C. SPECIFICATIONS FOR FABRICATION AND ERECTION.

–ALL BOLTS SHALL CONFORM TO A.S.T.M. (A–307) FOR UNFINISHED BOLTS.

–ALL BOLT HOLES IN STEEL MEMBERS SHALL BE TRUE, BURNING OF HOLES FOR CONNECTIONS WILL NOT BE PERMITTED.

–PROVIDE FULL BEARING ON UNTHREADED PORTION OF BOLT SHANK FOR ALL STEEL CONNECTIONS.

–PROVIDE LEVELING NUTS FOR ALL BOLTS AT BEAM SEATS AND COLUMN BASE PLATES.

–ALL NUTS FOR STRUCTURAL STEEL CONNECTIONS SHALL BE HEAVY HEXAGONAL NUTS.

–ALL WELDING SHALL BE AS INDICATED ON THE DETAILS AND PERFORMED IN A QUALIFIED SHOP, UNDER CONTINUOUS INSPECTION PER CBC 1704. FIELD WELDING, OTHER THAN MISCELLANEOUS TACK WELDING, IS NOT PERMITTED, UNLESS NOTED OTHERWISE IN THE DETAILS.
THE FABRICATION SHOP SHALL BE "REGISTERED & APPROVED BY THE CITY BUILDING DEPARTMENT".

LUMBER

–WOOD MEMBERS LESS THAN 5" IN WIDTH SHALL BE DOUGLAS FIR NO. 2 AND 5" OR WIDER SHALL BE DOUGLAS FIR NO.1, UNLESS NOTED OTHERWISE ON PLANS.
–UNLESS NOTED OTHERWISE ON PLANS, ALL NAILING SHALL BE PER 2019 CALIFORNIA BUILDING CODE, TABLE 2304.10.1
–ALL CONNECTING HARDWARE SHALL BE SIMPSON COMPANY TYPE OR EQUAL, AND INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS NOTED OTHERWISE ON PLANS.
–GLUED LAMINATED TIMBER BEAMS SHALL HAVE A MINIMUM BENDING STRESS OF 2400 psi. PROVIDE STANDARD CAMBER UNLESS NOTED OTHERWISE ON PLANS.
–ROOF PLYWOOD SHEATHING SHALL BE MINIMUM 1/2" APA RATED CDX WITH EXTERIOR GLUE, GROUP 2. EXPOSED SHEATHING AT ROOF OVERHANG SHALL BE AS INDICATED ON THE ARCHITECTURAL PLANS.
–WALL PLYWOOD SHEATHING, IF REQUIRED, SHALL BE MINIMUM 3/8" APA RATED CDX WITH EXTERIOR GLUE, GROUP 2, U.O.N. on PLANS.
–FLOOR PLYWOOD SHEATHING SHALL BE T&G INT–APA WITH EXTERIOR GLUE, GROUP 2. SEE PLANS FOR SIZE.
–BEARING AND NONBEARING WALLS SHALL HAVE DOUBLE TOP PLATES, LAPPED AT INTERSECTIONS. PLATE JOINTS SHALL BE STAGGERED 4'–0" MINIMUM AS INDICATED ON THE STRUCTURAL DETAILS.

–UNLESS NOTED OTHERWISE ON PLANS, WALLS SHALL BE OF 2x4 STUDS (STUD GRADE OR GREATER) SPACED AT 16" ON CENTER.

–ALL HEADERS ARE AS NOTED ON PLANS.

–ALL WOOD BEARING ON CONCRETE OR MASONRY SHALL BE PRESSURE TREATED DOUGLAS FIR [redacted] EXCEPTION: POST BEARING ON PIERS MAY BE DOUGLAS FIR NO. 1 PROVIDED THAT A PROPER BASE CAP AND MIN. 6" ABOVE SOIL ARE PROVIDED.

–HOLES FOR BOLTS SHALL BE DRILLED WITH A BIT 1/16" LARGER THAN THE NOMINAL BOLT HOLE DIAMETER. FLAT WASHERS SHALL BE PROVIDED AT ALL HEADS AND NUTS WHICH WOULD OTHERWISE BARE DIRECTLY ON WOOD. ALL BOLTS SHALL BE TIGHTENED TO A SNUG CONDITION, AND RETIGHTENED UPON JOB COMPLETION.

–STRUCTURAL MEMBERS (BEAMS, SHEAR WALL PLATES, OR POSTS USED AT HOLDOWNS) SHALL NOT BE CUT FOR PIPES, ECT., UNLESS SPECIFICALLY NOTED OR DETAILED.

–2x SOLID BLOCKING SHALL BE PLACED BETWEEN JOISTS OR RAFTERS AT ALL SUPPORTS.

CONCRETE

–CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 psi AT 28 DAYS.
–AGGREGATES SHALL BE NATURAL SAND & ROCK CONFORMING TO ASTM C33 (with MAXIMUM AGGREGATE SIZE OF 3/4")
–MAXIMUM SLUMP SHALL BE 4".
–CEMENT SHALL BE PORTLAND CEMENT CONFORMING TO ASTM C–150, TYPE II.
–MINIMUM CEMENT CONTENT SHALL BE 5 SACKS PER CUBIC YARD FOR 2500 psi CONCRETE.
–ANCHOR BOLTS, HOLDOWN BOLTS, DOWELS, AND OTHER REQUIRED INSERTS, ETC., SHALL BE POSITIONED AND FIRMLY SECURED IN PLACE BEFORE CONCRETE IS POURED.
–CONTRACTOR SHALL TAKE ALL THE NECESSARY MEASURES TO PROVIDE A PROPER COMPACTION OF THE CONCRETE.
–MIN. REINFORCEMENT COVER FOR CAST–IN–PLACE CONCRETE:
1. CONCRETE CAST AGAINST & PERMANENTLY EXPOSED TO EARTH......3"
2. CONCRETE FORMED BELOW GRADE OR EXPOSED TO WEATHER
No. 6 BARS & GREATER......2"
No. 5 BARS & SMALLER......1.5"
3. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH EARTH:
SLABS, WALLS, AND JOISTS: No. 11 BARS & SMALLER......1"
BEAMS & COL: PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS......1.5"

REINFORCING STEEL

–REINFORCING STEEL SHALL BE DEFORMED BARS, CONFORMING TO ASTM A615–40 REQUIREMENTS AND WELDED WIRE MESH PER ASTM SPECIFICATION A–185.
–BARS NO. 4 AND SMALLER SHALL BE OF GRADE 40, AND BARS NO. 5 AND GREATER SHALL BE OF GRADE 60. LAP BARS 48 DIAMETERS AT SPLICES.
–ALL REINFORCING BARS SHALL BE CLEAN OF ANY RUST OR FOREIGN MATERIALS.
–CONCRETE COVER FOR REINFORCEMENT SHALL BE:
a) 3" WHERE POURED AGAINST EARTH
b) 2" WHERE POURED AGAINST FORMS
c) 1" FOR SLABS POURED AGAINST FORMS
–SEE PLAN FOR QUANTITY AND LOCATION OF ANCHOR BOLTS, LOCATE BOLTS WITHIN 12" FROM CORNERS AND BUTT JOINTS.

CONCRETE MASONRY

– ALL MASONRY WORK SHALL BE REINFORCED GROUTED MASONRY AND CONFORM TO THE 2019 CALIFORNIA BUILDING CODE AND SHALL BE 8x8x16 LIGHTWEIGHT UNITS WITH MAXIMUM LINEAR SHRINKAGE OF 0.06%, PER A.S.T.M. (C–90–52), GRADE A. NO CONTINUOUS INSPECTION REQUIRED.
–MOTAR MIX SHALL BE COMPOSED OF ONE PART PORTLAND CEMENT TO NOT MORE THAN THREE PARTS SAND. GROUT MIX SHALL BE COMPOSED OF ONE PART PORTLAND CEMENT TO NOT MORE THAN THREE PARTS SAND AND NOT LESS THAN TWO PARTS PEA GRAVEL.
–WALLS TO BE GROUTED IN 4' MAXIMUM LIFTS, UNLESS HIGH LIFT GROUT PROCEDURES (WITH BLOCKOUTS) ARE USED. ALL REINFORCING SHALL HAVE A MINIMUM COVERAGE OF 1/2" OF GROUT. ALL BOLTS SHALL HAVE A MINIMUM COVERAGE OF 1" OF GROUT.
–NO PIPES OR DUCTS SHALL BE PLACED IN MASONRY WALLS UNLESS SPECIFICALLY NOTED OR DETAILED.
–DOWELS IN CONCRETE FOR MASONRY WALLS SHALL BE 2–#4 OR AS INDICATED ON THE DETAILS.
–ALL RETAINING BLOCK WALLS SHALL BE PROVIDED WITH AN APPROVED MOISTURE BARRIER ON THE SOIL SIDE. SEE ARCHITECT'S DRAWINGS.
–REFERENCE FOUNDATION FOR ADDITIONAL MASONRY NOTES & SPECIFICATIONS AS/IF CMU MASONRY IS APPLICABLE FOR THIS JOB.

LOADING

SEISMIC DESIGN:

DATA OBTAINED FROM: https://hazards.atcouncil.org

DESCRIPTION	DATA
SEISMIC FORCE RESISTING SYSTEM	Light-framed walls sheathed with wood structural panels rated for
RESPONSE MODIFICATION FACTOR	R = 6.5
RISK CATEGORY	II
IMPORTANCE FACTOR	I_e = 1.0
SITE CLASS	D-stiff soil
LATITUDE	37.3125558 °N
LONGITUDE	-121.9026624 °W
MAPPED SPECTRAL RESPONSE ACCELERATION-SHORT PERIOD	S_S = 1.500 g
MAPPED SPECTRAL RESPONSE ACCELERATION-1sec. PERIOD	S_1 = 0.600 g
SHORT-PERIOD SITE COEFFICIENT	F_a = 1.0
LONG PERIOD SITE COEFFICIENT	F_V = --
DESIGN SPECTRAL RESPONSE ACCELERATION-SHORT PERIOD	S_{DS} = 1.000 g
DESIGN SPECTRAL RESPONSE ACCELERATION-1sec.	S_{D1} = --
SEISMIC DESIGN CATEGORY	D
SEISMIC FORCE AMPLIFICATION FACTOR	Ω_o = 2.5
SEISMIC RESPONSE COEFFICIENT	C_S = 0.192
DESIGN BASE SHEAR	V = 10.0 Kips
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ANALYSIS PROCEDURE USED	Equivalent Lateral Force Procedure ASCE7-16, Section 12.8

WIND DESIGN:

DESCRIPTION	DATA
BASIC WIND SPEED	95 mph ZONE
RISK CATEGORY	II
EXPOSURE	B

GRAVITY LOADING:

LEVEL	D (psf)	L (psf)
ROOF 5:12 PITCH	7.5	19
ROOF 2:12 PITCH	8	20
ADU CEILING	6	10
GARAGE CEILING	6	10
2nd FLOOR	20	40

SPREAD FOOTING DESIGN DATA:

SOIL REPORT BY:
ROMIG ENGINEERS
PROJECT NO. 5729–1
DEC. 2021

SOIL	q (psf) SOIL BEARING
D+L	2000
ALL LOAD	2660

EXISTING CONDITIONS

THE CONTRACTOR OR SUBCONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION AND/OR ORDERING MATERIAL. ANY DISCREPANCIES DISCOVERED SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.

IF THIS PROJECT IS A REMODEL, OR AN ADDITION TO AN EXISTING STRUCTURE, THEN THE FOLLOWING APPLIES: THE INVESTIGATION OF THE MEMBERS OF THE EXISTING STRUCTURE THAT ARE TO BE REUSED IN THE NEW STRUCTURAL SYSTEM IS NOT COVERED BY THIS DESIGN CONTRACT. SINCE SUCH MEMBERS ARE NOT EXPOSED AT THIS TIME, THEIR STRUCTURAL SOUNDNESS IS NOT KNOWN. SUCH AN INVESTIGATION MAY TAKE PLACE AFTER THE COMMENCEMENT OF THE CONSTRUCTION PROCESS. AT THE TIME THE FRAMING WILL BE EXPOSED, THE OWNER, WITH HIS CONTRACTOR, HAVE THE RESPONSIBILITY TO CONDUCT SUCH AN INVESTIGATION. SHOULD ANY DISCREPANCY BETWEEN THE SPECIFIED DESIGN ASSUMPTIONS FOR THOSE STRUCTURAL MEMBERS AND THE ACTUAL CONDITIONS ARISE, THE OWNER AND HIS CONTRACTOR SHOULD NOTIFY THIS ENGINEER (Jeff Ingram) IN WRITING. OUR OFFICE WILL THEN RECOMMEND THE APPROPRIATE SOLUTIONS; THE WORK WILL BE ADDRESSED IN A TIMELY FASHION BASED ON THE HONOR SYSTEM GIVEN THE CURRENT WORK LOAD AT SUCH TIME. ANY STRUCTURAL FRAMING THAT IS TO BE DEVIATED FROM THE CITY APPROVED PLANS MUST BE APPROVED BY ISE WITH WRITTEN DOCUMENTATION STAMPED AND SIGNED BY ISE PRIOR TO FURTHER CONSTRUCTION AT SUCH AREA OR AREAS AFFECTED BY SUCH REVISION. FAILURE TO NOTIFY THIS ENGINEER WILL RELEASE THIS ENGINEER OF ANY LIABILITY. BY ACCEPTING THIS WORK, BOTH THE OWNER AND THE CONTRACTOR CONFIRM THE ACCEPTANCE OF THEIR RESPONSIBILITIES, AS STATED HEREIN.

CONSTRUCTION LIABILITY

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

NOTIFICATION TO ENGINEER for CHANGES or SUBSTITUTIONS:

DO NOT DEVIATE FROM THE STRUCTURAL PLANS. IF IN THE EVENT ANY STRUCTURAL or STRUCTURAL FRAMING IS TO BE REVISED or IGNORED, OR ALTERNATE FRAMING or SUBSTITUTIONS or CONNECTIONS or WHATEVER IN LIEU OF WHAT IS SPECIFIED ON THE STRUCTURAL PLANS AND DETAILS, THEN THE OWNER AND HIS/HER CONTRACTOR SHALL NOTIFY THIS PROJECT ENGINEER (Jeff Ingram) IN WRITING BEFORE CONSTRUCTION, AND SUCH REVISION IS CONSIDERED A CHANGE ORDER. A PHONE CALL or PHONE MESSAGE TO THE PROJECT ENGINEER OF RECORD IS NOT OFFICIAL NOTIFICATION. ALL CHANGE ORDERS SHALL FIRST BE APPROVED BY THE OWNER, AND THEN DOCUMENTED IN WRITING AND AGREED APON BY THE PROJECT ENGINEER (Jeff Ingram) AND ALL RESPONSIBLE PARTIES BEFORE SUCH CHANGE ORDER IS VALID. FAILURE TO PROPERLY NOTIFY THIS ENGINEER WILL RELEASE THIS ENGINEER FROM ANY LIABILITY. BY ACCEPTING THIS WORK, BOTH THE OWNER AND CONTRACTOR CONFIRM THE ACCEPTANCE OF THEIR RESPONSIBILITIES AS STATED HEREIN.

NAILING SCHEDULE (MINIMUM):

REFERENCE SHEET SD.3 for 2022 CBC TABLE 2304.10.1

THIS NAILING SCHEDULE TO BE USED ONLY IF NOT SPECIFIED ELSEWHERE IN THESE STRUCTURAL DRAWINGS.
1. ALL NAILING SPECIFIED ON DRAWING AND THIS SCHEDULE SHALL BE IN ACCORDANCE WITH 2022 CBC TABLE 2304.10.2

A. JOIST TO SILL OR GIRDER, TOENAIL 3–8d
B. BRIDGING TO JOIST, TOENAIL EACH END 2–8d
C. SOLE PLATE TO JOIST OR BLOCKING, TYPICAL FACE NAIL ...... 16d @16" o.c.
U.O.N. by SHEAR WALL SCHEDULE
SOLE PLATE TO JOIST OR BLOCKING, AT BRACED WALL PANELS ...... 3–16d per 16"
D. TOP PLATE TO STUD, END NAIL 2–16d
E. STUD TO SOLE PLATE ...... 4–8d, toenail or 2–16d, end nail
F. MULTIPLE STUDS, FACE NAIL ...... 10d @6" o.c. staggered
G. DOUBLE TOP PLATES, TYPICAL FACE NAIL ...... 16d @16"o.c.
DOUBLE TOP PLATES, LAP SPLICE ...... 8–16d each side of splice
H. BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE, TOENAIL 3–8d
I. RIM JOIST TO TOP PLATE, TOENAIL ...... 8d @6"o.c.
J. TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL 2–16d
K. CONTINUOUS HEADER, TWO PIECES ...... 16d @ 16"o.c. along each edge
L. CEILING JOISTS TO PLATE, TOENAIL 3–8d
M. CONTINUOUS HEADER TO STUD, TOENAIL 4–8d
N. CEILING JOISTS, LAPS OVER PARTITIONS, FACE NAIL 3–16d
O. CEILING JOISTS, TO PARALLEL RAFTERS, FACE NAIL 3–16d
P. RAFTER TO PLATE, TOENAIL 3–8d
Q. 1" BRACE TO EACH STUD AND PLATE, FACE NAIL 2–8d
R. BUILT–UP CORNER STUDS. ...... 10d @12"o.c. staggered
S. BUILT–UP GIRDER AND BEAMS. for using multiple members and interconnect adjacent pieces as follows: u.o.n. by details
2x MEMBERS TO 11 1/4" DEPTH ...... 2–rows 10d @12"o.c.
2X MEMBERS OVER 11 1/4" DEPTH ...... 1/2"ø M.B. @ 24"o.c. stagg. 2" min. from edges
T. STUDS, POSTS, OR MULLIONS TO BEARING ...... 2–8d toe nails each side, each end into plates
U. TOP PLATES SPLICE, NON–SHEAR WALLS ONLY ...... 6–16d each side of splice
(PLATES OVERLAPPED NOT LESS THAN 48") ...... 16d @16"o.c.staggered along full length
V. FACIA TO END OF RAFTER ...... 2–16d, galvanized

2. ANY CONTINUOUS WALL LINES CONTAINING SHEAR WALL SEGMENTS SHALL HAVE THEIR TOP PLATES SPLICED ACCORDING TO THE DETAIL "TYPICAL TOP PLATES SPLICE" LOCATED ON SHEET SD2.
3. ALL MACHINE BOLTS SHALL CONFORM TO ASTM A307.
4. BOLT HOLES SHALL BE 1/32" TO 1/16" LARGER THAN THE BOLT DIAMETER.
5. A METAL PLATE, METAL STRAP, OR WASHER NOT LESS THAN A STANDARD CUT WASHER SHALL BE BETWEEN THE WOOD AND THE BOLT HEAD AND BETWEEN THE WOOD AND THE NUT.
6. HOLES FOR NAILS SHALL BE PRE–DRILLED WHERE SPLITTING OF WOOD MAY OCCUR.

STRUCTURAL SPECIFICATIONS

PLYWOOD:

Plywood sheathing (floor, & shear walls) shall not be less than 24" in either direction unless all edges of the undersized sheets are supported by and fastened to framing members or blocking.

MIN. DIMENSION OF ROOF SHEATHING TO BE 24"

ROOF PLYWOOD SHEATHING

Roof Sheathing: 15/32" DOC PS–1 or DOC PS–2 Sheathing, EXP 1 with 32/16 Span Rating, APA Rated Plywood or OSB, Use 10d nails: 0.148"x2–1/4" HDG Gun nail @6" o.c. at BOUNDARY & EDGES & 12" o.c. IN THE FIELD; unblocked @intermediate panel edges U.O.N. on plans.

FLOOR PLYWOOD SHEATHING

Floor Sheathing: 23/32" APA Rated DOC PS 1 or DOC PS 2 STURD–I –FLOOR sheathing; 48/24 SPAN RATING w/EXPOSURE 1 GLUE; USE 10d COMMON 0.148"x2–3/8" GALVANIZED RING SHANK NAILS @6" o.c. at BOUNDARY & EDGES & 12" o.c. IN THE FIELD; unblocked @ intermediate panel edges U.O.N. on plans.

SHEAR WALL PLYWOOD SHEATHING

Shear wall plywood sheathing: 15/32" STRUCTURAL 1 DOC PS–1 or PS–2 (APA or TECO Performance–Rated) Sheathing (or OSB STRUCT. 1), 32/16 SPAN RATING; Use 10d nails– 0.148" x2–1/4" HDG Gun nail; Reference shear wall schedule for shear wall type & notes.

FRAMING:

WOOD FRAMING LUMBER SHALL HAVE THE FOLLOWING GRADES U.O.N. on THE FRAMING PLANS.
THE STRUCTURAL DESIGN IS BASED ON DRY LUMBER. DRY LUMBER IS USUALLY STAMPED "S–DRY" (SURFACE DRY). DRY LUMBER HAS A MOISTURE CONTENT LESS THAN or EQUAL TO 19% (Douglas Fir–Larch ONLY).
ALL TIMBER DF FRAMING SHALL HAVE A MOISTURE CONTENT of 19% OR LESS AT THE TIME OF CONNECTION INSTALLATION.
Douglas Fir–Larch LUMBER GRADING RULES: WCLIB/WWPA, 2015 NDS 2.1

SILL PLATES	P.T.D.F.
STUDS	DF#2
RAFTERS	DF#2
JOISTS	DF#2
PLATES	DF#2
HEADERS	DF#2
POSTS, 4x & LESS	DF#1
POSTS, 5x & GREATER	DF#1
BEAMS, 4x & LESS	DF#2
BEAMS, 5x & GREATER	DF#1
GLU–LAM BEAMS	24F–V4 DF/DF 1.8E
PARALLAM BEAMS	PSL 2.0E by Trus Joist Weyerhaeuser
VERSALAM BEAMS	Fb=3100 psi, 2.0E, by Boise Cascade
ANTHONY POWER BEAM	Fb=3000 psi, 2.1E, by Anthony
TIMBERSTRAND BEAMS	LSL 1.7E, by Trus Joist Weyerhaeuser
TIMBERSTRAND RIM BOARD	LSL 1.3E or 1.7E, by Trus Joist Weyerhaeuser
TJI JOISTS	Trus Joist Weyerhaeuser

BALLOON WALL FRAMING:
U.O.N. on THE FRAMING PLANS, HIGH WALL FRAMING IS AS FOLLOWS–

	INTERIOR WALL MAX. HEIGHT	EXTERIOR WALL MAX. HEIGHT
2x4 DF#2 STUDS @16" o.c.	14'–0"	10'–0"
2x4 DF Select Structural STUDS @16" o.c.	14'–0"	12'–0"
2x6 DF#1 & Btr. STUDS @16" o.c.	22'–0"	18'–0"
2x6 DF Select Structural STUDS @16" o.c.	22'–0"	20'–0"

NOTES on BALLOON WALL FRAMING:
1. PROVIDE 2x SOLID BLK'G @5'–0" o.c. MAX. WALL FULL HEIGHT for WALLS THAT HAVE NO PLYWOOD WRAP.
2. AT EXTERIOR WALLS, WRAP STUDS w/MINIMUM TYPE 1 SHEAR WALL U.O.N. on PLANS, and PROVIDE Field Nailing @12" o.c. TO STUDS for FULL LATERAL SUPPORT & PREVENT BUCKLING.

NOTES FOR INTERIOR 2x STUD BEARING WALLS:
PROVIDE 2x SOLID BLOCKING (DEPTH TO MATCH WALL FRAMING) at WALL MID–HT. or MAX. 5'–0" o.c. FOR WALLS WITHOUT PLYWOOD.

LUMBER DESIGN VALUES:

SPECIE		F_b (psi)	F_v (psi)	E x10^6 (psi)
DF#2	4x & LESS	900	180	1.6E
DF#1	4x & LESS	1000	180	1.7E
DF#1 & Btr.	4x & LESS	1200	180	1.8E
DF Select Structural	4x & LESS	1500	180	1.9E
DF#1	6x & GREATER	1350	170	1.6E
Glu–Lam	24F–V4 DF/DF	2400	265	1.8E
TIMBERSTRAND	LSL 1.7E	2600	400	1.7E
MICROLLAM	LVL 2.0E	2600	285	2.0E
PARALLAM	PSL 2.0E	2900	290	2.0E
Versa–Lam	LVL 3080 Fb	3080	285	2.0E
Gang–Lam	LVL 2950 Fb–2.0E	2950	290	2.0E
Anthony PowerBeam	–––	3000	290	2.0E
Rosboro BigBeam	–––	3000	300	2.1E

LIGHT GAGE METAL CONNECTORS:

ALL LIGHT GAGE METAL CONNECTORS SHALL BE by SIMPSON STRONG–TIE WOOD CONSTRUCTION CONNECTORS, UNLESS OTHERWISE NOTED ON THE STRUCTURAL DRAWINGS. EQUAL METAL CONNECTORS MAY BE USED IN LIEU OF SIMPSON PROVIDE THE CAPACITY IS EQUAL TO OR GREATER THAN SIMPSON.
THE FOLLOWING HANGERS MAY BE USED FOR WOOD CONSTRUCTION U.O.N. ON THE PLANS: Reference Simpson 2021–2023 Catalog

Floor Joists:	Face Hanger:
2x6	LUS26
2x8	LUS28
2x10	LUS210
2x12	LUS210
9–1/2", 11–7/8", 14" TJI	See Plans
1–3/4x9–1/2" LVL	IUS1.81/9.5 or IUT9
1–3/4x11–7/8" LVL	IUS1.81/11.88 or IUT11
1–3/4x14" LVL	IUS1.81/14 or IUT14

Beams:	Face Hanger:
4x6	LUS46
4x8	LUS48
4x10	LUS48
4x12	LUS410
3–1/2"x9–1/2" Parallam	HUS410
3–1/2"x11–7/8" Parallam	HUS412
3–1/2"x14" Parallam	HU416
5–1/4"x9–1/2" Parallam	HHUS5.50/10
5–1/4"x11–7/8" Parallam	HHUS5.50/10
5–1/4"x14" Parallam	HGUS5.50/14

ROOF and/or FLOOR TRUSSES:

UNLESS OTHERWISE NOTED by THE CITY BUILDING DEPARTMENT, TRUSS CALCULATIONS, DRAWINGS, AND LAYOUT PLANS OF ALL ENGINEERED ROOF AND/OR FLOOR TRUSSES MUST BE:

A. REVIEWED BY THE ENGINEER OF RECORD, AND THE ENGINEER OF RECORD SHALL STATE IN WRITING THAT THE DRAWINGS, CALCULATIONS, AND LAYOUT SUBSTANTIALLY COMPLY WITH THE DESIGN PLANS.

B. THE ENGINEER OF RECORD TO PROVIDE SPECIFICATIONS FOR ALL TRUSS CONNECTIONS/CONNECTING HARDWARE/STRAPS.

C. THE TRUSS PLAN, CALCULATIONS, CONNECTIONS, AND LETER OF APPROVAL FROM THE ENGINEER OF RECORD TO BE SUBMITTED FOR REVIEW BY THE CITY BUILDING DEPARTMENT PRIOR TO CONSTRUCTION.

REFERENCE STRUCTURAL FRAMING PLAN(S) FOR THE MINIMUM STRUCTURAL DESIGN DEAD + LIVE LOADINGS.

RETAINING WALL WATERPROOFING & DRAINAGE:

–ALL WATERPROOFING DETAILS AND SPECIFICATIONS IS BY OTHERS.

–RETAINING WALL DRAINAGE & WATERPROOFING IF SHOWN ON THE STRUCTURAL PLANS or DETAILS IS SCHEMATIC and INFORMATIVE ONLY, ISE or JEFF INGRAM IS NOT RESPONSIBLE FOR PROVIDING DRAINAGE & WATERPROOFING DETAILS and/or SPECIFICATIONS.
–IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY FOR THE PROPER INSTALLATION OF DRAINAGE COMPONENTS, WATERPROOFING MATERIAL, AND PROPER WATER PROOFING PROTECTION.

"GREEN" CONCRETE & LUMBER SPECIFICATIONS

THE FOLLOWING GREEN MATERIAL/PRODUCTS MAY BE USED AS PER OWNER OR PROJECT ARCHITECT REQUIREMENTS.

CONCRETE: REFERENCE CONCRETE NOTES (LEFT SIDE of SHEET). Maximum 30% fly ash to 70% Portland Cement in concrete mix.

SILL PLATES: ACQ P.T.D.F.
Optional: Borate Treated LSL Timberstrand, by Weyerhaeuser

LUMBER: ALL DF LUMBER TO BE "FSC CERTIFIED".
ENGINEERED LUMBER, e.g., Parallam, Microllam, Timberstrand, TJI, etc... ARE CONSIDERED GREEN PRODUCTS.

REINFORCING STEEL

BARS FOR REINFORCING SHALL BE GRADE 60 DEFORMED BARS CONFORMING TO ASTM A–615 INCLUDING SUPPLEMENT S1. LAP SPLICES SHALL BE IN ACCORDANCE WITH ACI 318 UNLESS OTHERWISE NOTED ON PLANS.
REFERENCE "GENERAL NOTES– STRUCTURAL STEEL" for MORE INFORMATION.

SLAB MEMBRANE

15–mil Srego Wrap U.O.N. on PLANS. (SEE PLANS)

MASONRY

MASONRY UNITS SHALL BE LIGHT WEIGHT UNITS CONFORMING TO ASTM DESIGNATION C–90, LOAD–BEARING. ALL CELLS SHALL BE GROUTED SOLID.
MORTAR: MORTAR SHALL CONFORM TO CBC/ASCE7–05 TYPE M AND SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH of 2500 PSI AT 28 DAYS.
GROUT: GROUT SHALL BE COMPOSED OF 1 PART PORTLAND CEMENT, 3 PARTS SAND, 2 PARTS 3/8" PEA GRAVEL. THE GROUT SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH of 2500 PSI AT 28 DAYS.
HIGH STRENGTH NON–SHRINK GROUT: NON–SHRINK GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH of 5000 PSI.

REFERENCE "GENERAL NOTES– CONCRETE MASONRY" for MORE INFORMATION.

STRUCTURAL STEEL AND MISCELLANEOUS IRON

ALL STRUCTURAL STEEL AND MISCELLANEOUS IRON SHALL RECIEVE SHOP PRIME COAT. INDIVIDUAL SPECIFICATIONS U.O.N. on PLANS ARE AS FOLLOWS:
1) WIDE FLANGE– ASTM A992, Fy=50 ksi
2) HOLLOW STRUCTURAL STEEL & TUBE STEEL– ASTM A500, GRADE B, Fy=46 ksi
3) STEEL PIPE– ASTM A53, TYPE E or S, GRADE B, w/SULFUR NOT EXCEEDING 0.05%, Fy=35 ksi
4) ANGLE IRON– ASTM A36, Fy=36 ksi
5) MISCELLANEOUS IRON– ASTM A36M, Fy=36 ksi

REFERENCE "GENERAL NOTES– STRUCTURAL STEEL" for MORE INFORMATION.

MACHINE BOLTS, ANCHOR BOLTS, STUDS & THREADED RODS

ASTM A307
BOLTS IN CONTACT w/PRESSURE TREATED LUMBER SHALL BE HOT DIPPED GALVANIZED or AN APPROVED CORROSIVE RESISTANT MATERIAL.

EARTHWORK

EARTHWORK SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE FOUNDATION INVESTIGATIONS by: ROMIG ENGINEERS
PROJECT NO. 5729–1
DEC. 2021

SHOP DRAWINGS

FOR THE ENGINEERS REVIEW WILL BE AS FOLLOWS:
1. MIX DESIGNS
2. REINFORCING STEEL
3. STRUCTURAL STEEL AND MISCELLANEOUS METALS
4. MANUFACTURERED TRUSSES AND JOISTS

SUBSTITUTIONS

–BEFORE SUBSTITUTIONS FOR ANY MATERIAL OR SYSTEMS SHOWN ON THE DRAWINGS, OR CALLED OUT IN THE SPECIFICATIONS, OR STATE "...OR APPROVED EQUAL", WILL BE CONSIDERED, THE PERSON PROPOSING THE SUBSTITUTION WILL BE REQUIRED TO SUBMIT A LETTER TO THE STRUCTURAL ENGINEER STATING THE FOLLOWING:

A. THE PROPOSER AGREES TO PAY THE ENGINEER FOR THE TIME IN EVALUATING THE PROPOSED CHANGE.
B. THE PROPOSER AGREES TO PAY THE ENGINEER FOR THE TIME REQUIRED IN REVISING or CHANGING THE DRAWINGS AND DETAILS SHOULD THIS BE REQUIRED BY THE BUILDING DEPARTMENT or SHOULD THE ENGINEER DECIDE IT IS NECESSARY FOR CLARITY.
C. NET SAVINGS SHALL ACCRUE TO THE OWNER SHOULD THE SUBSTITUTION BE APPROVED. (NET AFTER ALL COSTS).

SPECIAL INSPECTIONS

THE OWNER SHALL EMPLOY A SPECIAL INSPECTOR DURING CONSTRUCTION ON THE FOLLOWING TYPES OF WORK:

C=CONTINUOUS INSPECTION, P=PERIODIC INSPECTION

	C	P
(1) EPOXY HOLD–DOWN ANCHORS (TENSION BOLTS) – SPECIAL INSPECTION REQUIRED DURING THE INSTALLATION OF ALL EPOXIED HOLDOWN ANCHOR BOLTS.		
(2) SHEAR WALL NAILING – SPECIAL INSPECTION REQUIRED FOR SHEAR WALL NAILING 4 INCHES ON CENTER OR LESS.		
(3) BOLTS INSTALLED IN CONCRETE – Installation of anchor bolts (SB, SSTB, epoxy, expansive, etc).		
(3) Welding		
1. COMPLETE & PARTIAL JOINT PENETRATION GROOVE WELDS		
2. MULTIPASS FILLET WELDS		
3. SINGLE–PASS FILLET WELDS > 5/16"		
4. PLUG OR SLOT WELDS		
5. SINGLE–PASS FILLET WELDS < or = 5/16"		

SPECIAL INSPECTOR

THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE HIS COMPETENCE, TO THE SATIFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF A PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.

DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR

– THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH THE APPLICABLE DESIGN DRAWINGS AND SPECIFICATIONS.
– THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, THE ENGINEER OR ARCHITECT OF RECORD, AND OTHER DESIGNATED PERSONS. ALL DESCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF CORRECTED, THE PROPER DESIGN AUTHORITY AND TO THE BUILDING OFFICIAL.
– THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF HIS KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISION OF THIS CODE.

CODES

–2019 CBC (California Building Code)
–2019 CRC (California Residential Code)
–2018 IBC (International Building Code)
–ASCE/SEI 7–16 (American Society of Civil Engineering/Structural Engineering Institute– Minimum Design Loads for Buildings and Other Structures)
–2015 NDS (National Design Specification for Wood Construction)
–ACI 318–14 (American Concrete Institute)
–MSJC/ACI 530–11 (Masonry Structures)
–AISC 360–10 American Institute of Steel Construction

SYMBOLS LENGEND

2 / SD.3 ← INDICATES DETAIL CALL–OUT EXAMPLE: DETAIL #2, SHEET SD.3
5 / SD.4 – VIEW DIRECTION
2 – VIEW DIRECTION
1/4" SLOPE – INDICATES DEGREE of SLOPE. EXAMPLE: 1/4" DROP per FOOT.
– INDICATES SLOPED BEAM, SLAB, OR DECK, ARROWHEAD INDICATES DIRECTION.
~8'–0" or 8'–0"± ← INDICATES APPROXIMATE DIMENSION. FOR EXACT DIMENSION, SEE ARCHITECT
–FLAG INDICATES FIELD WELD, SHOP WELD WHEN NOT SHOWN
E70xx – INDICATES ELECTRODE 70 ksi STRENGTH WELD
1/4 –WELD SIZE / –WELD TYPE – Example: 1/4" fillet weld
–WELD ALL AROUND, OR ALL SIDES
1 ← INDICATES REVISION NUMBER
← AFFECTED REGION DUE TO CURRENT REVISION

ABBREVIATIONS

&	And
@	At
A.B.	Anchor bolt
ALUM.	Aluminum
ARCH.	Architect or Architectural
BLK.	Block
BLK'G	Blocking
BN	Boundary Nailing per schedule/plan
BTWN.	Between
CL or ℄	Centerline
C.J.	Construction Joint or Cold Joint
CLR	Clear
COL.	Column
CONC.	Concrete
CONN.	Connection
CONT.	Continuous
CMU	Concrete Masonry Unit
DBL.	Double
DET.	Detail
DF	Douglas Fir
DIA.	Diameter
DWG.	Drawing(s)
(E)	Existing
EA.	Each
E.F.	Each Face
E.J.	Expansion Joint
ELEV.	Elevation
EMBED.	Embedment
EN	Edge Nail per Shearwall Schedule
EXT.	Exterior
FDN.	Foundation
F.F.	Finish Floor
F.F.V.	Flat Face Vertical
FLR.	Floor
FN	Field Nailing per Schedule
F.P.	Full Penetration
F.O.B.	Face of Building
F.O.C.	Face of Concrete
F.O.S.	Face of Stud
F.O.W.	Face of Wall
F.S.	Far Side
FTG.	Footing
ga.	Gage, or Guage
GALV.	Galvanized
G.I.	Galvanized Iron
G.L.B.	Glulam Beam
GBDW.	Gypsum Board Dry Wall
GYP.	Gypsum
HDG.	Hot Dipped Galvanized
H.S.S.	Hollow Steel Section
HORIZ.	Horizontal
H.S.B.	High Strength Bolt
I.F.	Inside Face
INSUL.	Insulation
L.L.H.	Long Leg Horizontal
L.L.V.	Long Leg Vertical
MAX.	Maximum
M.B.	Machine Bolt
MC	Miscellaneous Channel
MECH.	Mechanical
MFR.	Manufacturer
M.I.	Maellable Iron
MIN.	Minimum
N	New
N.T.S.	Not to Scale
NIC	Not in Contact
N.I.C.	Not in Contract
N.S.	Near Side
O.M.R.F.	Oridinary Moment Resistant Frame
O.F.	Outside Face
O.H.	Opposite Hand
PL or ℙ	Plate
PLAS.	Plaster
PLYWD.	Plywood
P.P.	Partial Penetration
⊥	Perpendicular // Parallel
PT.	Point
PTDF	Pressure Treated Douglas Fir
REINF.	Reinforcing or Reinforcement
REQ.	Require or Required
RDWD.	Redwood
S.A.D.	See Architectural Drawings
SECT.	Section
SHT.	Sheet
SIM.	Similar
SN	Sill Nail
SMRF	Special Moment Resisting Frame
SPECS.	Specifications
SQ. or	Square
S.S.	Stainless Steel
SSP	Standard Steel Pipe
XSP	Extra Strong Steel Pipe
XXSP	Double Extra Strong Steel Pipe
STAGG	Staggered
STD	Standard
STIFF.	Stiffener
STL.	Steel
T&B	Top and Bottom
T&G	Tongue and Groove
TN	Toe Nail
T.O.C.	Top of Concrete or Top of Curb
T.O.S.	Top of Steel
TS	Tube Steel
TYP.	Typical
U.O.N.	Unless Otherwise Noted
VERT.	Vertical
V.I.F.	Verify in Field
w/	With
w/o	Without

TABLE OF CONTENTS

SYMBOLS LENGEND

← INDICATES STUD WALL FRAMING. REFERENCE ARCHITECTURAL PLANS for ALL WALL LENGTHS & DIMENSIONS UNLESS SPECIFICALLY DIMENSIONED ON THE STRUCTURAL PLANS. FOR 2x4, 2x6, 2x8, ETC. BEARING WALLS NOT WRAPPED with PLYWOOD, PROVIDE 2x BLOCKING (DEPTH TO MATCH WALL FRM'G) AT WALL MID–HT OR @5'–0" o.c. MAX. FULL WALL HEIGHT.

6 / 4'-0" ← INDICATES WOOD STRUCTURAL SHEAR WALL PANEL EXAMPLE: 4'–0" LENGTH, TYPE 6 REFERENCE SHEAR WALL SCHEDULE for INFO. SHEAR WALL LENGTH SPECIFIED IS MINIMUM.
MAX. SHEAR WALL RATIO NOT TO EXCEED 3.5:1 OR (TOP PLATE HT. DIVIDED by 3.5 = MINIMUM PANEL LENGTH).
IF MIMIMUM SHEAR WALL LENGTHS SPECIFIED on STRUCTURAL PLANS CONFLICT WITH ARCHITECTURAL PLANS, TRY TO NOTIFY ISE PRIOR TO ANY BOLT PLACEMENTS & CONCRETE POUR.

HF ← HF = HARDY FRAME
HFX-18x9 ← MODEL NO.
18= 18 inches LENGTH
9= 9 foot NOMINAL HEIGHT (104–1/4" ACTUAL)
1⅛–STD–RA
1⅛ = ROD DIAMETER
STD= STANDARD ROD GRADE ASTM F1554 grade 36
RA= REINFORCED ANCHORAGE

SW / SW16x7x4 ← INDICATES SIMPSON STRONG–WALL PANEL EXAMPLE: 16" LENGTH, 7 FEET NOMINAL HT., WITHIN 2x4 WALL with SSTB28 ANCHOR BOLTS REFERENCE TYP. SIMPSON DETAILS for INFO.
SIMPSON TEMPLATE REQUIRED FOR ACCURATE BOLT PLACEMENT.
REFERENCE SIMPSON SCHEDULE FOR ACTUAL FRAME HEIGHT.

8'–0" ← CONCRETE MASONRY UNIT (CMU) SHEAR WALL EXAMPLE. EXAMPLE: 8'–0" MIN. LENGTH CMU SHEAR WALL.
REFERENCE STRUCTURAL DETAILS FOR TYPICAL REINFORCEMENT

HEADER ← INDICATES HEADER, REFERENCE HEADER SCHEDULE FOR SIZE, NO. of BEARING & KING STUDS, U.O.N. on STRUCTURAL PLANS

COLLAR TIE ← INDICATES COLLAR–TIE. U.O.N. on PLANS, USE MINIMUM 2x6 COLLAR–TIE with 4–16d SINKER NAILS TIE TO RAFTER CONNECTIONS.

RIDGE, HIP, VALLEY ← INDICATES ROOF MEMBER, RIDGE, HIP, OR VALLEY, ETC. SOLID DOT INDICATES BRACING or KICKER TIE TO RAFTER CONNECTIONS.

PURLIN ← INDICATES ROOF PURLIN SOLID DOT INDICATES BRACING or KICKER TIE TO RAFTER CONNECTIONS.

CEILING or FLOOR BEAM ← INDICATES BEAM, CEILING OR FLOOR BEAM FOR EXAMPLE SEE PLANS FOR SIZE & LOCATION

6x6 POST w/CCQ ← INDICATES STRUCTURAL POST EXAMPLE: 6x6 POST with CCQ POST CAP.
REF: WOOD NOTES FOR GRADE OF WOOD POST (DF#1 or BETTER U.O.N.)
POST CAP TO BE SIMPSON or EQUAL
REF: SIMPSON CATALOGS FOR CCQ TO FIT POST U.O.N. on PLANS, TYP.

MST48 strap ← INDICATES METAL STRAP HOLD–DOWN SEE PLANS FOR STRAP CALLOUTS STRAP TO BE INSTALLED BETWEEN FLOOR FRAMING.

POST ABOVE ← INDICATES POST BEARING LOAD FROM ABOVE FLOOR/ROOF FRAMING. PROVIDE SOLID COMPRESSION BLOCK BETWEEN FLOOR FRAMING AS REQUIRED.

ST6236 STRAP ← INDICATES DRAG/COLLECTOR STRAP. STRAP TO BE INSTALLED TO TOP PLATES PRIOR TO FLOOR AND/OR ROOF ERECTION.

HDU5 HOLDOWN ← INDICATES SIMPSON or EQUAL HOLD–DOWN. REF: PLANS FOR TYPE. REF: HOLD–DOWN SCHEDULE FOR ANCHOR BOLT (SSTB U.O.N.).
NOTE: DO NOT SCALE THE STRUCTURAL PLANS (WITH A RULER FOR EXAMPLE) FOR HOLD–DOWN LOCATIONS. ALL HOLDOWN LOCATIONS TO BE TAKEN FROM WALL DIMENSIONS/LENGTHS per ARCHITECTURAL PLANS.
CONTRACTOR IS RESPONSIBLE FOR PROPER HOLDOWN SSTB PLACEMENT

XX ← INDICATES KEY NOTE ITEM. SEE FRAMING PLANS FOR INFO.

← INDICATES NEW CONCRETE FOUNDATION. SPREAD FOOTING for EXAMPLE. REF: TYPICAL FOOTING DETAILS.

← INDICATES EXISTING CONCRETE FOUNDATION. SPREAD FOOTING for EXAMPLE.

← INDICATES PIER & GRADE BEAM FOUNDATION. REF: TYPICAL FOOTING DETAILS.

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

Massarotto ADU/Garage
1017 Ramona Ave.
San Jose, CA 95125

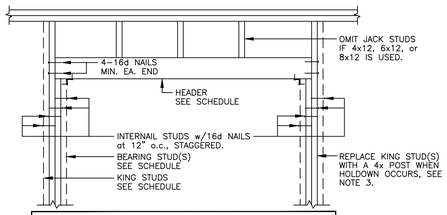
DATE ISSUE:
3/4/2021

REV.	DATE	DESCRIPTION
1	8/10/2022	PER BUILDING DEPARTMENT PLAN CHECK
2	11/9/2022	PER PLANNING DEPARTMENT PLAN CHECK
3	3/6/2023	PER FIRE DEPARTMENT PLAN CHECK
4	10/30/2023	PER BUILDING DEPARTMENT PLAN CHECK
5	10/30/2023	DESIGN/ENGINEERING REVISIONS

PROJECT #: 719 SCALE: NONE
DRAWN BY: JI, YI
PROJECT MANAGER: YI
ENGINEERED BY: JI
REVIEWED BY: JI

General Notes
Structural Specifications

SD.1

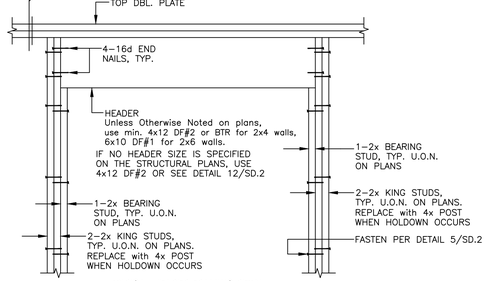


HEADER SCHEDULE					
WIDTH OF OPENING	STUD WIDTH 2x4	2x6	2x8	NO. BEARING STUDS REQ'D	NO. KING STUDS REQ'D
3'–0" MAX.	4x6	6x6	8x6	1	1
5'–0" MAX.	4x8	6x8	8x8	1	1
7'–0" MAX.	4x10	6x10	8x8	2	2
10'–0" MAX.	4x12	6x10	8x10	2	2
OVER 10'–0"	SEE PLANS				2

NOTES:
1. AT EXTERIOR AND INTERIOR WALLS, A 4x12 DF#2 HEADER MAY BE USED IN LIEU OF THE HEADERS NOTED IN THE TABLE. OMIT JACK STUDS IF 4x12 IS USED, TYPICAL.
2. HEADERS NOTED IN THE TABLE SHALL BE PROVIDED OVER ALL WINDOWS, DOORS, AND OTHER OPENINGS UNLESS OTHERWISE NOTED ON PLANS.
3. WHEN HOLDOWN BETWEEN FLOORS OR AT FOUNDATION OCCURS, REPLACE 2x KING STUD(S) WITH A 4x POST– DEPTH TO MATCH STUDS. THE A35 CLIP MAY BE NEGLECTED AT THE FOUNDATION LEVEL WHEN HOLDOWN IS USED.
4. FOR HEADERS SUPPORTING ROOF OR FLOOR ONLY, ONE BEARING STUD MAY BE USED IN LIEU OF TWO UNLESS OTHERWISE NOTED ON PLANS. FOR HEADERS SUPPORTING BEAMS, USE TWO BEARING STUDS.

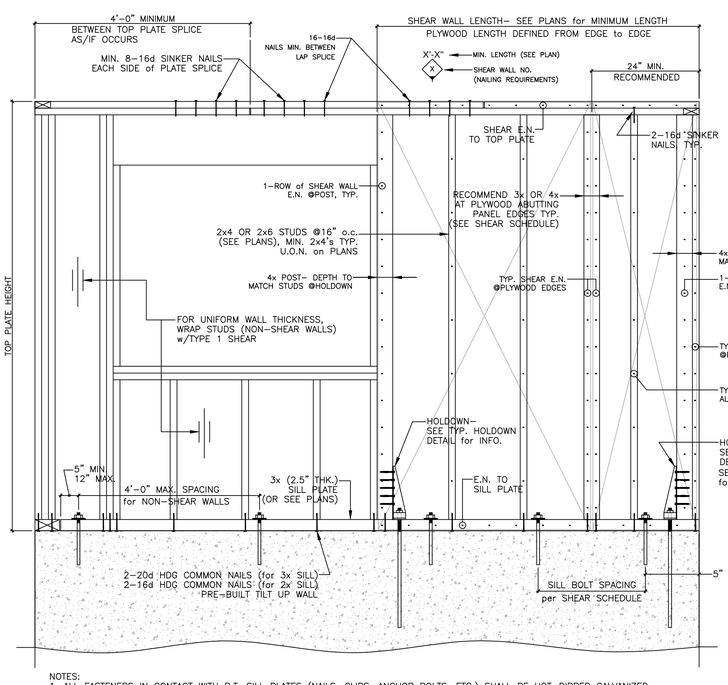
HEADER SCHEDULE

6 DETAIL 12 — NO SCALE



TYPICAL HEADER FRAMING DETAIL

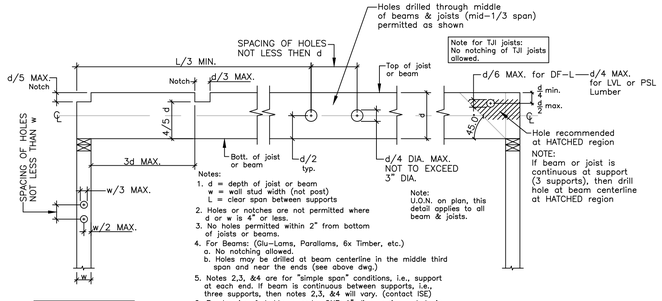
DETAIL 13 — 3/4"=1'-0"



NOTES:
1. ALL FASTENERS IN CONTACT WITH P.T. SILL PLATES (NAILS, CLIPS, ANCHOR BOLTS, ETC.) SHALL BE HOT–DIPPED GALVANIZED.
2. IF Borate (NON–CORROSIVE) TREATED LSL TIMBERSTRAND SILL PLATES USED, THEN HDG CONNECTORS NOT REQUIRED.

TYPICAL STRUCTURAL WALL FRAMING

DETAIL 14 — 3/4"=1'-0"



Notes:
1. d = depth of joist or beam
   w = wall stud width (not post)
   L = clear span between supports
2. Holes or notches are not permitted where d or w is 4" or less.
3. No holes permitted within 2" from bottom of joists or beams.
4. For Beams: (Glu–Lams, Parallams, 6x Timber, etc.)
   a. No notching allowed.
   b. Holes may be drilled at beam centerline in the middle third span and near the ends (see above dwg.)
5. Notes 2,3, &4 are for "simple span" conditions, i.e., support at each end. If beam is continuous between supports, i.e., three supports, then notes 2,3, &4 will vary. (contact ISE)
6. For bearing & holdown posts, ONE–1" dia. maximum hole is permitted for plumbing or electrical access; drill neat hole through post centering.

Note for TJI joists: No notching of TJI joists allowed.

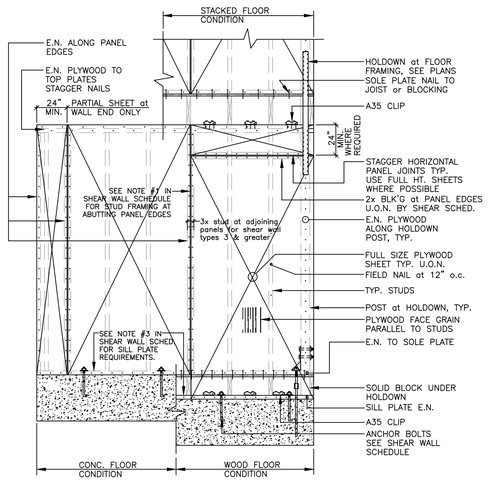
Use & knock–out holes provided by TJI MFG

FOR PLUMBING or ELECTRICAL

NOTE: THIS DETAIL DOES NOT APPLY TO ROOF TRUSSES. NO CUTS OR NOTCHES ALLOWED IN ROOF TRUSSES

TYPICAL DRILLED HOLES IN JOISTS/BEAMS

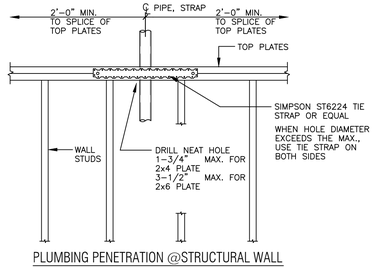
DETAIL 8 — 3/4"=1'-0"



STUD FRAMING FOR SHEAR WALLS SHALL BE MINIMUM 2x4 DF#2 at 16" o.c. U.N.O. ON PLANS

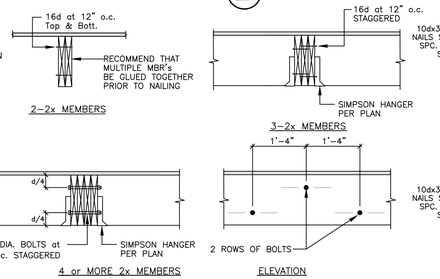
TYPICAL SHEAR WALL ELEVATION

DETAIL 9 — NO SCALE



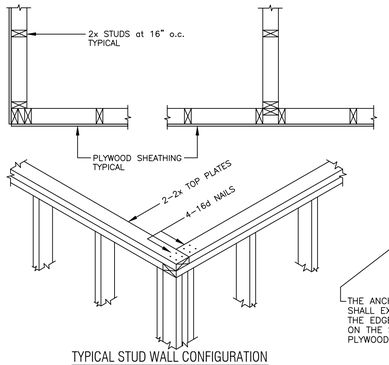
PLUMBING PENETRATION @STRUCTURAL WALL

DETAIL 10 — NO SCALE



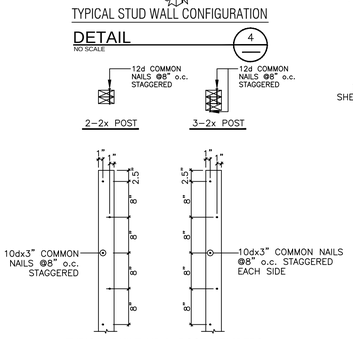
TYPICAL BUILT-UP 2x JOIST/BEAM MEMBERS

DETAIL 11 — 3/4"=1'-0"



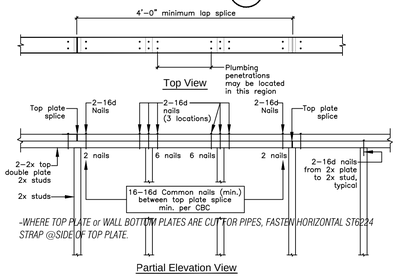
TYPICAL STUD WALL CONFIGURATION

DETAIL 4 — NO SCALE



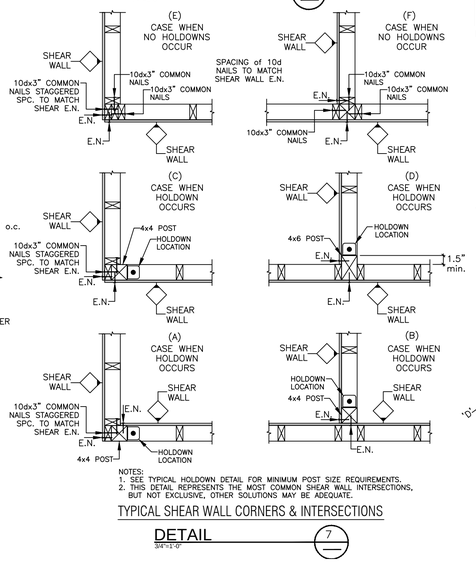
TYPICAL BUILT-UP 2x POST MEMBERS

DETAIL 5 — 3/4"=1'-0"



TYPICAL TOP PLATE @STRUCTURAL WALL

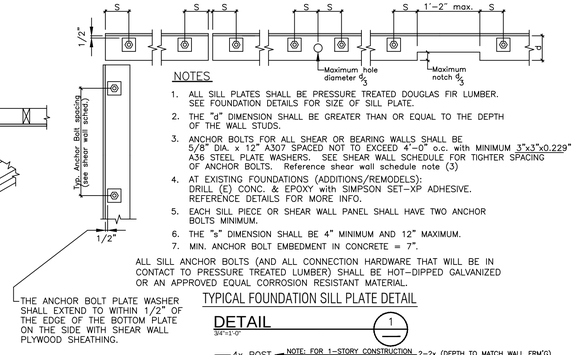
DETAIL 6 — 3/4"=1'-0"



NOTES:
1. SEE TYPICAL HOLDOWN DETAIL FOR MINIMUM POST SIZE REQUIREMENTS.
2. THIS DETAIL REPRESENTS THE MOST COMMON SHEAR WALL INTERSECTIONS, BUT NOT EXCLUSIVE. OTHER SOLUTIONS MAY BE ADEQUATE.

TYPICAL SHEAR WALL CORNERS & INTERSECTIONS

DETAIL 7 — 3/4"=1'-0"



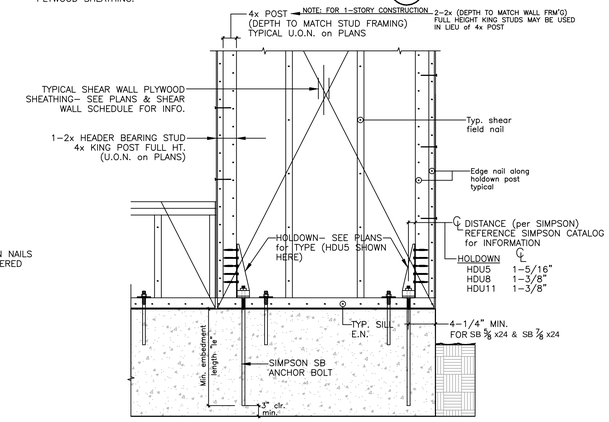
NOTES
1. ALL SILL PLATES SHALL BE PRESSURE TREATED DOUGLAS FIR LUMBER. SEE FOUNDATION DETAILS FOR SIZE OF SILL PLATE.
2. THE "d" DIMENSION SHALL BE GREATER THAN OR EQUAL TO THE DEPTH OF THE WALL STUDS.
3. ANCHOR BOLTS FOR ALL SHEAR OR BEARING WALLS SHALL BE 5/8" DIA. x 12" A307 SPACED NOT TO EXCEED 4'–0" o.c. with MINIMUM 3"x3"x0.229" A36 STEEL PLATE WASHERS. SEE SHEAR WALL SCHEDULE FOR TIGHTER SPACING OF ANCHOR BOLTS. Reference shear wall schedule note (3)
4. AT EXISTING FOUNDATIONS (ADDITIONS/REMODELS): DRILL (E) CONC. & EPOXY with SIMPSON SET–XP ADHESIVE. REFERENCE DETAILS FOR MORE INFO.
5. EACH SILL PIECE OR SHEAR WALL PANEL SHALL HAVE TWO ANCHOR BOLTS MINIMUM.
6. THE "s" DIMENSION SHALL BE 4" MINIMUM AND 12" MAXIMUM.
7. MIN. ANCHOR BOLT EMBEDMENT IN CONCRETE = 7".

ALL SILL ANCHOR BOLTS (AND ALL CONNECTION HARDWARE THAT WILL BE IN CONTACT TO PRESSURE TREATED LUMBER) SHALL BE HOT–DIPPED GALVANIZED OR AN APPROVED EQUAL CORROSION RESISTANT MATERIAL.

THE ANCHOR BOLT PLATE WASHER SHALL EXTEND TO WITHIN 1/2" OF THE EDGE OF THE BOTTOM PLATE ON THE SIDE WITH SHEAR WALL PLYWOOD SHEATHING.

TYPICAL FOUNDATION SILL PLATE DETAIL

DETAIL 1 — 3/4"=1'-0"

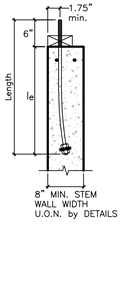


Holdown Schedule						
Model No.	SB Anchor Bolt	Anchor Dia.	Min. SB Embed. l_e	Min. Post Thickness	Fasteners To Post	Allowable Tension Load
HDU2 - SDS2.5	SB 5/8 x24	5/8 in.	18"	3"	6-SDS 1/4 x 2-1/2	3075 lb.
HDU5 - SDS2.5	SB 5/8 x24	5/8 in.	18"	3"	14-SDS 1/4 x 2-1/2	5645 lb.
HDU8 - SDS2.5	SB 7/8 x24	7/8 in.	18"	3-1/2"	20-SDS 1/4 x 2-1/2	6970 lb.
				4-1/2"		7870 lb.
HDU11 - SDS2.5	SB 1x30	1 in.	24"	5-1/2"	30-SDS 1/4 x 2-1/2	9535 lb.
				7-1/4"		11175 lb.

Reference Simpson 2021–2023 catalog pages 32–33 for more info.

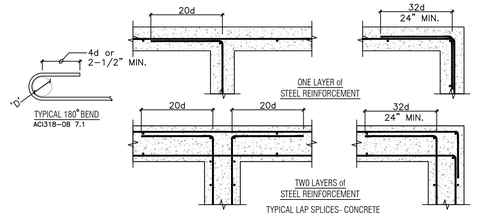
SB Bolts at Sternwall SDC C–F							
Model No.	Dimensions (in.) Sternwall Width (min.)	Dia.	Length	Min. Embed. l_e	Allowable Tension Loads (lbs.) CONTINUOUS (Midwall)	CORNER (Corner)	@ENDS (End Wall)
SB 5/8 x24	6"	5/8 in.	24"	18"	6675 lb.	5730 lb.	5730 lb.
SB 7/8 x24	8"	7/8 in.	24"	18"	8795 lb.	7855 lb.	5730 lb.
SB 1x30	8"	1 in.	30"	24"	11140 lb.	8315 lb.	6065 lb.

Reference Simpson 2021–2023 catalog pages 32–33 for more info.

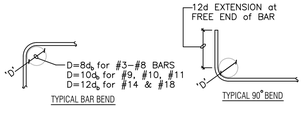


TYPICAL HOLDOWN @FOUNDATION

DETAIL 2 — 3/4"=1'-0"



d=d_b=NOMINAL DIAMETER of BAR



TYPICAL BAR BEND & LAPS

DETAIL 3 — NO SCALE

U.S. System Size No.	Dia. (in.)	Metric System Size No.	Dia. (mm)
#3	0.375	#10	9.5
#4	0.500	#13	12.7
#5	0.625	#16	15.9
#6	0.750	#19	19.1
#7	0.875	#22	22.2
#8	1.000	#25	25.4
#9	1.128	#29	28.7
#10	1.270	#32	32.3
#11	1.410	#36	35.8
#14	1.693	#43	43.0
#18	2.257	#57	57.3

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

REGISTERED PROFESSIONAL ENGINEER Jeffery Alan Ingram No. C 66222 Exp. 6/30/2024 CIVIL STATE OF CALIFORNIA

Massarotto ADU/Garage
1017 Ramona Ave.
San Jose, CA 95125

DATE ISSUE:
3/4/2021

1	8/10/2022	PER BUILDING DEPARTMENT PLAN CHECK
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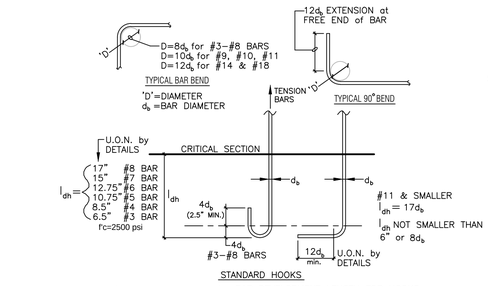
4	10/30/2023	PER BUILDING DEPARTMENT PLAN CHECK
5	10/30/2023	DESIGN/ENGINEERING REVISIONS

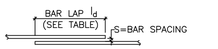
PROJECT #: 719	SCALE: AS NOTED
DRAWN BY: JI, YI	
PROJECT MANAGER: YI	
ENGINEERED BY: JI	
REVIEWED BY: JI	

Typical Details

SD.2



TYP. BAR HOOKS & BENDS
Grade 60 REBAR, f'c=2500 psi



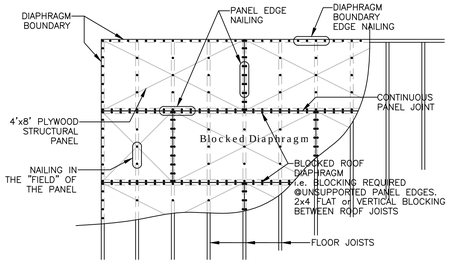
BAR SPACING GREATER THAN d_b
l_d = 48d_b #3 to #6 BARS
l_d = 60d_b #7 to #8 BARS

BAR SIZE	BAR LAP
#3	18"
#4	24"
#5	30"
#6	36"
#7	53"
#8	60"

BAR SPACING LESS THAN d_b
l_d = 72d_b #3 to #6 BARS
l_d = 90d_b #7 to #8 BARS

BAR SIZE	BAR LAP
#3	27"
#4	36"
#5	45"
#6	54"
#7	78"
#8	90"

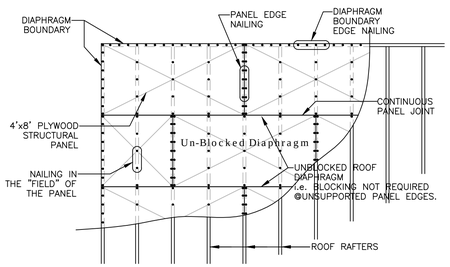
BAR LAP
Grade 60 REBAR, f'c=2500 psi



FLOOR SHEATHING: 23/32" APA RATED SHEATHING DOC PS–1 or DOC PS–2, EXPOSURE 1 GLUE, 48/24 SPAN RATING.

FLOOR NAILING: USE 10d COMMON 2–3/8" x0.148" GALVANIZED RING SHANK NAILS @6" o.c. @BOUNDARY & EDGES, @12" o.c. IN THE FIELD.

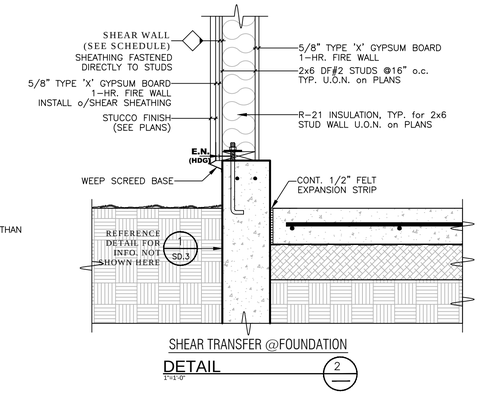
FLOOR PLYWOOD DIAPHRAGM
DETAIL 6
NO SCALE



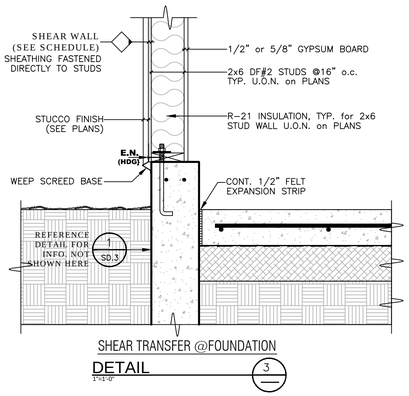
ROOF SHEATHING: 15/32" APA RATED DOC PS–1 or DOC PS–2 SHEATHING, EXPOSURE 1, 32/16 SPAN RATING.

ROOF NAILING: USE 10d HDG COMMON 2–1/4" x0.148" Gun NAIL @6" o.c. @BOUNDARY & EDGES, @12" o.c. IN THE FIELD.
NOTE:
FOR NEW PLYWOOD INSTALLED over EXISTING 1x SKIP–SHEATHING, USE 10dx3" COMMON NAILS w/MIN. 1.5" NAIL PENETRATION INTO FRM'G MEMBERS.

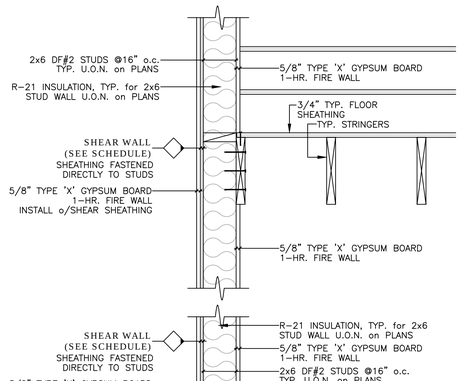
ROOF PLYWOOD DIAPHRAGM
DETAIL 7
NO SCALE



SHEAR TRANSFER @FOUNDATION
DETAIL 2
1"=1'-0"

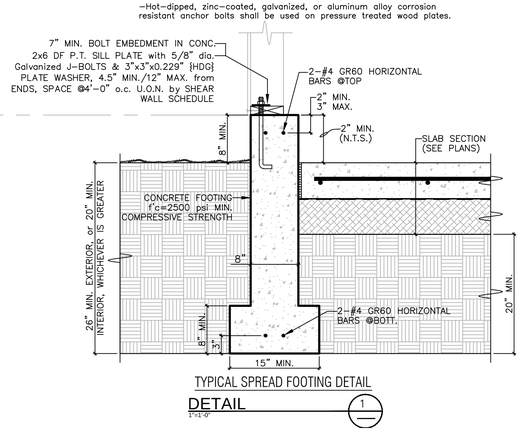


SHEAR TRANSFER @FOUNDATION
DETAIL 3
1"=1'-0"



SHEAR TRANSFER @FOUNDATION
DETAIL 4
1"=1'-0"

ALL SILL ANCHOR BOLTS (AND ALL CONNECTION HARDWARE THAT WILL BE IN CONTACT TO PRESSURE TREATED LUMBER) SHALL BE HOT–DIPPED GALVANIZED [HDG] OR AN APPROVED EQUAL CORROSION RESISTANT MATERIAL.
–All holdowns & anchor bolts (all hardware) must be secured in place prior to foundation inspection, and all anchor bolts shall be re–tightened prior to the final installation of gypsum board or inside coverings for the shear walls.
–Hot–dipped, zinc–coated, galvanized, or aluminum alloy corrosion resistant anchor bolts shall be used on pressure treated wood plates.



TYPICAL SPREAD FOOTING DETAIL
DETAIL 1
1"=1'-0"

28. Joist to band joist or rim joist	3–16d common (3½" × 0.162"); or 4–10d box (3" × 0.128"); or 4–3" × 0.131" nails; or 4–3" 14 gage staples, 7/16" crown	End nail	
29. Bridging or blocking to joist, rafter or truss	2–8d common (2½" × 0.131"); or 2–10d box (3" × 0.128"); or 2–3" × 0.131" nails; or 2–3" 14 gage staples, 7/16" crown	Each end, toenail	
Wood structural panels (WSP), subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing[f]			
		Edges (inches)	**Intermediate supports (inches)**
30. 3/8" – 1/2"	6d common or deformed (2" × 0.113") (subfloor and wall)	6	12
	8d common or deformed (2½" × 0.131") (roof) or RSRS-01 (2½" × 0.113") nail (roof)[f]	6	12
	2¼" × 0.113" nail (subfloor and wall)	6	12
	1¾" 16 gage staple, 7/16" crown (subfloor and wall)	4	8
	2¼" × 0.113" nail (roof)	4	8
	1¾" 16 gage staple, 7/16" crown (roof)	3	6
31. 19/32" – 3/4"	8d common (2½" × 0.131"); or 6d deformed (2" × 0.113") (subfloor and wall)	6	12
	8d common or deformed (2½" × 0.131") (roof) or RSRS-01 (2½" × 0.113") nail (roof)[f]	6	12
	2¾" × 0.113" nail; or 2" 16 gage staple, 7/16" crown	4	8
32. 7/8" – 1 1/4"	10d common (3" × 0.148"); or 8d deformed (2½" × 0.131")	6	12
Other exterior wall sheathing			
33. 1/2" fiberboard sheathing[h]	1½" galvanized roofing nail (7/16" head diameter); or 1¼" 16 gage staple with 7/16" or 1" crown	3	6
34. 25/32" fiberboard sheathing[h]	1¾" galvanized roofing nail (7/16" diameter head); or 1½" 16 gage staple with 7/16" or 1" crown	3	6
Wood structural panels, combination subfloor underlayment to framing			
35. 3/4" and less	8d common (2½" × 0.131"); or 6d deformed (2" × 0.113")	6	12
36. 7/8" – 1"	8d common (2½" × 0.131"); or 8d deformed (2½" × 0.131")	6	12
37. 1 1/8" – 1 1/4"	10d common (3" × 0.148"); or 8d deformed (2½" × 0.131")	6	12
Panel siding to framing			
38. 3/8" or less	6d corrosion-resistant siding (1¾" × 0.106"); or 6d corrosion-resistant casing (2" × 0.099")	6	12
39. 3/8"	8d corrosion-resistant siding (2⅜" × 0.128"); or 8d corrosion-resistant casing (2½" × 0.113")	6	12
Wood structural panels (WSP), subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing[f]			
		Edges (inches)	**Intermediate supports (inches)**
Interior paneling			
40. 3/8"	4d casing (1½" × 0.080"); or 4d finish (1½" × 0.072")	6	12
41. 3/8"	6d casing (2" × 0.099"); or 6d finish (Panel supports at 24 inches)	6	12

2019 CBC

TABLE 2304.10.1

FASTENING SCHEDULE

DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
	Roof	
1. Blocking between ceiling joists, rafters or trusses to top plate or other framing below	3–8d common (2½" × 0.131"); or 3–10d box (3" × 0.128"); or 3–3" × 0.131" nails; or 3–3"14 gage staples, 7/16" crown	Each end, toenail
Blocking between rafters or truss not at the wall top plate, to rafter or truss	2–8d common (2½" × 0.131") 2–3" × 0.131" nails 2–3" 14 gage staples	Each end, toenail
	2–16 d common (3½" × 0.162") 3–3" × 0.131" nails 3–3" 14 gage staples	End nail
Flat blocking to truss and web filler	16d common (3½" × 0.162") @ 6" o.c. 3" × 0.131" nails @ 6" o.c. 3" × 14 gage staples @ 6" o.c	Face nail
2. Ceiling joists to top plate	3–8d common (2½" × 0.131"); or 3–10d box (3" × 0.128"); or 3–3" × 0.131" nails; or 3–3" 14 gage staples, 7/16" crown	Each joist, toenail
3. Ceiling joist not attached to parallel rafter, laps over partitions (no thrust) (see Section 2308.7.3.1, Table 2308.7.3.1)	3–16d common (3½" × 0.162"); or 4–10d box (3" × 0.128"); or 4–3" × 0.131" nails; or 4–3" 14 gage staples, 7/16" crown	Face nail
4. Ceiling joist attached to parallel rafter (heel joint) (see Section 2308.7.3.1, Table 2308.7.3.1)	Per Table 2308.7.3.1	Face nail
5. Collar tie to rafter	3–10d common (3" × 0.148"); or 4–10d box (3" × 0.128"); or 4–3" × 0.131" nails; or 4–3" 14 gage staples, 7/16" crown	Face nail
6. Rafter or roof truss to top plate (See Section 2308.7.5, Table 2308.7.5)	3–10 common (3" × 0.148"); or 3–16d box (3½" × 0.135"); or 4–10d box (3" × 0.128"); or 4–3" × 0.131 nails; or 4–3" 14 gage staples, 7/16" crown	Toenail
7. Roof rafters to ridge valley or hip rafters; or roof rafter to 2-inch ridge beam	2–16d common (3½" × 0.162"); or 3–10d box (3" × 0.128"); or 3–3" × 0.131" nails; or 3–3" 14 gage staples, 7/16" crown; or	End nail
	3–10d common (3" × 0.148"); or 4–16d box (3½" × 0.135"); or 4–10d box (3" × 0.128"); or 4–3" × 0.131" nails; or 4–3" 14 gage staples, 7/16" crown	Toenail
	Wall	
8. Stud to stud (not at braced wall panels)	16d common (3½" × 0.162");	24" o.c. face nail
	10d box (3" × 0.128"); or 3" × 0.131" nails; or 3–3" 14 gage staples, 7/16" crown	16" o.c. face nail
9. Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d common (3½" × 0.162"); or	16" o.c. face nail
	16d box (3½" × 0.135"); or	12" o.c. face nail
	3" × 0.131" nails; or 3–3" 14 gage staples, 7/16" crown	12" o.c. face nail
10. Built-up header (2" to 2" header)	16d common (3½" × 0.162"); or	16" o.c. each edge, face nail
	16d box (3½" × 0.135")	12" o.c. each edge, face nail
11. Continuous header to stud	4–8d common (2½" × 0.131"); or 4–10d box (3" × 0.128")	Toenail
12. Top plate to top plate	16d common (3½" × 0.162"); or	16" o.c. face nail
	10d box (3" × 0.128"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail
13. Top plate to top plate, at end joints	8–16d common (3½" × 0.162"); or 12–10d box (3" × 0.128"); or 12–3" × 0.131" nails; or 12–3" 14 gage staples, 7/16" crown	Each side of end joint, face nail (minimum 24" lap splice length each side of end joint)
	16d common (3½" × 0.162"); or	16" o.c. face nail
14. Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d box (3½" × 0.135"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail
15. Bottom plate to joist, rim joist, band joist or blocking at braced wall panels	2–16d common (3½" × 0.162"); or 3–16d box (3½" × 0.135"); or 4–3" × 0.131" nails; or 4–3" 14 gage staples, 7/16" crown	16" o.c. face nail
16. Stud to top or bottom plate	4–8d common (2½" × 0.131"); or 4–10d box (3" × 0.128"); or 4–3" × 0.131" nails; or 4–3" 14 gage staples, 7/16" crown; or	Toenail
	2–16d common (3½" × 0.162"); or 3–10d box (3" × 0.128"); or 3–3" × 0.131" nails; or 3–3" 14 gage staples, 7/16" crown	End nail
17. Top plates, laps at corners and intersections	2–16d common (3½" × 0.162"); or 3–10d box (3" × 0.128"); or 3–3" × 0.131" nails; or 3–3" 14 gage staples, 7/16" crown	Face nail
18. 1" brace to each stud and plate	2–8d common (2½" × 0.131"); or 2–10d box (3" × 0.128"); or 2–3" × 0.131" nails; or 2–3" 14 gage staples, 7/16" crown	Face nail
19. 1" × 6" sheathing to each bearing	2–8d common (2½" × 0.131"); or 2–10d box (3" × 0.128")	Face nail
20. 1" × 8" and wider sheathing to each bearing	3–8d common (2½" × 0.131"); or 3–10d box (3" × 0.128")	Face nail
	Floor	
21. Joist to sill, top plate, or girder	3–8d common (2½" × 0.131"); or floor 3–10d box (3" × 0.128"); or 3–3" × 0.131" nails; or 3–3" 14 gage staples, 7/16" crown	Toenail
22. Rim joist, band joist, or blocking to top plate, sill or other framing below	8d common (2½" × 0.131"); or 10d box (3" × 0.128"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	6" o.c., toenail
23. 1" × 6" subfloor or less to each joist	2–8d common (2½" × 0.131"); or 2–10d box (3" × 0.128")	Face nail
24. 2" subfloor to joist or girder	2–16d common (3½" × 0.162")	Face nail
25. 2" planks (plank & beam – floor & roof)	2–16d common (3½" × 0.162")	Each bearing, face nail
26. Built-up girders and beams, 2" lumber layers	20d common (4" × 0.192")	32" o.c., face nail at top and bottom staggered on opposite sides
	10d box (3" × 0.128"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	24" o.c. face nail at top and bottom staggered on opposite sides
	And: 2–20d common (4" × 0.192"); or 3–10d box (3" × 0.128"); or 3–3" × 0.131" nails; or 3–3" 14 gage staples, 7/16" crown	Ends and at each splice, face nail
27. Ledger strip supporting joists or rafters	3–16d common (3½" × 0.162"); or 4–10d box (3" × 0.128"); or 4–3" × 0.131" nails; or 4–3" 14 gage staples, 7/16" crown	Each joist or rafter, face nail

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

REGISTERED PROFESSIONAL ENGINEER
Jeffery Alan Ingram
No. C 66222
Exp. 6/30/2024
CIVIL
STATE OF CALIFORNIA

Massarotto ADU/Garage
1017 Ramona Ave.
San Jose, CA 95125

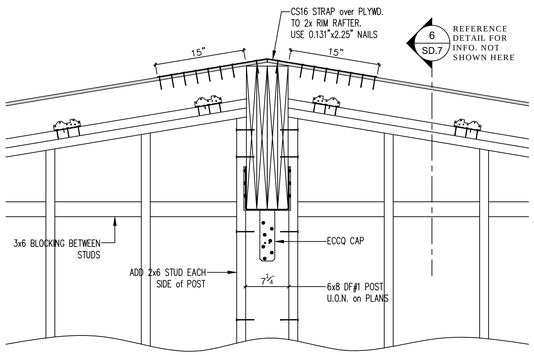
DATE ISSUE:
3/4/2021

1	8/10/2022	PER BUILDING DEPARTMENT PLAN CHECK
2	11/9/2022	PER PLANNING DEPARTMENT PLAN CHECK
3	3/6/2023	PER FIRE DEPARTMENT PLAN CHECK
4	10/30/2023	PER BUILDING DEPARTMENT PLAN CHECK
5	10/30/2023	DESIGN/ENGINEERING REVISIONS

PROJECT #: 719 SCALE: AS NOTED
DRAWN BY: JI, YI
PROJECT MANAGER: YI
ENGINEERED BY: JI
REVIEWED BY: JI

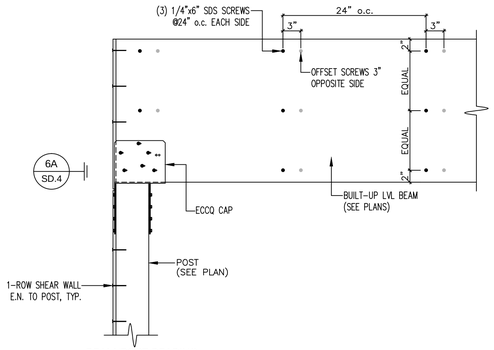
Nailing Schedule
2019 CBC Tbl. 2304.10.1
Structural Details

SD.3



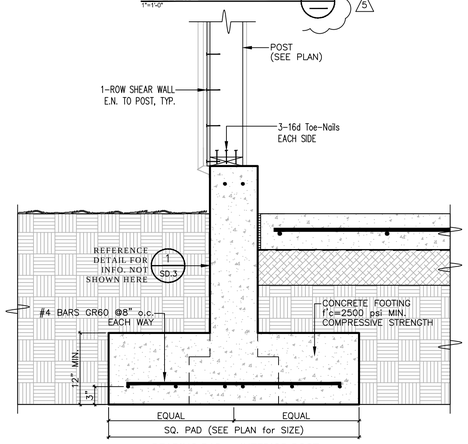
FRONT VIEW

DETAIL 6A 5



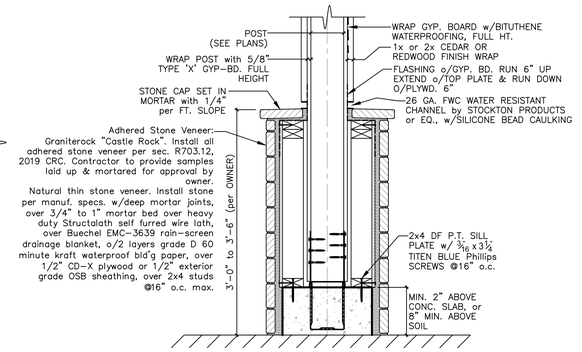
BEAM/POST BEARING

DETAIL 6 5

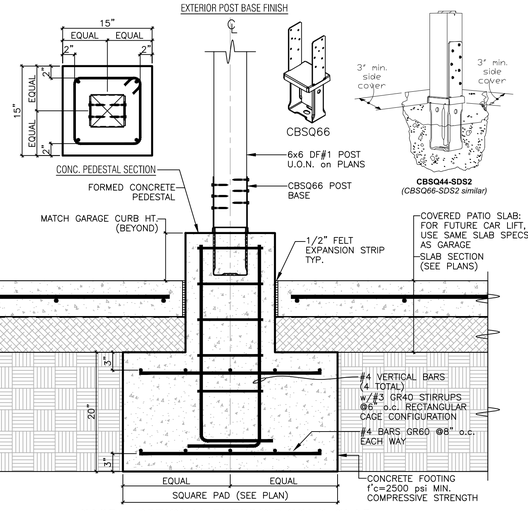


BEARING PAD @INTERIOR POST

DETAIL 7 5



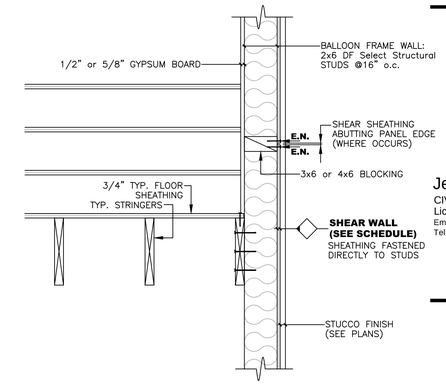
EXTERIOR POST BASE FINISH



CASE w/OPTIONAL EXTERIOR CONC. SLAB

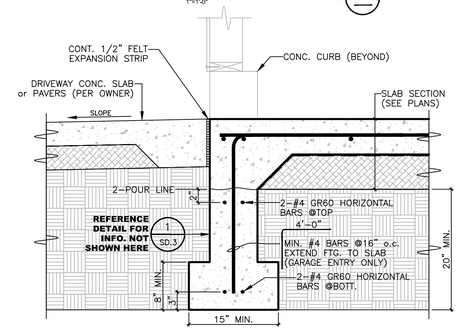
BEARING PAD @INTERIOR POST

DETAIL 4



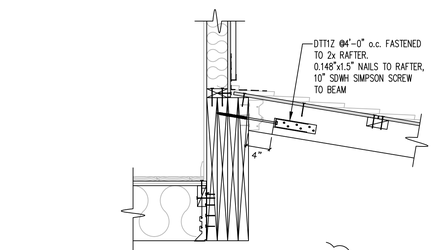
SHEAR TRANSFER @FOUNDATION

DETAIL 1

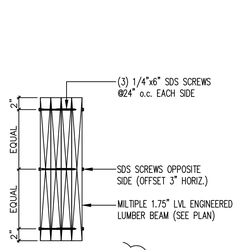


FOOTING @GARAGE ENTRY

DETAIL 2



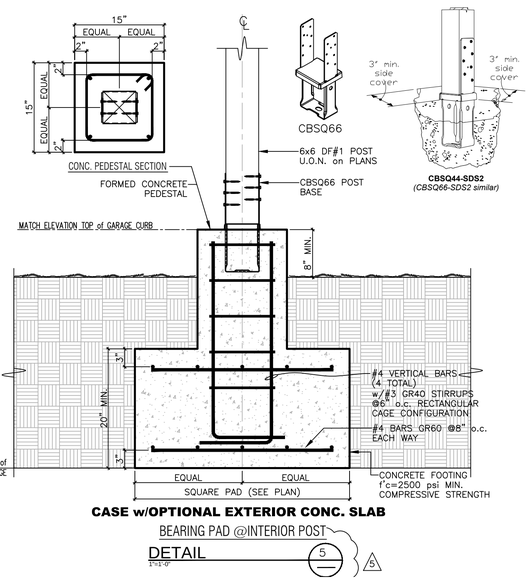
DTT1Z TENSION TIE 8B 5



BUILT-UP LVL BEAM 8A 5

SHEAR TRANSFER @FLOOR FRM'G & ~~ROOF~~

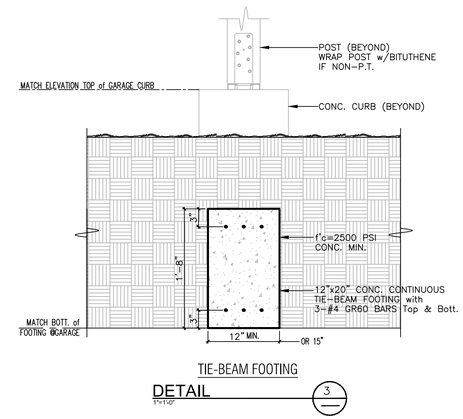
DETAIL 8 5



CASE w/OPTIONAL EXTERIOR CONC. SLAB

BEARING PAD @INTERIOR POST

DETAIL 5 5



TIE-BEAM FOOTING

DETAIL 3

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

REGISTERED PROFESSIONAL ENGINEER
Jeffery Alan Ingram
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Massarotto ADU/Garage
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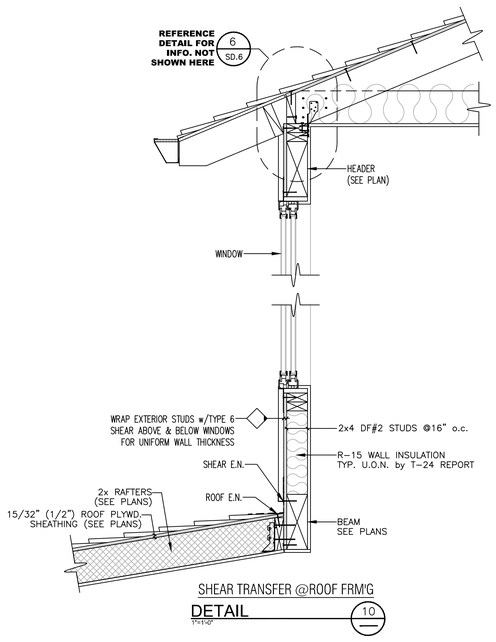
PROJECT #: 719	SCALE: AS NOTED
DRAWN BY: JI, YI	
PROJECT MANAGER: YI	
ENGINEERED BY: JI	
REVIEWED BY: JI	

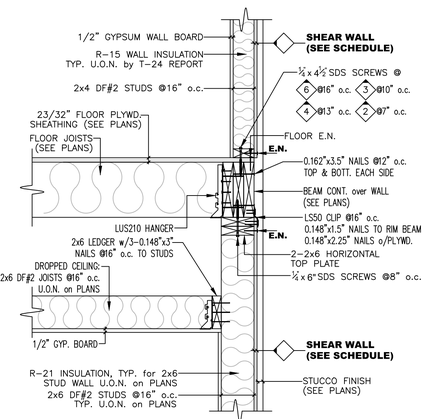
Structural Details

SD.4



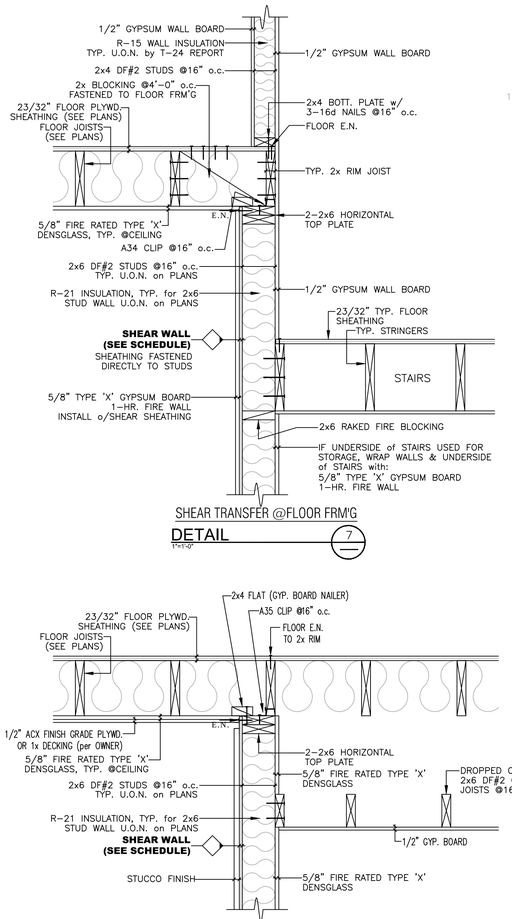
SHEAR TRANSFER @ROOF FRM'G

DETAIL 10 — 1"=1'-0"



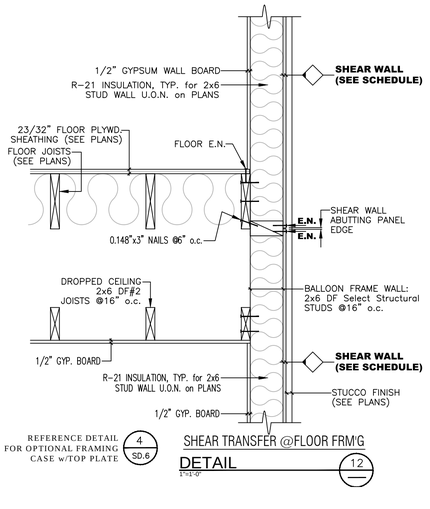
SHEAR TRANSFER @FLOOR FRM'G

DETAIL 11 — 1"=1'-0"



SHEAR TRANSFER @FLOOR FRM'G

DETAIL 7 — 1"=1'-0"



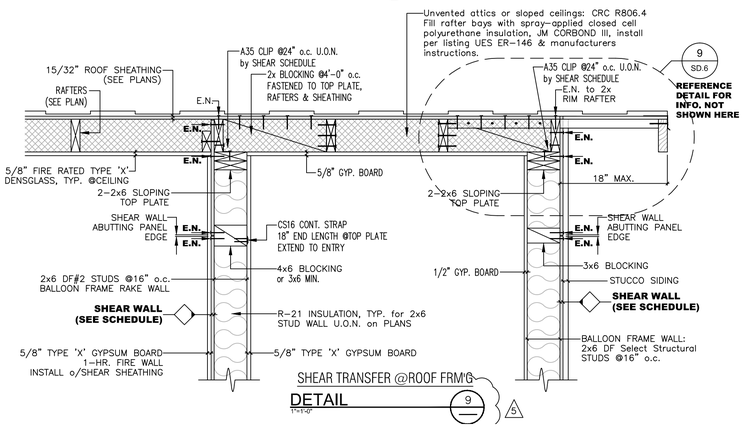
REFERENCE DETAIL FOR OPTIONAL FRAMING CASE w/TOP PLATE — 4 SD.6

SHEAR TRANSFER @FLOOR FRM'G

DETAIL 12 — 1"=1'-0"

SHEAR TRANSFER @FLOOR FRM'G

DETAIL 8 — 1"=1'-0"

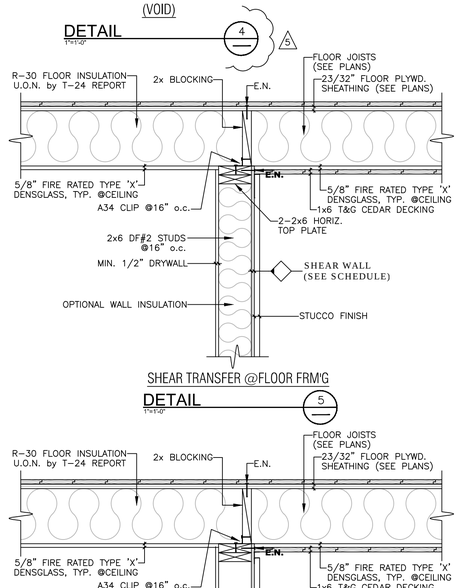


SHEAR TRANSFER @ROOF FRM'G

DETAIL 9 — 1"=1'-0" — 5

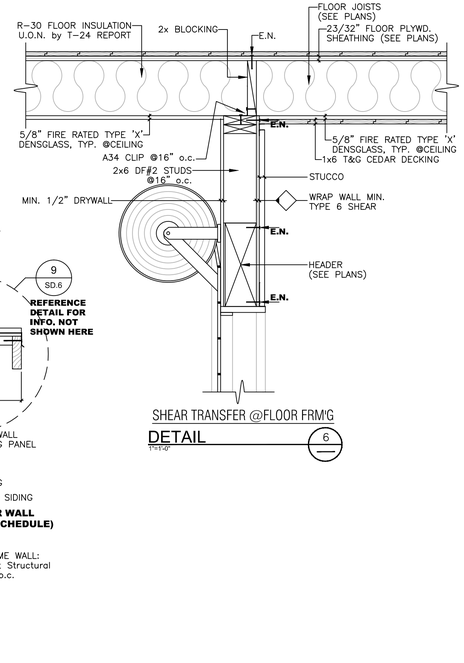
(VOID)

DETAIL 4 — 1"=1'-0" — 5



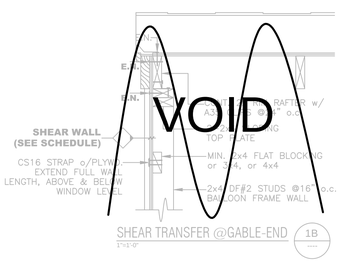
SHEAR TRANSFER @FLOOR FRM'G

DETAIL 5 — 1"=1'-0"



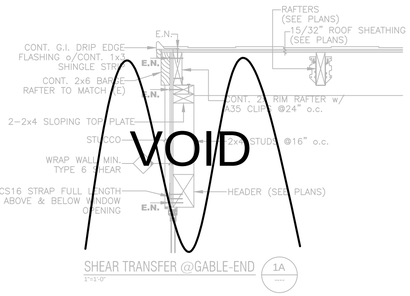
SHEAR TRANSFER @FLOOR FRM'G

DETAIL 6 — 1"=1'-0"



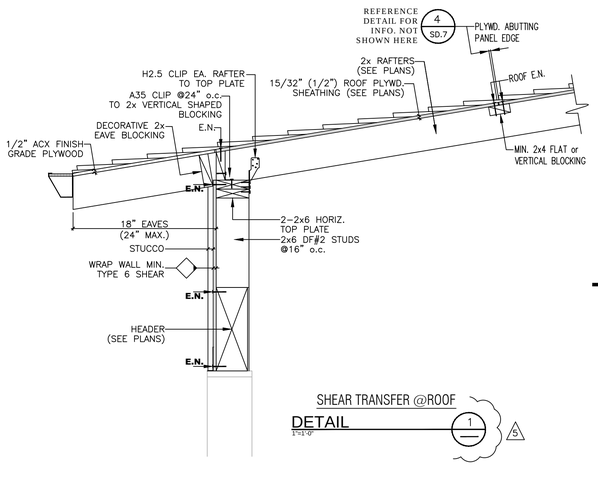
SHEAR TRANSFER @GABLE-END

1B — 1"=1'-0"



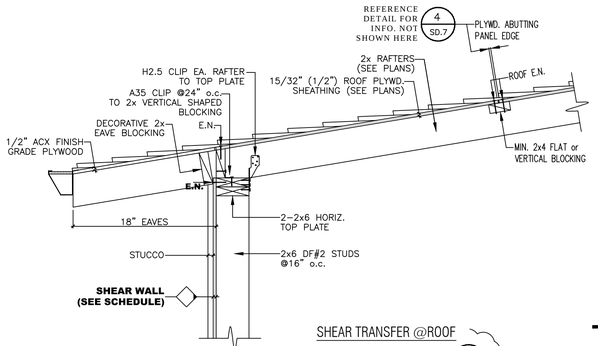
SHEAR TRANSFER @GABLE-END

1A — 1"=1'-0"



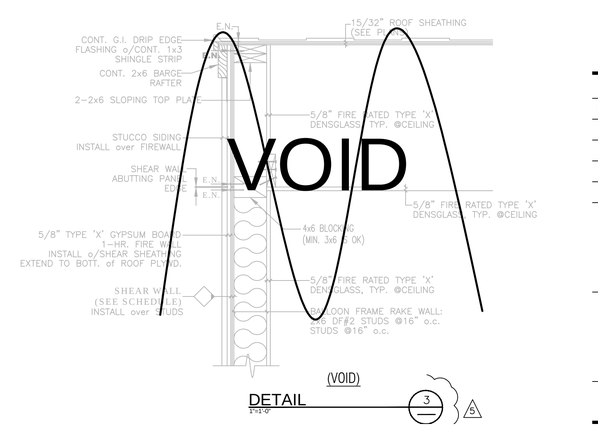
SHEAR TRANSFER @ROOF

DETAIL 1 — 1"=1'-0" — 5



SHEAR TRANSFER @ROOF

DETAIL 2 — 1"=1'-0" — 5



(VOID)

DETAIL 3 — 1"=1'-0" — 5

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

REGISTERED PROFESSIONAL ENGINEER
Jeffery Alan Ingram
No. C 66222
Exp. 6/30/2024
CIVIL
STATE OF CALIFORNIA

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San Jose, CA 95125

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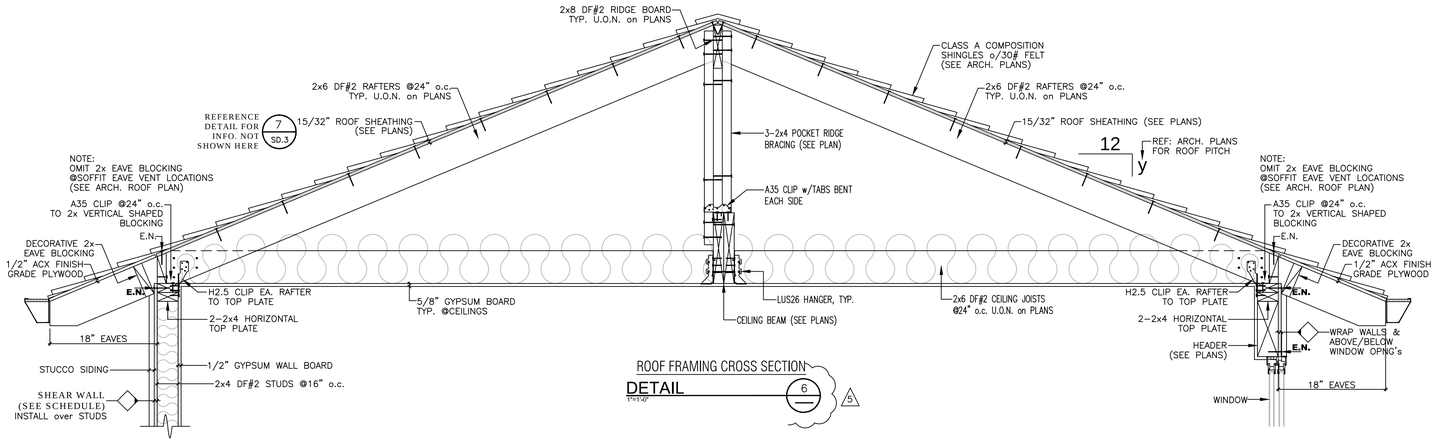
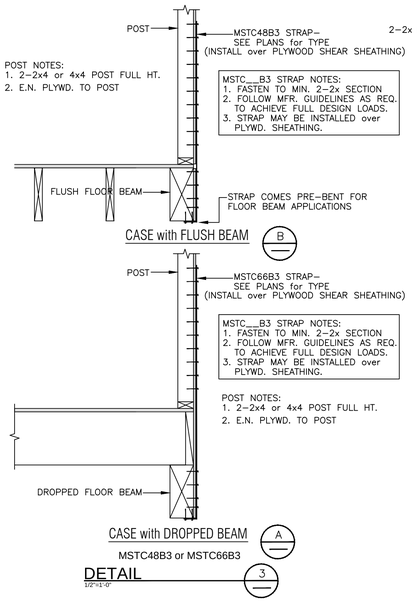
PROJECT #: 719	SCALE: AS NOTED
DRAWN BY: JI, YI	
PROJECT MANAGER: YI	
ENGINEERED BY: JI	
REVIEWED BY: JI	

Structural Details

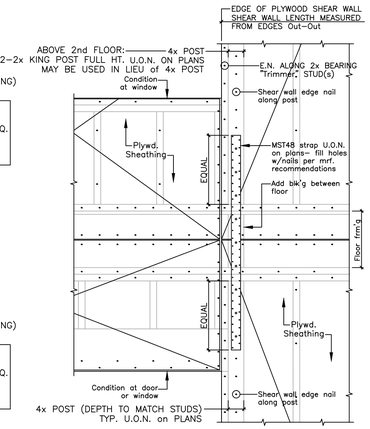
SD.5



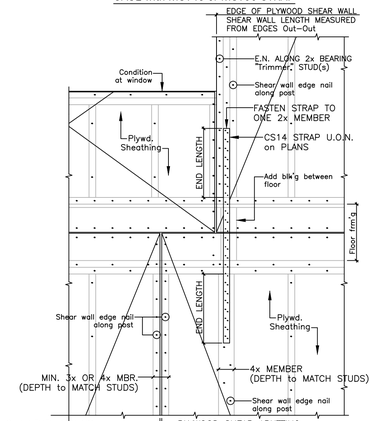
ROOF FRAMING CROSS SECTION
DETAIL 6 — 1"=1'-0" — 5



DETAIL 3 — 3/4"=1'-0"



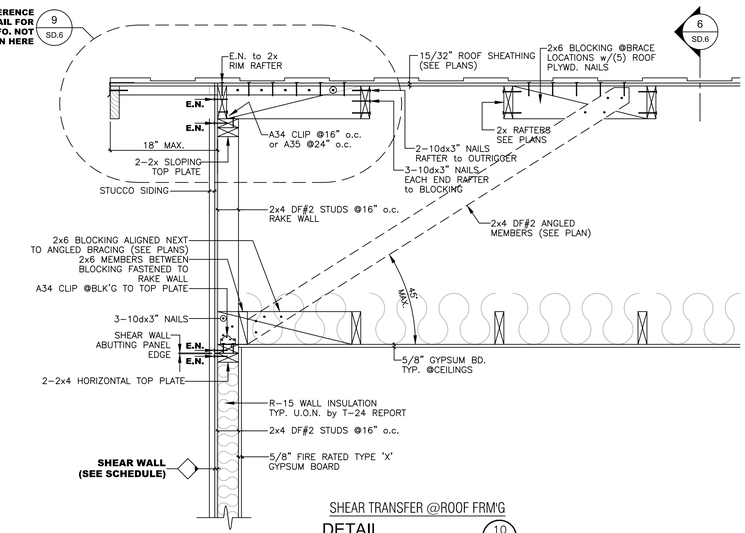
CASE with MST48 or MST60 STRAP



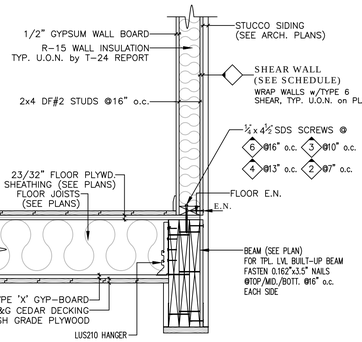
STRAP	FASTENERS @"END LENGTH"	MIN. END LENGTH
CS14	13-10d COMMON 15-8d COMMON	15" 16"
CS16	10-10d COMMON 11-8d COMMON	11" 13"

CASE with CS14 or CS16 STRAP

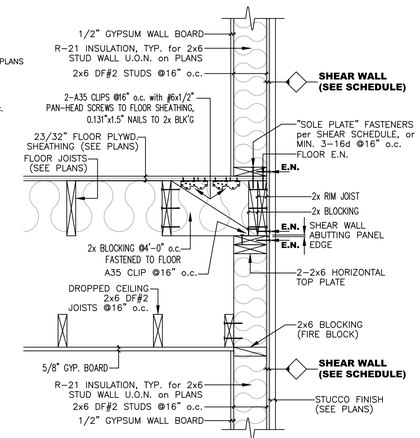
TYPICAL HOLDOWN DETAILS BETWEEN FLOOR FRM'G
DETAIL 1 — 3/4"=1'-0"



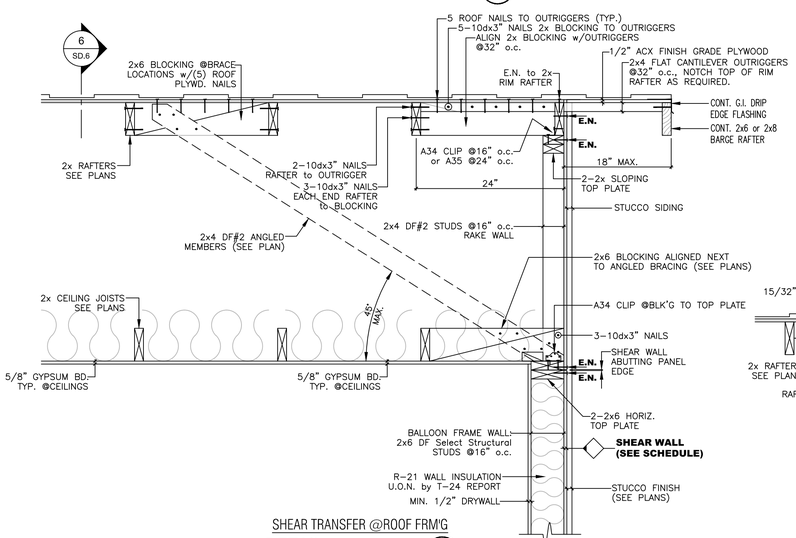
SHEAR TRANSFER @ROOF FRM'G
DETAIL 10 — 1"=1'-0"



SHEAR TRANSFER @FLOOR FRM'G
DETAIL 7 — 1"=1'-0" — 5

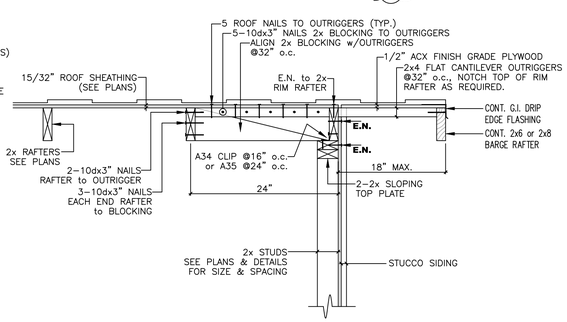


SHEAR TRANSFER @FLOOR FRM'G
DETAIL 4 — 1"=1'-0" — 5

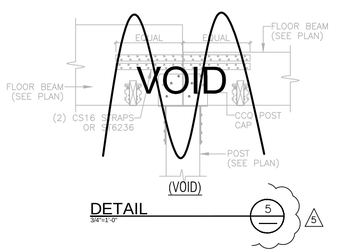


SHEAR TRANSFER @ROOF FRM'G
DETAIL 11 — 1"=1'-0"

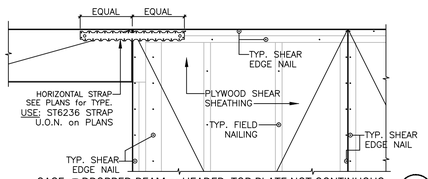
(VOID)
DETAIL 8 — 1"=1'-0" — 5



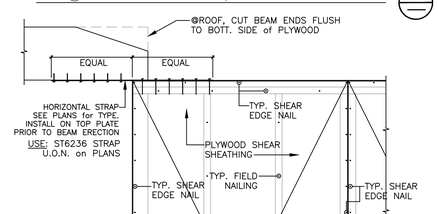
TYPICAL GABLE-END/RAKE WALL ROOF OVERHANG @NON-FIRE WALLS
DETAIL 9 — 1"=1'-0"



DETAIL 5 — 3/4"=1'-0" — 5



CASE @DROPPED BEAM or HEADER, TOP PLATE NOT CONTINUOUS B



CASE with BOTT. of BEAM FLUSH w/TOP of TOP PLATE A

TYPICAL DRAG/COLLECTOR STRAP DETAIL
DETAIL 2 — 3/4"=1'-0"

Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
License No. C 66222
Email: Jeff@IngramSE.com
Tel: (408) 836-6602

Yola Ingram
Designer
Kitchen & Bath Specialist
Email: Yola@IngramSE.com
Tel: (408) 836-6604

2570 N. First Street, Suite 200
Suite 200
San Jose, CA 95131
www.IngramSE.com

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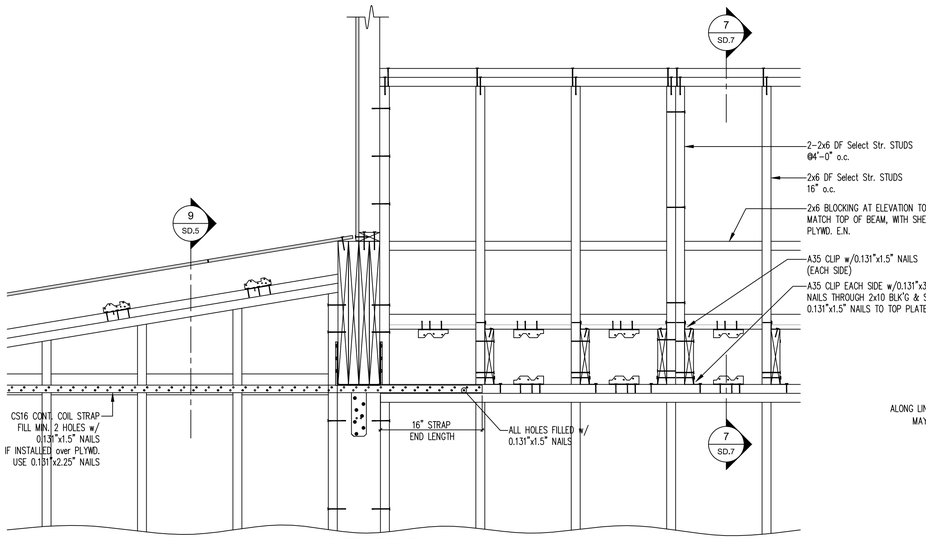
DRAWN BY: JI, YI	
PROJECT MANAGER: YI	
ENGINEERED BY: JI	
REVIEWED BY: JI	

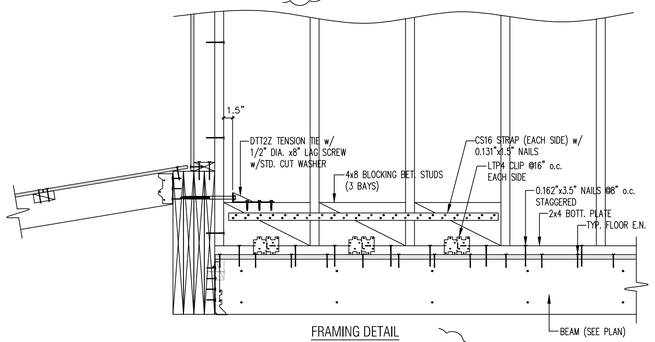
Structural Details

SD.6



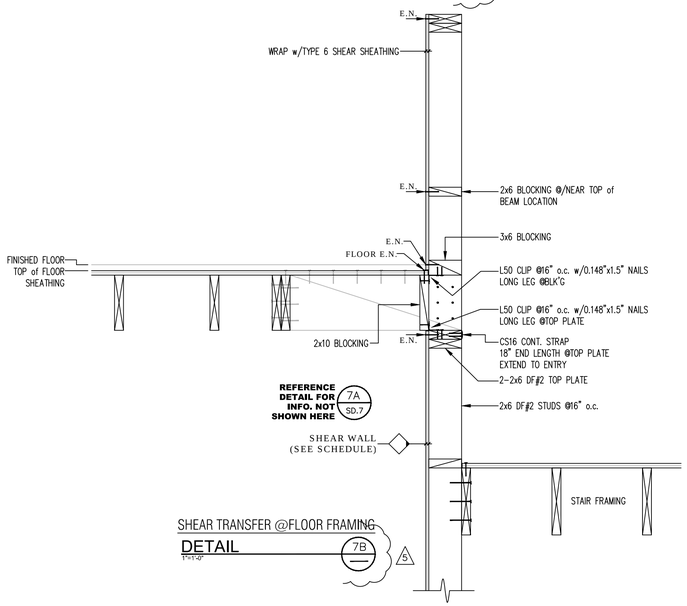
PARTIAL ELEVATION

DETAIL 8 — 1"=1'-0" — 5



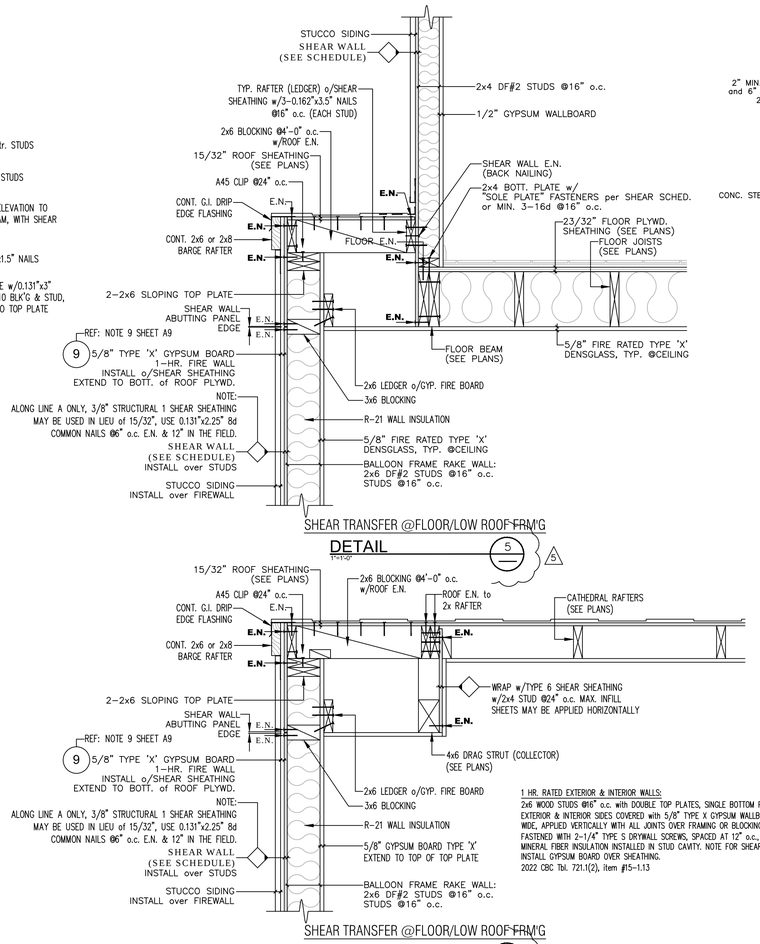
FRAMING DETAIL

DETAIL 9 — 1"=1'-0" — 5



SHEAR TRANSFER @FLOOR FRAMING

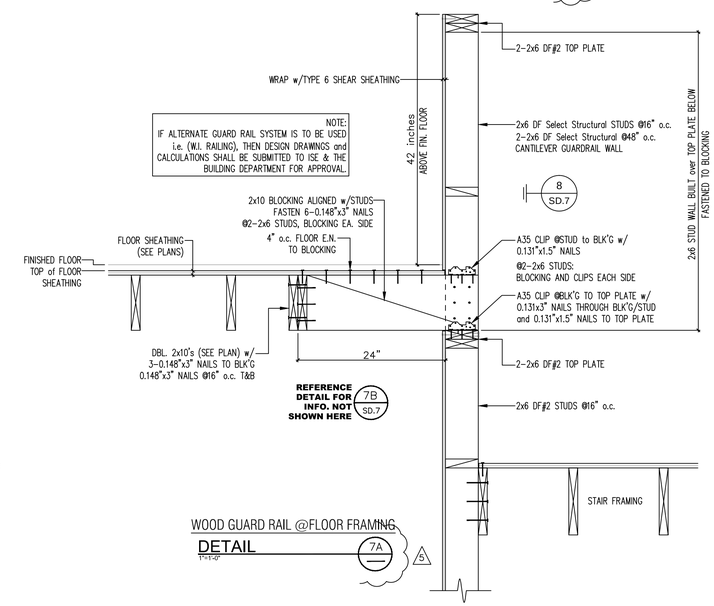
DETAIL 7B — 1"=1'-0" — 5



SHEAR TRANSFER @FLOOR/LOW ROOF FRM'G

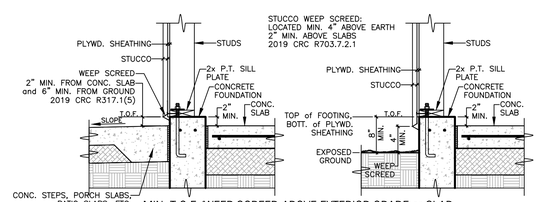
DETAIL 5 — 1"=1'-0" — 5

1 HR. RATED EXTERIOR & INTERIOR WALLS:
2x6 WOOD STUDS @16" o.c. with DOUBLE TOP PLATES, SINGLE BOTTOM PLATE; EXTERIOR & INTERIOR SIDES COVERED with 5/8" TYPE X GYPSUM WALLBOARD, 4' WIDE, APPLIED VERTICALLY WITH ALL JOINTS OVER FRAMING OR BLOCKING AND FASTENED WITH 2-1/4" TYPE S DRYWALL SCREWS, SPACED AT 12" o.c., R-19 MINERAL FIBER INSULATION INSTALLED IN STUD CAVITY. NOTE FOR SHEAR WALLS, INSTALL GYPSUM BOARD OVER SHEATHING.
2022 CBC Tbl. 721.1(2), item #15-1.13



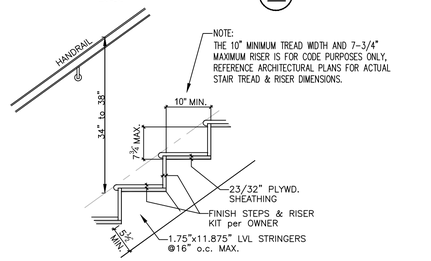
WOOD GUARD RAIL @FLOOR FRAMING

DETAIL 7A — 1"=1'-0" — 5



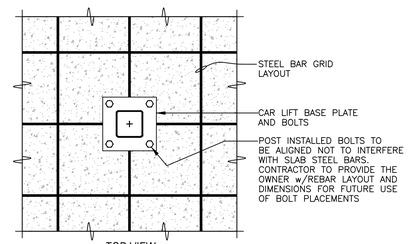
MIN. T.O.F./WEEP SCREED ABOVE EXTERIOR GRADE or SLAB

DETAIL 1 — 3/4"=1'-0"

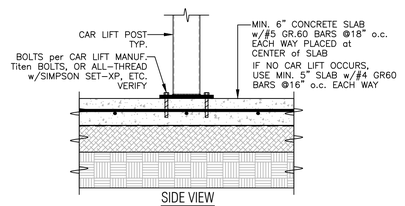


STAIR SECTION

DETAIL 2 — 3/4"=1'-0" — 4



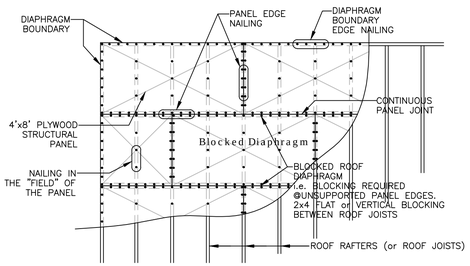
TOP VIEW



SIDE VIEW

CAR LIFT @GARAGE & COVERED PATIO AREA

DETAIL 3 — 3/4"=1'-0"



ROOF SHEATHING: 15/32" APA RATED DOC PS-1 or DOC PS-2 SHEATHING, EXPOSURE 1, 32/16 SPAN RATING.

ROOF NAILING: USE 10d HDG COMMON 2-1/4" x0.148" Gun NAIL @6" o.c. @BOUNDARY & EDGES, @12" o.c. IN THE FIELD.

ROOF PLYWOOD DIAPHRAGM

DETAIL 4 — NO SCALE

ISE
Ingram Structural Engineering

Jeff Ingram, P.E.
CIVIL ENGINEER
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Tel: (408) 836-6602

Yola Ingram
Designer
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ENGINEERED BY: JI	
REVIEWED BY: JI	

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SD.7