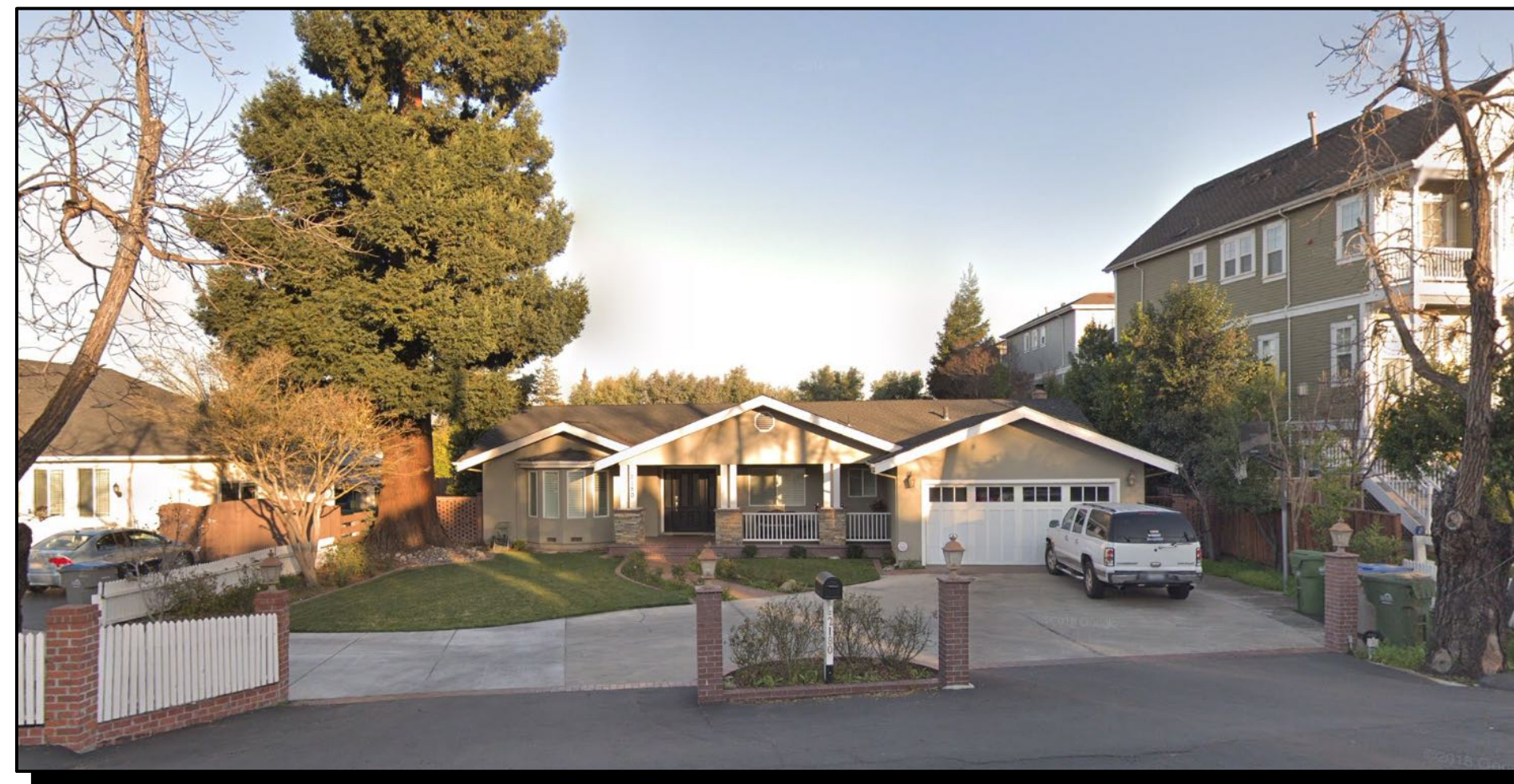


SIMAS WORKSHOP / GARAGE



SITE PLAN NOTES

PROVIDE POSITIVE DRAINAGE AWAY FROM NEW FOUNDATION. (SLOPE FINISH GRADE AWAY MINIMUM 2% TYPICAL).

IF REQUIRED, ALL ROOF DOWNSPOUTS SHALL BE CONNECTED TO AN APPROVED UNDERGROUND DRAINAGE SYSTEM WITH TERMINATION TO STORM DRAIN OR A DRYWELL.

VERIFICATION OF EXISTING OR NEW LOT STAKES SHALL BE PROVIDED PRIOR TO ISSUANCE OF A BUILDING PERMIT. EXISTING LOT STAKES MUST BE EXPOSED, VERIFIED, AND INDICATED ON BUILDING PLANS; OR NEW LOT STAKES MUST BE SET BY A REGISTERED CIVIL ENGINEER OR LICENSED LAND SURVEYOR. IF REQUIRED BY STATE LAW, CIVIL ENGINEER OR LICENSED LAND SURVEYOR SHALL FILE A RECORD- OF-SURVEY MAP.

IF ANY EARTH WORK AND/OR GRADING IS DONE ON THE PROPERTY OR ANY ACCESS ROADS, OWNER OR CONTRACTOR SHALL MAINTAIN AN UNINTERRUPTED FLOW OF WATER IN SWALES AND NATURAL COURSES, UPON COMPLETION OF THE PROJECT. PROPERTY OWNER IS RESPONSIBLE FOR THE ADEQUACY OF ANY DRAINAGE FACILITIES AND FOR THE CONTINUED MAINTENANCE THEREOF IN A MANNER WHICH WILL PRECLUDE ANY HAZARD TO LIFE, HEALTH, OR DAMAGE TO ADJOINING PROPERTY.

CONSULTING GEOLOGIST SHALL OBSERVE AND PROVIDE APPROVAL LETTER PRIOR TO FINAL INSPECTION.

ALL NEW ON-SITE UTILITIES, MAINS, AND SERVICES (IF APPLICABLE) SHALL BE PLACED UNDERGROUND AND EXTENDED TO SERVE THE PROPOSED RESIDENCE. OFF-SITE WORK SHALL BE COORDINATED WITH ANY UNDER GRROUNDING TO SERVE OTHER PROPERTIES IN THE IMMEDIATE AREA.

PROPOSED ADDITION

BUILDING CODES AND REGULATIONS

2016 CRC CALIFORNIA RESIDENTIAL CODE
 2016 CPC CALIFORNIA PLUMBING CODE
 2016 CMC CALIFORNIA MECHANICAL CODE
 2016 CEC CALIFORNIA ELECTRIC CODE
 2016 CALIFORNIA CODE FOR BUILDING CONSERVATION
 (NOTE: CHAPTER 5 AND APPENDIX 1, 5 & 6 ADOPTED)
 2016 BUILDING ENERGY EFFICIENCY STANDARDS
 2016 CGBC CALIFORNIA GREEN BUILDING STANDARDS CODE
 2016 CFC CALIFORNIA FIRE CODE
 ALONG WITH ANY OTHER LOCAL AND STATE LAWS AND REGULATIONS

SCOPE OF WORK

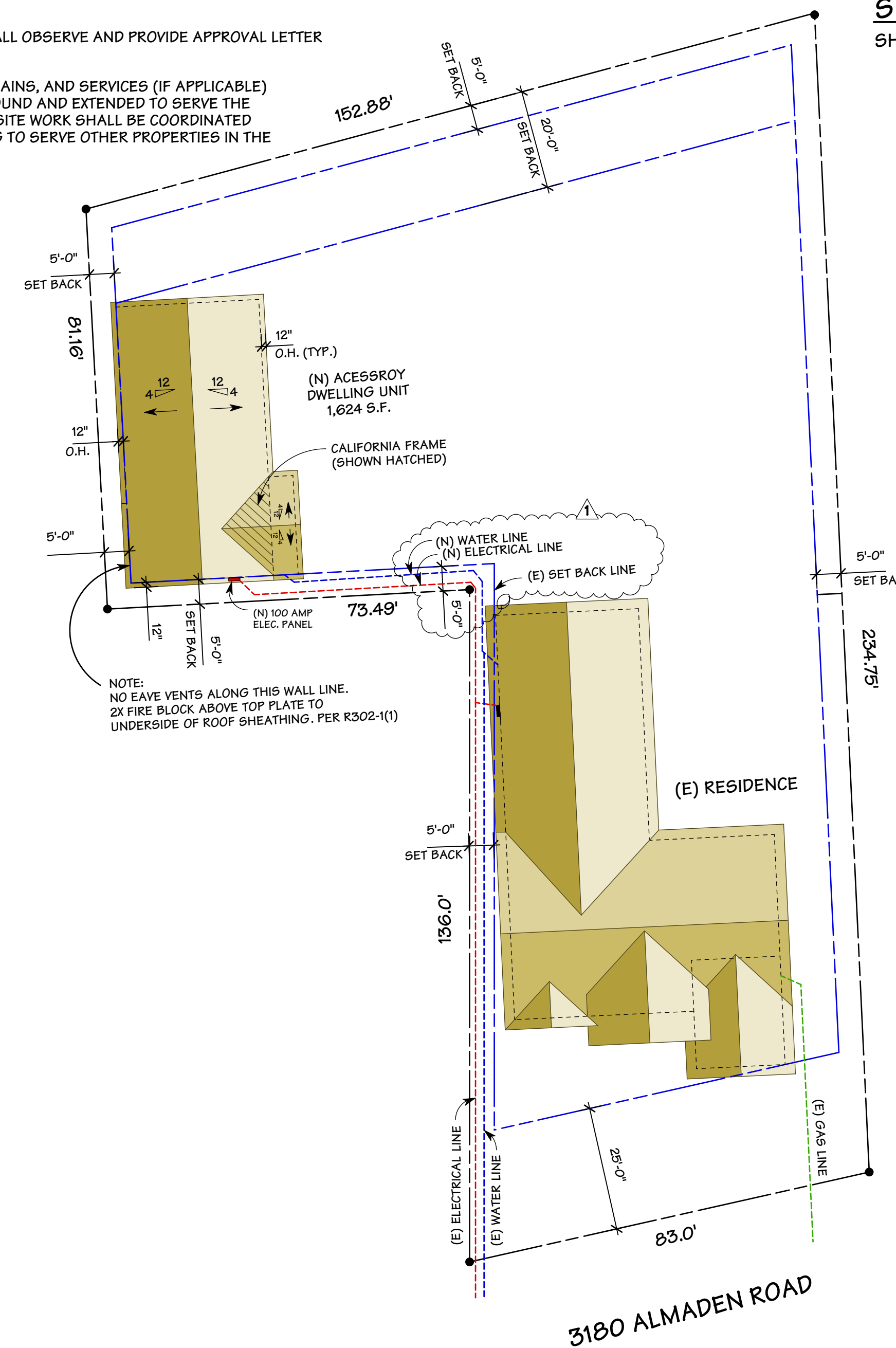
NEW 1,044.0 S.F. ADU ACCESSORY DWELLING UNIT ADU WITH TWO BEDROOMS, ONE BATHROOM, KITCHEN AND 572.0 S.F. ONE - TWO CAR GARAGE WITH 204.5 S.F. PORCH.

SITE DATA

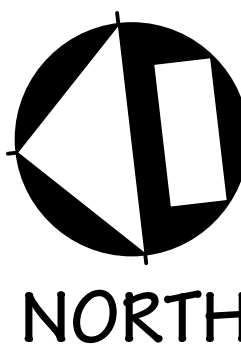
A.P.N.	455-18-104
LOT SIZE	24,569.7 S.F.
ZONING	R1-B
(N) ADU LIVING AREA	1,044.0 S.F.
(N) GARAGE	572.0 S.F.
TOTAL AREA	1,616.0 S.F.
(N) PORCH AREA	204.5 S.F.

SHEET INDEX

SHT.A-1	SITE PLAN
A-2	EXTERIOR ELEVATIONS / SECTION
A-3	PROPOSED FLOOR PLAN
A-4	FOUNDATION PLAN / FRAMING PLAN
A-4.1	FASTENING SCHEDULE SHEET
A-5	ELECTRICAL / MECHANICAL / PLUMBING PLAN
A-6	DETAILS
CG-1	CALIFORNIA GREEN WORKSHEET -1
CG-2	CALIFORNIA GREEN WORKSHEET -2



SITE W/ ROOF PLAN



NORTH

SCALE: 1" = 20'-0"

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SECTION C. PLUMBING - WASTEWATER/VENT	Enter Information Here or Check When Completed
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	Enter Information Here or Check When Completed
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	Enter Information Here or Check When Completed
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

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 additional project costs.

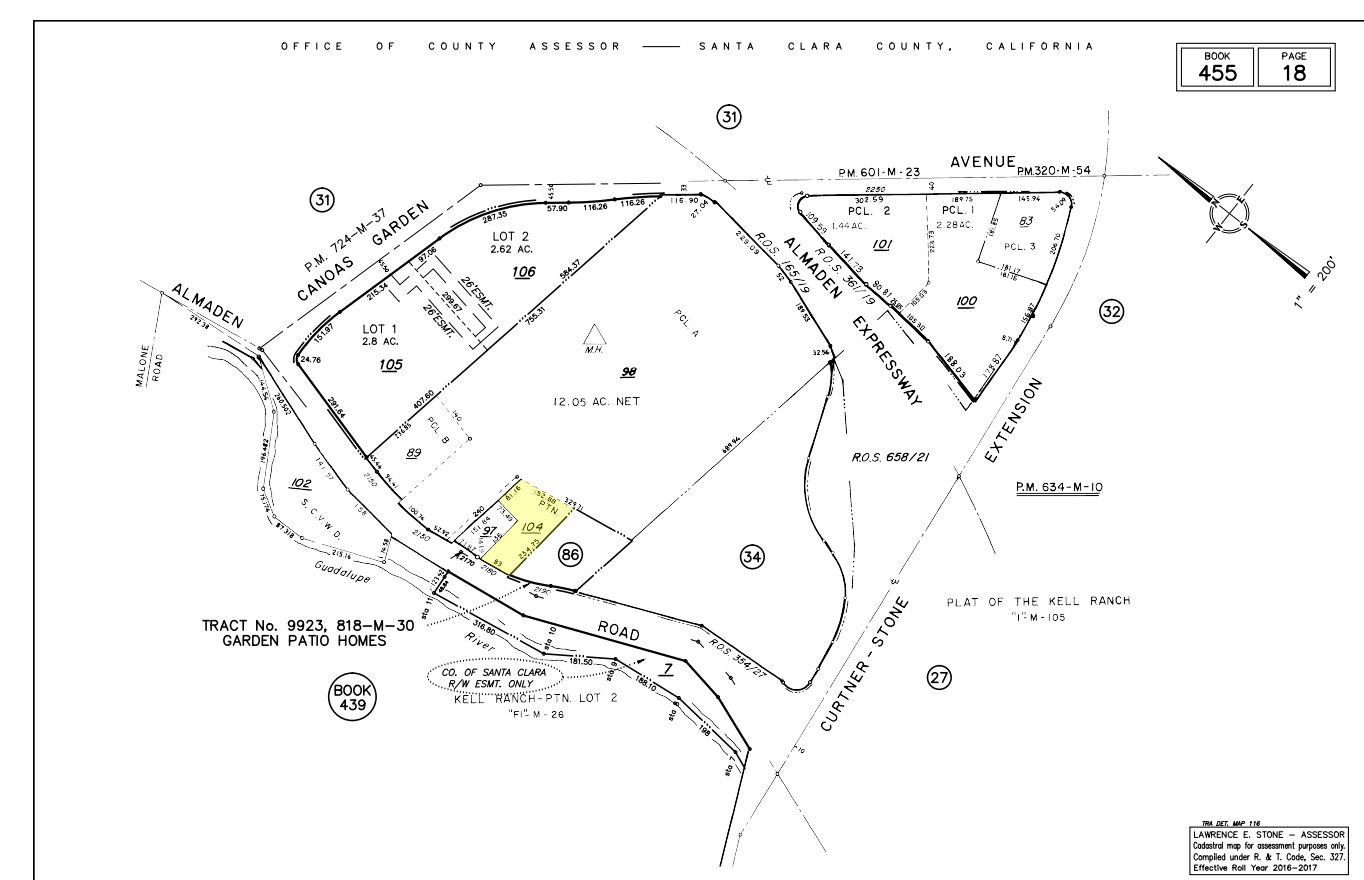
INSTRUCTIONS: Complete this checklist and provide the completed checklist and Site Plans as indicated to the Building Inspector at the first inspection.

SECTION A. ELECTRICAL	Enter Information Here or Check When Completed
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 ampacity 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	Enter Information Here or Check When Completed
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 >

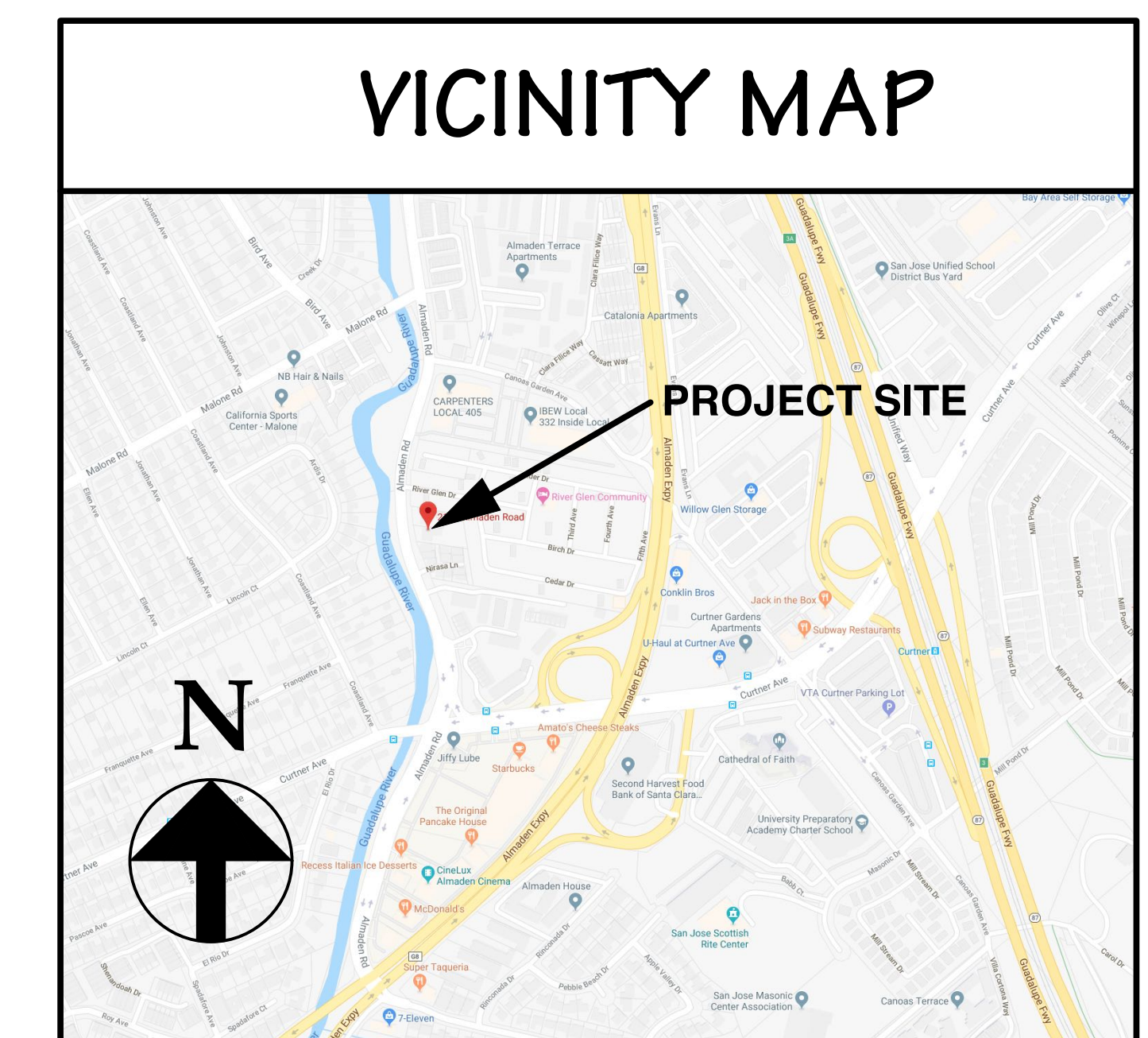
Development Services Permit Center | San Jose City Hall | 200 E. Santa Clara St., San Jose, CA 95113 408-535-3555 www.sanjoseca.gov/permcenter

Development Services Permit Center | San Jose City Hall | 200 E. Santa Clara St., San Jose, CA 95113 408-535-3555 www.sanjoseca.gov/permcenter



APN MAP

455-18-104



OWNER: JOE SIMAS

2180 ALMADEN ROAD
 SAN JOSE, CA. 95125

DESIGN BY:
 PACIFIC BLUE DEVELOPMENTS
 Michael S. Radu
 8000 Almaden Road
 San Jose, CA 95125
 (408) 504-6525 Cell



REVISION:
 PER CITY COMMENTS DATED 12/10/2020

SITE W/ ROOF PLAN
 VICINITY MAP
 PLAN NOTES

DRAWN BY
 Michael S. Radu

CHECKED BY
 PBD

JOB NO.
 18-23

DATE
 11/23/2021

SCALE
 AS SHOWN

SHEET

A-1

NEW CONSTRUCTION BRACE WALL SCHEDULE							
SHEAR WALL DESIGNATION	MATERIAL	EDGE NAILING	FIELD NAILING	SILL NAILING	FRAMING CLIPS (TOP & BOTTOM)	ANCHOR BOLTS	COMMENTS
1	3/8" PLYWOOD BLOCKED	8d @ 6" O.C.	8d @ 12" O.C.	16d @ 6" O.C.	A35 @ 16" O.C. (24" O.C. AT ROOF)	5/8" O X 12" @ 48" O.C.	USE 2x SILL PLATE
2	3/8" PLYWOOD BLOCKED	8d @ 4" O.C.	8d @ 12" O.C.	16d @ 4" O.C.	A35 @ 16" O.C.	5/8" O X 12" @ 48" O.C.	USE 2x SILL PLATE

FOUNDATION VENTILATION
 ENCLOSED ATTIC AND RAFTER SPACES SHALL BE VENTILATED BY OPENINGS IN THE EXTERIOR FOUNDATION WALLS. THE REQUIRED NET AREA OF VENTILATION OPENINGS SHALL BE NOT LESS THAN 1 SQUARE FOOT (0.0929 M2) FOR EACH 150 SQUARE FEET (14 M2) OF UNDERFLOOR AREA. ONE VENTILATION OPENING SHALL BE WITHIN 3 FEET (915 MM) OF EACH CORNER OF THE BUILDING. THEY SHALL BE COVERED FOR THEIR HEIGHT AND WIDTH WITH MATERIALS PER SECTION C.R.C. 408.2

FORMULA
 UNDERFLOOR AREA (UA) + 150 SQ. FT. = REQUIRED OPEN AREA OF FOUNDATION VENTILATION (ROA)

(UA) = 150 SQ. FT. = (ROA) + FREE VENT AREA (FVA) = NUMBER OF VENTS REQUIRED

(UA) = 150 SQ. FT. = (ROA) = NUMBER OF VENTS REQUIRED

1616.0 = 10.77 = MIN. OF 17 NEW VENTS REQUIRED. VENT SIZE 16" X 6" R.O.

ATTIC VENTILATION
 ENCLOSED ATTIC AND RAFTER SPACES SHALL HAVE CROSS VENTILATION FOR EACH SEPARATE SPACE BY OPENINGS TO THE EXTERIOR (TYPICALLY AT THE EAVE LINE) COVERED WITH CORROSION-RESISTANT WIRE MESH WITH MESH OPENINGS OF 1/4 INCH IN DIMENSION. THE NET FREE VENTILATION AREA SHALL NOT BE LESS THAN 1/150 OF THE AREA OF THE SPACE VENTILATED PER UBC SECTION 1505.3.

FORMULA
 ATTIC AREA AD + 150 SQ. FT. = REQUIRED OPEN AREA OF ATTIC VENTILATION (ROA)

(AA) = 150 SQ. FT. = (ROA) + FREE VENT AREA (FVA) = NUMBER OF VENTS REQUIRED

(AA) = 150 SQ. FT. = (ROA) = NUMBER OF VENTS REQUIRED

1,616 = 10.77 = MIN. OF 16 NEW VENTS REQUIRED. VENT SIZE 24" X 6" R.O.

EXCEPTION:
 THE REQUIRED EAVE VENT AREA MAY BE REDUCED TO 1/300 OF THE TOTAL SPACE TO BE VENTILATED - PROVIDED A MIN. OF 50% OF THE REQUIRED VENT AREA IS SUPPLIED BY GABLE OR OTHER TYPE ROOF VENTS INSTALLED AT LEAST THREE FEET ABOVE EAVE VENTILATORS WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY THE EAVE VENTS.

FOUNDATION PLAN NOTES

CONCRETE FOOTINGS AND SLABS SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 2500 PSI AT 28 DAYS. AGGREGATE SHALL BE 3/4" WITH A MINIMUM SLUMP OF 3" TO A MAXIMUM OF 5" (5 SACK MIX MAXIMUM). CALCIUM CHLORIDE SHALL NOT BE USED.

ALL NEW SLABS ON GRADE SHALL BE A MINIMUM OF 4" THICK REINFORCED CONCRETE WITH 6" X 6" #10 WWM. OVER 2" MIN. SAND COVER, (6 MIL. VAPOR BARRIER WHERE APPLICABLE AT LIVING SPACES), AND MIN. 4" GRAVEL FILL.

ALL NEW ANCHOR BOLTS SHALL BE A MINIMUM OF 5/8" DIA. BY 12" LONG AT EVERY 4'-0" O.C. MAXIMUM TYPICAL. U. N. O. ON SHEAR WALL SCHEDULE.

INSTALL REBAR DOWELS AT COLD JOINT BETWEEN NEW AND EXISTING FOUNDATIONS AS REQUIRED. EPOXY SET MIN. OF (2) DOWELS - ONE EACH AT TOP AND BOTTOM OF FOUNDATION A MIN. OF 6" INTO EXISTING FOOTING (SEE PLANS FOR QUANTITY & LOCATION).

ALL RETROFIT FOUNDATION ANCHOR AND HOLDOWN BOLTS SHALL BE "HILTI" HVA TYPE SET IN EPOXY (O. A. E.).

ALL NEW HOLDOWNS SHALL BE SIMPSON HDU2'S WITH 55TB20 ANCHOR BOLTS (O. A. E.) AT MIN. 4x1 POST (TYPICAL).

ALL NEW POINT LOAD SUPPORT PIERS SHALL BE MIN. 18" SQUARE BY 12" DEEP CONCRETE PADS TYPICAL, UNLESS NOTED OTHERWISE ON THE PLANS.

PROVIDE CROSS FLOW VENTILATION OF 1 SQ. FT. FOR EVERY 150 SQ. FEET OF UNDERFLOOR SPACE. C.B.C. SECTION 2306.7.

FLOOR JOISTS SHALL BE 2X8 DF #2 AT 16" O.C. WITH MAX. SPAN AS SHOWN ON THE PLANS.

ALL NEW GIRDERS TO BE 4X6 DF #1 WITH MAXIMUM SPAN AS SHOWN ON THE PLANS (TYP.).

FLOOR DIAPHRAGM TO BE MIN. 3/4" APA RATED (48/24) CDX T&G GROUP 2 PLYWOOD WITH EXPOSURE 2, GLUE AND NAIL WITH 10d NAILS AT 6" (EDGES) & 10" (FIELD) TYPICAL.

PROVIDE DBL. 2X JOISTS UNDER POINT LOAD CONDITIONS FROM ABOVE AND UNDER ALL PARALLEL BEARING PARTITIONS.

FOUNDATION CRIPPLE WALL FRAMING SHALL BE OF SOLID BLOCKING IF LESS THAN 14", OR USE STUDS OF EQUAL SIZE TO THE WALL FRAMING DIRECTLY ABOVE.

PROVIDE DBL. 2X SOLID BLOCKING ABOVE AND BELOW ALL BEARING AND NON-BEARING PARTITIONS (TYPICAL).

PROVIDE 26 GA. GI FLASHING AT ALL NEW CONCRETE PORCH/STOOP AREAS WHERE CONTACT WITH WOOD FRAMING WILL OCCUR.

ROOF FRAMING PLAN NOTES

ALL NEW SKYLIGHTS SHALL BE DUAL PANED FLAT GLASS WITH TEMPERED OVER LAMINATED GLAZING, AND ANODIZED BRONZE ALUMINUM FRAME. MADE BY O'KEEFE OR AN APPROVED EQUAL. (ICBO # 3710)

NOTES: 1. SEE FLOOR PLAN FOR QUANTITY, SIZE, AND LOCATION
 2. SEE TITLE 24 FOR ANY OTHER REQUIREMENTS.

PROVIDE 26 GA. GI SADDLE FLASHING AT ALL SKYLIGHTS, STEP FLASHING AT ROOF TO WALL CONNECTIONS, AND CRICKET FLASHING AT CHIMNEYS.

ALL NEW GUTTERS SHALL BE MIN. 26 GA. GALVANIZED IRON TO MATCH EXISTING (TYPICAL).

ALL NEW GUTTERS SHALL BE MIN. 5" FASCIA TYPE 26 GA. GALVANIZED IRON OVER 2X DF #2 FASCIA BOARD (MATCH EXISTING) WITH 2" ROUND 26 GA. G.I. DOWNSPOUTS.

ALL NEW GUTTERS SHALL BE MIN. 5" OGEE TYPE 26 GA GALVANIZED IRON OVER 2X DF #2 FASCIA BOARD (MATCH EXISTING) WITH 2" ROUND 26 GA. G.I. DOWNSPOUTS.

RAFTERS TO BE 2X8 DF #2 OR BETTER @ 24" O.C. MAX. (TYPICAL).

REFER TO ROOF FRAMING PLAN FOR ALL RIDGE, VALLEY, AND HIP RAFTER SIZES.

CEILING JOISTS TO BE 2X6 DF #2 @ 16" O.C. MAXIMUM (OR MATCH EXISTING).

PROVIDE ATTIC VENTILATION PER C.R.C. SECTION 1505.3

EXTEND ALL APPLICABLE PLUMBING AND MECHANICAL VENTS AND FLUES THROUGH ROOF AS REQUIRED.

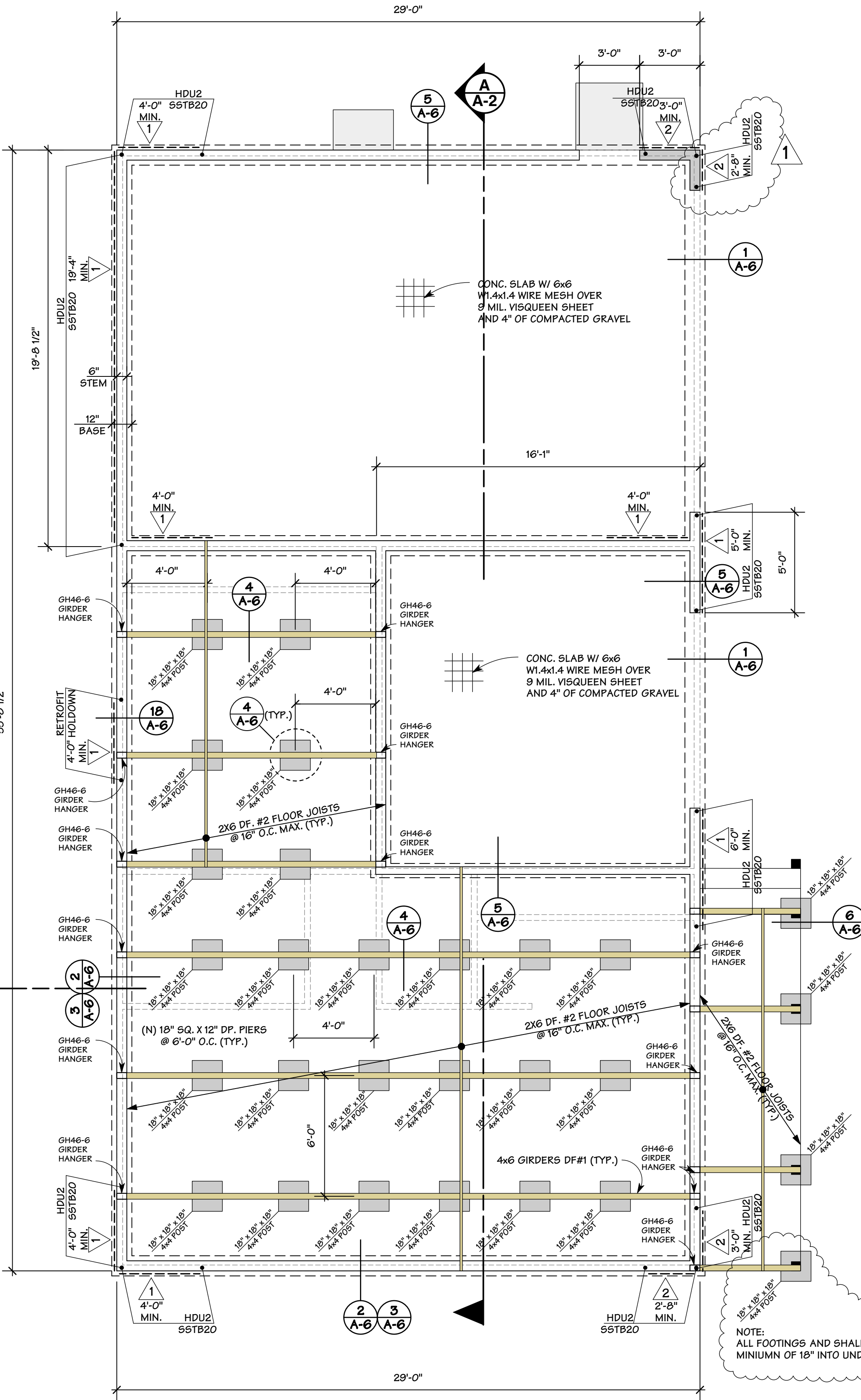
ROOF COVERING TO COMPLY WITH C.R.C. ALL ROOFING MATERIAL MUST BE LABELED AND CERTIFIED PER U.L. AND ASTM STANDARDS, AND MEET THE REQUIREMENTS.

ROOFING MATERIAL TO BE FIBERGLASS COMPOSITION SHINGLES OVER TYPE 30 SATURATED RAG FELT INSTALLED OVER 1/2" MIN. APA RATED (24/16) CDX PLYWOOD SHEATHING WITH 8d NAILS AT 6" (E) & 12" (F). USE T&G PLY OR 'H' CLIPS AT 48" O.C. TYPICAL.

PROVIDE FIREBLOCKING / FIRESTOPS AS REQ'D. PER C.R.C.

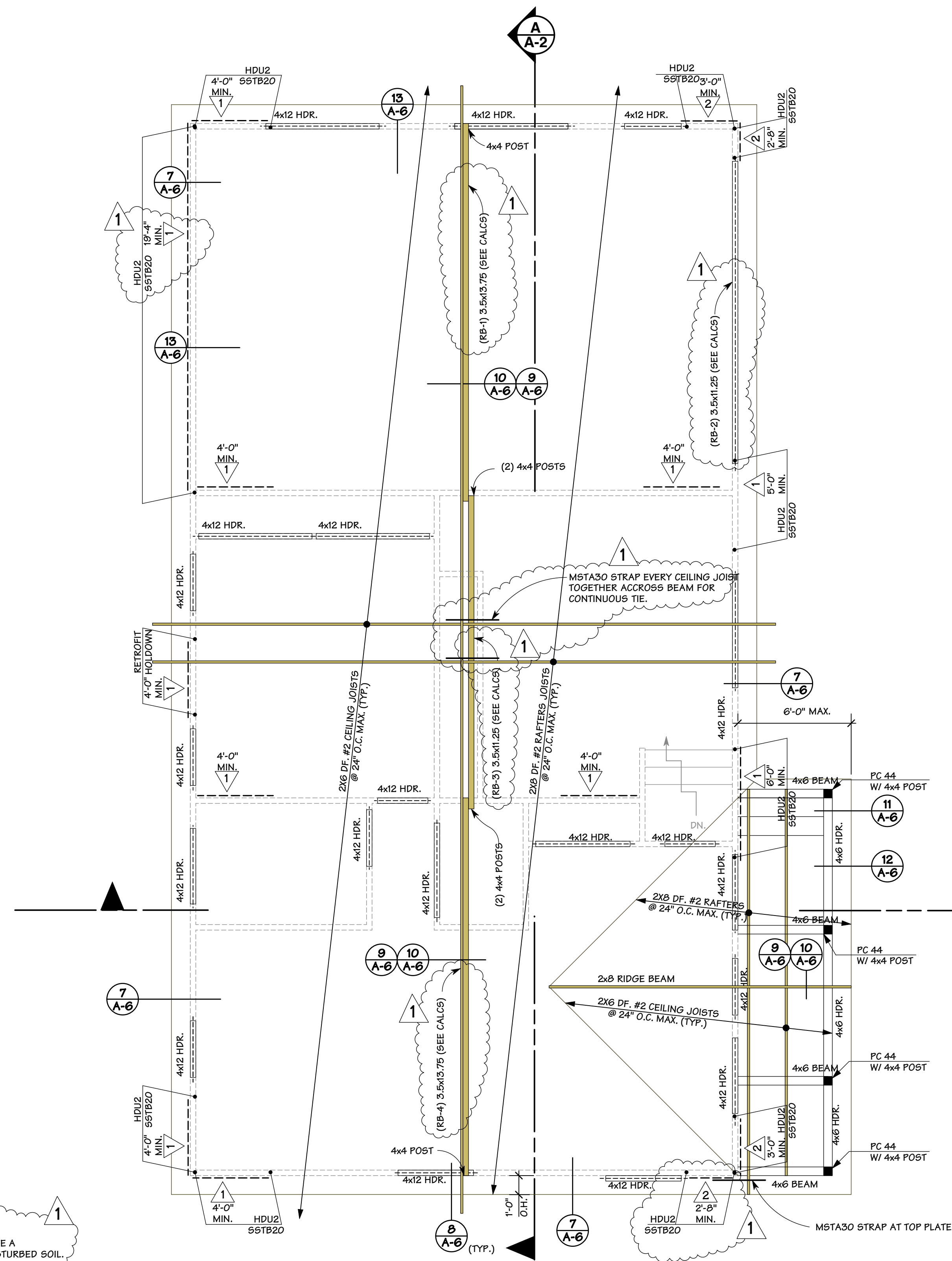
INSTALL SIMPSON H3 SEISMIC TIES (O.A.E.) FROM 2X RAFTERS TO SOLID RIM BLOCKING AT EVERY 48" O.C. (TYPICAL).

ALL NAILING SHALL COMPLY WITH C.R.C. TABLE R602.3(1) U.N.O. ON THE PLANS OR STRUCTURAL CALCULATIONS.



FOUNDATION PLAN

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



FRAMING PLAN

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

OWNER: JOE SIMAS
 2180 ALMADEN ROAD
 SAN JOSE, CA. 95125

DESIGN BY:
 PACIFIC BLUE DEVELOPMENTS
 Michael S. Radu
 15000 C. C. CHASE
 SAN JOSE, CA. 95138
 (408) 504-6626 Cell



REVISION:
 1 PER CITY COMMENTS DATED 12/10/2020

FOUNDATION PLAN
FRAMING PLAN
PLAN NOTES

DRAWN BY
 Michael S. Radu

CHECKED BY
 PBD

JOB NO.
 18-23

DATE
 11/23/2021

SCALE
 AS SHOWN

SHEET
A-4

11/21, 12:57 PM

R602.3 Design and Construction

of wood-frame construction shall be designed and constructed in accordance with the provisions of this chapter and Figures R602.3(1) and R602.3(2), or in accordance with AWC NDS. Components of shall be fastened in accordance with Tables R602.3(1) through R602.3(4). Wall sheathing shall be fastened directly to framing members and, where placed on the exterior side of an shall be capable of resisting the wind pressures listed in adjusted for height and exposure using and shall conform to the requirements of Table R602.3(3). Wall sheathing used only for purposes shall comply with

Studs shall be continuous from support at the sole plate to a support at the top plate to resist loads perpendicular to the wall. The support shall be a foundation or floor, ceiling or roof or shall be designed in accordance with accepted engineering practice.

Exception: Jack studs, trimmer studs and cripple studs at openings in that comply with and

**TABLE R602.3(1)
FASTENING SCHEDULE**

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENERS ^{a, b, c}	SPACING AND LOCATION
Roof			
1	Blocking between ceiling joists or rafters to top plate	4-8d box (2 ¹ / ₂ " x 0.113") or 3-8d common (2 ¹ / ₂ " x 0.131"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails	Toe nail
2	Ceiling joists to top plate	4-8d box (2 ¹ / ₂ " x 0.113"); or 3-8d common (2 ¹ / ₂ " x 0.131"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails	Per joist, toe nail
3	Ceiling joist not attached to parallel rafter, laps over partitions (see and)	4-10d box (3" x 0.128"); or 3-16d common (3 ¹ / ₂ " x 0.162"); or 4-3" x 0.131" nails	Face nail
4	Ceiling joist attached to parallel rafter (heel joint) (see and)		Face nail

https://up.codes/viewer/ucpr/ucpr_key/california/pub/int_residential_code_2018/r602.3 Page 1 of 19

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12	Top plate to top plate	16d common (3 ¹ / ₂ " x 0.162") 10d box (3" x 0.128"); or 3" x 0.131" nails	16" o.c. face nail
13	Double top plate splice	8-16d common (3 ¹ / ₂ " x 0.162"); or 12-16d box (3 ¹ / ₂ " x 0.135"); or 12-10d box (3" x 0.128"); or 12-3" x 0.131" nails	Face nail on each side of end joint (minimum 24" lap splice length each side of end joint)
14	Bottom plate to joist, rim joist, band joist or blocking (not at)	16d common (3 ¹ / ₂ " x 0.162") 16d box (3 ¹ / ₂ " x 0.135"); or 3" x 0.131" nails	16" o.c. face nail 12" o.c. face nail
15	Bottom plate to joist, rim joist, band joist or blocking (at)	3-16d box (3 ¹ / ₂ " x 0.135"); or 2-16d common (3 ¹ / ₂ " x 0.162"); or 4-3" x 0.131" nails	3 each 16" o.c. face nail 2 each 16" o.c. face nail 4 each 16" o.c. face nail
16	Top or bottom plate to stud	4-8d box (2 ¹ / ₂ " x 0.113"); or 3-16d box (3 ¹ / ₂ " x 0.135"); or 4-8d common (2 ¹ / ₂ " x 0.131"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails	Toe nail End nail
17	Top plates, laps at corners and intersections	3-16d box (3 ¹ / ₂ " x 0.135"); or 2-16d common (3 ¹ / ₂ " x 0.162"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails	End nail
18	1" brace to each stud and plate	3-8d box (2 ¹ / ₂ " x 0.113"); or 2-8d common (2 ¹ / ₂ " x 0.131"); or 2-10d box (3" x 0.128"); or 2 staples 1 ³ / ₄ " long	Face nail

https://up.codes/viewer/ucpr/ucpr_key/california/pub/int_residential_code_2018/r602.3 Page 3 of 19

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24	2" subfloor to joist or girder	2-16d common (3 ¹ / ₂ " x 0.162")	Blind and face nail	
25	2" planks (plank & beam—floor & roof)	3-16d box (3 ¹ / ₂ " x 0.135"); or 2-16d common (3 ¹ / ₂ " x 0.162")	At each bearing, face nail	
26	Band or rim joist to joist	3-16d common (3 ¹ / ₂ " x 0.162") 4-10 box (3" x 0.128"); or 4-3" x 0.131" nails; or 4-3" x 14 ga. staples, 7 ¹ / ₈ " crown	End nail	
27	Built-up girders and beams, 2-inch lumber layers	20d common (4" x 0.192"); or 10d box (3" x 0.128"); or 3" x 0.131" nails	Nail each layer as follows: 32" o.c. at top and bottom and staggered 24" o.c. face nail at top and bottom staggered on opposite sides	
28	Ledger strip supporting joists or rafters	4-16d box (3 ¹ / ₂ " x 0.135"); or 3-16d common (3 ¹ / ₂ " x 0.162"); or 4-3" x 0.131" nails	At each joist or rafter, face nail	
29	Bridging or blocking to joist	2-10d box (3" x 0.128"); or 2-8d common (2 ¹ / ₂ " x 0.131"); or 2-3" x 0.131" nails	Each end, toe nail	
ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENERS ^{a, b, c}	SPACING OF FASTENERS	
			Edges (inches) ^d	Intermediate (inches) ^e

https://up.codes/viewer/ucpr/ucpr_key/california/pub/int_residential_code_2018/r602.3 Page 6 of 19

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5	Collar tie to rafter, face nail or 1 ¹ / ₄ " x 20 ga. strap to rafter	4-10d box (3" x 0.128"); or 3-10d common (3" x 0.148"); or 4-3" x 0.131" nails	Face nail each rafter
6	Rafter or roof truss to plate	3-16d box nails (3 ¹ / ₂ " x 0.135"); or 3-10d common nails (3" x 0.148"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss ^f
7	Roof rafters to valley or hip rafters or roof rafter to minimum 2" beam	4-16d (3 ¹ / ₂ " x 0.135"); or 3-10d common (3" x 0.148"); or 4-10d box (3" x 0.128"); or 4-3" x 0.131" nails	Toe nail
		3-16d box 3 ¹ / ₂ " x 0.135"); or 2-16d common (3 ¹ / ₂ " x 0.162"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails	End nail
Wall			
8	Stud to stud (not at)	16d common (3 ¹ / ₂ " x 0.162") 10d box (3" x 0.128"); or 3" x 0.131" nails	24" o.c. face nail 16" o.c. face nail
9	Stud to stud and abutting studs at intersecting wall corners (at)	16d box (3 ¹ / ₂ " x 0.135"); or 3" x 0.131" nails 16d common (3 ¹ / ₂ " x 0.162")	12" o.c. face nail 16" o.c. face nail
10	Built-up header (2" to 2" header with 1/2" spacer)	16d common (3 ¹ / ₂ " x 0.162") 16d box (3 ¹ / ₂ " x 0.135")	16" o.c. each edge face nail 12" o.c. each edge face nail
11	Continuous header to stud	5-8d box (2 ¹ / ₂ " x 0.113"); or 4-8d common (2 ¹ / ₂ " x 0.131"); or 4-10d box (3" x 0.128")	Toe nail

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19	1" x 6" sheathing to each bearing	2-8d common (2 ¹ / ₂ " x 0.131"); or 2-10d box (3" x 0.128"); or 2 staples, 1" crown, 16 ga., 1 ³ / ₄ " long	Face nail
20	1" x 8" and wider sheathing to each bearing	3-8d box (2 ¹ / ₂ " x 0.113"); or 3-8d common (2 ¹ / ₂ " x 0.131"); or 3-10d box (3" x 0.128"); or 3 staples, 1" crown, 16 ga., 1 ³ / ₄ " long Wider than 1" x 8" 4-8d box (2 ¹ / ₂ " x 0.113"); or 3-8d common (2 ¹ / ₂ " x 0.131"); or 3-10d box (3" x 0.128"); or 4 staples, 1" crown, 16 ga., 1 ³ / ₄ " long	Face nail
Floor			
21	Joist to sill, top plate or girder	4-8d box (2 ¹ / ₂ " x 0.113"); or 3-8d common (2 ¹ / ₂ " x 0.131"); or 3-10d box (3" x 0.128"); or 3-3" x 0.131" nails	Toe nail
22	Rim joist, band joist or blocking to sill or top plate (roof applications also)	8d box (2 ¹ / ₂ " x 0.113") 8d common (2 ¹ / ₂ " x 0.131"); or 10d box (3" x 0.128"); or 3" x 0.131" nails	4" o.c. toe nail 6" o.c. toe nail
23	1" x 6" subfloor or less to each joist	3-8d box (2 ¹ / ₂ " x 0.113"); or 2-8d common (2 ¹ / ₂ " x 0.131"); or 3-10d box (3" x 0.128"); or 2 staples, 1" crown, 16 ga., 1 ³ / ₄ " long	Face nail
Floor			
		3-16d box (3 ¹ / ₂ " x 0.135"); or	

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subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing				
[see Table R602.3(3) for sheathing to wall framing]				
30	3 ¹ / ₈ " - 1 ¹ / ₂ "	6d common (2" x 0.113") nail (subfloor, wall) 8d common (2 ¹ / ₂ " x 0.131") nail (roof); or RRSR-01 (2 ³ / ₈ " x 0.113") nail (roof)	6	12'
31	1 ⁹ / ₃₂ " - 1"	8d common nail (2 ¹ / ₂ " x 0.131"); or RRSR-01; (2 ³ / ₈ " x 0.113") nail (roof)	6	12'
32	1 ¹ / ₈ " - 1 ¹ / ₄ "	10d common (3" x 0.148") nail; or 8d (2 ¹ / ₂ " x 0.131") deformed nail	6	12
Other wall sheathing^g				
33	1/2" structural cellulose fiberboard sheathing	1 ¹ / ₂ " galvanized roofing nail, 7 ¹ / ₈ " head , or 1 ¹ / ₄ " long 16 ga. staple with 7 ¹ / ₈ " or 1" crown	3	6
34	2 ⁵ / ₃₂ " structural cellulose fiberboard sheathing	1 ³ / ₄ " galvanized roofing nail, 7 ¹ / ₈ " head , or 1 ¹ / ₂ " long 16 ga. staple with 7 ¹ / ₈ " or 1" crown	3	6
35	1/2" gypsum sheathing ^d	1 ¹ / ₂ " galvanized roofing nail; staple galvanized, 1 ¹ / ₂ " long; 1 ¹ / ₄ " screws, Type W or S	7	7
36	5/8" gypsum sheathing ^d	1 ³ / ₄ " galvanized roofing nail; staple galvanized, 1 ⁵ / ₈ " long; 1 ⁵ / ₈ " screws, Type W or S	7	7
combination subfloor to framing				

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37	3/4" and less	6d deformed (2" x 0.120") nail; or 8d common (2 ¹ / ₂ " x 0.131") nail	6	12
38	7/8" - 1"	8d common (2 ¹ / ₂ " x 0.131") nail; or 8d deformed (2 ¹ / ₂ " x 0.120") nail	6	12
39	1 ¹ / ₈ " - 1 ¹ / ₄ "	10d common (3" x 0.148") nail; or 8d deformed (2 ¹ / ₂ " x 0.120") nail	6	12

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

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

b. Staples are 16 gage wire and have a minimum 7¹/₈-inch on crown width.

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

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

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

f. For roof sheathing attached to gable end roof framing and to intermediate within 48 inches of roof edges and , nails shall be spaced at 6 inches on center where the ultimate design wind speed is less than 130 mph and shall be spaced 4 inches on center where the ultimate design wind speed is 130 mph or greater but less than 140 mph.

g. Gypsum sheathing shall conform to ASTM C1396 and shall be installed in accordance with GA 253. Fiberboard sheathing shall conform to ASTM C208.

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

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

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FASTENING SCHEDULE - TABLE R602.3(1) CRC

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2180 ALMADEN ROAD
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REVISION:
1. PER CITY COMMENTS DATED 12/10/2020

FASTENING SCHEDULE

DRAWN BY
Michael S Radu

CHECKED BY
PBD

JOB NO.
18-23

DATE
11/23/2021

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ELECTRICAL / MECHANICAL / PLUMBING NOTES

PROVIDE ELECTRICAL SYSTEM GROUNDING PER SECTION 250 OF THE CALIFORNIA ELECTRICAL CODE TYPICAL.

SMOKE DETECTORS IN DWELLING UNITS SHALL BE HARDWIRED AND MOUNTED ON THE CEILING OR WALL AT A POINT CENTRALLY LOCATED IN THE CORRIDOR OR AREA GIVING ACCESS TO EACH SEPARATE SLEEPING AREA. IF THE DWELLING UNIT HAS MORE THAN ONE STORY A DETECTOR SHALL BE INSTALLED ON EACH STORY AND IN ANY BASEMENT IF APPLICABLE. WHEN SLEEPING ROOMS ARE ON AN UPPER LEVEL, A DETECTOR SHALL BE PLACED AT THE CEILING OF THE UPPER LEVEL IN CLOSE PROXIMITY TO THE STAIRWAY. DETECTORS SHALL SOUND AN AUDIBLE ALARM IN ALL SLEEPING AREAS OF THE DWELLING UNIT IN WHICH THEY ARE LOCATED. REFER TO C.E.C.

IN EVERY HABITABLE ROOM, RECEPTACLE OUTLETS SHALL BE INSTALLED SO THAT NO POINT ALONG THE FLOOR LINE IN ANY WALL SPACE IS MORE THAN SIX FEET MEASURED HORIZONTALLY, FROM AN OUTLET IN THAT SPACE. INCLUDING ANY WALL SPACE TWO FEET OR MORE IN WIDTH AND THE WALL SPACE OCCUPIED BY FIXED PANELS IN EXTERIOR WALLS, BUT EXCLUDING SLIDING PANELS IN EXTERIOR WALLS. THE WALL SPACE AFFORDED BY FIXED ROOM DIVIDERS, SUCH AS FREE-STANDING BAR-TYPE COUNTERS, SHALL BE INCLUDED IN THE SIX FOOT MEASUREMENT. C.E.C.

ATTICS AND ROOF AREAS THAT ARE ACCESSIBLE, THE ELECTRICAL CABLE WITHIN SEVEN (7) FEET OF OPENING SHALL BE PROTECTED PER C.E.C. 320.23

CARBON MONOXIDE ALARMS

- (A) SPECIFY THAT CARBON MONOXIDE ALARMS SHALL BE INSTALLED IN THIS DWELLING PER C.R.C. R315
- (B) SPECIFY THAT CARBON MONOXIDE ALARMS SHALL BE "LISTED" AS COMPLYING WITH UL2034 AND UL2075 PER C.R.C. R315.3

RECEPTACLES SHALL

(A) NOT BE OVER 6' FROM OPENINGS INCLUDING ANY WALL SPACE 2' OR WIDER.

(B) NOT BE MORE THAN 12" O.C. INCLUDING SLIDING GLASS DOORS.

(C) BE G.F.I. CIRCUITS WHEN INSTALLED WITHIN 6' OF SINKS AND WHEN INSTALLED OUTDOORS PER C.E.C. ARTICLE 210-8(a).

(D) HAVE WATERPROOF COVERS WHEN INSTALLED OUTDOORS.

A 22" x 30" MINIMUM ACCESS TO FURNACE LOCATED IN THE ATTIC IS REQUIRED. IN ADDITION THE OPENING AND PASSAGEWAY MUST BE AS LARGE AS THE LARGEST COMPONENT OF THE APPLIANCE.

A SOLID 24" MIN. WIDE PLATFORM PATH FROM THE ACCESS OPENING TO THE FURNACE, WITH A RECEPTACLE AT THE FAU AND LIGHT, SWITCHED FROM THE ACCESS OPENING. PER C.M.C. 904.11

PROVIDE AN ADDITIONAL WATERTIGHT CORROSION RESISTANT METAL PAN BELOW CONDENSATE PRODUCING EQUIPMENT (IE. FURNACE) INSTALLED IN ATTIC. A SECONDARY DRAIN LINE MUST BE LOCATED AT A POINT WHERE IT CAN BE READILY OBSERVED. PER C.M.C. 310.2

ACCESS DOOR TO THE FURNACE/COOLING EQUIPMENT / COMPARTMENT SHALL BE A MINIMUM OF 24" WIDE AND A MINIMUM OF 30" CLEAR WORKING SPACE (OF A HEIGHT EQUAL TO THAT OF THE EQUIPMENT OR 6.5 FEET) ON THE FIREBOX SIDE.

PLUMBING FIXTURES (WATER CLOSETS AND URINALS) AND FITTINGS (FAUCETS AND SHOWERHEADS) INSTALLED IN RESIDENTIAL BUILDINGS SHALL COMPLY WITH THE PRESCRIPTIVE REQUIREMENTS OF CGBC SECTION 4.303.1.1 THROUGH 4.303.1.4.4

PLUMBING FIXTURES AND FITTINGS REQUIRED IN CGBC SECTION 4.303.1 SHALL BE INSTALLED IN ACCORDANCE WITH THE C.P.C AND SHALL MEET THE APPLICABLE REFERENC STANDARDS.

ANNULAR SPACES AROUND PIPES, ELECTRIC CABLES, CONDUITS OR OPENINGS IN PLATES AT EXTERIOR WALLS SHALL BE PROTECTED AGAINST THE PASSAGE OR RODENTS BY CLOSING SUCH OPENINGS WITH CEMENT MORTAR, CONCRETE MASONRY OR SIMILAR METHOD ACCEPTABLE TO THE ENFORCING AGENCY.

HVAC SYSTEM INSTALLERS ARE TRAINED AND CERTIFIED IN THE PROPER INSTALLATION OF HVAC SYSTEMS.

SMOKE DETECTORS SHALL BE INTERCONNECTED 110V WITH BATTERY BACKUP, WHICH ARE AUDIBLE IN ALL SLEEPING AREAS AT THE FOLLOWING LOCATIONS:

- (1) ALL BEDROOMS; (2) HALLWAYS LEADING TO BEDROOMS, (4) AT LEAST ONE AT EVERY LEVEL AND (5) FARTHER THAN 3 FEET HORIZONTAL DISTANCE FROM THE BATHROOM DOOR CONTAINING A BATHTUB OR SHOWER. PER C.R.C. R314.3, R314.4, R314.5.

AN ARC-FAULT CIRCUIT INTERRUPTER SHALL PROTECT ALL 120-VOLT, SINGLE PHASE, 15- AND 20-AMP BRANCH CIRCUITS SUPPLYING OUTLETS IN DWELLING UNIT FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, OR SIMILAR ROOMS OR AREAS. PER C.E.C. 210.12(A)

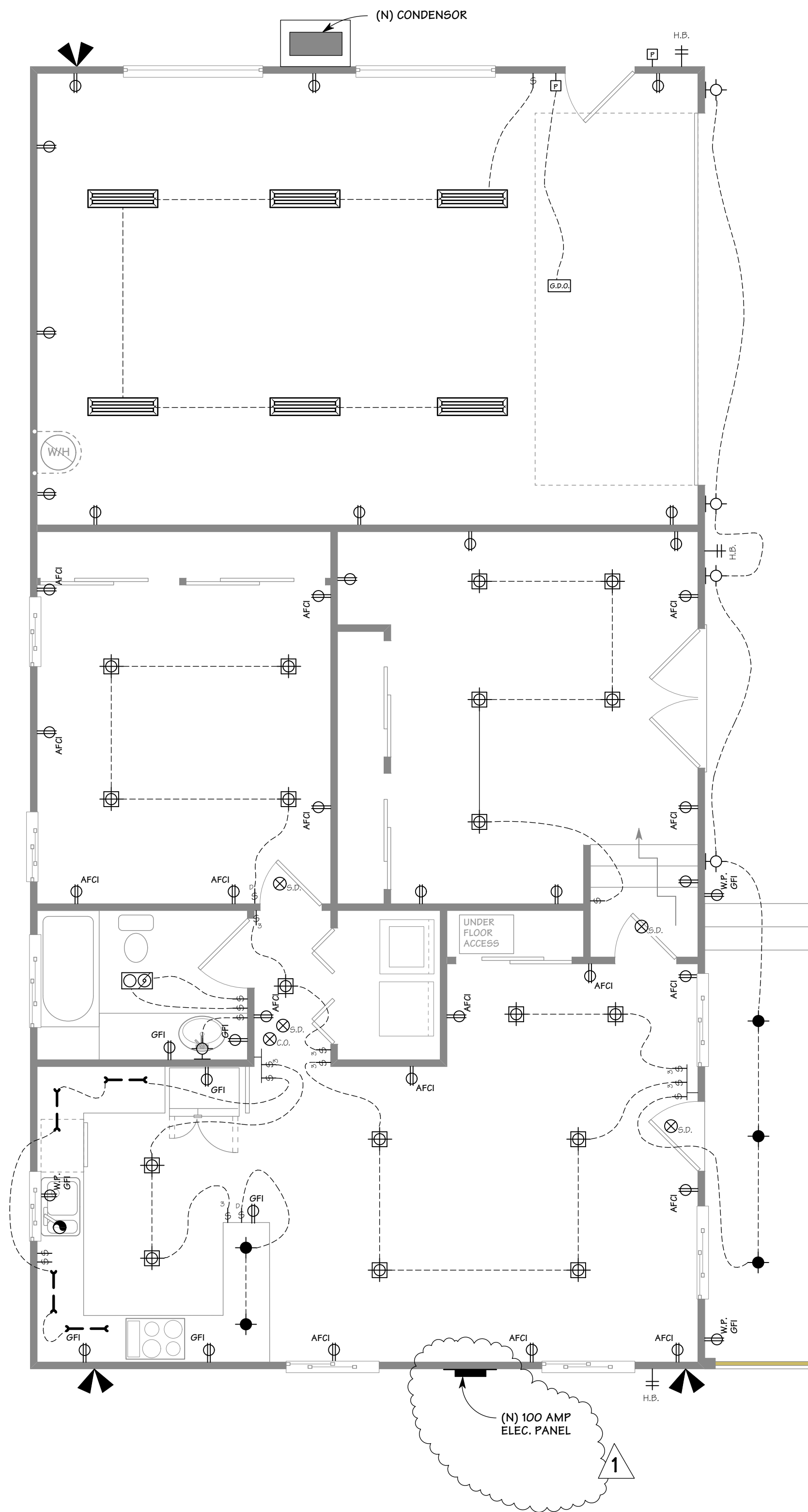
TWO SMALL APPLIANCE BRANCH CIRCUITS ARE REQUIRED FOR THE KITCHEN AND ARE LIMITED TO SUPPLYING WALL AND COUNTER SPACE OUTLETS FOR THE KITCHEN, PANTRY, BREAKFAST ROOM, DINING ROOM, OR SIMILAR AREAS. NOTE: THESE CIRCUITS CANNOT SERVE OUTSIDE PLUGS, RANGE HOOD, DISPOSALS, DISHWASHERS OR MICROWAVES — ONLY THE REQUIRED COUNTERTOP/WALL OUTLETS INCLUDING THE REFRIGERATOR. PER C.E.C. 210-11(C)(1) AND 210-52 (B)

A DEDICATED 20-AMP CIRCUIT IS REQUIRED TO SERVE THE REQUIRED BATHROOM OUTLETS. THIS CIRCUIT CANNOT SUPPLY ANY OTHER RECEPTACLES, LIGHTS, FANS, ETC. (EXCEPTION-WHERE THE CIRCUIT SUPPLIES A SINGLE BATHROOM, OUTLETS FOR OTHER EQUIPMENT WITHIN THE SAME BATHROOM SHALL BE PERMITTED TO BE SUPPLIED.) PER C.E.C. 210.52 (C)(3) AND EXCEPTION: CEC210.23(A)(1) AND (A)(2).

A DEDICATED 20-AMP BRANCH CIRCUIT SHALL BE PROVIDED TO SUPPLY THE LAUNDRY RECEPTACLE OUTLET. PER C.E.C. 210.11(C)(2) AND 210.52(F)

A PRESSURE ABSORBING DEVICE (OR APPROVED MECHANICAL DEVICE), LOCATED AS CLOSE AS POSSIBLE TO QUICK ACTING VALVES, THAT WILL ABSORB HIGH PRESSURES RESULTING FROM THE QUICK CLOSING OF QUICK-ACTING VALVES (I.E., DISHWASHER, WASHING MACHINE, ETC.). PER C.P.C. 609.10

EXHAUST OUTLETS SHALL BE LOCATED A MINIMUM OF 10-FT FROM DOORS, OCCUPIED AREAS AND OPERABLE WINDOWS. PER C.M.C. 407.2.2



ELEC. / MECH. / PLUMB. PLAN

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

ELECTRICAL/MECHANICAL SYMBOL LEGEND

	LIGHT SWITCH, SINGLE POLE; +48° U.O.N.
	LIGHT SWITCH, 3-WAY; +48° U.O.N.
	LIGHT SWITCH, DIMMABLE; +48° U.O.N.
	CEILING FAN/LIGHT CONTROL
	OUTLET, DUPLEX CONVENIENCE - 20A, 120V; +12° U.O.N.
	OUTLET, SAME AS ABOVE EXCEPT GFI TYPE
	OUTLET, SAME AS ABOVE EXCEPT GFI & WATER PROOF
	OUTLET, ARC-FAULT CIRCUIT INTERRUPTER
	OUTLET, IN CAB FACE, GFI IN KITCHEN
	SWITCHED OUTLET, 1/2 HOT - 20A, 120V; +12° U.O.N.
	OUTLET, FOURPLEX CONVENIENCE - 20A, 120V +12° U.O.N.
	OUTLET, INDIVIDUAL APPLIANCE - 20A, 220V
	UNDER-COUNTER OUTLET
	COUNTER-TOP OUTLET
	FLOOR OUTLET - 20A, 120V
	DOT ADJACENT TO SYMBOL INDICATES MOUNTING ABOVE COUNTER TOP
	PENDANT MOUNTED LIGHT FIXTURE
	SURFACE MOUNTED LIGHT FIXTURE
	LOW VOLTAGE RECESSED FIXTURE
	RECESSED CEILING LIGHT FIXTURE
	RECESSED FLOURESCENT CEILING LIGHT FIXTURE
	ACCENT LIGHT
	WALL MOUNTED LIGHT FIXTURE
	WALL SCONCE
	FLOURESCENT FIXTURE, UNDER CAB MNTD. DIRECT WIRE, LENGTH VARIES
	SURFACE MOUNTED FLOURESCENT FIXTURE
	FAN/FLOURESCENT LIGHT
	EXHAUST FAN (CEILING UNIT U.O.N.) (TO PROVIDE MIN. 5 AIR CHANGES/HR. PER IBC 1203.5)
	DISPOSAL
	TELEPHONE OUTLET +12° U.O.N.
	FLOOR MOUNTED TELEPHONE JACK
	TELEVISION HOOKUP
	PUSH BUTTON
	DOORBELL CHIME
	THERMOSTAT
	JUNCTION BOX
	MOTOR CONNECTION
	APPROVED SMOKE DETECTOR - CEILING MOUNTED & WIRED TO MAIN SERVICE WITH BATTERY BACK-UP
	APPROVED CARBON MONOXIDE DETECTOR - CEILING MOUNTED & WIRED TO MAIN SERVICE WITH BATTERY BACK-UP
	GARAGE DOOR OPENER
	GAS OUTLET
	F.G. KEY
	HOSE BIB w/ VACUUM BREAKER
	AIR RETURN
	AIR REGISTER AT FLOOR
	AIR REGISTER @ WALL
	AIR REGISTER @ CEIL.
	MOTION / SOLOR FLOOD LIGHT
	CEILING FAN

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REVISION:	PER CITY COMMENTS DATED 12/10/2020

ELEC. / MECH. / PLUMB. PLANS
PLAN NOTES

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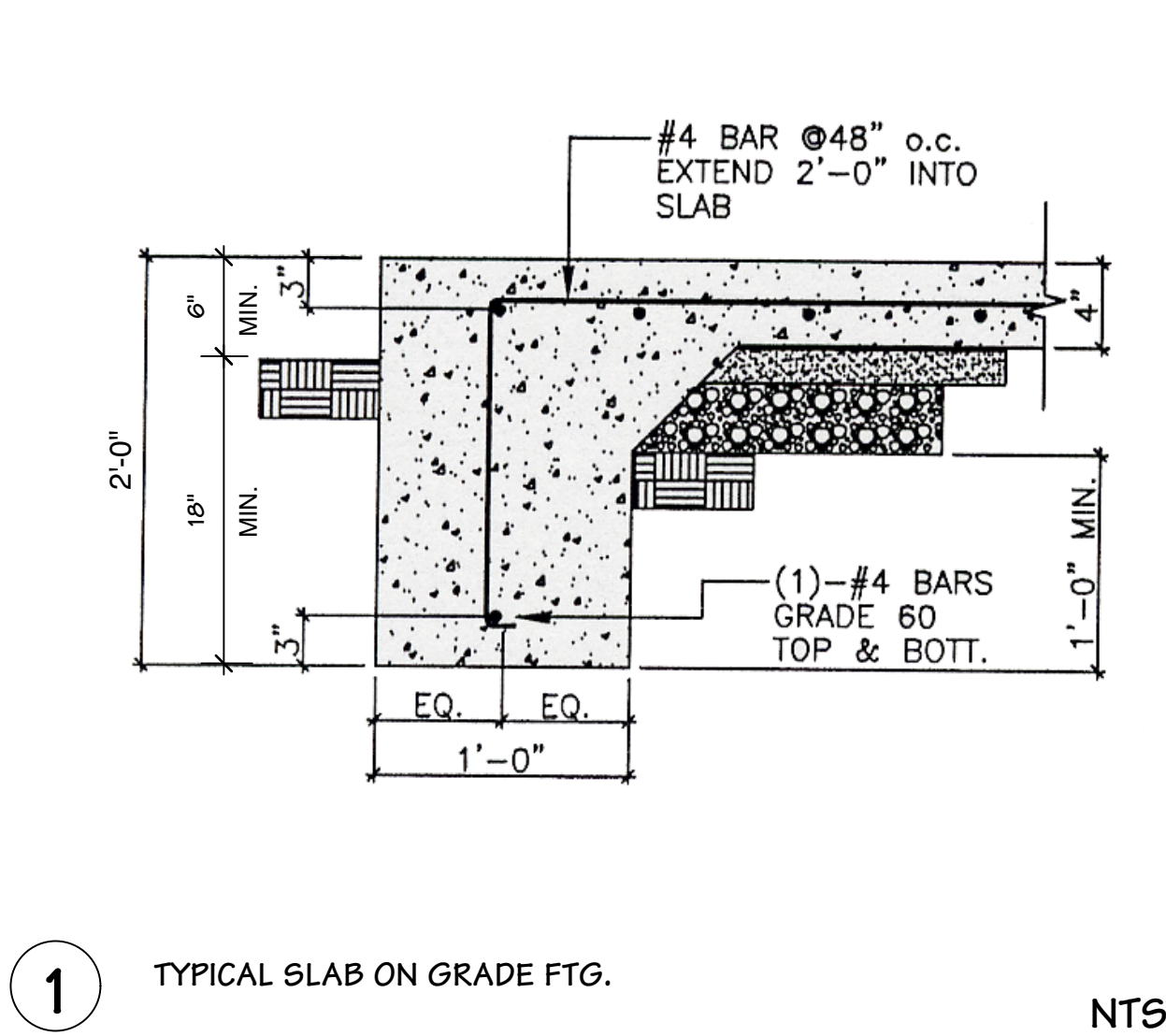
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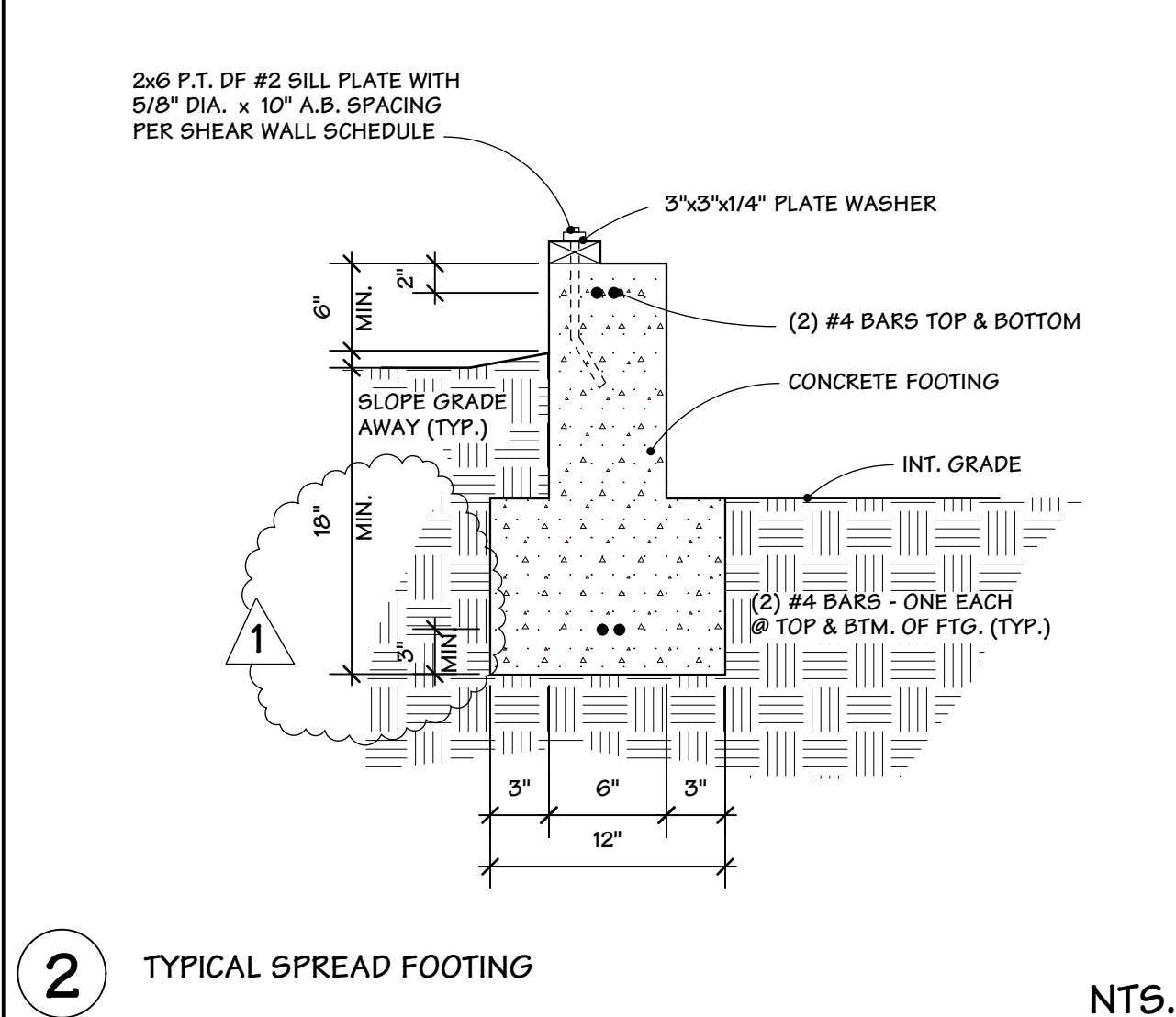
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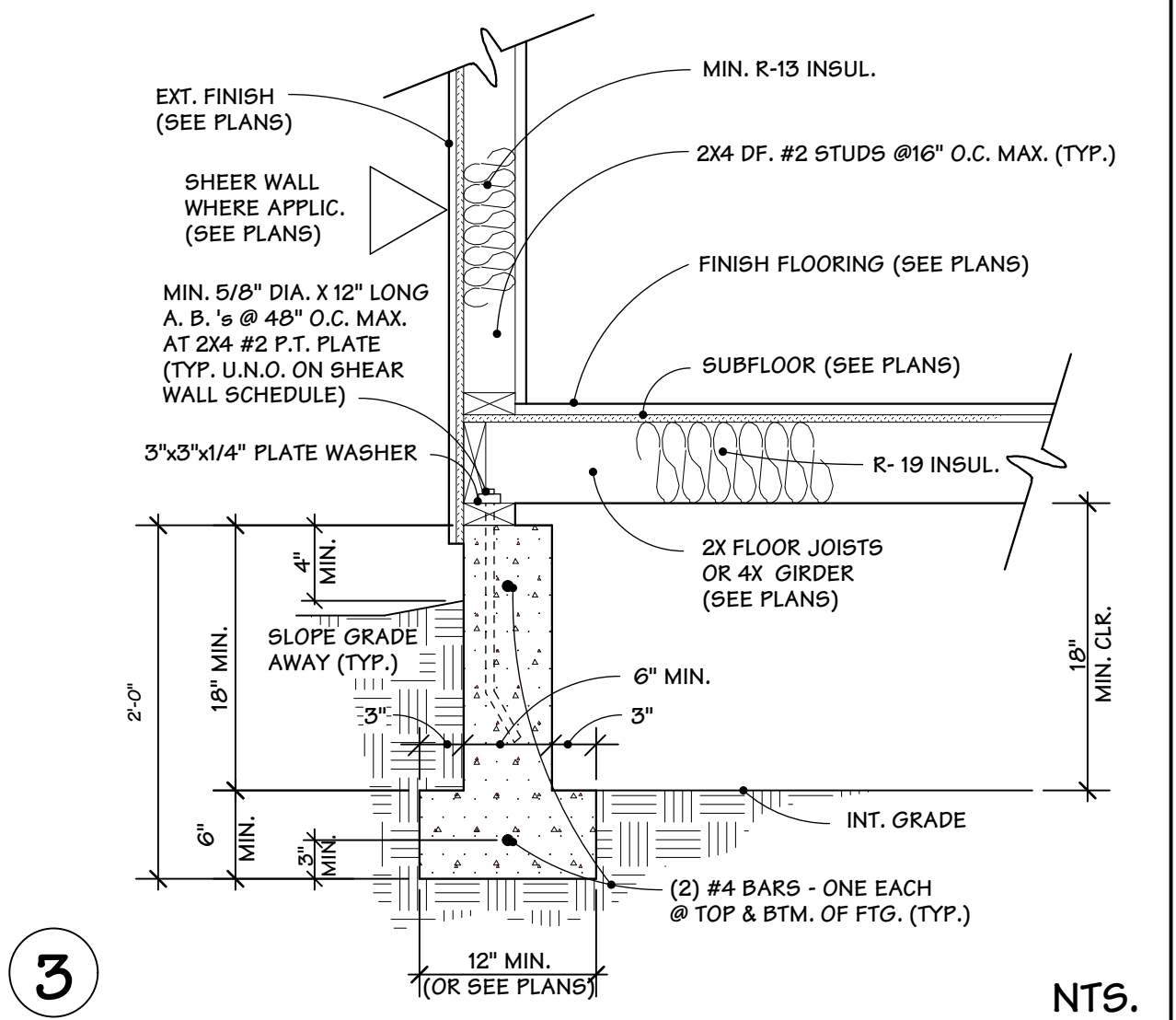
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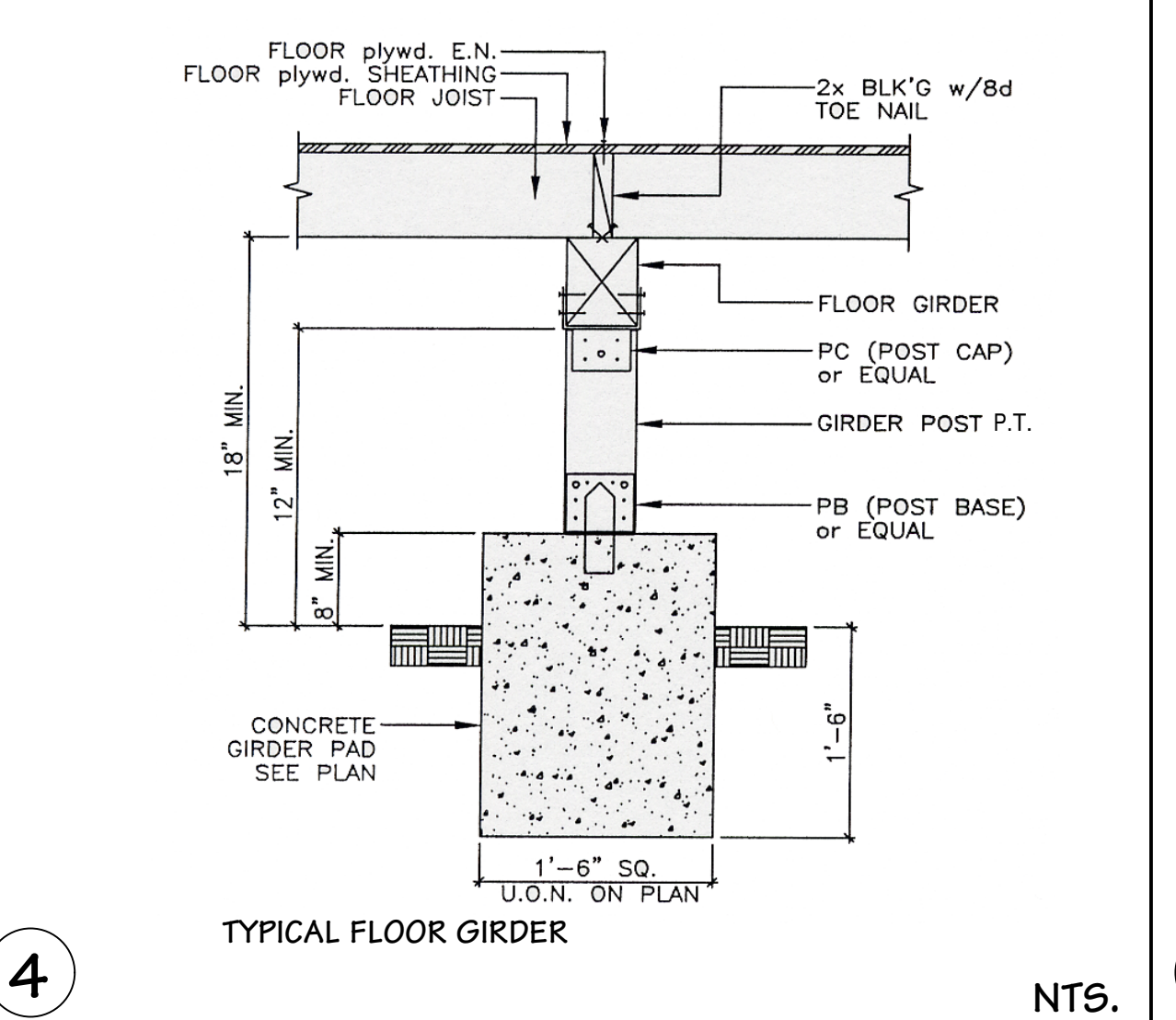
1 TYPICAL SLAB ON GRADE FTG. NTS.



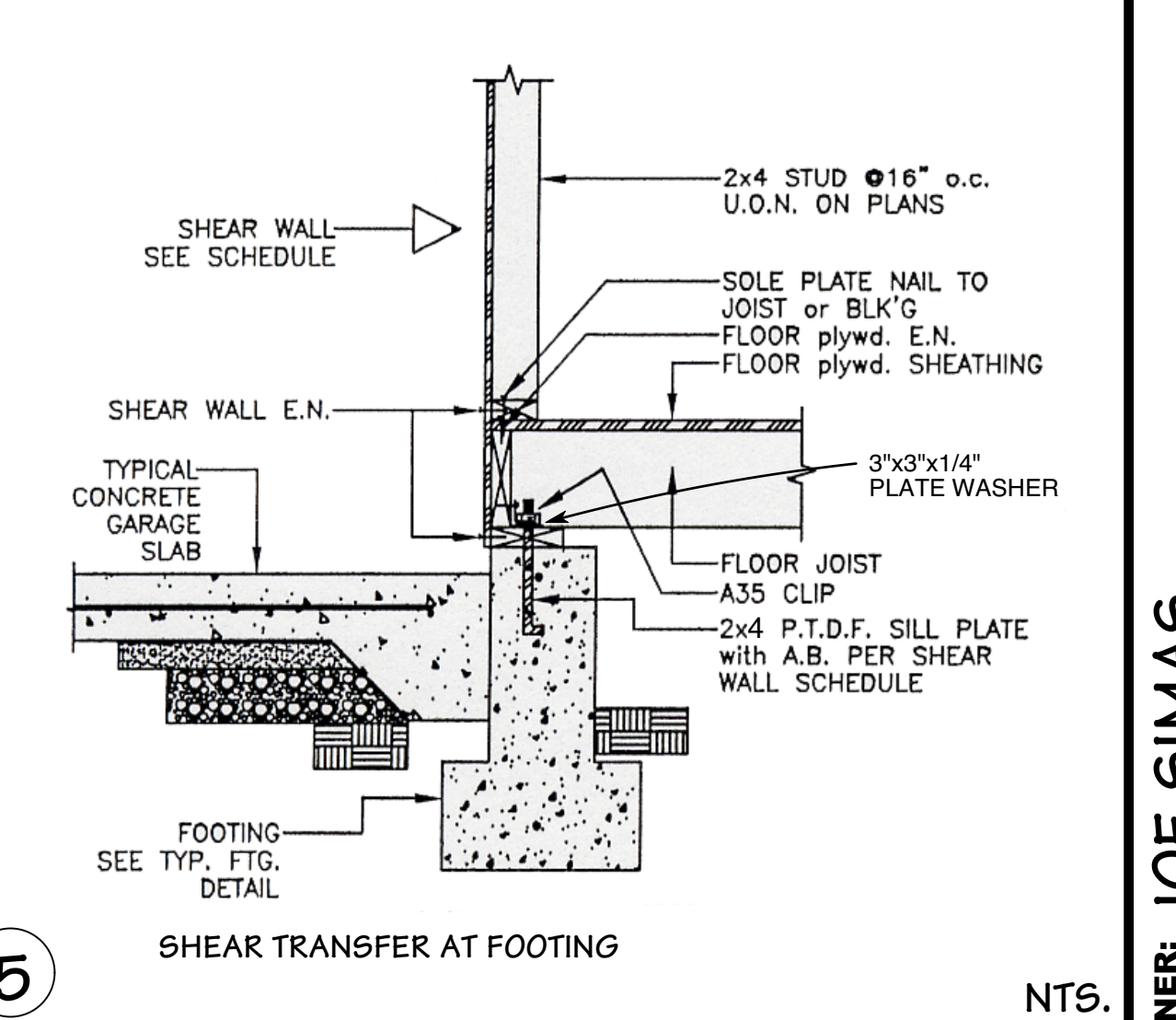
2 TYPICAL SPREAD FOOTING NTS.



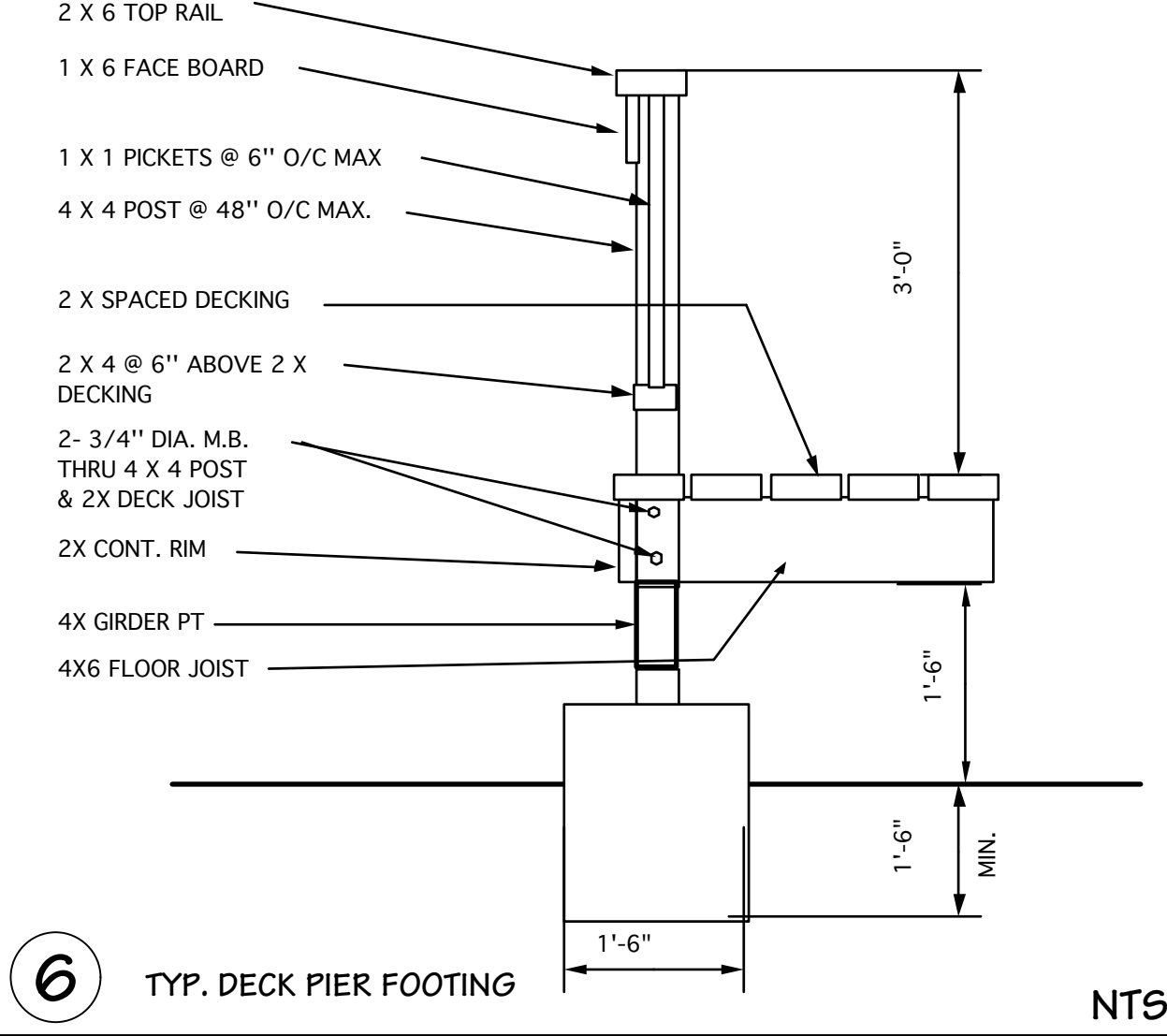
3 TYPICAL FLOOR GIRDER NTS.



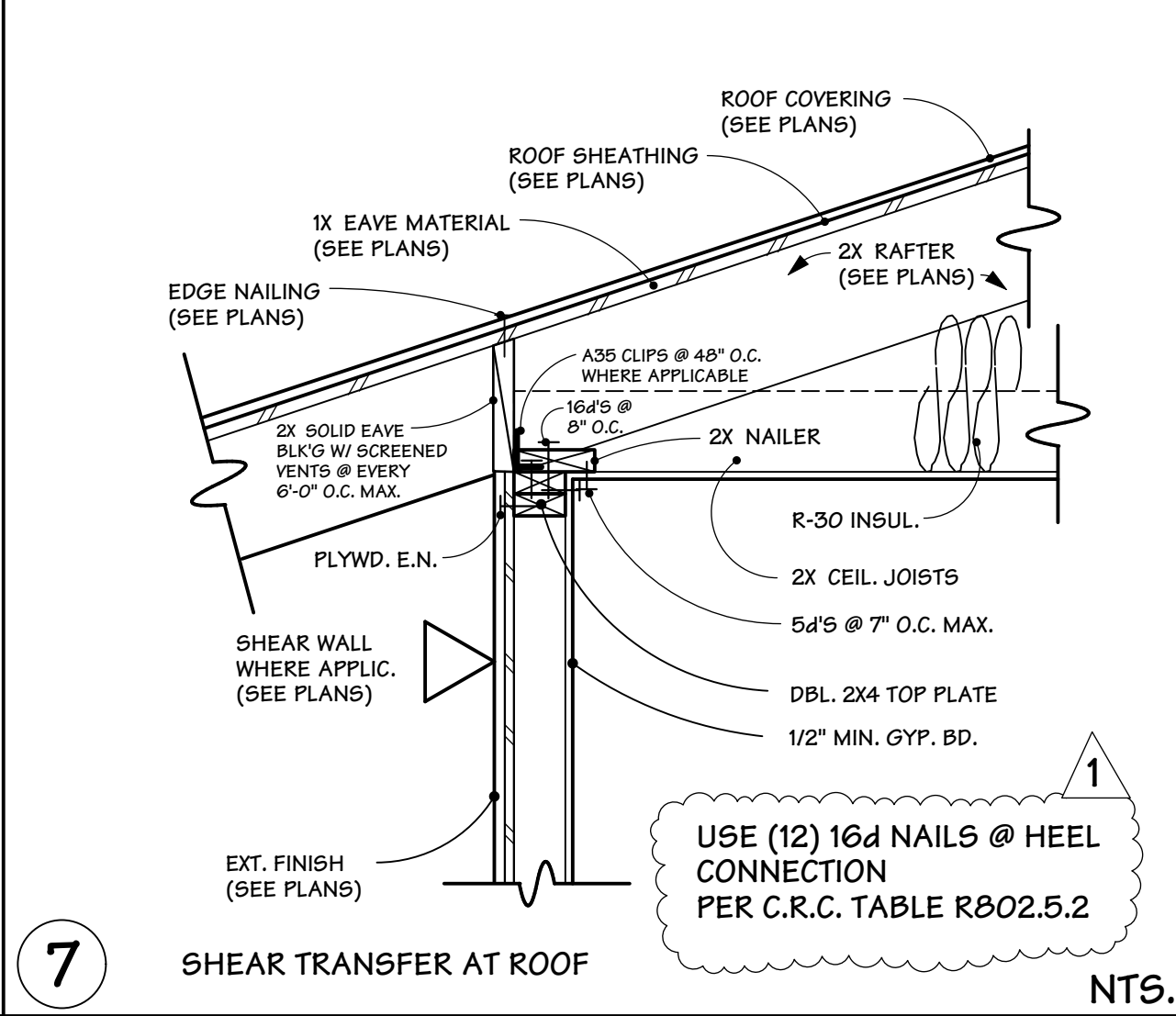
4 TYPICAL FLOOR GIRDER NTS.



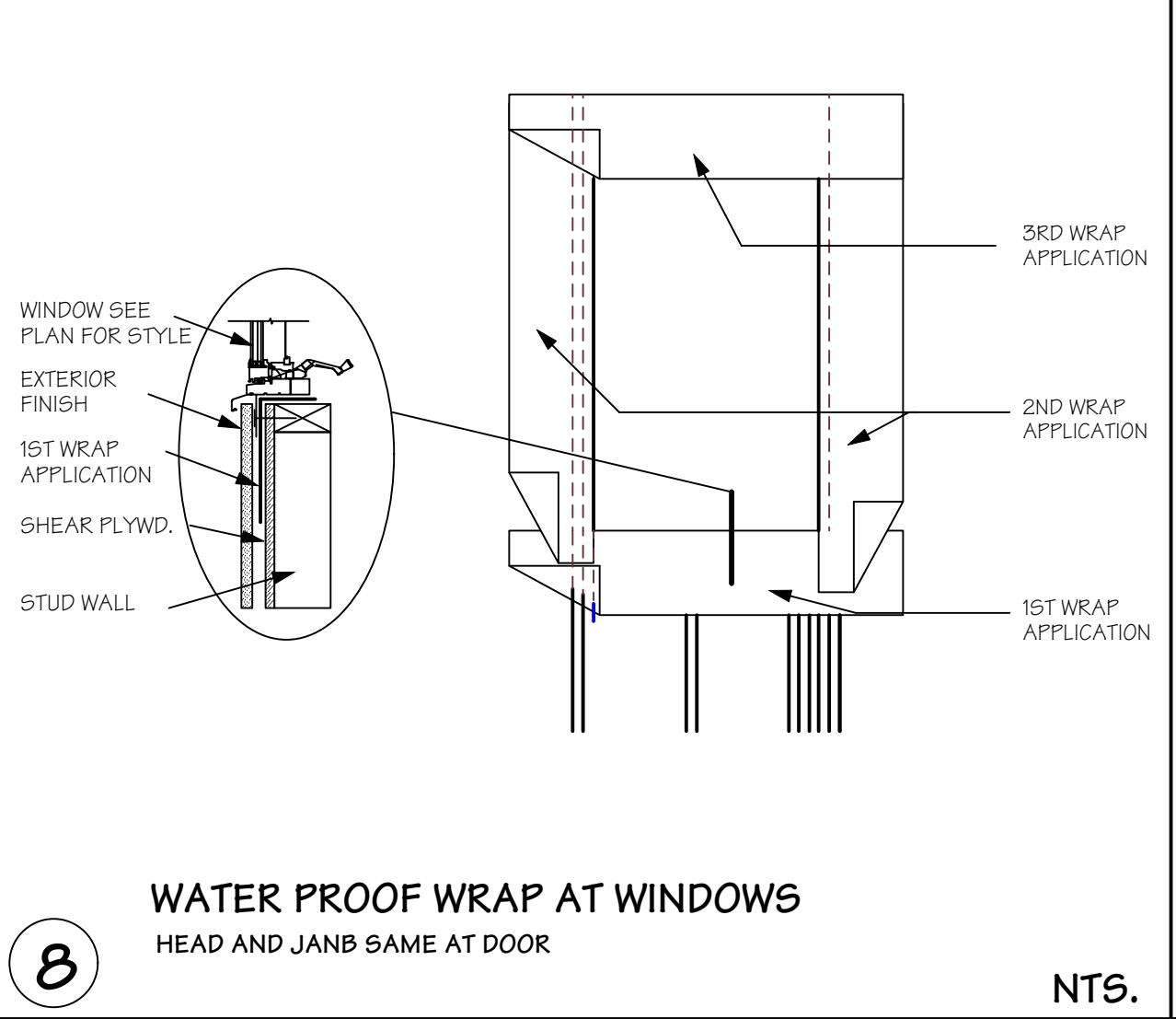
5 SHEAR TRANSFER AT FOOTING NTS.



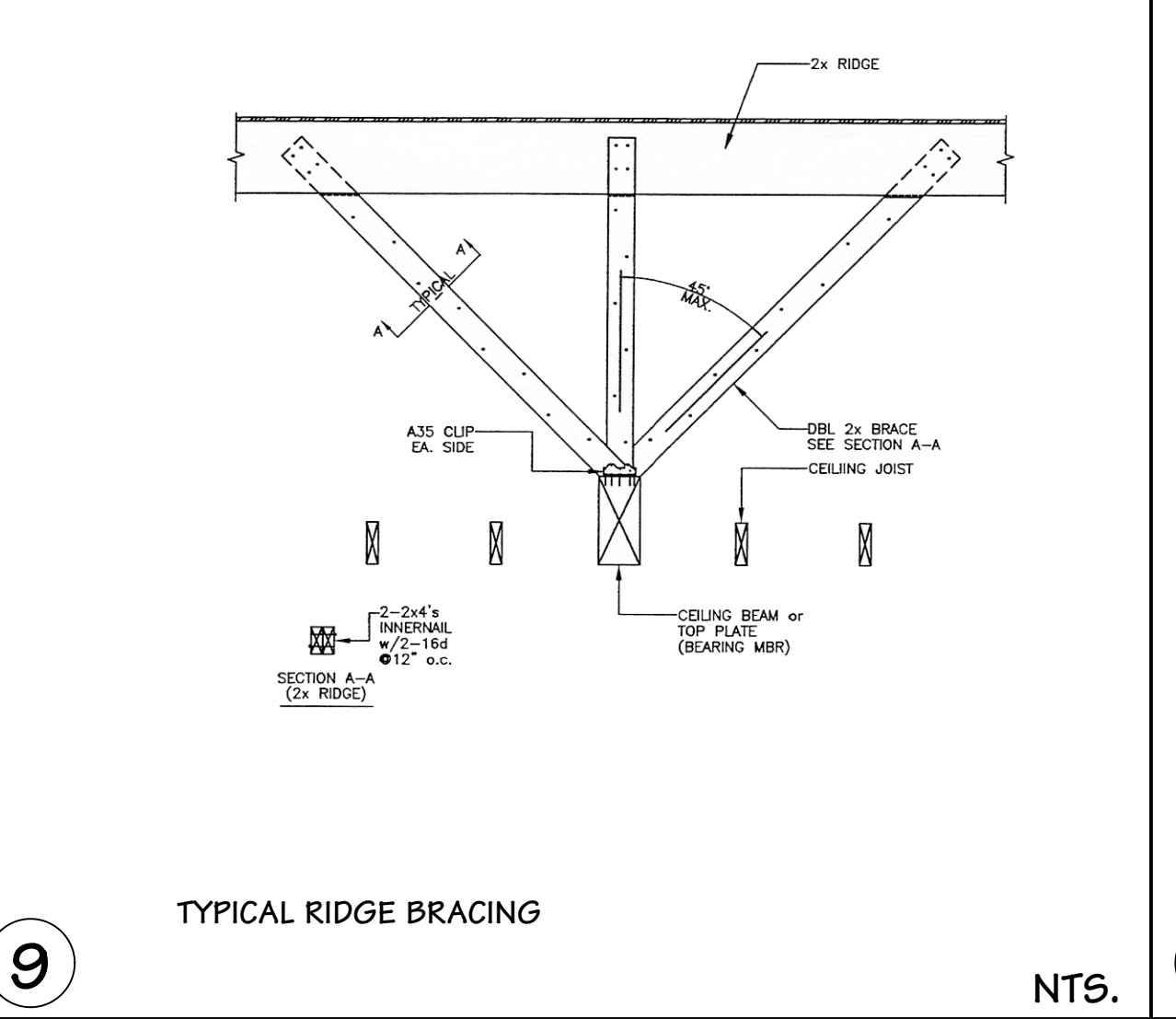
6 TYP. DECK PIER FOOTING NTS.



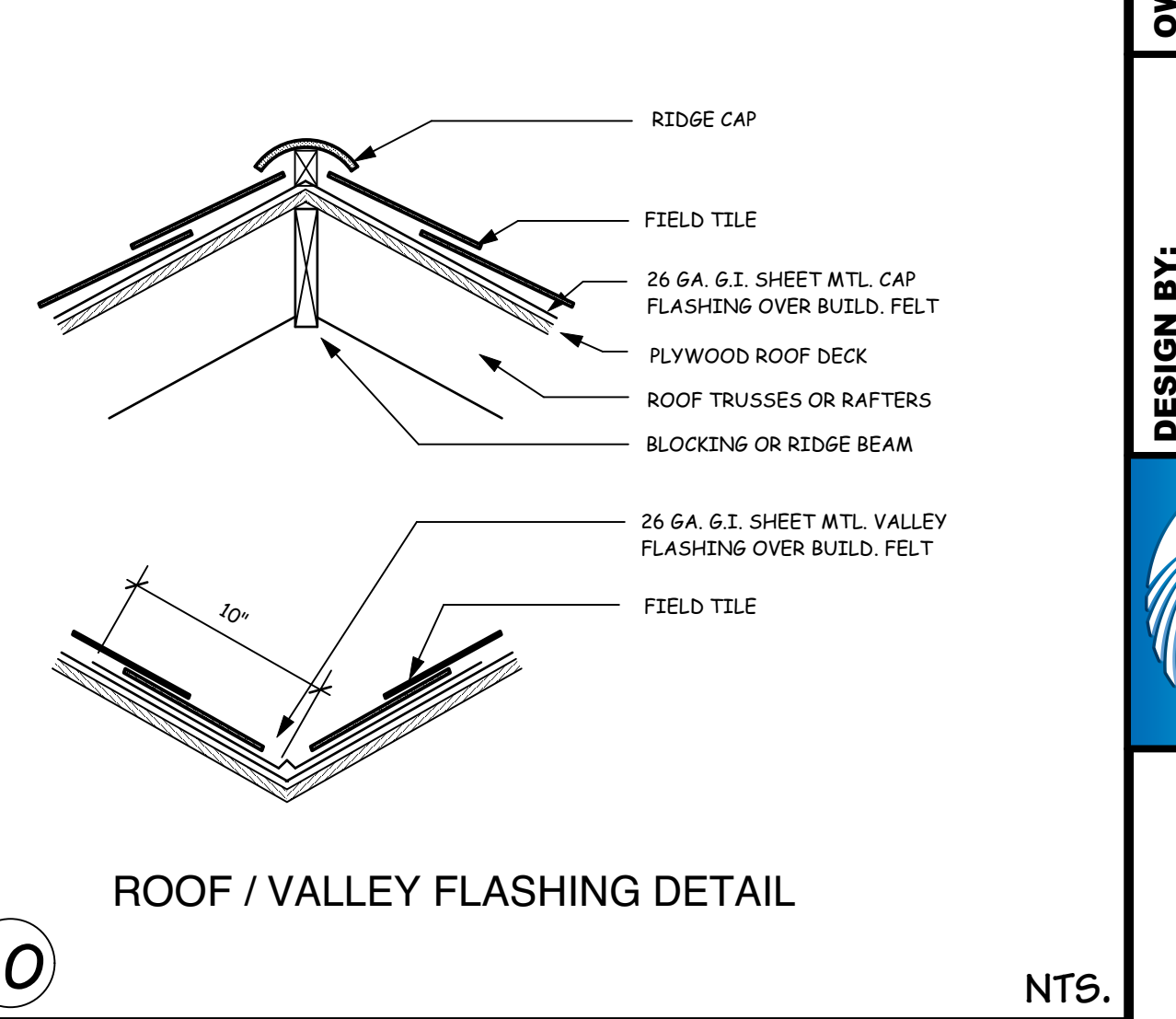
7 SHEAR TRANSFER AT ROOF NTS.



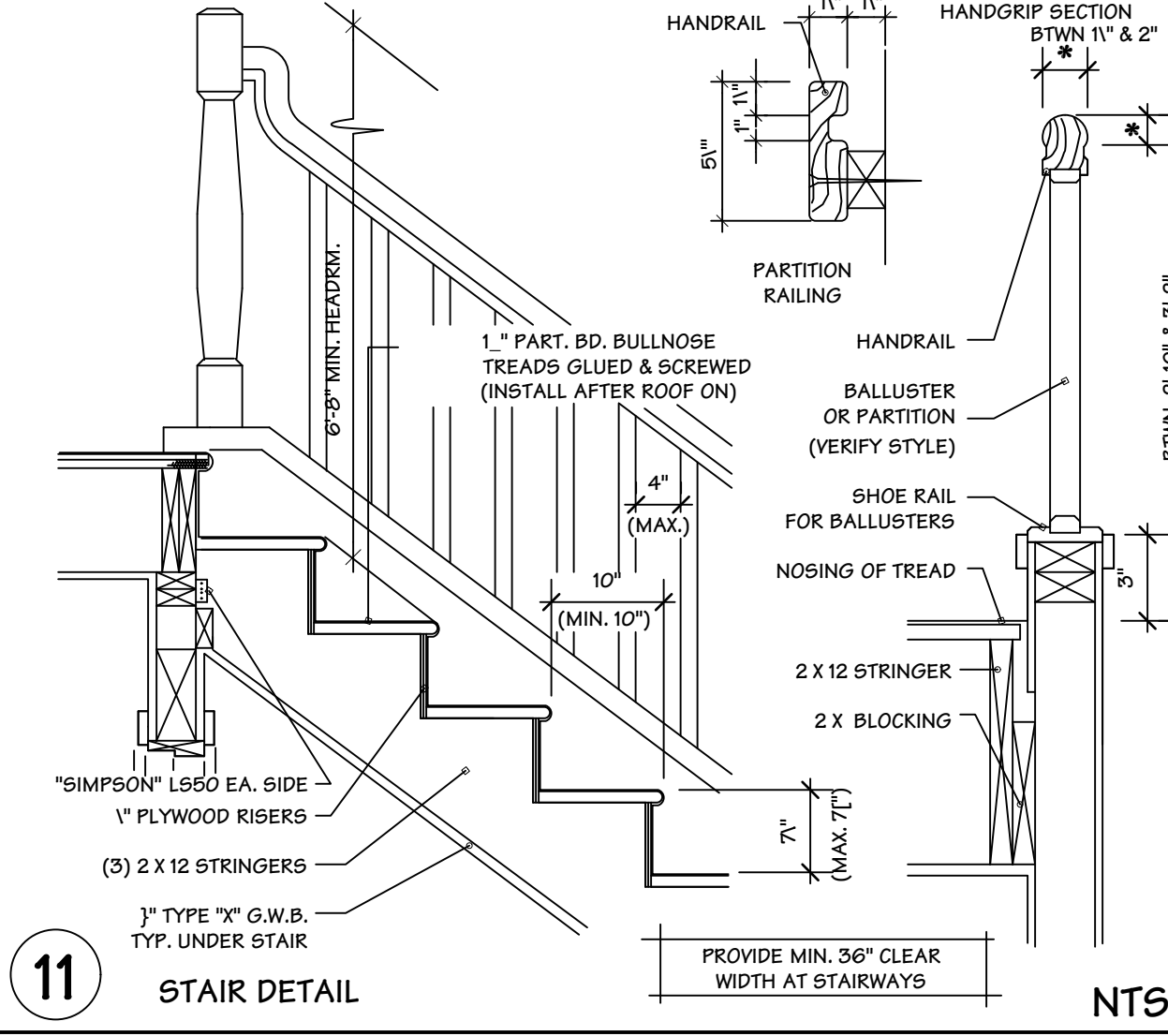
8 WATER PROOF WRAP AT WINDOWS HEAD AND JANB SAME AT DOOR NTS.



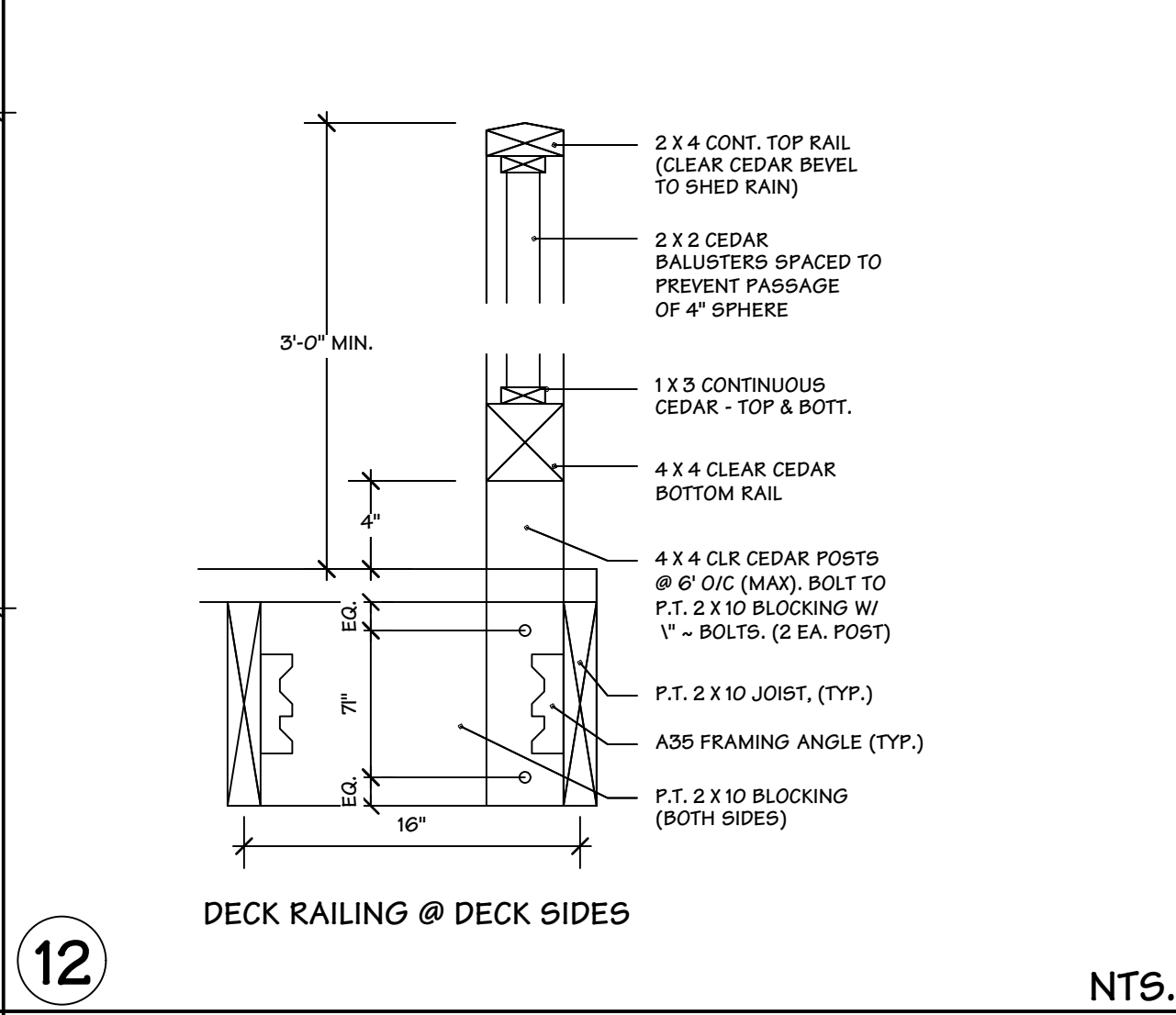
9 TYPICAL RIDGE BRACING NTS.



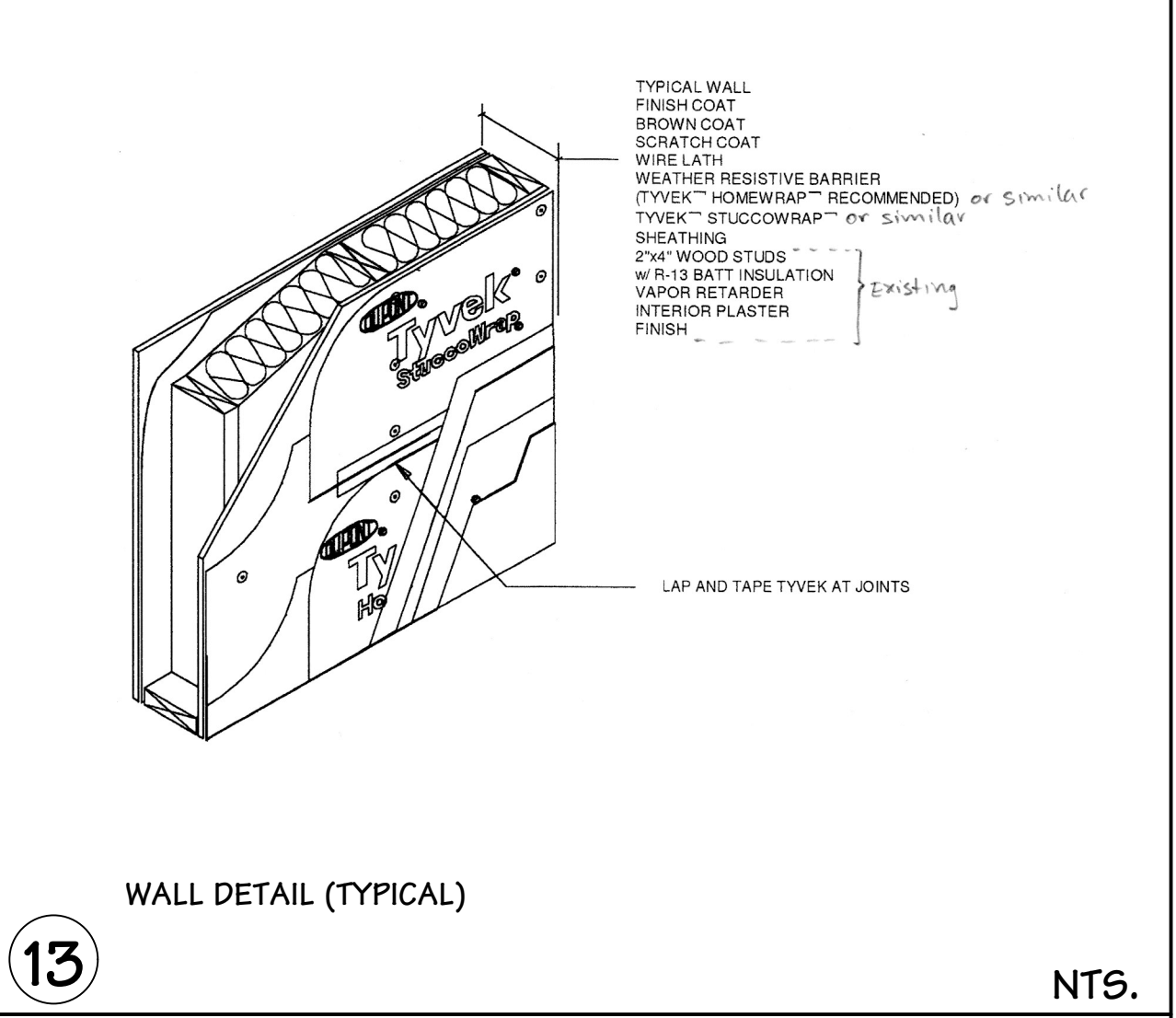
10 ROOF / VALLEY FLASHING DETAIL NTS.



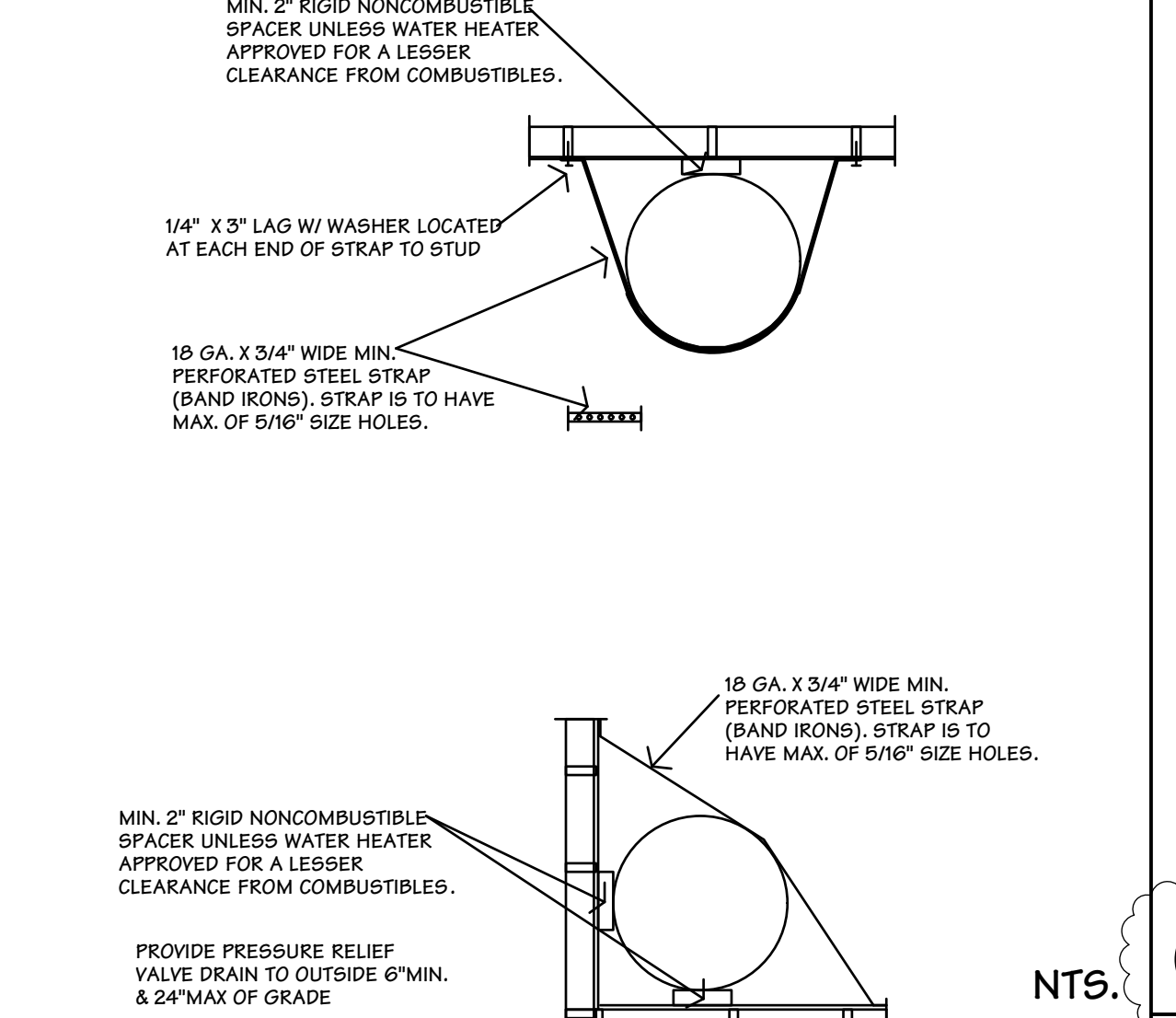
11 STAIR DETAIL NTS.



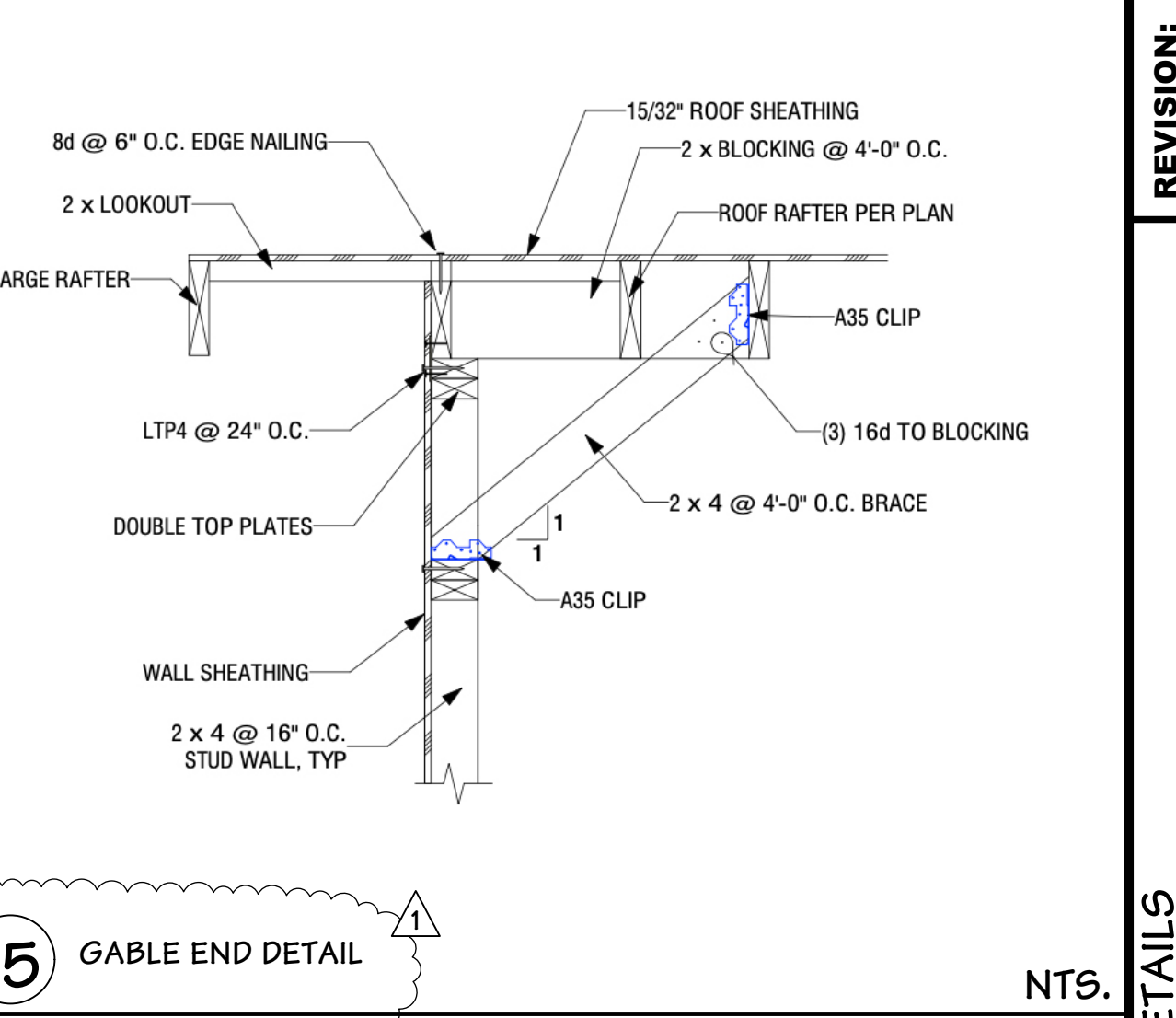
12 DECK RAILING @ DECK SIDES NTS.



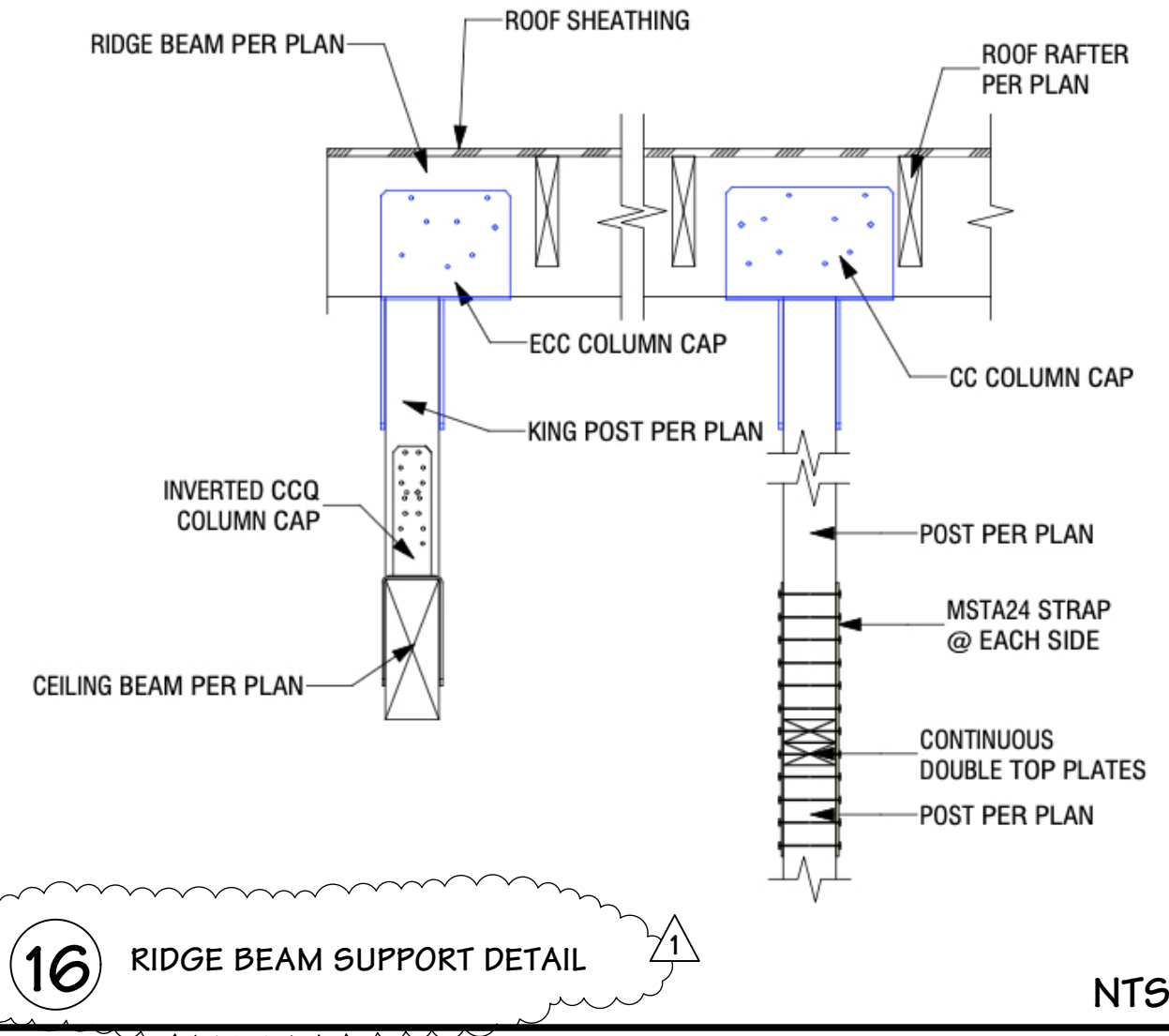
13 WALL DETAIL (TYPICAL) NTS.



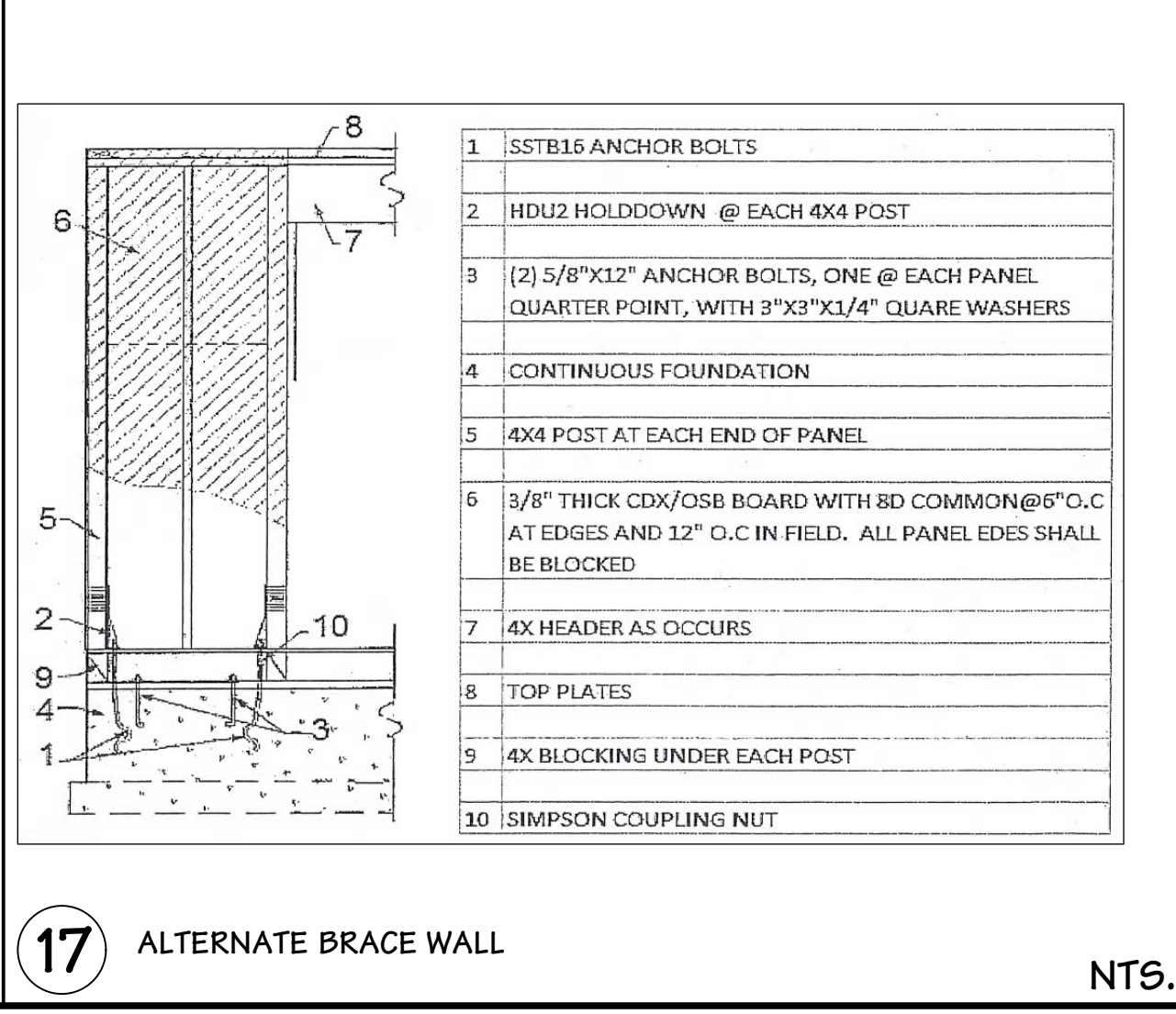
14 MIN. EARTHQUAKE ANCHORAGE FOR WATER HEATERS NTS.



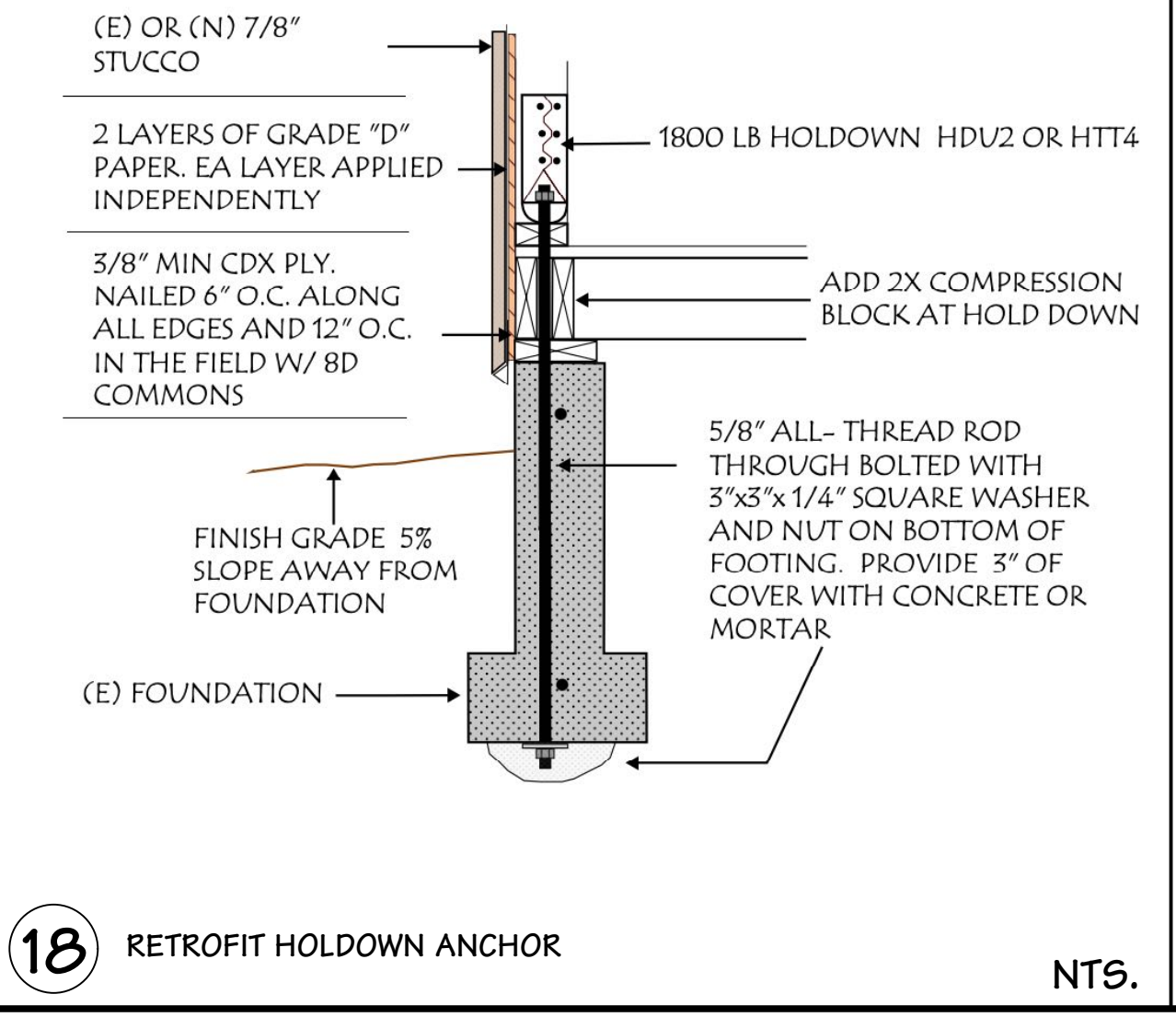
15 GABLE END DETAIL NTS.



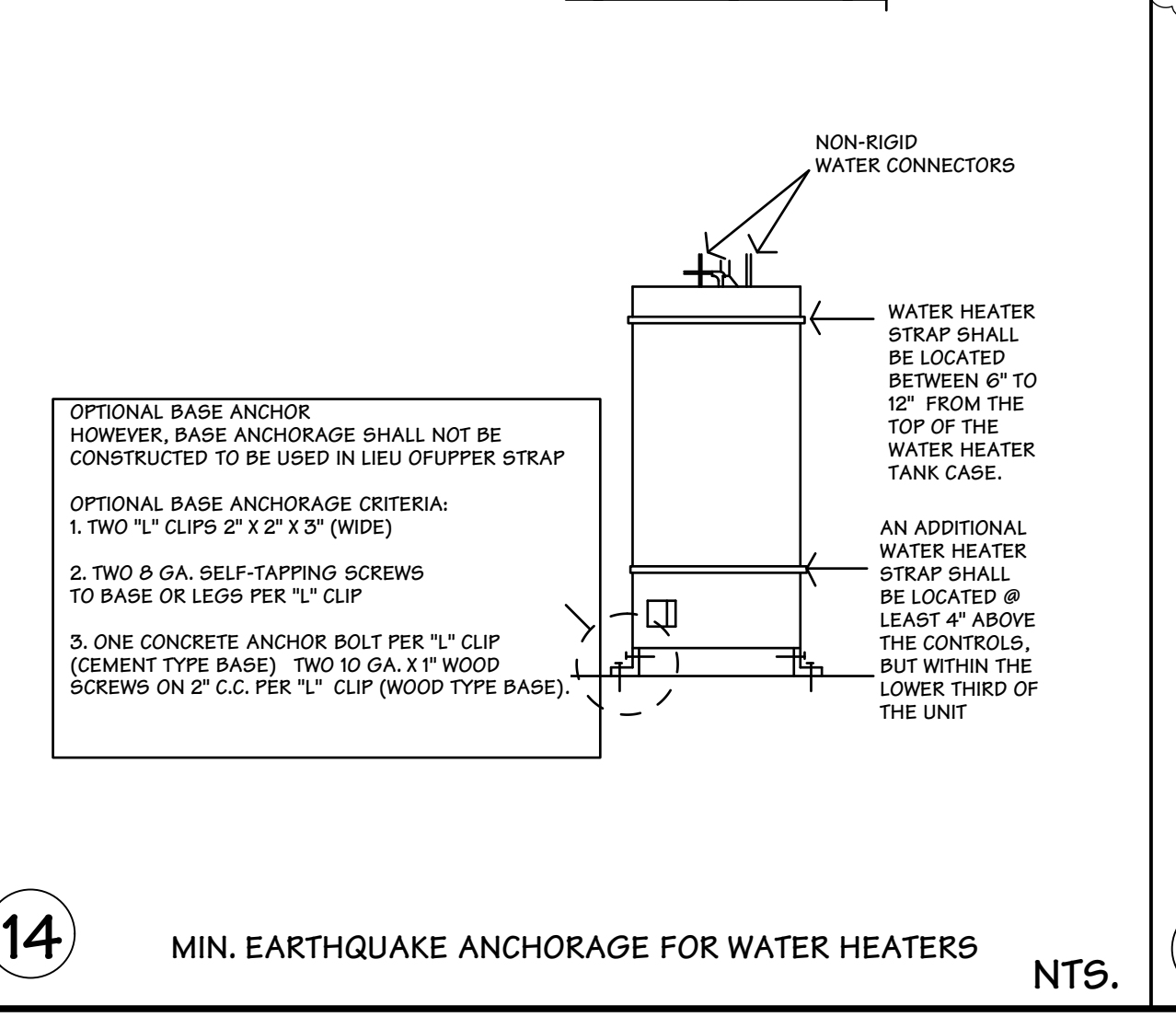
16 RIDGE BEAM SUPPORT DETAIL NTS.



17 ALTERNATE BRACE WALL NTS.



18 RETROFIT HOLDOWN ANCHOR NTS.



19 CALIFORNIA FRAME DETAIL NTS.

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SECTION		REQUIREMENTS
Chapter 1 – ADMINISTRATION		
Scope		
101.3.1		Applies to ALL newly constructed residential buildings: low-rise, high-rise, and hotels/motels.
102.3		Requires a completed Residential Occupancies Application Checklist or alternate method acceptable to the enforcing agency to be used for documentation of conformance.
Chapter 3 – GREEN BUILDING		
Additions and alterations		
301.1.1		<ul style="list-style-type: none"> Applies to additions or alterations of residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. Requirements only apply within the specific area of the addition or alteration.
Low-rise and high-rise residential buildings		
301.2		Banners identify provisions applying to low-rise only [LR] or high-rise only [HR].
Mixed occupancy buildings		
302.1		<p>Requires each portion of mixed occupancy buildings to comply with CALGreen measures applicable for the specific occupancy.</p> <p>Exceptions:</p> <ul style="list-style-type: none"> Accessory structures and accessory occupancies serving residential buildings to comply with Chapter 4 and Appendix A4, as applicable. Live/work units complying with the California Building Code Section 419 shall not be considered a mixed occupancy. Live/work units are required to comply with Chapter 4 and Appendix A4, as applicable.

SECTION		REQUIREMENTS
Chapter 4 – RESIDENTIAL MANDATORY MEASURES		
Division 4.1 – PLANNING AND DESIGN		
Storm water drainage and retention during construction		
4.106.2		Projects which disturb less than 1 acre of soil and are not part of a larger common plan of development shall manage storm water drainage during construction.
Grading and paving		
4.106.3		Construction plans shall indicate how the site grading or drainage system will manage all surface water flows to keep water from entering buildings. Exception: Additions and alterations which do not alter the existing drainage path.
Electric vehicle (EV) charging for new construction		
4.106.4		<ul style="list-style-type: none"> Comply with Section 4.106.4.1, 4.106.4.2 or 4.106.4.3 for future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the California Electrical Code, Article 625. <p>Exceptions:</p> <ol style="list-style-type: none"> On a case-by-case basis where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon 1 of the following: <ol style="list-style-type: none"> Where there is no commercial power supply. Verification that meeting requirements will alter the local utility infrastructure design requirements on the utility side of the meter increasing costs to the homeowner/developer by more than \$400.00 per dwelling unit. Accessory Dwelling Units and Junior Accessory Dwelling Units without additional parking facilities. <p>Note: For definitions of Accessory Dwelling Units and Junior Accessory Units, see CALGreen Chapter 2.</p>

SECTION		REQUIREMENTS
EV charging: 1- & 2-family dwellings/townhouses with attached private garages		
4.106.4.1		<ul style="list-style-type: none"> Install a listed raceway to accommodate a dedicated 208/240-volt branch circuit for each dwelling unit. Raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). Raceway shall originate at the main service or subpanel and 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. 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.
Identification		
4.106.4.1.1		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."
EV charging for multifamily dwellings		
4.106.4.2		<ul style="list-style-type: none"> Applies to all multifamily dwelling units with parking facilities on the site. 10% of the total number of parking spaces provided for all types of parking facilities, but in no case less than 1, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the number of EV spaces shall be rounded up to the nearest whole number. <p>Note: Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.</p>


SECTION		REQUIREMENTS
EV charging space (EV space) locations		
4.106.4.2.1		Construction documents shall indicate the location of proposed EV spaces. Where common use parking is provided at least 1 EV space shall be located in the common use parking areas and shall be available for use by all residents.
EV charging stations (EVCS)		
4.106.4.2.1.1		<p>When EV chargers are installed, EV spaces (required by Section 4.106.4.2.2, Item 3,) shall comply with at least 1 of the following options:</p> <ol style="list-style-type: none"> 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. The EV space shall be located on an accessible route to the building, as defined in the California Building Code, Chapter 2. <p>Exception: EVCS 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.</p>
EV charging space (EV space) dimensions		
4.106.4.2.2		<p>EV spaces shall be designed to comply with the following:</p> <ol style="list-style-type: none"> The minimum length of each EV space shall be 18 feet. The minimum width of each EV space shall be 9 feet. 1 in every 25 EV spaces, but not less than 1, shall also have an 8-foot wide minimum aisle. A 5-foot wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet. <ol style="list-style-type: none"> Surface slope for this EV space and aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083% slope) in any direction.


SECTION		REQUIREMENTS
Single EV space required		
4.106.4.2.3		<ul style="list-style-type: none"> Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. Raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). 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. 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.
Multiple EV spaces required		
4.106.4.2.4		<ul style="list-style-type: none"> 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 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 planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.
Identification		
4.106.4.2.5		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.


SECTION		REQUIREMENTS
EV charging for hotels and motels		
4.106.4.3		<ul style="list-style-type: none"> Applies to all newly constructed hotels and motels. Construction documents shall identify the location of EV spaces. <p>Note: Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.</p>
Number of required EV spaces		
4.106.4.3.1		Table 4.106.4.3.1 shows the number of required EV spaces based on the total number of parking spaces provided for all types of parking facilities.
EV charging space (EV space) dimensions		
4.106.4.3.2		<p>EV spaces shall be designed to comply with the following:</p> <ul style="list-style-type: none"> Minimum length of each EV space shall be 18 feet. Minimum width of each EV space shall be 9 feet.
Single EV space required (similar to 4.106.4.2.3)		
4.106.4.3.3		<ul style="list-style-type: none"> Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. Raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). 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. 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.


SECTION		REQUIREMENTS
Multiple EV spaces required (similar to 4.106.4.2.4)		
4.106.4.3.4		<ul style="list-style-type: none"> 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 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 planned to be installed underground, enclosed, inaccessible or, in concealed areas and spaces shall be installed at the time of original construction.
Identification (similar to 4.106.4.2.5)		
4.106.4.3.5		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.
Accessible EV spaces		
4.106.4.3.6		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 EV charging stations in the California Building Code, Chapter 11B.
Division 4.2 – ENERGY EFFICIENCY		
Scope		
4.201.1 & 5.201.1		<ul style="list-style-type: none"> Energy efficiency requirements for low-rise residential (Section 4.201.1) and high-rise residential/hotels/motels (Section 5.201.1) are now in both residential and nonresidential chapters of CALGreen. Standards for residential buildings do not require compliance with levels of minimum energy efficiency beyond those required by the 2019 California Energy Code.


SECTION		REQUIREMENTS
Division 4.3 – WATER EFFICIENCY AND CONSERVATION		
Water conserving plumbing fixtures and fittings		
4.303.1		<p>Plumbing fixtures and fittings shall comply with the following:</p> <ul style="list-style-type: none"> 4.303.1.1 – Water closets: ≤ 1.28 gal/flush. 4.303.1.2 – Wall mounted urinals: ≤ 0.125 gal/flush; all other urinals ≤ 0.5 gal/flush. 4.303.1.3.1 – Single showerheads: ≤ 1.8 gpm @ 80 psi. 4.303.1.3.2 – Multiple showerheads: combined flow rate of all showerheads controlled by a single valve shall not exceed 1.8 gpm @ 80 psi, or only 1 shower outlet is to be in operation at a time. 4.303.1.4.1 – Residential lavatory faucets: maximum flow rate ≤ 1.2 gpm @ 60 psi; minimum flow rate ≥ 0.8 gpm @ 20 psi. 4.303.1.4.2 – Lavatory faucets in common and public use areas of residential buildings: ≤ 0.5 gpm @ 60 psi. 4.303.1.4.3 – Metering faucets: ≤ 0.2 gallons per cycle. 4.303.1.4.4 – Kitchen faucets: ≤ 1.8 gpm @ 60 psi; temporary increase to 2.2 gpm allowed but shall default to 1.8 gpm.
Standards for plumbing fixtures and fittings		
4.303.2		Plumbing fixtures and fittings shall be installed in accordance with the California Plumbing Code, and shall meet applicable standards referenced in Table 1701.1 of the California Plumbing Code.
Outdoor potable water use in landscape areas		
4.304.1		New 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.
Division 4.4 – MATERIAL CONSERVATION & RESOURCE EFFICIENCY		
Rodent proofing		
4.406.1		Annular spaces around pipes, electric cables, conduits or other openings in sole/bottom plates at exterior walls shall be closed with cement mortar, concrete masonry or a similar method acceptable to the enforcing agency to prevent passage of rodents.

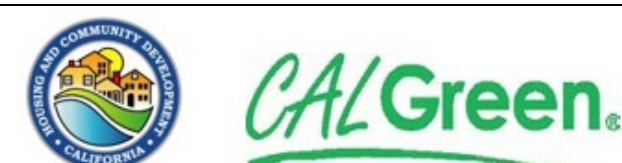
 2019 CALGREEN RESIDENTIAL MANDATORY MEASURES EFFECTIVE JANUARY 1, 2020 <small>HCD SHL 615 (New 01/20)</small>	
See specific referenced sections for complete details on CALGreen mandatory requirements.	
2019 CALGREEN CODE	
SECTION	REQUIREMENTS
Construction waste management	
4.408.1	<ul style="list-style-type: none"> Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous 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. Provide documentation to the enforcing agency per Section 4.408.5.
	Exceptions: <ol style="list-style-type: none"> Excavated soil and land-clearing debris. Alternative waste reduction methods developed by working with local enforcing agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite. 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.
Construction waste management plan	
4.408.2	Submit a construction waste management plan meeting Items 1 through 5 in Section 4.408.2. Plans shall be updated as necessary and shall be available for examination during construction.
Waste management company	
4.408.3	Utilize a waste management company, approved by the enforcing agency, which can provide verifiable documentation that diverted construction and demolition waste materials meet the requirements in Section 4.408.1.


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See specific referenced sections for complete details on CALGreen mandatory requirements.	
2019 CALGREEN CODE	
SECTION	REQUIREMENTS
Waste stream reduction alternative [LR]	
4.408.4 & 4.408.4.1	<ul style="list-style-type: none"> Projects that generate a total combined weight of construction and demolition waste disposed in landfills, which do not exceed 3.4 pounds per square foot of the building area shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1. Projects that generate a total combined weight of construction and demolition waste disposed 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.
Operation and maintenance manual	
4.410.1	At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the enforcing agency which covers 10 specific subject areas shall be placed in the building.
Recycling by occupants	
4.410.2	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 is identified for the depositing, storage and collection of nonhazardous materials for recycling, including (at minimum) paper, corrugated cardboard, glass, plastics, organic waste, 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 not required to comply with the organic waste portion of this section.
Division 4.5 – ENVIRONMENTAL QUALITY	
Fireplaces - General	
4.503.1	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 all applicable local ordinances.


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See specific referenced sections for complete details on CALGreen mandatory requirements.	
2019 CALGREEN CODE	
SECTION	REQUIREMENTS
Protection of mechanical equipment during construction	
4.504.1	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 intake and distribution component openings shall be covered. Tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of water, dust and debris entering the system may be used.
Adhesives, sealants and caulks	
4.504.2.1	Adhesives, sealants 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: <ol style="list-style-type: none"> 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 shall also 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. 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 (CCR), Title 17, commencing with Section 94507.
Paints and coatings	
4.504.2.2	Architectural paints and coatings shall comply with VOC limits in Table 1 of the Air Resources Board 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.

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See specific referenced sections for complete details on CALGreen mandatory requirements.	
2019 CALGREEN CODE	
SECTION	REQUIREMENTS
Aerosol paints and coatings	
4.504.2.3 & 4.504.2.4	<ul style="list-style-type: none"> 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 shall additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49. Documentation is required per Section 4.504.2.4.
Carpet systems	
4.504.3	Carpet installed in the building interior shall meet the testing and product requirements of 1 of the following: <ol style="list-style-type: none"> Carpet and Rug Institute's Green Label Plus Program. 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). NSF/ANSI 140 at the Gold level. Scientific Certifications Systems Indoor Advantage™ Gold.
Carpet cushion	
4.504.3.1	Carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label program.
Carpet adhesive	
4.504.3.2	Carpet adhesives shall meet the requirements of Table 4.504.1.

 2019 CALGREEN RESIDENTIAL MANDATORY MEASURES EFFECTIVE JANUARY 1, 2020 <small>HCD SHL 615 (New 01/20)</small>	
See specific referenced sections for complete details on CALGreen mandatory requirements.	
2019 CALGREEN CODE	
SECTION	REQUIREMENTS
Resilient flooring systems	
4.504.4	Where resilient flooring is installed, at least 80% of floor area receiving resilient flooring shall comply with 1 or more of the following: <ol style="list-style-type: none"> 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. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children & Schools program). Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program. 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).
Composite wood products	
4.504.5 & 4.504.5.1	<ul style="list-style-type: none"> Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in the Air Resources Board's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), as shown in Table 4.504.5. Documentation is required per Section 4.504.5.1.
	<ul style="list-style-type: none"> Definition of Composite Wood Products: Composite wood products include hardwood plywood, particleboard, and medium density fiberboard. "Composite wood products" do not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood I-joists, or finger-joined lumber, all as specified in CCR, Title 17, Section 93120.1(a).

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See specific referenced sections for complete details on CALGreen mandatory requirements.	
2019 CALGREEN CODE	
SECTION	REQUIREMENTS
Concrete slab foundations	
4.505.2	Concrete slab foundations or concrete slab-on-ground floors required to have a vapor retarder by the California Building Code, Chapter 19, or the California Residential Code, Chapter 5, respectively, shall also comply with this section.
Capillary break	
4.505.2.1	A capillary break shall be installed in compliance with at least 1 of the following: <ol style="list-style-type: none"> A 4-inch thick base of ½ inch or larger clean aggregate shall be provided with a vapor retarder 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. Other equivalent methods approved by the enforcing agency. A slab design specified by a licensed design professional.
Moisture content of building materials	
4.505.3	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% moisture content. Moisture content shall be verified in compliance with the following: <ol style="list-style-type: none"> Moisture content shall be determined with either a probe-type or a contact-type moisture meter. Equivalent moisture verification methods may be approved by the enforcing agency and shall satisfy requirements in Section 101.8. Moisture readings shall be taken at a point 2 feet to 4 feet from the grade stamped end of each piece to be verified. At least 3 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. Manufacturers' drying recommendations shall be followed for wet-applied insulation products prior to enclosure.

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See specific referenced sections for complete details on CALGreen mandatory requirements.	
2019 CALGREEN CODE	
SECTION	REQUIREMENTS
Bathroom exhaust fans	
4.506.1	Each bathroom shall be mechanically ventilated and shall comply with the following: <ol style="list-style-type: none"> Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control. <ol style="list-style-type: none"> Humidity controls shall be capable of manual or automatic adjustment between a relative humidity range of ≤ 50% to a maximum of 80%. A humidity control may be a separate component to the exhaust fan and is not required to be integral or built-in. <p>Note: For CALGreen, a bathroom is a room which contains a bathtub, shower, or tub/shower combination. Fans or mechanical ventilation is required in each bathroom.</p>
Heating and air-conditioning system design	
4.507.2	Heating and air-conditioning systems shall be sized, designed and equipment selected using the following methods: <ol style="list-style-type: none"> The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J – 2016 (Residential Load Calculation), ASHRAE handbooks or other equivalent design software or methods. Duct systems are sized according to ANSI/ACCA 1 Manual D – 2016 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S – 2014 (Residential Equipment Selection) or other equivalent design software or methods. <p>Exception: Use of alternate design temperatures necessary to ensure the systems function are acceptable.</p>

 2019 CALGREEN RESIDENTIAL MANDATORY MEASURES EFFECTIVE JANUARY 1, 2020 <small>HCD SHL 615 (New 01/20)</small>	
See specific referenced sections for complete details on CALGreen mandatory requirements.	
2019 CALGREEN CODE	
SECTION	REQUIREMENTS
CHAPTER 7 – INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS	
Installer training	
702.1	HVAC system installers shall be trained and certified in the proper installation of HVAC systems and equipment by a recognized training or certification program. Examples of acceptable HVAC training and certification programs include, but are not limited to, the following: <ol style="list-style-type: none"> State certified apprenticeship programs. Public utility training programs. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations. Programs sponsored by manufacturing organizations. Other programs acceptable to the enforcing agency.
Special inspection	
702.2	When required by the enforcing agency, special inspectors must be qualified and able to demonstrate competence to the enforcing agency in the discipline in which they are inspecting.
Documentation	
703.1	Documentation of compliance shall include, but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the local enforcing agency. Other specific documentation or special inspections necessary to verify compliance are specified in appropriate sections of CALGreen.

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
 Project Name: Simas ADU Calculation Date/Time: 09/16, Fri, Nov 12, 2021
 Calculation Description: Title 24 Analysis Input File Name: 0190948 Simas ADU.rdb16x

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01	02	03	04	05	06	07	08	09	10	11	12	13	14	
01	Project Name	02	03	04	05	06	07	08	09	10	11	12	13	14
02	Calculation Description	03	04	05	06	07	08	09	10	11	12	13	14	
03	Project Location	04	05	06	07	08	09	10	11	12	13	14	15	
04	City	05	06	07	08	09	10	11	12	13	14	15	16	
05	Zip Code	06	07	08	09	10	11	12	13	14	15	16	17	
06	Climate Zone	07	08	09	10	11	12	13	14	15	16	17	18	
07	Building Type	08	09	10	11	12	13	14	15	16	17	18	19	
08	Project Scope	09	10	11	12	13	14	15	16	17	18	19	20	
09	Total Cond. Floor Area (m ²)	10	11	12	13	14	15	16	17	18	19	20	21	
10	Slab Area (m ²)	11	12	13	14	15	16	17	18	19	20	21	22	
11	Addition Cond. Floor Area (m ²)	12	13	14	15	16	17	18	19	20	21	22	23	
12	Addition Slab Area (m ²)	13	14	15	16	17	18	19	20	21	22	23	24	

COMPLIANCE RESULTS

01	02	03	04	05	06	07	08
01	Building Complies with Computer Performance	02	03	04	05	06	07
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	04	05	06	07	08

ENERGY USE SUMMARY

04	05	06	07	08	
04	Energy Use (kWh/m ² -yr)	05	06	07	08
05	Space Heating	06	07	08	09
06	Space Cooling	07	08	09	10
07	IAQ Ventilation	08	09	10	11
08	Water Heating	09	10	11	12
09	Photovoltaic Offset	10	11	12	13
10	Compliance Energy Total	11	12	13	14

Registration Number: 219-F010254209-000-000-0000000-0000 Registration Date/Time: 2021-11-12 09:33:24
 CA Building Energy Efficiency Standards - 2016 Residential Compliance Report Version - CFIR-01162019-1149 HERS Provider: CaCERTS Inc Report Generated #: 2021-11-12 09:16:58

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
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ENERGY DESIGN RATIO

Energy Design Ratio (EDR) is an alternate way to express the energy performance of a building using a scoring system where 100 represents the energy performance of the Residential Energy Efficiency (RENET) reference home characterization of the 2006 International Energy Conservation Code (IECC) with California modeling assumptions. A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to "use over" its TDP energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may be used to use by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).

As a Standard Design building under the 2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of baseline PV so that the effects of efficiency and renewable energy can be seen.

EDR of Standard Efficiency **EDR of Proposed Efficiency** **EDR Value of Proposed PV + Battery** **Final Proposed EDR**

0.0 0.0 0.0 0.0

Design meets Tier 1 requirement of 15% or greater code compliance margin (CALGreen A4.203.1.2.1) and OI verification prerequisite.

Design meets Tier 2 requirement of 30% or greater code compliance margin (CALGreen A4.203.1.2.2) and OI verification prerequisite.

Design meets Zero Net Energy (ZNE) Design Designation requirement for Single Family in climate zone C24 (CALGreen A.203.1.2.3) including on-site photovoltaic (PV) renewable energy generation sufficient to achieve a Final Energy Design Ratio (EDR) of zero or less. The PV System and OI must be verified.

Notes:
 • Excess PV Generation EDR Credit: Excessing PV size limit may violate Net Energy Metering (NEM) rules.

REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeling energy performance for this computer analysis.

- Window overhangs and/or fins
- Northwest Energy Efficiency Alliance (NEEA) rated tank pump water heater, specific brands, models, 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 details are provided in the building components tables below.

Building Level Verifications:
 • IAQ mechanical ventilation
 • Cooling System Verifications:
 - None
 • Distribution System Verifications:
 - None
 • Domestic Hot Water System Verifications:
 - None

BUILDING FEATURES INFORMATION

01	02	03	04	05	06	07
01	Project Name	02	03	04	05	06
02	Simas ADU	03	04	05	06	07
03	Conditioned Floor Area (m ²)	04	05	06	07	08
04	1044	05	06	07	08	09
05	Number of Dwelling Units	06	07	08	09	10
06	1	07	08	09	10	11
07	Number of Bedrooms	08	09	10	11	12
08	1	09	10	11	12	13
09	Number of Bathrooms	10	11	12	13	14
10	1	11	12	13	14	15
11	Number of Ventilation Cooling Systems	12	13	14	15	16
12	0	13	14	15	16	17
13	Number of Water Heating Systems	14	15	16	17	18
14	1	15	16	17	18	19

Registration Number: 219-F010254209-000-000-0000000-0000 Registration Date/Time: 2021-11-12 09:33:24
 CA Building Energy Efficiency Standards - 2016 Residential Compliance Report Version - CFIR-01162019-1149 HERS Provider: CaCERTS Inc Report Generated #: 2021-11-12 09:16:58

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
 Project Name: Simas ADU Calculation Date/Time: 09/16, Fri, Nov 12, 2021
 Calculation Description: Title 24 Analysis Input File Name: 0190948 Simas ADU.rdb16x

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ZONE INFORMATION

01	02	03	04	05	06	07
01	Zone Name	02	03	04	05	06
02	ADU	03	04	05	06	07
03	Construction	04	05	06	07	08
04	Conditioned	05	06	07	08	09
05	HVAC System Name	06	07	08	09	10
06	HVAC System 1	07	08	09	10	11
07	Water Heating System 1	08	09	10	11	12
08	Water Heating System 2	09	10	11	12	13

OPAQUE SURFACES

01	02	03	04	05	06	07	08
01	Name	02	03	04	05	06	07
02	Front Wall	03	04	05	06	07	08
03	ADU	04	05	06	07	08	09
04	Construction	05	06	07	08	09	10
05	R-15 Wall	06	07	08	09	10	11
06	270	07	08	09	10	11	12
07	Left	08	09	10	11	12	13
08	252	09	10	11	12	13	14
09	32	10	11	12	13	14	15
10	90	11	12	13	14	15	16
11	Back	12	13	14	15	16	17
12	289	13	14	15	16	17	18
13	49	14	15	16	17	18	19
14	90	15	16	17	18	19	20
15	Rear Wall	16	17	18	19	20	21
16	ADU	17	18	19	20	21	22
17	Construction	18	19	20	21	22	23
18	R-15 Wall	19	20	21	22	23	24
19	n/a	20	21	22	23	24	25
20	n/a	21	22	23	24	25	26
21	n/a	22	23	24	25	26	27
22	n/a	23	24	25	26	27	28
23	n/a	24	25	26	27	28	29
24	n/a	25	26	27	28	29	30
25	R-38 Roof ABC	26	27	28	29	30	31
26	n/a	27	28	29	30	31	32
27	n/a	28	29	30	31	32	33
28	n/a	29	30	31	32	33	34
29	n/a	30	31	32	33	34	35
30	n/a	31	32	33	34	35	36
31	R-19 Roof Ceiling	32	33	34	35	36	37
32	n/a	33	34	35	36	37	38
33	n/a	34	35	36	37	38	39
34	n/a	35	36	37	38	39	40
35	n/a	36	37	38	39	40	41
36	n/a	37	38	39	40	41	42
37	n/a	38	39	40	41	42	43
38	n/a	39	40	41	42	43	44
39	n/a	40	41	42	43	44	45
40	n/a	41	42	43	44	45	46
41	n/a	42	43	44	45	46	47
42	n/a	43	44	45	46	47	48
43	n/a	44	45	46	47	48	49
44	n/a	45	46	47	48	49	50
45	n/a	46	47	48	49	50	51
46	n/a	47	48	49	50	51	52
47	n/a	48	49	50	51	52	53
48	n/a	49	50	51	52	53	54
49	n/a	50	51	52	53	54	55
50	n/a	51	52	53	54	55	56
51	n/a	52	53	54	55	56	57
52	n/a	53	54	55	56	57	58
53	n/a	54	55	56	57	58	59
54	n/a	55	56	57	58	59	60
55	n/a	56	57	58	59	60	61
56	n/a	57	58	59	60	61	62
57	n/a	58	59	60	61	62	63
58	n/a	59	60	61	62	63	64
59	n/a	60	61	62	63	64	65
60	n/a	61	62	63	64	65	66
61	n/a	62	63	64	65	66	67
62	n/a	63	64	65	66	67	68
63	n/a	64	65	66	67	68	69
64	n/a	65	66	67	68	69	70
65	n/a	66	67	68	69	70	71
66	n/a	67	68	69	70	71	72
67	n/a	68	69	70	71	72	73
68	n/a	69	70	71	72	73	74
69	n/a	70	71	72	73	74	75
70	n/a	71	72	73	74	75	76
71	n/a	72	73	74	75	76	77
72	n/a	73	74	75	76	77	78
73	n/a	74	75	76	77	78	79
74	n/a	75	76	77	78	79	80
75	n/a	76	77	78	79	80	81
76	n/a	77	78	79	80	81	82
77	n/a	78	79	80	81	82	83
78	n/a	79	80	81	82	83	84
79	n/a	80	81	82	83	84	85
80	n/a	81	82	83	84	85	86
81	n/a	82	83	84	85	86	87
82	n/a	83	84	85	86	87	88
83	n/a	84	85	86	87	88	89
84	n/a	85	86	87	88	89	90
85	n/a	86	87	88	89	90	91
86	n/a	87	88	89	90	91	92
87	n/a	88	89	90	91	92	93
88	n/a	89	90	91	92	93	94
89	n/a	90	91	92	93	94	95
90	n/a	91	92	93	94	95	96
91	n/a	92	93	94	95	96	97
92	n/a	93	94	95	96	97	98
93	n/a	94	95	96	97	98	99
94	n/a	95	96	97	98	99	100
95	n/a	96	97	98	99	100	101
96	n/a	97	98	99	100	101	102
97	n/a						



2016 Low-Rise Residential Mandatory Measures Summary

§ 150.0(h)13:	Duct System Sizing and Air Filter Galle Sizing. Space conditioning systems that use forced air ducts to supply cooling to an occupiable space must have a hole for the placement of a static pressure probe (SPSP), or a permanently installed static pressure probe (PSP) in the supply plenum. The space conditioning system must also demonstrate airflow > 250 CFM per ton of nominal cooling capacity through the return grilles, and an air-handling unit fan efficiency > 0.59 WCFM as confirmed by field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.3. This applies to both single zone central forced air systems and every zone for zonally controlled central forced air systems.
§ 150.0(i):	Ventilation for Indoor Air Quality. All dwelling units must meet the requirements of ASHRAE Standard 62.2. Neither window operation nor continuous operation of central forced air system air handlers used in central fan integrated ventilation systems are permissible methods of providing whole-building ventilation.
§ 150.0(i)1A:	Field Verification and Diagnostic Testing. Whole-building ventilation airflow must be confirmed through field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.7.
Pool and Spa Systems and Equipment Measures:	
§ 110.4(a):	Certification by Manufacturer. 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 equipment must be installed with at least 3/8 inches of pipe between the filter and the heater, or dedicated suction and return lines, or both on bulk-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(j):	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.
§ 110.9(e):	JAB High Efficacy Light Sources. To qualify as a JAB high efficacy light source for compliance with § 150.0(i), a residential light source must be certified to the Energy Commission according to Reference JAB.
§ 150.0(i)1A:	Luminaire Efficacy. All installed luminaires must have high efficacy in accordance with TABLE 150.0-A.
§ 150.0(i)1B:	Blank Electrical Boxes. The number of electrical boxes that are more than 5 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(i)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(i)1C. A JAB-2016-E light source rated for elevated temperature must be installed by final inspection in all recessed downlight luminaires in ceilings.
§ 150.0(i)1D:	Electronic Ballasts. Ballasts for fluorescent lamps rated 15 watts or greater must be electronic and must have an output frequency no less than 20 kHz.
§ 150.0(i)1E:	Night Lights. Permanently installed night lights integral to installed luminaires or exhaust fans must be rated to consume no more than 5 watts of power per luminaire or exhaust fan as determined in accordance with § 130.0(i). Night lights do not need to be controlled by vacancy sensors.
§ 150.0(i)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(i).
§ 150.0(i)1G:	Screen based luminaires. Screen based luminaires must not be recessed downlight luminaires in ceilings and must contain lamps that comply with Reference Joint Appendix JAB. Installed lamps must be marked with "JAB-2016" or "JAB-2016-E" as specified in Reference Joint Appendix JAB.
§ 150.0(i)1H:	Enclosed Luminaires. Light sources installed in enclosed luminaires must be JAB compliant and must be marked with "JAB-2016-E".
§ 150.0(i)2A:	Interior Switches and Controls. All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.
§ 150.0(i)2B:	Interior Switches and Controls. Exhaust fans must be switched separately from lighting systems.
§ 150.0(i)2C:	Interior Switches and Controls. Luminaires must be switched with readily accessible controls that permit the luminaires to be manually switched ON and OFF.
§ 150.0(i)2D:	Interior Switches and Controls. Controls and equipment must be installed in accordance with manufacturer's instructions.
§ 150.0(i)2E:	Interior Switches and Controls. No control must bypass a dimmer or vacancy sensor function if the control is installed to comply with § 150.0(i).
§ 150.0(i)2F:	Interior Switches and Controls. Lighting controls must comply with the applicable requirements of § 110.9.
§ 150.0(i)2G:	Interior Switches and Controls. An energy management control system (EMCS) may be used to comply with dimmer requirements if a function as a dimmer according to § 110.9, meets the Installation Certificate requirements of § 130.4, meets the EMCS requirements of § 130.5(f), and meets all other requirements in § 150.0(i)2.
§ 150.0(i)2H:	Interior Switches and Controls. An EMCS may be used to comply with vacancy sensor requirements in § 130.4, if it meets all of the following: it functions as a vacancy sensor according to § 110.9; the Installation Certificate requirements of § 130.4; the EMCS requirements of § 130.5(f); and all other requirements in § 150.0(i)2.
§ 150.0(i)2I:	Interior Switches and Controls. A multisense programmable controller may be used to comply with dimmer requirements in § 150.0(i)2 if it provides the functionality of a dimmer according to § 110.9, and complies with all other applicable requirements in § 150.0(i)2.



2016 Low-Rise Residential Mandatory Measures Summary

§ 150.0(h)2J:	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 a vacancy sensor.
§ 150.0(h)2K:	Interior Switches and Controls. Dimmers or vacancy sensors must control all luminaires required to have light sources compliant with Reference Joint Appendix JAB, except luminaires in closets less than 70 square feet and luminaires in hallways.
§ 150.0(h)2L:	Interior Switches and Controls. Undercabinet lighting must be switched separately from other lighting systems.
§ 150.0(h)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 requirements in § 150.0(h)3A (ON and OFF switch) and the requirements in either item § 150.0(h)3A(i) (photo and motion sensor) or item § 150.0(h)3A(ii) (photo control and automatic time switch control, astronomical time clock, or EMCS).
§ 150.0(h)3B:	Residential Outdoor Lighting. For low-rise multifamily residential buildings, outdoor lighting for private patios, entrances, balconies, and porches, and outdoor lighting for residential parking lots and residential carports with less than eight vehicles per site must comply with either § 150.0(h)3A or with the applicable requirements in §§ 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(h)3C:	Residential Outdoor Lighting. For low-rise residential buildings with four or more dwelling units, outdoor lighting not regulated by § 150.0(h)3B or § 150.0(h)3D must comply with the applicable requirements in §§ 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(h)3D:	Residential Outdoor Lighting. Outdoor lighting for residential parking lots and residential carports with a total of eight or more vehicles per site must comply with the applicable requirements in §§ 110.9, 130.0, 130.2, 130.4, 140.7, and 141.0.
§ 150.0(h)4:	Internally Illuminated Address Signs. Internally illuminated address signs must comply with § 140.6, or must consume no more than 5 watts of power as determined according to § 140.6.
§ 150.0(h)5:	Residential Garages for Eight or More Vehicles. Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in §§ 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.
§ 150.0(h)6A:	Interior Common Areas of Low-rise Multi-Family 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 high efficacy luminaires and controlled by an occupant sensor.
§ 150.0(h)6B:	Interior Common Areas of Low-rise Multi-Family 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 in that building must: <ul style="list-style-type: none"> 1. Comply with the applicable requirements in §§ 110.9, 130.0, 130.1, 140.6 and 141.0, and 2. 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 ten or more single family residences and where the application for a tentative subdivision map for the residences has been deemed complete by the enforcement agency must comply with the requirements of § 110.10(i) through § 110.10(j).
§ 110.10(a)2:	Low-rise Multi-Family Buildings. Low-rise multi-family buildings must comply with the requirements of § 110.10(i) through § 110.10(j).
§ 110.10(b)1:	Minimum 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 of 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 60 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.
§ 110.10(b)2:	Orientation. All sections of the solar zone located on steep-sloped roofs must be oriented between 110 degrees and 270 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 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 for inverters and metering equipment and a pathway for routing of conduit from the solar zone to the point of interconnection with the electrical service (for single family residences the point of interconnection will be the main service panel), and a pathway for routing of 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 positioned at the opposite (load) end from the input feeder location or main circuit location, and permanently marked as "For Future Solar Electric".

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name: **Simas ADU** Date: **11/12/2021**
 System Name: **HVAC System** Floor Area: **1,044**

ENGINEERING CHECKS	SYSTEM LOAD				
	COIL COOLING PEAK		COIL HTG. PEAK		
Number of Systems	CFM	Sensible	Latent	CFM	Sensible
Heating System					
Output per System	24,000				
Total Output (Btu/h)	24,000				
Output (Btu/h/sqft)	23.0				
Cooling System					
Output per System	24,000				
Total Output (Btu/h)	24,000				
Output (Btu/h/sqft)	23.0				
Total Output (Tons)	2.0				
Total Output (sqft/Ton)	522.0				
Air System					
CFM per System	0				
Airflow (cfm)	0	22,968	0	16,234	
Airflow (cfm/sqft)	0.00				
Airflow (cfm/Ton)	0.0				
Outside Air (%)	0.0%				
Outside Air (cfm/sqft)	0.00	22,968	0	16,234	
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)					

Note: values above given at ARI conditions

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