AAI ARCHITECTURAL 17087 ORANGE WAY, F (909) 355-6688 (TEL.)	ONTANA,		n.com_	C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 1231-23 C-14504 C-1
	v	RENA RESIDENCE IA VERRAZANO RIVERSIDE, CA		20-3864 27 APR. 2022
SHEET INDEX: LOADING CONDITIONS & SEISM LATERAL ANALYSIS	IC PARAMETER	3 - 17		
BEAM CALCULATIONS FOOTING CALCULATIONS		18 - 31 32 - 37		
ROOF LOAD DEAD LOAD:		LOADS FLOOF DEAD LOAD:	-	
CONCRETE TILE	9.5 PS		2.0	PSF
SHTG FRAMING	2.0 PS 3.0 PS		2.0 DUS 8.0	PSF PSF
INSULATION	1.0 PS		1.0	PSF
MISCELLANEOUS	2.0 PS		2.0	PSF
GYP BOARD	2.5 PS		15.0	PSF
TOTAL	20.0 PS		40.0	PSF
LIVE LOAD:	<u>20.0 PS</u>		W <sub>T</sub> = 55.0	PSF
WT =	= 40.0 PS	F		
INTERIOR WALLS		EXTERIOR WA	LLS	
DEAD LOAD:		DEAD LOAD:		
GYP BOARD	4.0 PS		10.0	PSF
FRAMING	2.0 PS		2.0	PSF
TOTAL	6.0 PS		2.0	PSF
		<u>FRAMING</u> TOTAL	2.0	PSF PSF
		IUIAL	10.0	FOF

CHECK UPLIFT AT OVERHANG (ASCE 7-16) E<sub>OH</sub> = (24.1 PSF)(2' OVERHANG)(2' O/C TRUSSES) = 97 # UPLIFT < 455 # OK!

CHECK GUARDRAIL CONNECTION G = 0.49 (DF) D = 0.265 (ROOT DIA.) L = 2.5" (PEN.) (1,800)(0.49<sup>3/2</sup>)(0.265<sup>3/4</sup>)(2.5") = <u>570 # PER SCREW</u>

P = 200 # AT ANY POINT ALONG TOP OF RAIL. (WITH POSTS AT 4'-0" O/C, WORST CASE IS A 200 # LOAD IN CENTER OF TWO POSTS SHARING THE LOAD)  $T = C = (200 \#)(42^{"}) / (3.75^{"})(2 \text{ POSTS}) = 1,120 \# < (570 \#)(2) = 1,140 \# \text{ OK}!$ USE FOUR 3/8" DIA. x 3" LONG WOOD SCREWS (2-1/2" PENETRATION) ON 4-1/2" SQ. x 1/4" THICK STEEL PLATE O 6x MIN. BEAM (OR BLOCKING) AT 4'-0" ON CENTER MAXIMUM M = (200 #)(42") = 8,400 IN-LBS / (1.5" WELD)(3 SIDES) = 1,867 # < (0.707)(3/16")(1.5")(14,400) = 2,683 # OK! USE 3/16" WELD AT BASE 1-1/2" x 0.060" TOP RAIL SPANNING 4'-0" IS OK BY INSPECTION

CONSTRUCTION OF THIS PROJECT SHALL BE IN CONFORMANCE WITH THE 2019 CALIFORNIA BUILDING CODE

ateral Anal	vsis for:								Projec	t: 20-3991
erena SFR	· ·									Apr. 2022
ia Verraza	ano									
liverside, (	CA 9250	)3								
o Story L	ateral A	nalusis	(Wind) As	SCE 7-16 S	Section 2	8: Envelope	Procedu	re		
130			nd Speed (i			<u>er 2eerepe</u>	A	B	С	D
0.85			ality Facto	1 0		)	26.6	-7	17.7	-3.9
1.00			or, I (Table		,			$\rightarrow$		
С	I		Category	,	)	Eave Ht.		$\Rightarrow$		$\land$
1.00		,	hic Factor,					$\Rightarrow$ $\neg$		
9.5			Exp. Const.			) 8	ft	$\Rightarrow$	Second F	loor
1.35			ent Factor,			Flr Fmg		$\Rightarrow$		20
900		3	Exposure C				ft	$\rightarrow$		
0.85			tor, G or G		0.0		ft	$\Rightarrow$		
Enclosed			e Classifica				,	$\Rightarrow$	First Floo	or 🗍
0.18						ble 26.11-1)		$\rightarrow$		⊻
B,C, & D	Above		Pressure C							
See Below		Design V	Vind Load,	p = qGCp	- qGCpi (	(Eq. 28-4.1)			<u>Hip Roo</u>	f
ilding Dat	ta	_				-		$\rightarrow$ $-$		
4	:12		e (inches p	ver foot)		Eave Ht.		$\rightarrow$		
18.4		Theta $\Theta$	(degrees)					⇒		
42		North / S	outh Dime	ension (ft)			ft	$ \rightarrow $	Second F	loor 📘
28		East / We	est Dimens	ion (ft)		Flr Fmg		$\Rightarrow$		22
20			of Height,				ft	$\Rightarrow$		
9			or Plate He	0 1		9	ft	$ \rightarrow $		
8			loor Plate I	Height (ft)				$ \rightarrow $	First Floc	r 🗍
1		Floor Dep	oth (ft)							<b>₩</b>
					٨				<i>c</i> 11 P	C
orth-Sou		ection				East-Wes		ction	Gable R	<u>oof</u>
or Diaphi		_		-		Floor Diap			$\rightarrow$	
	Trib.	Pressure		Load *w	$\checkmark$	Location	Trib.	Pressure	Load	Load *0
ll Above	4.00	24.98	99.93	77.95		Wall Above		25.21	100.85	78.66
all Below	5.50	21.28	117.05	91.30		Wall Below	5.50	21.48	118.12	92.13
tal (plf)				169.25		Total (plf)			ľ	170.79
p Roof						Hip Roof				
cation	Trib.	Pressure	Load	Load * $\omega$		Location	Trib.	Pressure	Load	Load *0
all Above	2.00	19.19	38.37	29.93		Wall Above	2.00	19.33	38.67	30.16
ıll Below	4.00	24.98	99.93	77.95		Wall Below	4.50	25.21	113.45	88.49
tal (plf)				107.88		Total (plf)				118.65
ble Roof						Gable Roo	f			
cation	Trib.	Pressure	Load	Load *w		Location	Trib.	Pressure	Load	Load *o
all Above	2.00	24.98	49.97	38.97		Wall Above	2.00	25.21	50.42	39.33
all Below	4.00	24.98	99.93	77.95		Wall Below	4.50	25.21	113.45	88.49
tal (plf)				116.92		Total (plf)				127.82
					•					

When Alternative Basic Load Combination  $0.6\omega = 0.78$ Since all internal wind pressures for enclo equally and in opposite din

acting on c gneu separatery.

Andresen Architectural Engineering 17087 Orange Way, Fontana, CA

2 feet

Clear<sup>2</sup>

50 feet

50 feet

1 foot<sup>5</sup>

10 feet<sup>6</sup>

25 feet (7620 mm) where the drainage piping is constructed of materials approved for use within a building.

<sup>7</sup> These minimum clear horizontal distances shall also apply between disposal fields, seepage pits, and the mean high-tide line.

<sup>6</sup> For parallel construction – For crossings, approval by the Health Department shall be required.

s only. Net uplift pressures Tel.: (909) 355-6688 **TABLE H 101.8** LOCATION OF SEWAGE DISPOSAL SYSTEM

5 feet

100 feet

100 feet<sup>7</sup>

5 feet

4 feet<sup>4</sup>

5 feet

5 feet

10 feet

5 feet

50 feet

50 feet

10 feet

5 feet

5 feet

5 feet

10 feet

SEEPAGE PIT OR

CESSPOOL

8 feet

8 feet

150 feet

150 feet7

10 feet

12 feet

5 feet

5 feet

5 feet

10 feet

APPENDIX H

	RIVERSI CALIFORI CALIFO
D ft	RI P
	В
2 ft	

Numbe

CAPACITY OF SEPTIC TANKS <sup>1, 2, 3, 4</sup>								
WELLINGS - DROOMS	MULTIPLE DWELLING UNITS OR APARTMENTS - ONE BEDROOM EACH	OTHER USES: MAXIMUM FIXTURE UNITS SERVED PER TABLE 702.1	MINIMUM SEPTIC (galle					
	_	15	75					
		20	10					
	2 units	25	120					
	3	33	15					
	4	45	20					
	5	55	22.					
	6	60	25					
	7	70	27.					

For SI units: 1 gallon = 3.785 L

APPENDIX H

Building or structures'

Water supply wells

Disposal field<sup>8</sup>

Distribution box

<sup>2</sup> See Section 312.3.

<sup>5</sup> See Section 720.0.

NUMBER OF BI

Seepage pits or cesspools

Pressure public water main

For SI units: 1 foot = 304.8 mm

MINIMUM HORIZONTAL DISTANCE IN

CLEAR REQUIRED FROM

Property line adjoining private property

Streams and other bodies of water

On-site domestic water service line

ways, and similar structures or appurtenances

ground surface shall be 15 feet (4572 mm).

<sup>4</sup> Septic tank sizes in this table include sludge storage capacity and the connection of domestic food waste disposers without further volume increase.

<sup>1</sup> Including porches and steps, whether covered or uncovered, breezeways, roofed porte cocheres, roofed patios, carports, covered walks, covered drive-

<sup>3</sup> Drainage piping shall clear domestic water supply wells by not less than 50 feet (15 240 mm). This distance shall be permitted to be reduced to not less than

<sup>8</sup> Where disposal fields, seepage pits, or both are installed in sloping ground, the minimum horizontal distance between any part of the leaching system and

<sup>4</sup> Plus 2 feet (610 mm) for each additional 1 foot (305 mm) of depth in excess of 1 foot (305 mm) below the bottom of the drain line. (See Section H 601.0)

Seismic Load (lbs)

V1 9 Hgt. (ft)

 $0.20 = T_a = C_t * h_n^x$  (Eq. 12.8-7)

 $8.00 = T_L = Long Period Transition (Fig. 2)$ 

Lateral Load in N/S Direction

Lateral Load in E/W Direction

Lateral Analysis for:

27,750 #

29,760

27,750

27,750

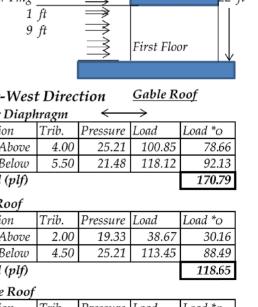
57,510

Seismic Base Shear 1.50 = S

 $0.59 = S_1$ 

6.50 = R





location	Trib.	Pressure	Load	Load *0			
Vall Above	4.00	25.21	100.85	78.66			
Vall Below	5.50	21.48	118.12	92.13			
Total (plf)				170.79			
Hip Roof							
location	Trib.	Pressure	Load	Load *0			
Vall Above	2.00	19.33	38.67	30.16			
All Below 4.50		25.21	113.45	88.49			
Total (plf) 118.65							
Gable Roof							
location	Trib.	Pressure	Load	Load *0			
Vall Above	2.00	25.21	50.42	39.33			
AT 11 D 1	4 50	05.04	110 15	00.40			

116.92 Total (plf)	
on, Sec. 1605.3.2 is used, the wind load is magnified b	hv
osed buildings act equally on all the internal surfaces cel each other out in the lateral directions only. Net up	(6

nema who pressures for enclosed buildings act equally on all the inter-
lirections) these pressures cancel each other out in the lateral directions
components to be analyzed and designed separately.

<sup>1</sup> Extra bedroom, 150 gallons (568 L) each. <sup>2</sup> Extra dwelling units over 10: 250 gallons (946 L) each. <sup>3</sup> Extra fixture units over 100: 25 gallons (94.6 L) per fixture unit. ASCE 7-16 (Eq. 12.8-2)  $Cs = S_{DS} * I_E / R$ ASCE 7-16 (Eq. 12.8-3) Cs  $_{MAX} = S_{DS} * I_E / R^*T$  7.04

Fa = 1.20

Fv = N/A

Length of Building (ft) (East / West Direction)

Height of Building From This Floor to Ridge (ft)

3,376 # (Use V 1)

N/A

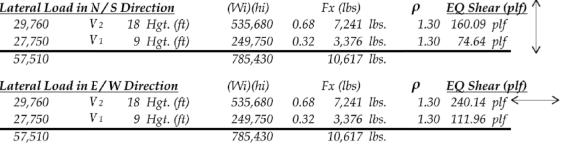
(Wi)(hi)

(Wi)(hi)

#### Project: 20-3991 Date: 27 Apr. 2022

2d Flr Base Shear (psf) 5.60 psf

### Length of All Walls (Interior & Exterior, One Direction - lf) 1st Flr Base Shear (psf) 2.77 psf



 $1.80 = S_{MS} = F_a * S_S = 1.20 = S_{DS} = 2/3 S_{MS}$  $\begin{array}{rcl} N/A &=& S_{M1} = F_v * S_1 & N/A &=& S_{D1} = 2/3 S_{M1} \\ D &=& Site Class & D &=& SDC \\ II &=& Risk Category & 1.00 &=& I_E \ Factor \end{array}$ 0.18 GOVERNS

ASCE 7-16 (Eq. 12.8-4)  $Cs = S_{DS} * T_L * I_E / R * T^2$  36.92 Only occurs when  $Ta > T_L$  (N/A on this project)

Tel.: (909) 355-6688

**HIGH FIRE AREA** This project subject to the provisions of: **IDE COUNTY ORDINANCE NO. 787** NIA BUILDING CODE - CHAPTER 7-4 **ORNIA RESIDENTIAL CODE - R337** 

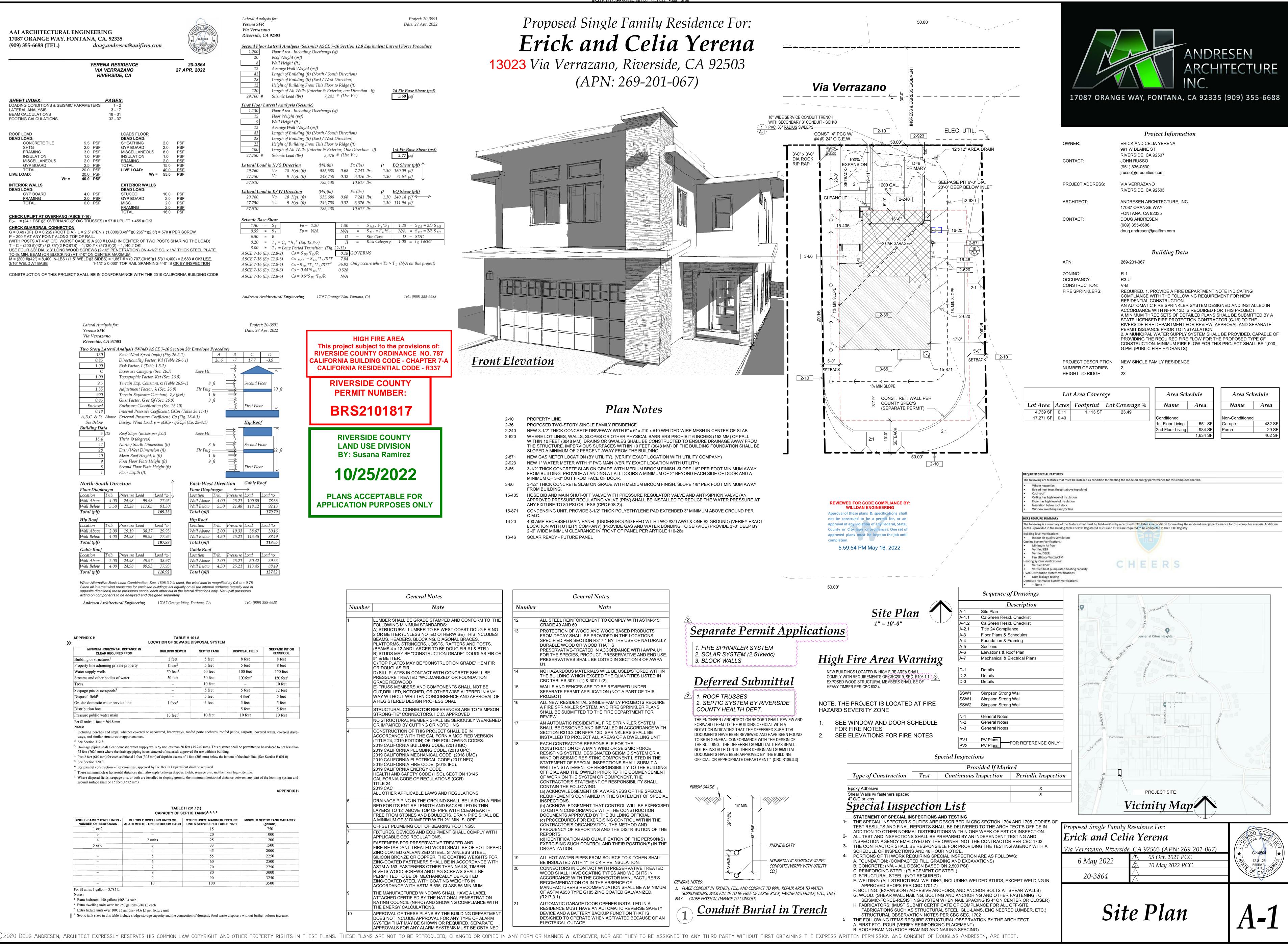
> IVERSIDE COUNTY PERMIT NUMBER:

# **RS2101817**

**RIVERSIDE COUNTY** LAND USE DIVISION **BY: Susana Ramirez** 

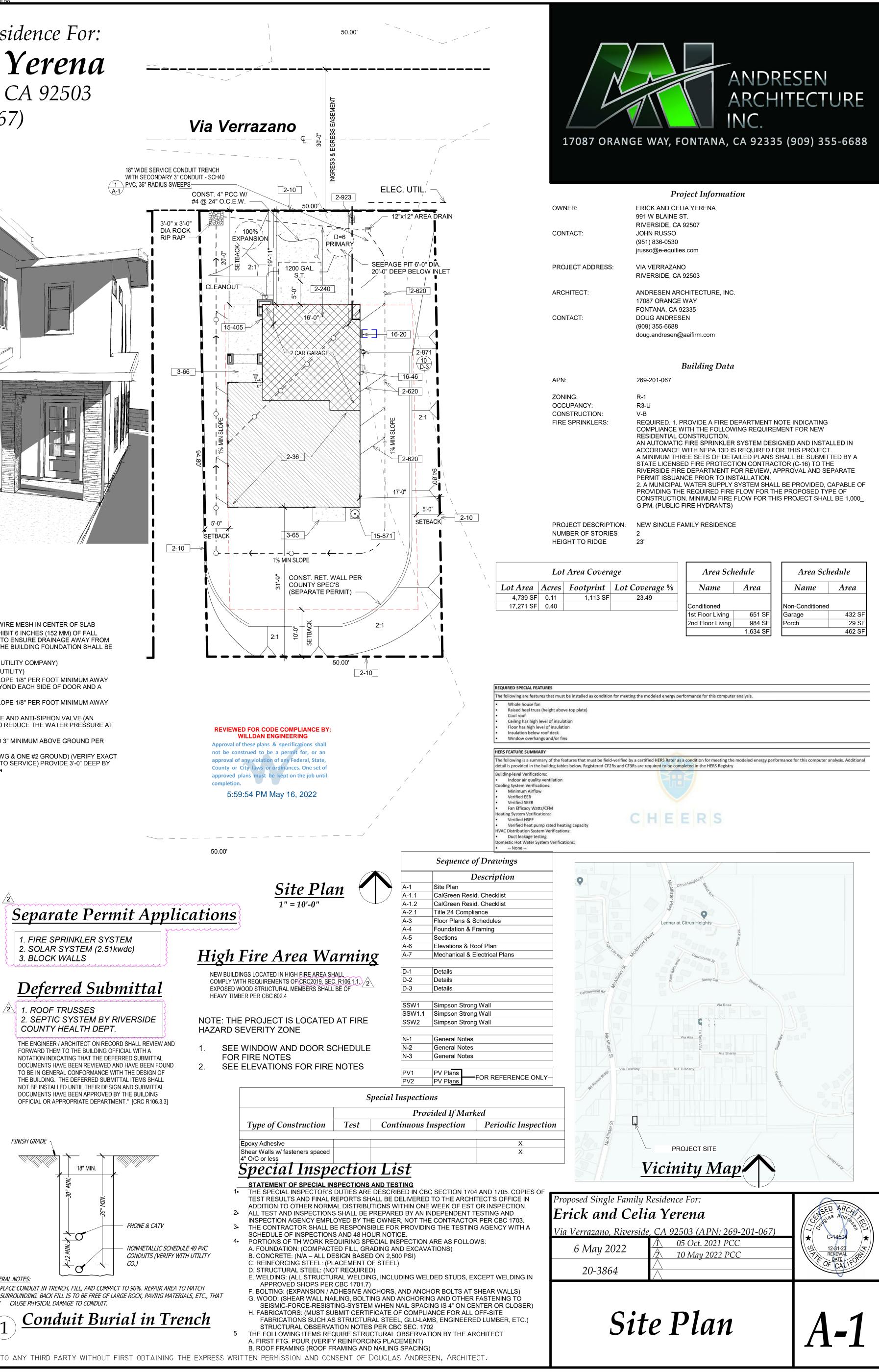
10/25/2022

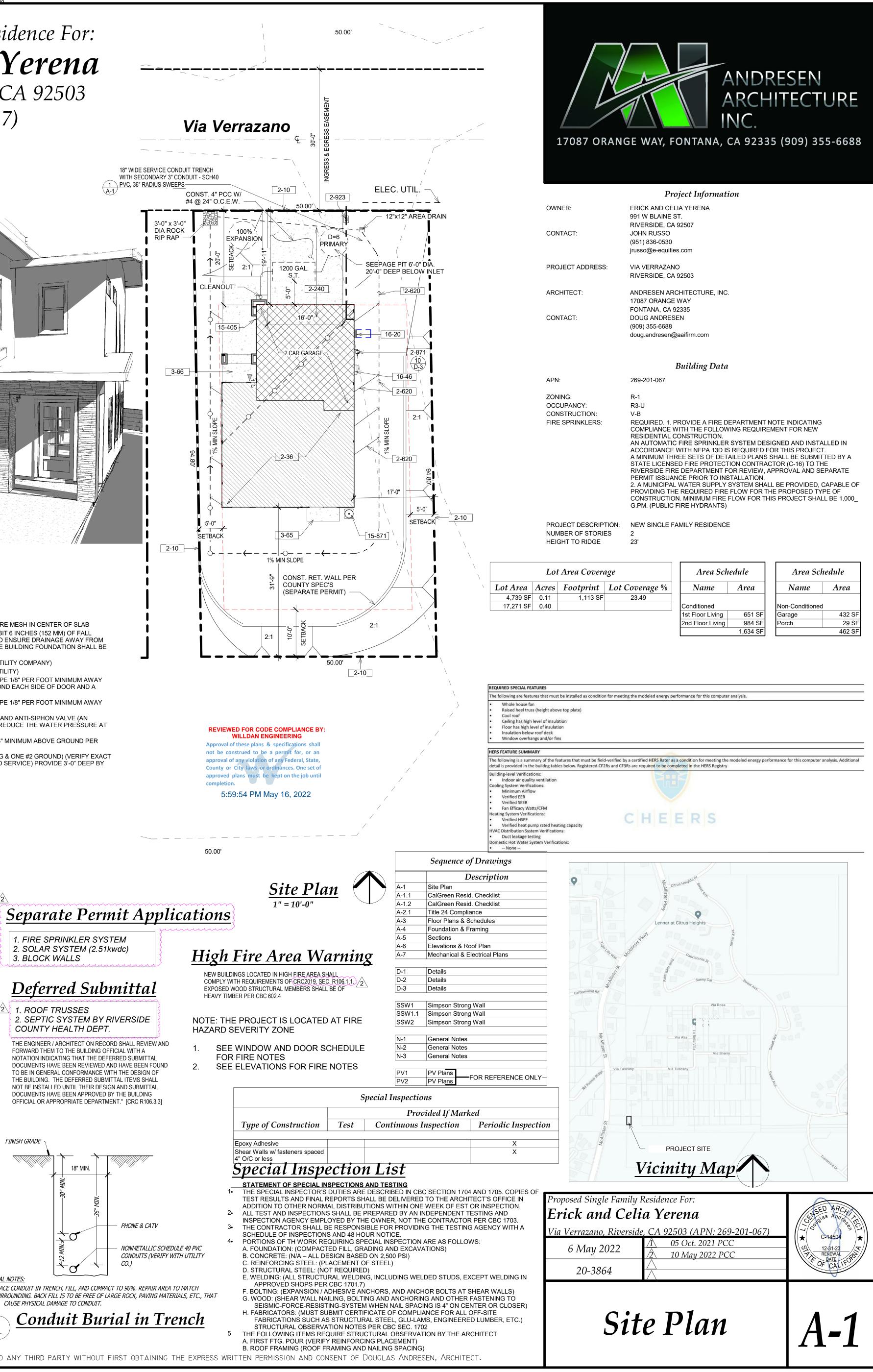
PLANS ACCEPTABLE FOR **APPLICATION PURPOSES ONLY** 



	General Notes
er	Note
	LUMBER SHALL BE GRADE STAMPED AND CONFORM TO THE FOLLOWING MINIMUM STANDARDS: A) STRUCTURAL LUMBER TO BE WEST COAST DOUG FIR NO. 2 OR BETTER (UNLESS NOTED OTHERWISE) THIS INCLUDES BEAMS, HEADERS, BLOCKING, DIAGONAL BRACES, PLATFORMS, STRINGERS, JOISTS, RAFTERS AND POSTS. (BEAMS 4 × 12 AND LARGER TO BE DOUG FIR #1 & BTR.) B) STUDS MAY BE "CONSTRUCTION GRADE" DOUGLAS FIR OR #1 & BETTER. C) TOP PLATES MAY BE "CONSTRUCTION GRADE" HEM FIR OR DOUGLAS FIR. D) SILL PLATES IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED "WOLMANIZED" OR FOUNDATION GRADE REDWOOD E) TRUSS MEMBERS AND COMPONENTS SHALL NOT BE CUT,DRILLED, NOTCHED, OR OTHERWISE ALTERED IN ANY WAY WITHOUT WRITTEN CONCURRENCE AND APPROVAL OF A REGISTERED DESIGN PROFESSIONAL
	STRUCTURAL CONNECTOR REFERENCES ARE TO "SIMPSON STRONG-TIE" CONNECTORS. I.C.C. APPROVED
	NO STRUCTURAL MEMBER SHALL BE SERIOUSLY WEAKENED OR IMPAIRED BY CUTTING OR NOTCHING
	CONSTRUCTION OF THIS PROJECT SHALL BE IN ACCORDANCE WITH THE CALIFORNIA MODIFIED VERSION (TITLE 24, 2019 EDITION) OF THE FOLLOWING CODES: 2019 CALIFORNIA BUILDING CODE, (2018 IBC) 2019 CALIFORNIA PLUMBING CODE, (2018 UPC) 2019 CALIFORNIA MECHANICAL CODE, (2018 UMC) 2019 CALIFORNIA ELECTRICAL CODE (2017 NEC) 2019 CALIFORNIA FIRE CODE, (2018 IFC). 2019 CALIFORNIA FIRE CODE, (2018 IFC). 2019 CALIFORNIA ENERGY CODE HEALTH AND SAFETY CODE (HSC), SECTION 13145 CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24 2019 CAC ALL OTHER APPLICABLE LAWS AND REGULATIONS
	DRAINAGE PIPING IN THE GROUND SHALL BE LAID ON A FIRM BED FOR ITS ENTIRE LENGTH AND BACKFILLED IN THIN LAYERS TO 12" ABOVE TOP OF PIPE WITH CLEAN EARTH, FREE FROM STONES AND BOULDERS. DRAIN PIPE SHALL BE A MINIMUM OF 3" DIAMETER WITH 2% MIN. SLOPE.
	OFFSET PLUMBING OUT OF BEARING FOOTINGS. FIXTURES, DEVICES AND EQUIPMENT SHALL COMPLY WITH APPLICABLE CEC REGULATIONS.
	FASTENERS FOR PRESERVATIVE TREATED AND FIRE-RETARDANT-TREATED WOOD SHALL BE OF HOT DIPPED ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER. THE COATING WEIGHTS FOR ZINC-COATED FASTENERS SHALL BE IN ACCORDANCE WITH ASTM A 153. FASTENERS OTHER THAN NAILS, TIMBER RIVETS WOOD SCREWS AND LAG SCREWS SHALL BE PERMITTED TO BE OF MECHANICALLY DEPOSITED ZINC-COATED STEEL WITH COATING WEIGHTS IN ACCORDANCE WITH ASTM B 695, CLASS 55 MINIMUM.
	THE MANUFACTURED WINDOWS SHALL HAVE A LABEL ATTACHED CERTIFIED BY THE NATIONAL FENESTRATION RATING COUNCIL (NFRC) AND SHOWING COMPLIANCE WITH THE ENERGY CALCULATIONS.
	APPROVAL OF THESE PLANS BY THE BUILDING DEPARTMENT DOES NOT INCLUDE APPROVAL FOR ANY TYPE OF ALARM SYSTEM THAT MAY BE SHOWN OR REQUIRED. SEPARATE

General Notes						
Number	Note					
12	ALL STEEL REINFORCEMENT TO COMPLY WITH ASTM-615, GRADE 40 AND 60					
13	PROTECTION OF WOOD AND WOOD BASED PRODUCTS FROM DECAY SHALL BE PROVIDED IN THE LOCATIONS SPECIFIED PER SECTION R317.1 BY THE USE OF NATURALLY DURABLE WOOD OR WOOD THAT IS PRESERVATIVE-TREATED IN ACCORDANCE WITH AWPA U1 FOR THE SPECIES, PRODUCT, PRESERVATIVE AND END USE PRESERVATIVES SHALL BE LISTED IN SECTION 4 OF AWPA U1.					
14	NO HAZARDOUS MATERIALS WILL BE USED/STORED WITHIN THE BUILDING WHICH EXCEED THE QUANTITIES LISTED IN CBC TABLES 307.1 (1) & 307.1 (2).					
15	WALLS AND FENCES ARE TO BE REVIEWED UNDER SEPARATE PERMIT APPLICATION (NOT A PART OF THIS PROJECT)					
16	ALL NEW RESIDENTIAL SINGLE-FAMILY PROJECTS REQUIRE A FIRE SPRINKLER SYSTEM, AND FIRE SPRINKLER PLANS SHALL BE SUBMITTED TO THE FIRE DEPARTMENT FOR REVIEW.					
17	AN AUTOMATIC RESIDENTIAL FIRE SPRINKLER SYSTEM SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITI SECTION R313.3 OR NFPA 13D. SPRINKLERS SHALL BE INSTALLED TO PROJECT ALL AREAS OF A DWELLING UNIT					
18	<ul> <li>EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND OR SEISMIC FORCE RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM OR A WIND OR SEISMIC RESISTING COMPONENT LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN THE FOLLOWING:</li> <li>(a) ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS.</li> <li>(b) ACKNOWLEDGEMENT THAT CONTROL WILL BE EXERCISE TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE BUILDING OFFICIAL.</li> <li>(c) PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING AND THE DISTRIBUTION OF TH REPORTS.</li> <li>(d) IDENTIFICATION AND QUALIFICATION OF THE PERSON(S) EXERCISING SUCH CONTROL AND THEIR POSITION(S) IN TH ORGANIZATION.</li> </ul>					
19	ALL HOT WATER PIPES FROM SOURCE TO KITCHEN SHALL BE INSULATED WITH 1" THICK PIPE INSULATION.					
20	CONNECTORS IN CONTACT WITH PRESERVATIVE TREATED WOOD SHALL HAVE COATING TYPES AND WEIGHTS IN ACCORDANCE WITH THE CONNECTOR MANUFACTURER'S RECOMMENDATION OR IN THE ABSENCE OF MANUFACTURERS RECOMMENDATION SHALL BE A MINIMUM OF ASTM A653 TYPE G185 ZINC COATED GALVANIZED. (R217.3.1)					
21	AUTOMATIC GARAGE DOOR OPENER INSTALLED IN A RESIDENCE MUST HAVE AN AUTOMATIC REVERSE SAFETY DEVICE AND A BATTERY BACKUP FUNCTION THAT IS DESIGNED TO OPERATE WHEN ACTIVATED BECAUSE OF AN ELECTRICAL OUTAGE.					





Y N/A RESPON. PARTY	CHAPTER 3 GREEN BUILDING	Y	N/A RESPON. PARTY	
	SECTION 301 GENERAL			4.106.4.2 New
	<b>301.1 SCOPE.</b> Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included in the design and construction of structures covered by this code,			of parking space charging space spaces shall be
	but are not required unless adopted by a city, county, or city and county as specified in Section 101.7. <b>301.1.1 Additions and alterations. [HCD]</b> The mandatory provisions of Chapter 4 shall be applied to			Notes: 1. Constru
	additions or alterations of existing residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. The requirements shall apply only to and/or within the specific area of the addition or alteration.			facilitat 2. There for use
	<b>Note:</b> On and after January 1, 2014, residential buildings undergoing permitted alterations, additions, or improvements shall replace noncompliant plumbing fixtures with water-conserving plumbing fixtures.			3. A parki space s any ap
	Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and			Code S 4.106.4.2.1 El
				indicate the loc shall be locate
	<b>301.2 LOW-RISE AND HIGH-RISE RESIDENTIAL BUILDINGS. [HCD]</b> The provisions of individual sections of CALGreen may apply to either low-rise residential buildings high-rise residential buildings, or both. Individual sections will be designated by banners to indicate where the section applies		×	<b>4.106.4.2</b> . required by
	specifically to low-rise only (LR) or high-rise only (HR). When the section applies to both low-rise and high-rise buildings, no banner will be used.			1. The EV require from th
	SECTION 302 MIXED OCCUPANCY BUILDINGS			2. The EV Code, (
	<b>302.1 MIXED OCCUPANCY BUILDINGS.</b> In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy. Exceptions:			Exc Cali Sec
	<ol> <li>[HCD] Accessory structures and accessory occupancies serving residential buildings shall comply with Chapter 4 and Appendix A4, as applicable.</li> <li>[HCD] For purposes of CALGreen, live/work units, complying with Section 419 of the California Building Code applies the considered mixed powersizes him (Mark units applies).</li> </ol>			Note: Elec Building C
	Building Code, shall not be considered mixed occupancies. Live/Work units shall comply with Chapter 4 and Appendix A4, as applicable.			<b>4.106.4.2</b> . designed t
	DIVISION 4.1 PLANNING AND DESIGN			1 2
	ABBREVIATION DEFINITIONS:			3.
	HCDDepartment of Housing and Community DevelopmentBSCCalifornia Building Standards CommissionDSA-SSDivision of the State Architect, Structural Safety			
	OSHPD Office of Statewide Health Planning and Development LR Low Rise HR High Rise			4.106.4.2.3
	AA Additions and Alterations N New			volt dedica diameter). cabinet, bo
	CHAPTER 4			documents capacity to installation
	<b>RESIDENTIAL MANDATORY MEASURES</b>			Exe
				orig <b>4.106.4.2</b> .
	SECTION 4.102 DEFINITIONS 4.102.1 DEFINITIONS The following terms are defined in Chapter 2 (and are included here for reference)			termination shall also electrical le
	<b>FRENCH DRAIN.</b> A trench, hole or other depressed area loosely filled with rock, gravel, fragments of brick or similar pervious material used to collect or channel drainage or runoff water.			including a at all requi 40-ampere
	<b>WATTLES.</b> Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials such as hay, straw or similar material shaped in the form of tubes and placed on a downflow slope. Wattles are also used for perimeter and inlet controls.			installed u time of orig
	<ul> <li>used for perimeter and inlet controls.</li> <li>4.106 SITE DEVELOPMENT</li> <li>4.106.1 GENERAL. Preservation and use of available natural resources shall be accomplished through evaluation</li> </ul>			Exe circu orig
	and careful planning to minimize negative effects on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section.		×	4.106.4.2.
<b>≰</b> □ Civil	<b>4.106.2 STORM WATER DRAINAGE AND RETENTION DURING CONSTRUCTION.</b> Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction. In order to manage storm water drainage			protective with the Co
🗙 🗆 Civil	during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site.		×	<b>4.106.4.3</b> capable of of the EV s
	<ol> <li>Retention basins of sufficient size shall be utilized to retain storm water on the site.</li> <li>Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle or other method approved</li> </ol>			Notes:
	by the enforcing agency. 3. Compliance with a lawfully enacted storm water management ordinance.			1. C 2. T
	<b>Note:</b> Refer to the State Water Resources Control Board for projects which disturb one acre or more of soil, or are part of a larger common plan of development which in total disturbs one acre or more of soil.			2. 1 3. 1 0
🕻 🗆 Civil	(Website: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html) 4.106.3 GRADING AND PAVING. Construction plans shall indicate how the site grading or drainage system will			
	manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following:			<b>4.10</b> on t Tab
	<ol> <li>Swales</li> <li>Water collection and disposal systems</li> <li>French drains</li> <li>Water retention good and</li> </ol>			nea
	<ol> <li>Water retention gardens</li> <li>Other water measures which keep surface water away from buildings and aid in groundwater recharge.</li> </ol>			_
	<b>Exception</b> : Additions and alterations not altering the drainage path.			-
✓         □         Architect	<b>4.106.4 Electric vehicle (EV) charging for new construction.</b> New construction shall comply with Sections 4.106.4.1, 4.106.4.2, or 4.106.4.3 to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the <i>California Electrical Code</i> , Article 625.			_
	Exceptions: 1. On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions:			-
	<ul> <li>1.1 Where there is no commercial power supply.</li> <li>1.2 Where there is evidence substantiating that meeting the requirements will alter the local utility infrastructure design requirements on the utility side of the meter so as to increase</li> </ul>			
	the utility infrastructure design requirements on the utility side of the meter so as to increase the utility side cost to the homeowner or the developer by more than \$400.00 per dwelling unit. 2. Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional			-
	parking facilities.			-
Architect	<b>4.106.4.1 New one- and two-family dwellings and townhouses with attached private garages.</b> For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main			4.106.4.3.2 Electron comply with the
	service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide capacity to install a 40-ampere			1. Th 2. Th
	208/240-volt minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.			4.106.4.3.3 Sin accordance
	Exemption: A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the proposed location of an EV charger at the time of original construction in accordance with the <i>California Electrical Code</i> .			<b>4.106.4.3.4 M</b> u designed in ac
	<b>4.106.4.1.1 Identification.</b> The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as "EV CAPABLE". The raceway termination			<b>4.106.4.3.5 Id</b> 4.106.4.2.5.
	location shall be permanently and visibly marked as "EV CAPABLE".			<b>4.106.4.3.6 Ac</b> hotels/motels a stations in the

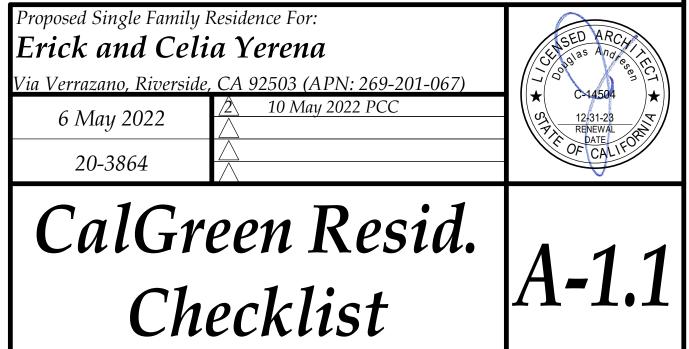
# **GREEN BUILDING STANDARDS CODE** RY MEASURES, SHEET 1 (July 2021, Includes July 2021 Supplement)

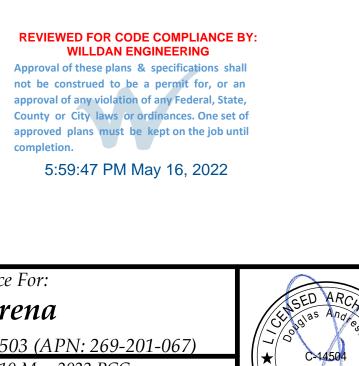
			Y N/	A RESPON. PARTY	-			
on a building site, provided for all t	parking is available, ten (10) percer types of parking facilities, shall be e future EVSE. Calculations for the re mber.	lectric vehicle			4.201 GENERAL	ENERGY EFFICIEN		California En
n documents are intended to dem	nonstrate the project's capability and	I capacity for			Commission will co	ontinue to adopt mandatory standards.	•	
uture EV charging.	constructed or available until EV cl					WATER EFFICIENC R WATER USE	AND CONSERVA	ATION
count as at least one standard au	apply equipment or designated as a utomobile parking space for the purp rements established by a local juriso	pose of complying with		Architect	4.303.1 WATER CONS urinals) and fitting and 4.303.4.4.	ERVING PLUMBING FIXTURES AND gs (faucets and showerheads) shall cor apliant plumbing fixtures in any resident	mply with the sections 4.303.1.1, 4	4.303.1.2, 4.3
n of proposed EV spaces. Where	pace) locations. Construction docu common use parking is provided at d shall be available for use by all res	least one EV space			plumbing f completior Code Sect	ixtures. Plumbing fixture replacement is n, certificate of occupancy, or final perm ion 1101.1, et seq., for the definition of ffected and other important enactment	s required prior to issuance of a ce it approval by the local building de a noncompliant plumbing fixture,	ertificate of fin epartment. S
ction 4.106.2.2, Item 3, shall comp ce shall be located adjacent to an	<b>ns (EVCS)</b> When EV chargers are ply with at least one of the following accessible parking space meeting	options:		Architect	flush. Tank-type Specification for	<b>Closets.</b> The effective flush volume of water closets shall be certified to the p Tank-type Toilets.	erformance criteria of the U.S. EP	PA WaterSen
cessible parking space.	Chapter 11A, to allow use of the E bible route, as defined in the <i>Californ</i> .	0			of two redu	e effective flush volume of dual flush toil uced flushes and one full flush.		-
ter 2, to the building.	ons designed and constructed in co	-		4		s. The effective flush volume of wall m h volume of all other urinals shall not e		.125 gallons
<i>a Building Code</i> , Chapter 11B, are 4.106.4.2.2, Item 3.	e not required to comply with Sectio	on 4.106.4.2.1.1 and		Architect	-	erheads. 1 Single Showerhead. Showerheads	shall have a maximum flow rate of	of not more ti
/ehicle charging stations serving Chapter 11B.	public housing are required to comp	oly with the California			gallons pe	r minute at 80 psi. Showerheads shall se Specification for Showerheads.		
ectric vehicle charging space (E mply with the following: minimum length of each EV space	<b>EV space) dimensions.</b> The EV spa	ace shall be			showerhea a single va	2 Multiple showerheads serving one ad, the combined flow rate of all the sho live shall not exceed 1.8 gallons per mi shower outlet to be in operation at a tim	owerheads and/or other shower ou nute at 80 psi, or the shower shall	utlets control
minimum width of each EV space in every 25 EV spaces, but not le						e: A hand-held shower shall be consid	ered a showerhead.	
num width of the EV space is 12 t	feet (3658 mm). and the aisle shall not exceed 1 un			Architect	<b>4.303.1.4</b> . not exceed	e <b>ts.</b> <b>1 Residential Lavatory Faucets.</b> The 1.2 gallons per minute at 60 psi. The 5 than 0.8 gallons per minute at 20 psi.		
branch circuit. The raceway shall	l listed raceway capable of accomm not be less than trade size 1 (nomir ain service or subpanel and shall ter	nal 1-inch inside			<b>4.303.1.4</b> .3 faucets ins	<ul> <li>2 Lavatory Faucets in Common and stalled in common and public use areas hall not exceed 0.5 gallons per minute</li> </ul>	(outside of dwellings or sleeping	
enclosure in close proximity to th Il identify the raceway termination	e proposed location of the EV spac n point. The service panel and/or su ted branch circuit and space(s) rese	e. Construction bpanel shall provide				<b>3 Metering Faucets.</b> Metering faucets 0.2 gallons per cycle.	s when installed in residential build	lings shall no
on: A raceway is not required if a installed in close proximity to the	tive device. a minimum 40-ampere 208/240-volt proposed location of an EV charger	dedicated EV branch			4.303.1.4. per minute to exceed	<b>4 Kitchen Faucets.</b> The maximum flo at 60 psi. Kitchen faucets may tempo 2.2 gallons per minute at 60 psi, and m	rarily increase the flow above the i	maximum ra
construction in accordance with th	ne <i>California Electrical Code</i> . Istruction documents shall indicate t	he raceway				ere complying faucets are unavailable,	aerators or other means may be u	used to achie
nt and proposed location of future de information on amperage of fu	e EV spaces and EV chargers. Cons iture EVSE, raceway method(s), wir trical panel service capacity and ele	struction documents ing schematics and			reduction.	5 Pre-rinse spray valves.		
n-site distribution transformer(s), EV spaces at the full rated ampera imum branch circuit. Required rat	have sufficient capacity to simultand age of the EVSE. Plan design shall ceways and related components that in concealed areas and spaces sha	eously charge all EVs be based upon a at are planned to be			When insta Efficiency (d)(7) and	alled, shall meet the requirements in the Regulations), Sections 1605.1 (h)(4) Ta shall be equipped with an integral auto	able H-2, Section 1605.3 (h)(4)(A), matic shutoff.	, and Section
	a minimum 40-ampere 208/240-volt proposed location of an EV charger pe <i>California Electrical Code</i>				Code of Re 1605.3 (h)			
		tify the everent						
	subpanel circuit directory shall iden / charging purposes as "EV CAPAE				VALU	NDARDS FOR COMMERCIA JES MANUFACTURED ON UCT CLASS	OR AFTER JANUARY 28	·
<b>hotels and motels.</b> All newly co porting future installation of EVSE es.	onstructed hotels and motels shall p E. The construction documents shall	rovide EV spaces identify the location			[spray	force in ounce force (ozf)]	MAXIMUM FLOW RATE (	gpm)
<del>5</del> 5.						ct Class 1 ( $\leq$ 5.0 ozf) ct Class 2 (> 5.0 ozf and $\leq$ 8.0 ozf)	1.00	
ilitating future EV charging.	to demonstrate the project's capabil to be constructed or available until					ct Class 2 (> 5.0 ozf)	1.20           1.28	
rking space served by electrical v ing space shall count as at least (	rehicle supple equipment or designer one standard automobile parking sp num parking space requirements es n 22511.2 for further details.	pace for the purpose			1, 2006, sł	ection 1605.3 (h)(4)(A): Commercial pre nall have a minimum spray force of not ers for multifamily buildings and dwo	less than 4.0 ounces-force (ozf)[1	13 grams-foi
tal number of parking spaces pro	<b>ces.</b> The number of required EV sp wided for all types of parking facilitie quired number of EV spaces shall b	es in accordance with			buildings.	be installed to measure water usage of	-	
BLE 4.106.4.3.1					accordance with	ds for plumbing fixtures and fittings. the California Plumbing Code, and sha lifornia Plumbing Code.		
AL NUMBER OF PARKING CES	NUMBER OF REQUIRED EV SPACES					nomia Plumbing Code.		
	0					NOTE: THIS TABLE COMPILES THE DATA I		
5	1					S INCLUDED AS A CONVENIENCE F	FOR THE USER.	_
0	2				-	TABLE - MAXIMUM FIXTUR		-
5	4					FIXTURE TYPE SHOWER HEADS		-
00	5				-	(RESIDENTIAL) LAVATORY FAUCETS	1.8 GMP @ 80 PSI MAX. 1.2 GPM @ 60 PSI	-
200	10					(RESIDENTIAL)	MIN. 0.8 GPM @ 20 PSI	_
and over	6 percent of total					LAVATORY FAUCETS IN COMMON & PUBLIC USE AREAS	0.5 GPM @ 60 PSI	-
c vehicle charging space (EV sp owing:	pace) dimensions. The EV spaces	shall be designed to				KITCHEN FAUCETS	1.8 GPM @ 60 PSI 0.2 GAL/CYCLE	-
nimum length of each EV space s nimum width of each EV space sh						WATER CLOSET	1.28 GAL/FLUSH	
EV space required. When a sin	igle EV space is required, the EV sp	ace shall be designed				URINALS	0.125 GAL/FLUSH	]
Section 4.106.4.2.3. e EV spaces required. When m ance with Section 4.106.4.2.4.	nultiple EV spaces are required, the	EV spaces shall be	▼ □	Architect	<b>4.304.1 OUTDOOR PO</b> a local water efficient la	TABLE WATER USE IN LANDSCAPE ndscape ordinance or the current California	ornia Department of Water Resour	
cation. The service panels or su	b-panels shall be identified in accor	dance with Section			NOTES:	linance (MWELO), whichever is more s	ณแมษแเ	
	he requirements in Section 4.106.4. mply with the accessibility provisions 3.				1. The Model Wa Title 23, Chap	ater Efficient Landscape Ordinance (M ter 2.7, Division 2. MWELO and suppo ttps://www.water.ca.gov/		
ODE. DUE TO THE VARIABLES BET	WEEN BUILDING DEPARTMENT JURIS	DICTIONS, THIS CHECKLI	     ST IS 1	 TO BE USE	 D ON AN INDIVIDUAL PROJE	CT BASIS AND MAY BE MODIFIED BY THE	END USER TO MEET THOSE INDIVID	UAL NEEDS.

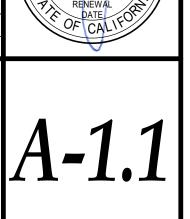
= YES = NOT APPLICABLE Y



Y N/A RESPON. PARTY	
	DIVISION 4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY
Architect	<ul> <li>4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE</li> <li>4.406.1 RODENT PROOFING. Annular spaces around pipes, electric cables, conduits or other openings in sole/bottom plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or a similar method acceptable to the enforcing agency.</li> </ul>
X  Architect	<ul> <li>4.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING</li> <li>4.408.1 CONSTRUCTION WASTE MANAGEMENT. Recycle and/or salvage for reuse a minimum of 65 percent of the non-hazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4, or meet a more stringent local construction and demolition waste management ordinance.</li> </ul>
	Exceptions:
	<ol> <li>Excavated soil and land-clearing debris.</li> <li>Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite.</li> <li>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.</li> </ol>
X 🗆 Architect	<ul> <li>4.408.2 CONSTRUCTION WASTE MANAGEMENT PLAN. Submit a construction waste management plan in conformance with Items 1 through 5. The construction waste management plan shall be updated as necessary and shall be available during construction for examination by the enforcing agency.</li> </ul>
	<ol> <li>Identify the construction and demolition waste materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale.</li> <li>Specify if construction and demolition waste materials will be sorted on-site (source separated) or bulk mixed (single stream).</li> </ol>
	<ol> <li>Identify diversion facilities where the construction and demolition waste material collected will be taken.</li> <li>Identify construction methods employed to reduce the amount of construction and demolition waste generated.</li> <li>Specify that the amount of construction and demolition waste materials diverted shall be calculated</li> </ol>
X 🗆 Architect	<ul> <li>by weight or volume, but not by both.</li> <li>4.408.3 WASTE MANAGEMENT COMPANY. Utilize a waste management company, approved by the enforcing agency, which can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with Section 4.408.1.</li> </ul>
	<b>Note:</b> The owner or contractor may make the determination if the construction and demolition waste materials will be diverted by a waste management company.
Architect	<b>4.408.4 WASTE STREAM REDUCTION ALTERNATIVE [LR].</b> Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 3.4 lbs./sq.ft. of the building area shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1
	<b>4.408.4.1 WASTE STREAM REDUCTION ALTERNATIVE.</b> Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 2 pounds per square foot of the building area, shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1
X 🗆 Architect	<ul> <li>4.408.5 DOCUMENTATION. Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 4.408.2, items 1 through 5, Section 4.408.3 or Section 4.408.4</li> <li>Notes:</li> </ul>
	<ol> <li>Sample forms found in "A Guide to the California Green Building Standards Code (Residential)" located at www.hcd.ca.gov/CALGreen.html may be used to assist in documenting compliance with this section.</li> <li>Mixed construction and demolition debris (C &amp; D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).</li> </ol>
X □ Contractor	<ul> <li>4.410 BUILDING MAINTENANCE AND OPERATION</li> <li>4.410.1 OPERATION AND MAINTENANCE MANUAL. At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the enforcing agency which includes all of the following shall be placed in the building:</li> </ul>
	<ol> <li>Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure.</li> <li>Operation and maintenance instructions for the following:         <ul> <li>Equipment and appliances, including water-saving devices and systems, HVAC systems, photovoltaic systems, electric vehicle chargers, water-heating systems and other major appliances and equipment.</li> <li>Roof and yard drainage, including gutters and downspouts.</li> <li>Space conditioning systems, including condensers and air filters.</li> <li>Landscape irrigation systems.</li> <li>Water reuse systems.</li> </ul> </li> <li>Information from local utility, water and waste recovery providers on methods to further reduce</li> </ol>
	<ul> <li>resource consumption, including recycle programs and locations.</li> <li>Public transportation and/or carpool options available in the area.</li> <li>Educational material on the positive impacts of an interior relative humidity between 30-60 percent and what methods an occupant may use to maintain the relative humidity level in that range.</li> <li>Information about water-conserving landscape and irrigation design and controllers which conserve water.</li> <li>Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation.</li> <li>Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around the building, etc.</li> <li>Information about state solar energy and incentive programs available.</li> <li>A copy of all special inspections verifications required by the enforcing agency or this code.</li> </ul>
	<ul> <li>11. Information from CAL Fire on maintenance of defensible space around residential structures.</li> <li>4.410.2 RECYCLING BY OCCUPANTS. Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible area(s) that serves all buildings on the site and are identified for the</li> </ul>
	depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waster, and metals, or meet a lawfully enacted local recycling ordinance, if more restrictive. <b>Exception:</b> Rural jurisdictions that meet and apply for the exemption in Public Resources Code Section
	42649.82 (a)(2)(A) et seq. are note required to comply with the organic waste portion of this section.
	DIVISION 4.5 ENVIRONMENTAL QUALITY SECTION 4.501 GENERAL 4.501.1 Scope
	The provisions of this chapter shall outline means of reducing the quality of air contaminants that are odorous, irritating and/or harmful to the comfort and well being of a building's installers, occupants and neighbors. <b>SECTION 4.502 DEFINITIONS</b> 5.102.1 DEFINITIONS
	The following terms are defined in Chapter 2 (and are included here for reference) <b>AGRIFIBER PRODUCTS.</b> Agrifiber products include wheatboard, strawboard, panel substrates and door cores, not including furniture, fixtures and equipment (EE&E) not considered base building elements
	cores, not including furniture, fixtures and equipment (FF&E) not considered base building elements. <b>COMPOSITE WOOD PRODUCTS.</b> Composite wood products include hardwood plywood, particleboard and medium density fiberboard. "Composite wood products" does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood I-joists or finger-jointed lumber, all as specified in California Code of regulations (CCR), title 17, Section 02120 1
	93120.1. <b>DIRECT-VENT APPLIANCE.</b> A fuel-burning appliance with a sealed combustion system that draws all air for combustion from the outside atmosphere and discharges all flue gases to the outside atmosphere.





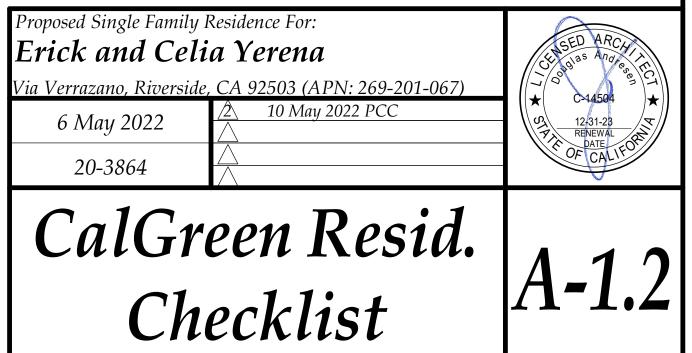


N/A RESPON. PARTY	RESIDENTIAL	Y N/A RESPON. PARTY			Y N/A RESPON. PARTY	
				]		
	<b>MAXIMUM INCREMENTAL REACTIVITY (MIR).</b> The maximum change in weight of ozone formed by adding a compound to the "Base Reactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to		TABLE 4.504.2 - SEALANT VOC LIMIT         (Less Water and Less Exempt Compounds in Grams)			TABLE 4.504.5 - FORMALDEHYDE LIMITS1         MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION
	hundredths of a gram (g O <sup>3</sup> /g ROC). Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.		SEALANTS	VOC LIMIT		PRODUCT CURRENT LIMIT
	<b>MOISTURE CONTENT.</b> The weight of the water in wood expressed in percentage of the weight of the oven-dry wood.		ARCHITECTURAL MARINE DECK	250 760		HARDWOOD PLYWOOD VENEER CORE     0.05       HARDWOOD PLYWOOD COMPOSITE CORE     0.05
	<b>PRODUCT-WEIGHTED MIR (PWMIR).</b> The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of			300		PARTICLE BOARD 0.09
	product (excluding container and packaging). Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521 (a).		ROADWAY SINGLE-PLY ROOF MEMBRANE	250 450		MEDIUM DENSITY FIBERBOARD         0.11           THIN MEDIUM DENSITY FIBERBOARD2         0.13
	<b>REACTIVE ORGANIC COMPOUND (ROC).</b> Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.		OTHER	420		1. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIF. AIR RESOURCES BOARD, AIR TOXICS CONTROL
	<b>VOC.</b> A volatile organic compound (VOC) broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain		SEALANT PRIMERS         ARCHITECTURAL			MEASURE FOR COMPOSITE WOOD AS TESTED IN ACCORDANCE WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIF. CODE OF REGULATIONS, TITLE 17. SECTIONS 93120 THROUGH
	hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a). <b>4.503 FIREPLACES</b>		NON-POROUS POROUS	250 775		93120.12. 2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM
	<b>4.503.1 GENERAL</b> . 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		MODIFIED BITUMINOUS	500		THICKNESS OF 5/16" (8 MM).
	applicable, and shall have a permanent label indicating they are certified to meet the emission limits. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.		MARINE DECK	760 750	🗙 🗆 Contracto	DIVISION 4.5 ENVIRONMENTAL QUALITY (continued)
Contractor	<b>4.504 POLLUTANT CONTROL</b> <b>4.504.1 COVERING OF DUCT OPENINGS &amp; PROTECTION OF MECHANICAL EQUIPMENT DURING</b> <b>CONSTRUCTION.</b> At the time of rough installation, during storage on the construction site and until final		OTTER			4.504.3 CARPET SYSTEMS. All carpet installed in the building interior shall meet the requirements of Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Che from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing me
	startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to					California Specification 01350)
Contractor	reduce the amount of water, dust or debris which may enter the system. <b>4.504.2 FINISH MATERIAL POLLUTANT CONTROL.</b> Finish materials shall comply with this section.					See California Department of Public Health's website for certification programs and testing labs. https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.
Contractor	4.504.2.1 Adhesives, Sealants and Caulks. Adhesives, sealant and caulks used on the project shall meet the		TABLE 4.504.3 - VOC CONTENT LIN         ARCHITECTURAL COATINGS2.3	AITS FOR	🗙 🗆 Contracto	4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the required California Department of Public Health, "Standard Method for the Testing and Evaluation of Vola
	requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply:		GRAMS OF VOC PER LITER OF COATING, LES COMPOUNDS	S WATER & LESS EXEMPT		Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, Januar (Emission testing method for California Specification 01350)
	<ol> <li>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.</li> </ol>		COATING CATEGORY	VOC LIMIT		See California Department of Public Health's website for certification programs and testing labs.
	Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and		FLAT COATINGS NON-FLAT COATINGS	50	🗙 🗆 Contracto	<ul> <li>https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.</li> <li>4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 4.504.1.</li> </ul>
	tricloroethylene), except for aerosol products, as specified in Subsection 2 below. 2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in		NONFLAT-HIGH GLOSS COATINGS	150	🔀 🗆 Contracto	⊣ or <b>4.504.4 RESILIENT FLOORING SYSTEMS.</b> Where resilient flooring is installed , at least 80% of floor
	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 <i>California Code of Regulations</i> , Title 17,		SPECIALTY COATINGS ALUMINUM ROOF COATINGS	400		resilient flooring shall meet the requirements of the California Department of Public Health, "Standard M Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmen Version 1.2, January 2017 (Emission testing method for California Specification 01350)
	commencing with section 94507.		BASEMENT SPECIALTY COATINGS	400		See California Department of Public Health's website for certification programs and testing labs.
Contractor	<b>4.504.2.2 Paints and Coatings.</b> Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories		BITUMINOUS ROOF COATINGS BITUMINOUS ROOF PRIMERS	50 350		hhtps://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.
	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		BOND BREAKERS	350	🗙 🗆 Contracto	composite wood products used on the interior or exterior of the buildings shall meet the requirements for
	Table 4.504.3 shall apply.		CONCRETE CURING COMPOUNDS CONCRETE/MASONRY SEALERS	350 100		formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 e by or before the dates specified in those sections, as shown in Table 4.504.5
Contractor	<b>4.504.2.3 Aerosol Paints and Coatings.</b> 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 <i>California Code of</i>		DRIVEWAY SEALERS	50	🛛 🗆 Contracto	4.504.5.1 Documentation. Verification of compliance with this section shall be provided as required by the enforcing agency. Documentation shall include at least one of the following:
	<i>Regulations</i> , Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.		DRY FOG COATINGS FAUX FINISHING COATINGS	150 350		<ol> <li>Product certifications and specifications.</li> <li>Chain of custody certifications.</li> </ol>
Contractor	<b>4.504.2.4 Verification.</b> Verification of compliance with this section shall be provided at the request of the		FIRE RESISTIVE COATINGS	350 100		<ol> <li>Product labeled and invoiced as meeting the Composite Wood Products regulation (se CCR, Title 17, Section 93120, et seq.).</li> <li>Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineer</li> </ol>
	enforcing agency. Documentation may include, but is not limited to, the following: 1. Manufacturer's product specification.		FORM-RELEASE COMPOUNDS	250		Wood Association, the Australian AS/NZS 2269, European 636 3S standards, and Cal 0121, CSA 0151, CSA 0153 and CSA 0325 standards.
	2. Field verification of on-site product containers.		GRAPHIC ARTS COATINGS (SIGN PAINTS) HIGH TEMPERATURE COATINGS	500 420		5. Other methods acceptable to the enforcing agency.
	TABLE 4.504.1 - ADHESIVE VOC LIMIT <sub>1,2</sub>		INDUSTRIAL MAINTENANCE COATINGS	250		<b>4.505 INTERIOR MOISTURE CONTROL</b> <b>4.505.1 General.</b> Buildings shall meet or exceed the provisions of the <i>California Building Standards Co</i>
	(Less Water and Less Exempt Compounds in Grams per Liter)		LOW SOLIDS COATINGS1 MAGNESITE CEMENT COATINGS	120 450	🕅 🗆 Architect	t <b>4.505.2 CONCRETE SLAB FOUNDATIONS.</b> Concrete slab foundations required to have a vapor retain California Building Code, Chapter 19, or concrete slab-on-ground floors required to have a vapor retain
	ARCHITECTURAL APPLICATIONSVOC LIMITINDOOR CARPET ADHESIVES50		MASTIC TEXTURE COATINGS	100	X 🗆 Architect	California Residential Code, Chapter 5, shall also comply with this section.
	CARPET PAD ADHESIVES 50		METALLIC PIGMENTED COATINGS MULTICOLOR COATINGS	500 250		following:
	OUTDOOR CARPET ADHESIVES150WOOD FLOORING ADHESIVES100		PRETREATMENT WASH PRIMERS PRIMERS, SEALERS, & UNDERCOATERS	420		<ol> <li>A 4-inch (101.6 mm) thick base of 1/2 inch (12.7mm) or larger clean aggregate shall b a vapor barrier in direct contact with concrete and a concrete mix design, which will ac shrinkage, and curling, shall be used. For additional information, see American Concil</li> </ol>
	RUBBER FLOOR ADHESIVES60SUBFLOOR ADHESIVES50		REACTIVE PENETRATING SEALERS	350		<ul> <li>ACI 302.2R-06.</li> <li>2. Other equivalent methods approved by the enforcing agency.</li> <li>3. A slab design specified by a licensed design professional.</li> </ul>
	SUBFLOOR ADHESIVES50CERAMIC TILE ADHESIVES65		RECYCLED COATINGS	250 50	🗙 🗆 Contracto	4.505.3 MOISTURE CONTENT OF BUILDING MATERIALS. Building materials with visible signs of w
	VCT & ASPHALT TILE ADHESIVES50DRYWALL & PANEL ADHESIVES50		RUST PREVENTATIVE COATINGS	250		shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed moisture content. Moisture content shall be verified in compliance with the following:
	COVE BASE ADHESIVES5050		SHELLACS	730		<ol> <li>Moisture content shall be determined with either a probe-type or contact-type moisture meter moisture verification methods may be approved by the enforcing agency and shall satisfy re found in Section 101.8 of this code.</li> </ol>
	MULTIPURPOSE CONSTRUCTION ADHESIVE70STRUCTURAL GLAZING ADHESIVES100		OPAQUE	550		2. Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the gra of each piece verified.
	SINGLE-PLY ROOF MEMBRANE ADHESIVES 250		SPECIALTY PRIMERS, SEALERS & UNDERCOATERS	100		3. At least three random moisture readings shall be performed on wall and floor framing with do acceptable to the enforcing agency provided at the time of approval to enclose the wall and
	OTHER ADHESIVES NOT LISTED 50 SPECIALTY APPLICATIONS		STAINS STONE CONSOLIDANTS	250 450		Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed t enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' dryin
	PVC WELDING 510		SWIMMING POOL COATINGS	340		<ul> <li>recommendations prior to enclosure.</li> <li><b>4.506 INDOOR AIR QUALITY AND EXHAUST</b></li> </ul>
	CPVC WELDING490ABS WELDING325		TRAFFIC MARKING COATINGS TUB & TILE REFINISH COATINGS	100 420	🗙 🗆 Architect	t <b>4.506.1 Bathroom exhaust fans.</b> Each bathroom shall be mechanically ventilated and shall comply w following:
	PLASTIC CEMENT WELDING 250		WATERPROOFING MEMBRANES	250		<ol> <li>Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building.</li> <li>Unless functioning as a component of a whole house ventilation system, fans must be control</li> </ol>
	ADHESIVE PRIMER FOR PLASTIC550CONTACT ADHESIVE80		WOOD COATINGS WOOD PRESERVATIVES	275 350		humidity control. a. Humidity controls shall be capable of adjustment between a relative humidity range le
	SPECIAL PURPOSE CONTACT ADHESIVE 250		ZINC-RICH PRIMERS	340		equal to 50% to a maximum of 80%. A humidity control may utilize manual or automa adjustment. b. A humidity control may be a separate component to the exhaust fan and is not require
	STRUCTURAL WOOD MEMBER ADHESIVE140TOP & TRIM ADHESIVE250		1. GRAMS OF VOC PER LITER OF COATING, IN EXEMPT COMPOUNDS			integral (i.e., built-in)
	SUBSTRATE SPECIFIC APPLICATIONS		2. THE SPECIFIED LIMITS REMAIN IN EFFECT ARE LISTED IN SUBSEQUENT COLUMNS IN TH	HE TABLE.		<b>Notes:</b> <ol> <li>For the purposes of this section, a bathroom is a room which contains a bathtub, show</li> </ol>
	METAL TO METAL30PLASTIC FOAMS50		3. VALUES IN THIS TABLE ARE DERIVED FROM THE CALIFORNIA AIR RESOURCES BOARD, AF SUGGESTED CONTROL MEASURE, FEB. 1, 200	RCHITECTURAL COATINGS		<ul><li>tub/shower combination.</li><li>2. Lighting integral to bathroom exhaust fans shall comply with the <i>California Energy Co</i></li></ul>
	POROUS MATERIAL (EXCEPT WOOD) 50		AVAILABLE FROM THE AIR RESOURCES BOAF		🔀 🗆 Architect	
	WOOD30FIBERGLASS80					<ul> <li>sized, designed and have their equipment selected using the following methods:</li> <li>1. The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J - 2011 (Res Load Calculation), ASHRAE handbooks or other equivalent design software or methods.</li> <li>2. Duct systems are sized according to ANSI/ACCA 1 Manual D - 2014 (Residential Duct Systems)</li> </ul>
	1. IF AN ADHESIVE IS USED TO BOND DISSIMILAR SUBSTRATES TOGETHER, THE ADHESIVE WITH THE HIGHEST VOC CONTENT SHALL BE ALLOWED.					<ol> <li>Duct systems are sized according to ANSI/ACCA 1 Manual D - 2014 (Residential Duct Syst ASHRAE handbooks or other equivalent design software or methods.</li> <li>Select heating and cooling equipment according to ANSI/ACCA 3 Manual S - 2014 (Reside Equipment Selection), or other equivalent design software or methods.</li> </ol>
	2. FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THIS TABLE, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168.					<b>Exception:</b> Use of alternate design temperatures necessary to ensure the system functions ar acceptable.

# **\_DING STANDARDS CODE** SHEET 1 (July 2021, Includes July 2021 Suppler

Contractor Contractor Contractor Contractor	MAXIMUM FORMALDEHYDE EMISSIONS IN PAR PRODUCT           HARDWOOD PLYWOOD VENEER CORE           HARDWOOD PLYWOOD COMPOSITE CORE           PARTICLE BOARD           MEDIUM DENSITY FIBERBOARD           THIN MEDIUM DENSITY FIBERBOARD2           1. VALUES IN THIS TABLE ARE DERIVED FROM BY THE CALIF. AIR RESOURCES BOARD, AIR TO MEASURE FOR COMPOSITE WOOD AS TESTED WITH ASTM E 1333. FOR ADDITIONAL INFORM. CODE OF REGULATIONS, TITLE 17, SECTIONS 93120.12.           2. THIN MEDIUM DENSITY FIBERBOARD HAS A THICKNESS OF 5/16" (8 MM).           DIVISION 4.5 ENVIRONMENTAL QUAL 4.504.3 CARPET SYSTEMS. All carpet installed in the building interior Department of Public Health, "Standard Method for the Testing and Eve from Indoor Sources Using Environmental Chambers," Version 1.2, Jai California Department of Public Health's website for certification pr https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Page 4.504.3.1 Carpet cushion. All carpet cushion installed in the buil California Department of Public Health, "Standard Method for the Chemical Emissions from Indoor Sources Using Environmental C (Emission testing method for California Specification 01350)           See California Department of Public Health, "Standard Method for the Chemical Emissions from Indoor Sources Using Environmental C (Emission testing method for California Specification 01350)           See California Department of Public Health, "Standard Method for the Chemical Emissions from Indoor Sources Using Environmental C (Emission testing method for California Speartment of Public Health, "Standard Method for the Chemical Emissions from In Version 1.2, January 2017 (Emission testing method for California Department Testing and Evaluation of Volatile Organic Chemical Emissions	CURRENT LIMIT         0.05         0.09         0.11         0.13         1 THOSE SPECIFIED         OXICS CONTROL         0 IN ACCORDANCE         ATION, SEE CALIF.         93120 THROUGH         MAXIMUM         LITY (Continued)         r shall meet the requirements of the aluation of Volatile Organic Chemica huary 2017 (Emission testing methological strength of Volatile Organic Chemica huary 2017 (Emission testing methological strength of Volatile Organic Chemica huary 2017 (Emission testing labs.         rograms and testing labs.         rs/VOC.aspx.         Iding interior shall meet the requirer         * Testing and Evaluation of Volatile         Chambers," Version 1.2, January 20         ation programs and testing labs.         Q/Pages/VOC.aspx.         equirements of Table 4.504.1.         s installed , at least 80% of floor are ent of Public Health, "Standard Meth door Sources Using Environmental cification 01350)         rograms and testing labs.         es/VOC.aspx.         eleboard and medium density fiberbol	al Emis d for nents Organ
Contractor Contractor Contractor	HARDWOOD PLYWOOD COMPOSITE CORE           PARTICLE BOARD           MEDIUM DENSITY FIBERBOARD           THIN MEDIUM DENSITY FIBERBOARD           THIN MEDIUM DENSITY FIBERBOARD           1. VALUES IN THIS TABLE ARE DERIVED FROM BY THE CALIF. AIR RESOURCES BOARD, AIR TO MEASURE FOR COMPOSITE WOOD AS TESTED WITH ASTM E 1333. FOR ADDITIONAL INFORM. CODE OF REGULATIONS, TITLE 17, SECTIONS 93120.12.           2. THIN MEDIUM DENSITY FIBERBOARD HAS A THICKNESS OF 5/16" (8 MM).           DIVISION 4.5 ENVIRONMENTAL QUAL           4.504.3 CARPET SYSTEMS. All carpet installed in the building interio Department of Public Health, "Standard Method for the Testing and Eva from Indoor Sources Using Environmental Chambers," Version 1.2, Jan California Department of Public Health's website for certification pr https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Page           4.504.3.1 Carpet cushion. All carpet cushion installed in the buil California Department of Public Health, "Standard Method for the Chemical Emissions from Indoor Sources Using Environmental C (Emission testing method for California Specification 01350)           See California Department of Public Health, "Standard Method for the Chemical Emissions from Indoor Sources Using Environmental C (Emission testing method for California Specification 01350)           See California Department of Public Health, "Standard Department of Public Health, "Standard Method for the The Chemical Emissions from Indoor Sources Using Environmental C (Emission testing method for California Specification 01350)           See California Department of Public Health, "Standard Method for the Chemical Emissions from Indoor Sources Using Environmental C	0.05 0.09 0.11 0.13 1 THOSE SPECIFIED OXICS CONTROL 0 IN ACCORDANCE ATION, SEE CALIF. 93120 THROUGH MAXIMUM LITY (continued) r shall meet the requirements of the aluation of Volatile Organic Chemica huary 2017 (Emission testing metho rograms and testing labs. Is/VOC.aspx. Iding interior shall meet the requirer a Testing and Evaluation of Volatile Chambers," Version 1.2, January 20 ation programs and testing labs. D/Pages/VOC.aspx. equirements of Table 4.504.1. s installed , at least 80% of floor are ent of Public Health, "Standard Meth door Sources Using Environmental cification 01350) rograms and testing labs. es/VOC.aspx.	al Emis d for nents Organ
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Contractor Contractor	<ul> <li>California Department of Public Health, "Standard Method for the Chemical Emissions from Indoor Sources Using Environmental (Emission testing method for California Specification 01350)</li> <li>See California Department of Public Health's website for certification</li> <li>https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAG</li> <li>4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the resilient flooring shall meet the requirements of the California Department for Intersecting and Evaluation of Volatile Organic Chemical Emissions from Intersion 1.2, January 2017 (Emission testing method for California Specification problems)</li> <li>See California Department of Public Health's website for certification problems. Hardwood plywood, partice composite wood products used on the interior or exterior of the building formaldehyde as specified in ARB's Air Toxics Control Measure for Control Measure fo</li></ul>	e Testing and Evaluation of Volatile Chambers," Version 1.2, January 20 ation programs and testing labs. Q/Pages/VOC.aspx. equirements of Table 4.504.1. s installed , at least 80% of floor are ent of Public Health, "Standard Meth door Sources Using Environmental cification 01350) rograms and testing labs. es/VOC.aspx.	Organ
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	composite wood products used on the interior or exterior of the building formaldehyde as specified in ARB's Air Toxics Control Measure for Cor		
Contractor	by or before the dates specified in those sections, as shown in Table 4.	mposite Wood (17 CCR 93120 et se	
	<b>4.504.5.1 Documentation.</b> Verification of compliance with this s by the enforcing agency. Documentation shall include at least on		ed
	<ol> <li>Product certifications and specifications.</li> <li>Chain of custody certifications.</li> </ol>		
	<ol> <li>Product labeled and invoiced as meeting the Composi CCR, Title 17, Section 93120, et seq.).</li> <li>Exterior grade products marked as meeting the PS-1 of Wood Association, the Australian AS/NZS 2269, Euro 0121, CSA 0151, CSA 0153 and CSA 0325 standards</li> <li>Other methods acceptable to the enforcing agency.</li> </ol>	or PS-2 standards of the Engineered pean 636 3S standards, and Canad	
	<b>4.505 INTERIOR MOISTURE CONTROL</b> <b>4.505.1 General.</b> Buildings shall meet or exceed the provisions of the	-	
Architect Architect	<ul> <li>4.505.2 CONCRETE SLAB FOUNDATIONS. Concrete slab foundatio California Building Code, Chapter 19, or concrete slab-on-ground floors California Residential Code, Chapter 5, shall also comply with this sect</li> <li>4.505.2.1 Capillary break. A capillary break shall be installed in</li> </ul>	s required to have a vapor retarder t ion.	by the
	a vapor barrier in direct contact with concrete and a co shrinkage, and curling, shall be used. For additional ir ACI 302.2R-06.	oncrete mix design, which will addre nformation, see American Concrete	ss blee
Contractor	<ol> <li>A slab design specified by a licensed design profession</li> <li>4.505.3 MOISTURE CONTENT OF BUILDING MATERIALS. Building shall not be installed. Wall and floor framing shall not be enclosed when</li> </ol>	nal. materials with visible signs of wate n the framing members exceed 19 p	
	<ol> <li>Moisture content shall be verified in compliance with</li> <li>Moisture content shall be determined with either a probe-type moisture verification methods may be approved by the enform found in Section 101.8 of this code.</li> <li>Moisture readings shall be taken at a point 2 feet (610 mm) to of each piece verified.</li> <li>At least three random moisture readings shall be performed of</li> </ol>	the following: e or contact-type moisture meter.Eq cing agency and shall satisfy requir o 4 feet (1219 mm) from the grade s on wall and floor framing with docum	uivaler ement stampe nentati
			y prior
Architect	<b>4.506 INDOOR AIR QUALITY AND EXHAUST</b> <b>4.506.1 Bathroom exhaust fans.</b> Each bathroom shall be mechanical following:	lly ventilated and shall comply with t	he
	<ol> <li>Unless functioning as a component of a whole house ventilat humidity control.</li> </ol>	tion system, fans must be controlled	-
	<ul><li>equal to 50% to a maximum of 80%. A humidity contradjustment.</li><li>b. A humidity control may be a separate component to th integral (i.e., built-in)</li></ul>	ol may utilize manual or automatic	means
	<ol> <li>For the purposes of this section, a bathroom is a room tub/shower combination.</li> <li>Lighting integral to bathroom exhaust fans shall compl</li> </ol>		ı٢
Architect	4.507.2 HEATING AND AIR-CONDITIONING SYSTEM DESIGN. Hea	ating and air conditioning systems sl methods:	all be
	<ol> <li>Load Calculation), ASHRAE handbooks or other equivalent of</li> <li>Duct systems are sized according to ANSI/ACCA 1 Manual E ASHRAE handbooks or other equivalent design software or it</li> </ol>	design software or methods. D - 2014 (Residential Duct Systems) methods. CA 3 Manual S - 2014 (Residential	
	Architect	A 4-inch (101.6 mm) thick base of 1/2 inch (12.7mm) of a vapor barrier in direct contact with concrete and a co shrinkage, and curling, shall be used. For additional in ACI 302.2R-06.     Other equivalent methods approved by the enforcing a 3. A slab design specified by a licensed design profession shall not be installed. Wall and floor framing shall not be enclosed where moisture content. Moisture content shall be verified in compliance with 1. Moisture content shall be determined with either a probe-type moisture content. Shall be determined with either a probe-type moisture verification methods may be approved by the enfor- found in Section 101.8 of this code.     Moisture readings shall be taken at a point 2 feet (610 mm) t of each piece verified.     A t least three random moisture readings shall be performed a acceptable to the enforcing agency provided at the time of ap Insulation products which are visibly wet or have a high moisture conte enclosure in wall or floor cavities. Wet-applied insulation products shall recommendations prior to enclosure. <b>4.506 INDOOR AIR QUALITY AND EXHAUST</b> <b>4.506.1 Bathroom exhaust fans.</b> Each bathroom shall be mechanica following:     1. Fans shall be ENERGY STAR compliant and be ducted to te 2. Unless functioning as a component of a whole house ventilal humidity control.     a. Humidity control may be a separate component to the integral (i.e., built-in)     Notes:     1. For the purposes of this section, a bathroom is a room tub/shower combination.     2. Lighting integral to bathroom exhaust fans shall compl 4.507 ENVIRONMENTAL COMFORT <b>4.507 ENVIRONMENTAL COMFORT</b> <b>4.507 ENVIRONMENTAL C</b>	A 4-inch (101.6 mm) thick base of 1/2 inch (12.7mm) or larger clean aggregate shall be pravapor barrier in direct contact with concrete and a concrete mix design, which will addres shrinkage, and curring, shall be used. For additional information, see American Concrete ACI 302.2R-06.     Other equivalent methods approved by the enforcing agency.     A slab design specified by a licensed design professional. <b>4.505.3 MOISTURE CONTENT OF BUILDING MATERIALS.</b> Building materials with visible signs of water shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 p moisture content. Moisture content shall be verified in compliance with the following:     Moisture content shall be determined with either a probe-type or contact-type moisture meter.Equ moisture verification methods may be approved by the enforcing agency and shall satisfy requirin found in Section 101.8 of this code.     Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grades of each piece verified.     A tleast three random moisture readings shall be performed on wall and floor framing with docum acceptable to the enforcing agency provided at the time of approval to enclose the wall and floc enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure. <b>4.506 INDOOR AIR QUALITY AND EXHAUST 4.506.1 Bathroom exhaust fans.</b> Each bathroom shall be mechanically ventilated and shall comply with t following:     I. 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 humidity control.     A. Humidity control may be a separate component to the exhaust fan and is not required to integral (i.e., built-in)     Notes:         I. For the purposes of this section, a bathroom is a room which contains a bathtub, shower o tub/Shower combination.         L

nt)	N/A = NOT APPLICABLE RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)
PARTY	CHAPTER 7 INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS 702 QUALIFICATIONS 702.1 INSTALLER TRAINING. HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems.
	<ol> <li>Examples of acceptable HVAC training and certification programs include but are not limited to the following:</li> <li>State certified apprenticeship programs.</li> <li>Public utility training programs.</li> <li>Training programs sponsored by trade, labor or statewide energy consulting or verification organizations.</li> <li>Programs sponsored by manufacturing organizations.</li> <li>Other programs acceptable to the enforcing agency.</li> </ol>
	<b>702.2 SPECIAL INSPECTION [HCD].</b> When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition to other certifications or qualifications acceptable to the enforcing agency, the following certifications or education may be considered by the enforcing agency when evaluating the qualifications of a special inspector:
	<ol> <li>Certification by a national or regional green building program or standard publisher.</li> <li>Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors.</li> <li>Successful completion of a third party apprentice training program in the appropriate trade.</li> <li>Other programs acceptable to the enforcing agency.</li> </ol> Notes: <ol> <li>Special inspectors shall be independent entities with no financial interest in the materials or the</li> </ol>
	<ul> <li>project they are inspecting for compliance with this code.</li> <li>2. HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS).</li> <li>[BSC] When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition, the special inspector shall have a certification from a recognized state, national or international association, as determined by the local agency. The area of certification shall be closely related to the primary job function, as determined by the local agency.</li> <li>Note: Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.</li> </ul>
Architect	<b>703 VERIFICATIONS</b> <b>703.1 DOCUMENTATION.</b> Documentation used to show compliance with this code shall include but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which demonstrate substantial conformance. When specific documentation or special inspection is necessary to verify compliance, that method of compliance will be specified in the appropriate section or identified applicable checklist.
	L RESPONSIBILITY ASSOCIATED WITH THE USE OF THIS DOCUMENT, INCLUDING VERIFICATION WITH THE FULL CODE.





REVIEWED FOR CODE COMPLIANCE BY: WILLDAN ENGINEERING Approval of these plans & specifications shall not be construed to be a permit for, or an approval of any violation of any Federal, State, County or City laws or ordinances. One set of approved plans must be kept on the job until completion. 5:59:42 PM May 16, 2022

ENERGY DESIGN RATING

Standard Design

Proposed Design

Standard Design PV Capacity: 2.51 kWdc

ficiency EDR includes improvements to the building envelope and more efficient equipment

PV System resized to 2.51 kWdc (a factor of 2.510) to achieve 'Standard Design PV' PV scaling

2: Total EDR includes efficiency and demand response measures such as photovoltaic (PV) systems and batteries 3: Building complies when efficiency and total compliance margins are greater than or equal to zero

CF1R-PRF-01E

Compliance Margins

Efficiency<sup>1</sup> (EDR)

0.7

Total<sup>2</sup> (EDR)

0.7

CERTIFICATE OF COMPLIANCE Project Name: 1635 Plan

OPAQUE DOORS			
01			
Name			
Door			
OVERHANGS AND FINS		~	
01	02	03	
10/04/Presidentians			C
Window	Depth	Dist Up	L
Rear Windows	2	0.1	
Left Windows	2	0.1	
Right Windows	2	0.1	
Front Windows	2	0.1	
SLAB FLOORS			_
01	02		
Name	Zone		Ar
Slab	SFR		

#### Registration Number: 421-P010117323A-000-000-0000000-0000 CE: This document has been generated by ConSol Home Energy Efficiency Rating System Servico Insible for, and cannot guarantee, the accuracy or completeness of the information contained in t CA Building Energy Efficiency Standards - 2019 Residential Compliance

CERTIFICATE OF COMPLIANCE

PAQUE SURFACE CONST	RUCTIONS								
01	02	03	04 05 06 07						
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Asse	mbly Layers	
R-19 Wall	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-19	None / None	0.074	Cavity / Frame: I	sh: Gypsum Board R-19 in 5-1/2 in. (R-18 2x6 nish: 3 Coat Stucco	
Attic RoofSFR	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-19	None / None	0.052	Roof Siding/sh Cavity / Fr	Roof (Asphalt Shingle Deck: Wood leathing/decking ame: R-13.0 / 2x4 f Joists: R-6.0 insul.	
R-30 Floor	Floors Over Crawlspace	Wood Framed Floor	2x10 @ 16 in. O. C.	R-30	None / None	0.034	Floor Siding/sh	rface: Carpeted Deck: Wood reathing/decking rame: R-30 / 2x10	
R-49 Clg. + R-19 Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R <sub>R-49</sub>	None / None	0.02	Cavity / F	Joists: R-39.9 insul. rame: R-9.1 / 2x4 sh: Gypsum Board	
UILDING ENVELOPE - HE	RS VERIFICATION	हेर प्रहेश			it i	2			
01		02			03			04	
Quality Insulation I	nstallation (QII)	High R-value Spray Fo	am Insulation	Building Enve	elope Air Leakage		CF	M50	
Not Requ	uired	Not Requi	red	Not	Not Required n/a				
ATER HEATING SYSTEM	S		141						
01	02	03	04		05		06	07	
Name	System Type	Distribution Type	Water Heater Na	me (#)	Solar Heating System	Compa	act Distribution	HERS Verification	
DHW Sys 1	Domestic Hot Water (DHW)	Standard Distribution System	DHW Heater 1	. (1)	n/a		None	n/a	

Project Name: 1635 Calculation Descript		le 24 Analy	sis			
WATER HEATERS		124			-0- 	
01	02	<u>؛</u> (		3	04	05
Name	Heat Elem Typ	ent	Tank	Туре	# of Units	Tanl Vol. (gal
DHW Heater 1	Ga	s I	Consunstanta	umer aneous	1	0
WATER HEATING - HER	S VERIF	ICATION				
01		02			03	
Name	Pi	pe Insulatio	n	Paral	lel Pipin	g
DHW Sys 1 - 1/1	Ν	lot Required	1	Not	Required	1
SPACE CONDITIONING	SYSTEM	ıs		~	~	
01			02			03
Name		Sy	stem T	уре	Hea	ating l Name
Res HVAC1		Heat pum	ıp heat	ting coolin	g	eat Pur ystem
01		02		03		04
HVAC - HEAT PUMPS	10 10		20 		20 10	
Name	Sys	tem Type	Nun	nber of Uı		SPF/C
Heat Pump System 1	Cent	ral split HP		1	62	10.5

CERTIFICATE OF CO	MPLIANCE											CF1R-PRF-01
Project Name: 1635									08-09T11:04:03-0			(Page 8 of 10
Calculation Descrip	tion: Title 24 Analys	is			Inpu	t File I	Name	: Russo Via Ve	errazano (20-3864)	ribd19x.		
HVAC HEAT PUMPS -	HERS VERIFICATION			00		112				0 917	12	
01	02	03	04		05			06	07	1	08	09
Name	Verified Airflow	Airflow Target	Verified	Verified EER Verified SEER Verified Refrigerant Verified I		Verified HSPF	Verified Heating Cap 47		Verified Heating Cap 17			
Heat Pump System 1-hers-htpump	Required	350	Require	ed	Required			No	Yes		Yes	Yes
HVAC - DISTRIBUTION	N SYSTEMS		2			05						
01	02	03	04	05	06	0	)7	08	09	10	11	12
			Duct Ins. R-value		Duct Locatio		on Surf		ace Area			- 24 
Name	Туре	Design Type	Supply	Return	Supply	Ret	turn	Supply	Return	Bypass Duct	Duct Leakag	ge HERS Verification
Air Distribution System 1	Unconditioned atti	c Non-Verified	R-8	R-8	Attic	At	ttic	n/a	n/a	No Bypass Duct	Sealed and Tested	Air Distribution System 1-hers-dist
HVAC DISTRIBUTION	- HERS VERIFICATION		~			D		i.				Ç.
01	02	03	04	ΠI	05	R	2	06	07		08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified I Locatio		Verified Duc Design	t	Bur	ied Ducts	Deeply Buried Ducts	Low-leakage Air Handler		Low Leakage Ducts Entirely in Conditioned Space
Air Distribution System 1-hers-dist	Yes	5.0	Not Requ	ired	Not Required	Ь	Not	Required	Credit not taken	Not F	tequired	No
HVAC - FAN SYSTEMS												
	01			02					03			04
	Name			Туре				Fan Pow	er (Watts/CFM)		N	lame
	HVAC Fan 1			HVAC Far	1				0.45		HVAC Fa	n 1-hers-fan

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Project Name: 1635 Plan Calculation Description: Title 24 Analysis				Calculation Date/Time: 2021-08-09T11:04:03-07:00 (Page 1 of 10)						
Calcula	ation De	scription: Title 24 Analysis		ļ	Input File	Name: Russo Via Verrazano (20-3864	l).ribd19x			
GENER	RAL INFOR	RMATION								
01		Project Name	1635 Plan							
02	2	Run Title	Title 24 Analysis							
03		Project Location	Via Verrazano (269-201-067)							
04		City	Riverside		05	Standards Version	2019			
06	ф. 	Zip code	92503		07	Software Version	EnergyPro 8.2			
08		Climate Zone	10		09	Front Orientation (deg/ Cardinal)	0			
10		Building Type	Single family		11	Number of Dwelling Units	1			
12		Project Scope	NewConstruction	-	13	Number of Bedrooms	3			
14		Addition Cond. Floor Area (ft <sup>2</sup> )	0	M	15	Number of Stories	2			
16		Existing Cond. Floor Area (ft <sup>2</sup> )	n/a	2	17	Fenestration Average U-factor	0.3			
18		Total Cond. Floor Area (ft <sup>2</sup> )	1635		19	Glazing Percentage (%)	18.72%			
20		ADU Bedroom Count	n/a		21	ADU Conditioned Floor Area	n/a			
22		Is Natural Gas Available?	Yes	~						
COMPL	LIANCE RE	SULTS	C 11 1			C				
196308400.074	01	Building Complies with Computer	Performance			5				
	02	20 20/202 (5) (7/2047) 10 17 14 17	62 37 80 74.608+25-1176 165 77.509 4	rification	by a certif	ied HERS rater under the supervision of a	a CEC-approved HERS provid	der.		
	03	27.2 10.2	more Special Features shown below		-,					
		mber: 421-P010117323A-000-000-0 pent has been generated by ConSol Home E cannot guarantee, the accuracy or complet ergy Efficiency Standards - 2019 Resid	dential Compliance	Report Ve	ersion: 201	ime: 08/09/2021 11:05 H ation uploaded by third parties not affiliated with o .9.1.300 Ro v 20200901	ERS Provider: CHEERS or related to CHEERS. Therefore, eport Generated: 2021-08-0			
		F COMPLIANCE 1635 Plan				v 20200901 on Date/Time: 2021-08-09T11:04:03-(	07:00	CF1R-PRF-01E (Page 2 of 10)		
000		scription: Title 24 Analysis				Name: Russo Via Verrazano (20-3864		, -8: -0)		

Energy Design Ratings

RESULT: <sup>3:</sup> COMPLIES

ENERGY USE SUMMARY

Total<sup>2</sup> (EDR)

24.5

23.8

Efficiency<sup>1</sup> (EDR)

47.3

46.6

Energy Use (kTDV/ft<sup>2</sup>-yr) Standard Design **Proposed Design Compliance Margin** Percent Improvement Space Heating 6.88 -2.78 -40.4 Space Cooling 29.45 27.63 1.82 IAQ Ventilation 2.75 2.75 Water Heating 14.27 11.75 17.7 Self Utilization/Flexibility Credit n/a n/a **Compliance Energy Total** 53.35 51.79 1.56 2.9 **REQUIRED PV SYSTEMS - SIMPLIFIED** 06 07 08 09 10 11 12 01 02 03 04 05 Azimuth Tilt Array Angle Tilt: (x in Inverter Eff. Annual **DC System Size** (deg) Input (deg) 12) (%) Solar Access Array Type Exception Module Type **Power Electronics** (kWdc) (%) <=7:12 2.51 NA Standard Fixed none 150-270 n/a 96 100 Registration Date/Time: 08/09/2021 11:05 Inc. (CHEERS) using information uploaded by third parties not affiliated with or related to CHEERS. Therefore, CHEERS is not document. Registration Number: 421-P010117323A-000-000-000000-0000 : This document has been generated by ConSol Home Energy Efficiency Rating System Se ible for, and cannot guarantee, the accuracy or completeness of the information contained Report Generated: 2021-08-09 11:04:27 CA Building Energy Efficiency Standards - 2019 Residential Compliance Report Version: 2019.1.300 Schema Version: rev 20200901 CERTIFICATE OF COMPLIANCE CF1R-PRF-01E Project Name: 1635 Plan Calculation Date/Time: 2021-08-09T11:04:03-07:00 (Page 3 of 10) Calculation Description: Title 24 Analysis Input File Name: Russo Via Verrazano (20-3864).ribd19x REQUIRED SPECIAL FEATURES he following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis. Whole house fan Cool roof Ceiling has high level of insulation Floor has high level of insulation Insulation below roof deck Window overhangs and/or fins HERS FEATURE SUMMARY The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry Building-level Verifications Indoor air quality ventilation ooling System Verifications: Minimum Airflow Verified EER Verified SEER Fan Efficacy Watts/CFM Heating System Verifications: Verified HSPF CHEERS Verified heat pump rated heating capacity HVAC Distribution System Verifications: Duct leakage testing Domestic Hot Water System Verifications -- None --**BUILDING - FEATURES INFORMATION** 01 03 04 05 06 07 02 Number of Dwelling Number of Bedrooms Number of Zones Number of Water Number of Ventilation Project Name ditioned Floor Area (ft<sup>2</sup>) Cooling Systems Heating Systems 1635 Plan 1635

Registration Date/Time: 08/09/2021 11:05 HERS Provider: CHEERS Inc. (CHEERS) using information uploaded by third parties not affiliated with or related to CHEERS. Therefore, CHEERS is not document. Registration Number: 421-P010117323A-000-000-0000000-0000 CE: This document has been generated by ConSol Home Energy Efficiency Rating System S nsible for, and cannot guarantee, the accuracy or completeness of the information containe CA Building Energy Efficiency Standards - 2019 Residential Compliance Report Version: 2019.1.300 Report Generated: 2021-08-09 11:04:27 Schema Version: rev 20200901

CERTIFICATE OF COMPLIANCE CF1R-PRF-01E Project Name: 1635 Plan Calculation Date/Time: 2021-08-09T11:04:03-07:00 (Page 4 of 10) Calculation Description: Title 24 Analysis Input File Name: Russo Via Verrazano (20-3864).ribd19x ZONE INFORMATION 01 05 03 06 Zone Name Zone Type HVAC System Name Zone Floor Area (ft<sup>2</sup>) Avg. Ceiling Height Water Heating System 1 Water Heating System 2 SFR Res HVAC1 1635 DHW Sys 1 Conditioned 8 N/A **OPAQUE SURFACES** 04 05 06 08 Window and Door Name Azimuth Orientation Gross Area (ft<sup>2</sup>) Tilt (deg) Zone Construction Area (ft2) Rear Wall (South) R-19 Wall 180 Back 476 90 513 43.992 Left Wall (East) R-19 Wall 90 Left 90 SER 270 Right 587 102 Right Wall (West) SER R-19 Wall 90 0 90 Front Wall (North) SFR R-19 Wall Front 290 60.008 
 SFR
 R-49 Clg. + R-19 Attic
 n/a
 n/a
 984

 SFR
 R-30 Floor
 n/a
 n/a
 356
 Roof - Attic n/a n/a n/a n/a Floor Over Gar 03 04 05 06 07 01 02 08 Roof Rise (x in 12) Roof Reflectance Roof Emittance Radiant Barrier Cool Roof Name Construction Туре 4 0.3 0.75 Attic RoofSFR Yes Ventilated Yes Attic SFR FENESTRATION / GLAZING 
 04
 05
 06
 07
 08
 09
 10
 11
 12
 13
 14

 Orientation
 Azimuth
 Width (ft)
 Height (ft)
 Mult.
 Area (ft<sup>2</sup>)
 U-factor
 U-factor Source
 SHGC
 SHGC Source
 Exterior Shading
 01 03 Surface Name Type 
 Back
 180
 6
 4
 5
 120
 0.3
 NFRC
 0.25
 NFRC
 Bug Screen

 Left
 90
 6
 4
 1
 43.99
 0.3
 NFRC
 0.25
 NFRC
 Bug Screen

 Right
 270
 6
 4
 4
 102
 0.3
 NFRC
 0.25
 NFRC
 Bug Screen

 Front
 0
 6
 4
 1
 40.01
 0.3
 NFRC
 0.25
 NFRC
 Bug Screen
 **Rear Windows** Window Rear Wall (South) Left Wall (East) Left Windows Window Window Window Right Wall (West) **Right Windows** Front Wall (North) Front Windows Registration Number: 421-PU10117323A-000-000-0000000-0000 Registration Date/Time: 08/09/2021 11:05 HERS Provider: CHEERS TTCE: This document has been generated by ConSol Home Energy Efficiency Rating System Services, Inc. (CHEERS) using information uploaded by third parties not affiliated with or related to CHEERS. Therefore, CHEERS is not iponsible for, and cannot guarantee, the accuracy or completeness of the information contained in this document. Registration Number: 421-P010117323A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance Report Version: 2019.1.300 Report Generated: 2021-08-09 11:04:27

Schema Version: rev 20200901

			W				2.5			
	02		_		03				)4	
Side	of Building	20		Are	ea (ft <sup>2</sup> )			U-fa	actor	
Front	Wall (North	)			20				1	-
04	05	06	07	08	09	10	11	12	13	14
erhang				Left Fin				Righ	t Fin	<b>.</b>
Extent	Right Extent	Flap Ht.	Depth	Тор Uр	Dist L	Bot Up	Depth	Тор Uр	Dist R	Bot Up
2	2	-0	2-	0	0.1	0	0	0	0	0
2	2	0	9	0	0	0	0	0	0	0
2	2	0	0	0	0	0	0	0	0	0
2	2	0	0	0	0	0	0	0	0	0
	<del>C  </del>	1 E	EI	2 S						
3		04		05		06		07	(	08
(ft <sup>2</sup> )	Per	imeter (ft)		nsul. R-value d Depth		sul. R-value d Depth	Carpete	d Fraction	He	ated
i1 80			none		0	80%				

RS2101817 APPROVED SET.pdf 05/18/22 Page 4 of 58

CERTIFICATE OF COMPLIANCE Project Name: 1635 Plan Calculation Date/Time: 2021-08-09T11:04:03 Calculation Description: Title 24 Analysis Input File Name: Russo Via Verrazano (20-3864 HVAC FAN SYSTEMS - HERS VERIFICATION Verified Fan Watt Draw Name HVAC Fan 1-hers-fan Required IAQ (INDOOR AIR QUALITY) FANS 01 03 04 02 IAQ CFM IAQ Watts/CFM IAQ Fan Type **Dwelling Unit** AQ Recovery Ef SFam IAQVentRpt 77 0.25 Default COOLING VENTILATION 01 04 02 03 05 06 07 Airflow Rate **Cooling Vent** Name **Cooling Vent CFM** Total Watts Number of Fans **CFVCS Type** Watts/CFM (CFM/ft2) 343.35 Whole House Fan 1.5 2452.5 0.14 1 Not a CFVCS

CHEERS

egistration Number: 421-P010117323A-000-000-0000000-0000 CE: This document has been generated by ConSol Home Energy Efficiency Rating System Se nsible for, and cannot guarantee, the accuracy or completeness of the information contained CA Building Energy Efficiency Standards - 2019 Residential Compliance

CERTIFICATE OF COMPLIANCE	CF	1R-PRF-018		
Project Name: 1635 Plan	Calculation Date/Time: 2021-08-09T11:04:03-07:00 (Page 10 o			
Calculation Description: Title 24 Analysis	Input File Name: Russo Via Verrazano (20-3864).ribd19x			
DOCUMENTATION AUTHOR'S DECLARATION STATEMENT				
1. I certify that this Certificate of Compliance documentation is accurate and comple	ete.			
Documentation Author Name: Adriana Gomez	Documentation Author Signature:			
Company: Andresen Architecture, Inc.	Signature Date: 08/09/2021			
Address: 17087 Orange Way	CEA/ HERS Certification Identification (If applicable):			
City/State/Zip: Fontana, CA 92335	Phone: 909-355-6688			
RESPONSIBLE PERSON'S DECLARATION STATEMENT				
	. C <mark>ertificate of Compliance</mark> conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Reg e of Compliance are consistent with the information provided on other applicable compliance documents, worksl			
Responsible Designer Name: Adriana Gomez	Responsible Designer Signature:			
Company: Andresen Architecture, Inc.	Date Signed: 08/09/2021			
Address: 17087 Orange Way	License: C 33098			
City/State/Zip: Fontana, CA 92335	Phone: 909-355-6688			

Registration Date/Time: 08/09/2021 11:05

Report Version: 2019.1.300

Schema Version: rev 20200901

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Energy Efficien	cy Standards - 2019 Residential Compliance Report Version: 2019.1.300 Schema Version: rev 20200901
	2019 Low-Rise Residential Mandatory Measures Summary
	residential buildings subject to the Energy Standards must comply with all applicable mandatory measures, regardless of the respective section for more information. *Exceptions may apply.
Building Envelo	pe Measures:
	Air Leakage. Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per squa
§ 110.6(a)1:	when tested per NFRC-400, ASTM E283 or AAMA/WDMA/CSA 101/I.S.2/A440-2011.
§ 110.6(a)5:	Labeling. Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a). Field fabricated exterior doors and fenestration products must use U-factors and solar heat gain coefficient (SHGC) v.
§ 110.6(b):	<ul> <li>110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped."</li> <li>Air Leakage. All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage</li> </ul>
§ 110.7:	gasketed, or weather stripped.
§ 110.8(a):	Insulation Certification by Manufacturers. Insulation must be certified by the Department of Consumer Affairs, Bureau and Services (BHGS).
§ 110.8(g):	Insulation Requirements for Heated Slab Floors. Heated slab floors must be insulated per the requirements of § 110.8
§ 110.8(i):	Roofing Products Solar Reflectance and Thermal Emittance. The thermal emittance and aged solar reflectance value material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is speci
§ 110.8(j):	Radiant Barrier. When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Departme
§ 150.0(a):	Ceiling and Rafter Roof Insulation. Minimum R-22 insulation in wood-frame ceiling; or the weighted average U-factor m Minimum R-19 or weighted average U-factor of 0.054 or less in a rafter roof alteration. Attic access doors must have perm insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation n direct contact with a continuous roof or ceiling which is sealed to limit infiltration and exfiltration as specified in § 110.7, in to placing insulation either above or below the roof deck or on top of a drywall ceiling.*
§ 150.0(b):	Loose-fill Insulation. Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c):	Wall Insulation. Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x have a U-factor of 0.071 or less. Opaque non-framed assemblies must have an overall assembly U-factor not exceeding i must meet Tables 150.1-A or B.*
§ 150.0(d):	Raised-floor Insulation. Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor.*
§ 150.0(f):	Slab Edge Insulation. Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation facings, no greater than 0.3 percent; have a water vapor permeance no greater than 2.0 perm per inch; be protected from UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	Vapor Retarder. In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I o retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to Vapor Retarder. In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned spa
§ 150.0(g)2:	insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation. Fenestration Products. Fenestration, including skylights, separating conditioned space from unconditioned space or out
§ 150.0(q):	maximum U-factor of 0.58; or the weighted average U-factor of all fenestration must not exceed 0.58.
	orative Gas Appliances, and Gas Log Measures:
§ 110.5(e)	Pilot Light. Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1: § 150.0(e)2:	Closable Doors. Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening Combustion Intake. Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six s
	and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device. Flue Damper. Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.*
§ 150.0(e)3:	
Space Condition	ning, Water Heating, and Plumbing System Measures:
§ 110.0-§ 110.3:	Certification. Heating, ventilation and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all c appliances must be certified by the manufacturer to the California Energy Commission.*
§ 110.2(a):	HVAC Efficiency. Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-K. Controls for Heat Pumps with Supplementary Electric Resistance Heaters. Heat pumps with supplementary electric
§ 110.2(b):	must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alor cut-on temperature for compression heating is higher than the cut-on temperature for supplementary heating, and the cut compression heating is higher than the cut-off temperature for supplementary heating.
§ 110.2(c):	Thermostats. All heating or cooling systems not controlled by a central energy management control system (EMCS) mus setback thermostat.
§ 110.3(c)4:	Water Heating Recirculation Loops Serving Multiple Dwelling Units. Water heating recirculation loops serving multipl meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection re § 110.3(c)4.
§ 110.3(c)6:	Isolation Valves. Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isola bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.
§ 110.5:	Pilot Lights. Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu per hour ); and
§ 150.0(h)1:	Building Cooling and Heating Loads. Heating and/or cooling loads are calculated in accordance with the ASHRAE Har Equipment Volume, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installat Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)2.

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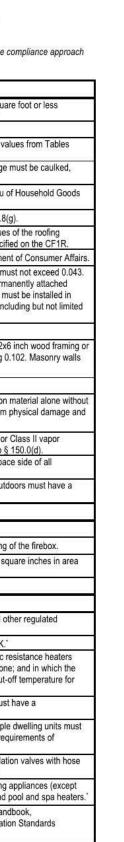
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§ 150.0(m)13:

### Registration Number: 421-P010117323A-000-00000000-00000 Registration Date/Time: 08/09/2021 11:05 HERS Provider: CHEERS NOTICE: This document has been generated by ConSol Home Energy Efficiency Rating System Services, Inc. (CHEERS) using information uploaded by third parties not affiliated with or related to CHEERS. Therefore, CHEERS is not responsible for, and cannot guarantee, the accuracy or completeness of the information contained in this document. Report Generated: 2021-08-09 11:04:27



#### 2019 Low-Rise Residential Mandatory Measures Summary Clearances. Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer § 150.0(h)3A: Liquid Line Drier. Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the § 150.0(h)3B: manufacturer's instructions. Storage Tank Insulation. Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, must have 150.0(j)1: a minimum of R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank. Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation. All domestic hot water piping must be insulated as specified in Section 609.11 of the California Plumbing Code. In addition, the following piping conditions must have a minimum insulation wall thickness of one inch or a minimum insulation R-value of 7.7: the first five feet of cold water pipes from the storage tank; all hot § 150.0(j)2A: water piping with a nominal diameter equal to or greater than 3/4 inch and less than one inch; all hot water piping with a nominal diameter less than 3/4 inch that is: associated with a domestic hot water recirculation system, from the heating source to storage tank or between tanks, buried below grade, and from the heating source to kitchen fixtures.\* Insulation Protection. Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by Section 120.3(b). Insulation exposed to weather must be water retardant and protected from UV light (no adhesive tapes). § 150.0(j)3: Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve. Gas or Propane Water Heating Systems. Systems using gas or propane water heaters to serve individual dwelling units must include all of the following: A dedicated 125 volt, 20 amp electrical receptacle connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within three feet of the water heater without obstruction. Both ends of the unused conductor must be labeled with the word "spare" and be electrically isolated. Have a reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker § 150.0(n)1: for the branch circuit and labeled with the words "Future 240V Use"; a Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; a condensate drain that is no more than two inches higher than the base of the water heater, and allows natural draining without pump assistance; and a gas supply line with a capacity of at least 200,000 Btu per hour. Recirculating Loops. Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3(c)5. § 150.0(n)2: Solar Water-heating Systems. Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing § 150.0(n)3: agency that is approved by the Executive Director. Ducts and Fans Measures Ducts. Insulation installed on an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a 110.8(d)3: contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement. CMC Compliance. All air-distribution system ducts and plenums must meet the requirements of the CMC §§ 601.0, 602.0, 603.0, 604.0, 605.0 and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to a minimum installed level of R-6.0 or a minimum installed level of R-4.2 when ducts are entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8). Portions of the duct system completely exposed and surrounded by directly conditioned space are not required to be insulated. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable requirements of U § 150.0(m)1: 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than inch, the combination of mastic and either mesh or tape must be used. Building cavities, support platforms for air handlers, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms must not be compressed to cause reductions in the cross-sectional area." Factory-Fabricated Duct Systems. Factory-fabricated duct systems must comply with applicable requirements for duct construction, § 150.0(m)2: connections, and closures; joints and seams of duct systems and their components must not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands. Field-Fabricated Duct Systems. Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, § 150.0(m)3: mastics, sealants, and other requirements specified for duct construction. Backdraft Damper. Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers. 150.0(m)7: Gravity Ventilation Dampers. Gravity ventilating systems serving conditioned space must have either automatic or readily accessible, § 150.0(m)8: manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents. Protection of Insulation. Insulation must be protected from damage, sunlight, moisture, equipment maintenance, and wind. Insulation expos-150.0(m)9: to weather must be suitable for outdoor service. For example, protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellular foam insulation must be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation. 150.0(m)10: Porous Inner Core Flex Duct. Porous inner core flex ducts must have a non-porous layer between the inner core and outer vapor barrier. Duct System Sealing and Leakage Test. When space conditioning systems use forced air duct systems to supply conditioned air to an § 150.0(m)11: occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with § 150.0(m)11 and Reference Residential Appendix RA3. Air Filtration. Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or

### 2019 Low-Rise Residential Mandatory Measures Summary

§ 150.0(m)12: equivalent filters. Filters for space conditioning systems must have a two inch depth or can be one inch if sized per Equation 150.0-A. Pressure

Space Conditioning System Airflow Rate and Fan Efficacy. Space conditioning systems that use ducts to supply cooling must have a hol

for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 350 CFI

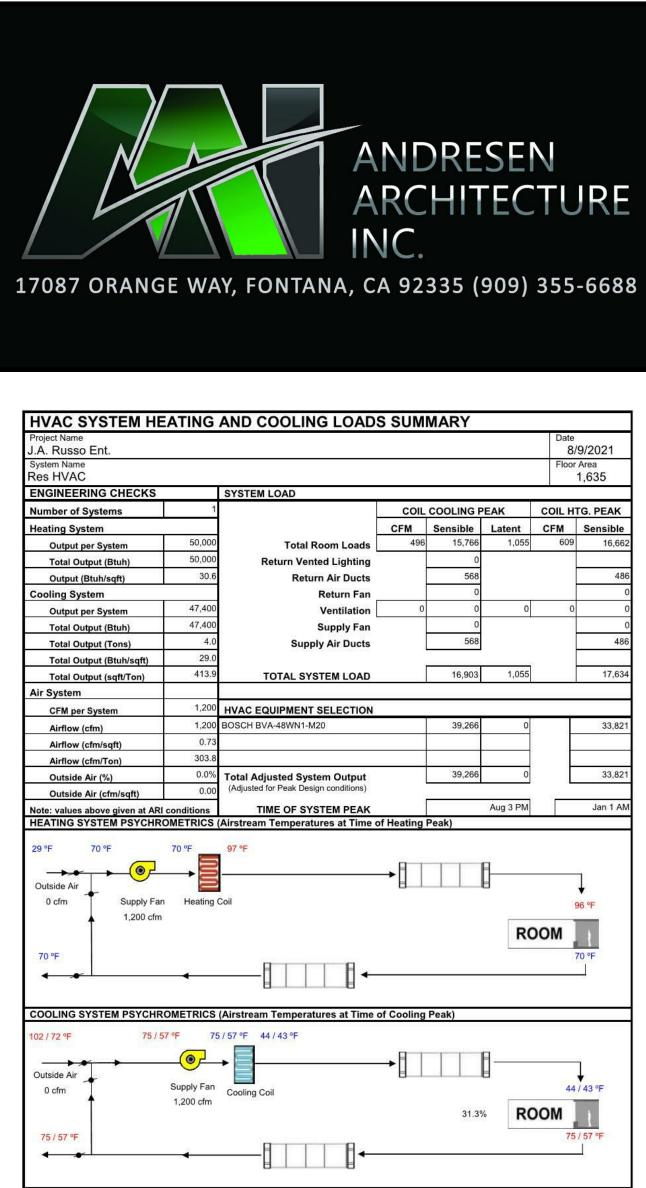
per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.45 watts per CFM for gas furnace air handlers and ≤ 0.58 watts per

CFM for all others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-handli

unit fan efficacy < 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3.\*

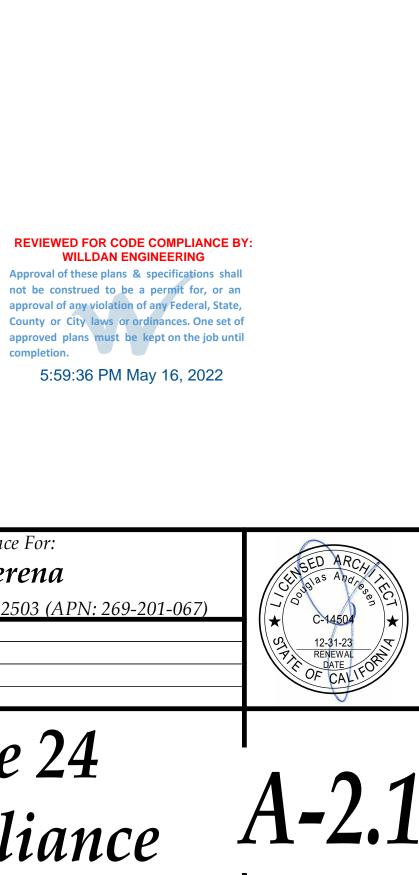
drops and labeling must meet the requirements in §150.0(m)12. Filters must be accessible for regular service.\*

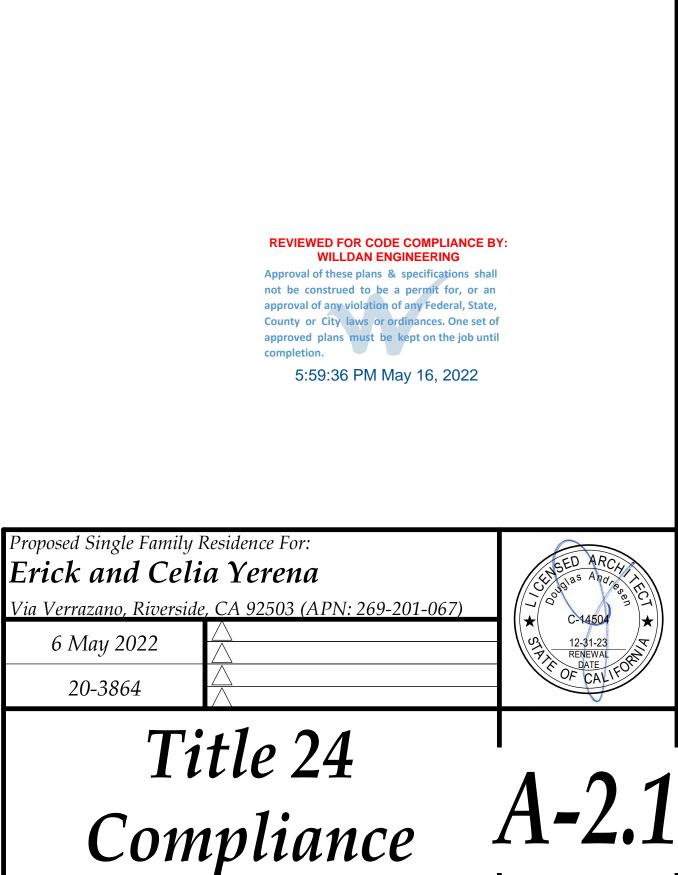
requirements f	or Ventilation and Indoor Air Quality:
§ 150.0(o)1:	Requirements for Ventilation and Indoor Air Quality. All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(o)1.
§ 150.0(o)1C:	Single Family Detached Dwelling Units. Single family detached dwelling units, and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow provided at rates determined by ASHRAE 62.2 Sections 4.1.1 and 4.1.2 and as specified in § 150.0(o)1C.
§ 150.0(o)1E:	Multifamily Attached Dwelling Units. Multifamily attached dwelling units must have mechanical ventilation airflow provided at rates in accordance with Equation 150.0-B and must be either a balanced system or continuous supply or continuous exhaust system. If a balanced system is not used, all units in the building must use the same system type and the dwelling-unit envelope leakage must be ≤ 0.3 CFM at 50 Pa (0.2 inch water) per square foot of dwelling unit envelope surface area and verified in accordance with Reference Residential Appendix RA3.8.
§ 150.0(o)1F:	Multifamily Building Central Ventilation Systems. Central ventilation systems that serve multiple dwelling units must be balanced to provide ventilation airflow for each dwelling unit served at a rate equal to or greater than the rate specified by Equation 150.0-B. All unit airflows must be within 20 percent of the unit with the lowest airflow rate as it relates to the individual unit's minimum required airflow rate needed for compliance
§ 150.0(o)1G:	Kitchen Range Hoods. Kitchen range hoods must be rated for sound in accordance with Section 7.2 of ASHRAE 62.2.
§ 150.0(o)2:	Field Verification and Diagnostic Testing. Dwelling unit ventilation airflow must be verified in accordance with Reference Residential Appendix RA3.7. A kitchen range hood must be verified in accordance with Reference Residential Appendix RA3.7.4.3 to confirm it is rated by HVI to comply with the airflow rates and sound requirements as specified in Section 5 and 7.2 of ASHRAE 62.2.
Pool and Spa S	/stems and Equipment Measures:
§ 110.4(a):	Certification by Manufacturers. Any pool or spa heating system or equipment must be certified to have all of the following: a thermal efficiency that complies with the Appliance Efficiency Regulations; an on-off switch mounted outside of the heater that allows shutting off the heater without adjusting the thermostat setting; a permanent weatherproof plate or card with operating instructions; and must not use electric resistance heating.*
§ 110.4(b)1:	Piping. Any pool or spa heating system or equipment must be installed with at least 36 inches of pipe between the filter and the heater, or dedicated suction and return lines, or built-in or built-up connections to allow for future solar heating.
§ 110.4(b)2:	Covers. Outdoor pools or spas that have a heat pump or gas heater must have a cover.
§ 110.4(b)3:	Directional Inlets and Time Switches for Pools. Pools must have directional inlets that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.
§ 110.5:	Pilot Light. Natural gas pool and spa heaters must not have a continuously burning pilot light.
§ 150.0(p):	Pool Systems and Equipment Installation. Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves."
Lighting Measu	
§ 110.9:	Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.
§ 150.0(k)1A:	Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.
	Luminare Encacy. An installed luminares must meet the requirements in Table 150.0-A.
§ 150.0(k)1B:	Blank Electrical Boxes. The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.
	Blank Electrical Boxes. The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control. Recessed Downlight Luminaires in Ceilings. Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC)
§ 150.0(k)1C:	Blank Electrical Boxes. The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.           Recessed Downlight Luminaires in Ceilings. Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C.           Electronic Ballasts for Fluorescent Lamps. Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an
§ 150.0(k)1C: § 150.0(k)1D:	Blank Electrical Boxes. The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.         Recessed Downlight Luminaires in Ceilings. Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C.         Electronic Ballasts for Fluorescent Lamps. Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.         Night Lights, Step Lights, and Path Lights. Night lights, step lights and path lights are not required to comply with Table 150.0-A or be
§ 150.0(k)1C: § 150.0(k)1D: § 150.0(k)1E:	Blank Electrical Boxes. The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device 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.           Recessed Downlight Luminaires in Ceilings. Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C.           Electronic Ballasts for Fluorescent Lamps. Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.
§ 150.0(k)1C: § 150.0(k)1D: § 150.0(k)1E: § 150.0(k)1F:	Blank Electrical Boxes. The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.         Recessed Downlight Luminaires in Ceilings. Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C.         Electronic Ballasts for Fluorescent Lamps. Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.         Night Lights, Step Lights, and Path Lights. Night lights, step lights and path lights are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided they are rated to consume no more than 5 watts of power and emit no more than 150 lumens.         Lighting Integral to Exhaust Fans. Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods)
§ 150.0(k)1C: § 150.0(k)1D: § 150.0(k)1E: § 150.0(k)1F: § 150.0(k)1G:	Blank Electrical Boxes. The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.         Recessed Downlight Luminaires in Ceilings. Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C.         Electronic Ballasts for Fluorescent Lamps. Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.         Night Lights, Step Lights, and Path Lights. Night lights, step lights and path lights are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided they are rated to consume no more than 5 watts of power and emit no more than 150 lumens.         Lighting Integral to Exhaust Fans. Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k). <sup>2</sup>
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§ 150.0(k)1C: § 150.0(k)1D: § 150.0(k)1E: § 150.0(k)1F: § 150.0(k)1G: § 150.0(k)1H: § 150.0(k)11:	Blank Electrical Boxes. The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.         Recessed Downlight Luminaires in Ceilings. Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C.         Electronic Ballasts for Fluorescent Lamps. Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.         Night Lights, Step Lights, and Path Lights. Night lights, step lights and path lights are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided they are rated to consume no more than 5 watts of power and emit no more than 150 lumens.         Lighting Integral to Exhaust Fans. Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k).*         Screw based luminaires. Screw based luminaires. Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.         Light Sources in Drawers, Cabinets, and Linen Closets. Light sources internal to drawers, cabinetry or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit not comply wit
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§ 150.0(k)1B: § 150.0(k)1C: § 150.0(k)1D: § 150.0(k)1E: § 150.0(k)1F: § 150.0(k)1G: § 150.0(k)1H: § 150.0(k)2A: § 150.0(k)2B: § 150.0(k)2B: § 150.0(k)2D: § 150.0(k)2D:	Blank Electrical Boxes. The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.         Recessed Downlight Luminaires in Ceilings. Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C.         Electronic Ballasts for Fluorescent Lamps. Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.         Night Lights, Step Lights, and Path Lights. Night lights, step lights and path lights are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided they are rated to consume no more than 5 watts of power and emit no more than 150 lumens.         Lighting Integral to Exhaust Fans. Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k).*         Screw based luminaires. Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8.*         Light Sources in Enclosed or Recessed Luminaires. Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.         Light Sources in Drawers, Cabinets, and Linen Closets. Light sources internal to drawers, cabinetry or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to cono



### 2019 Low-Rise Residential Mandatory Measures Summary

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

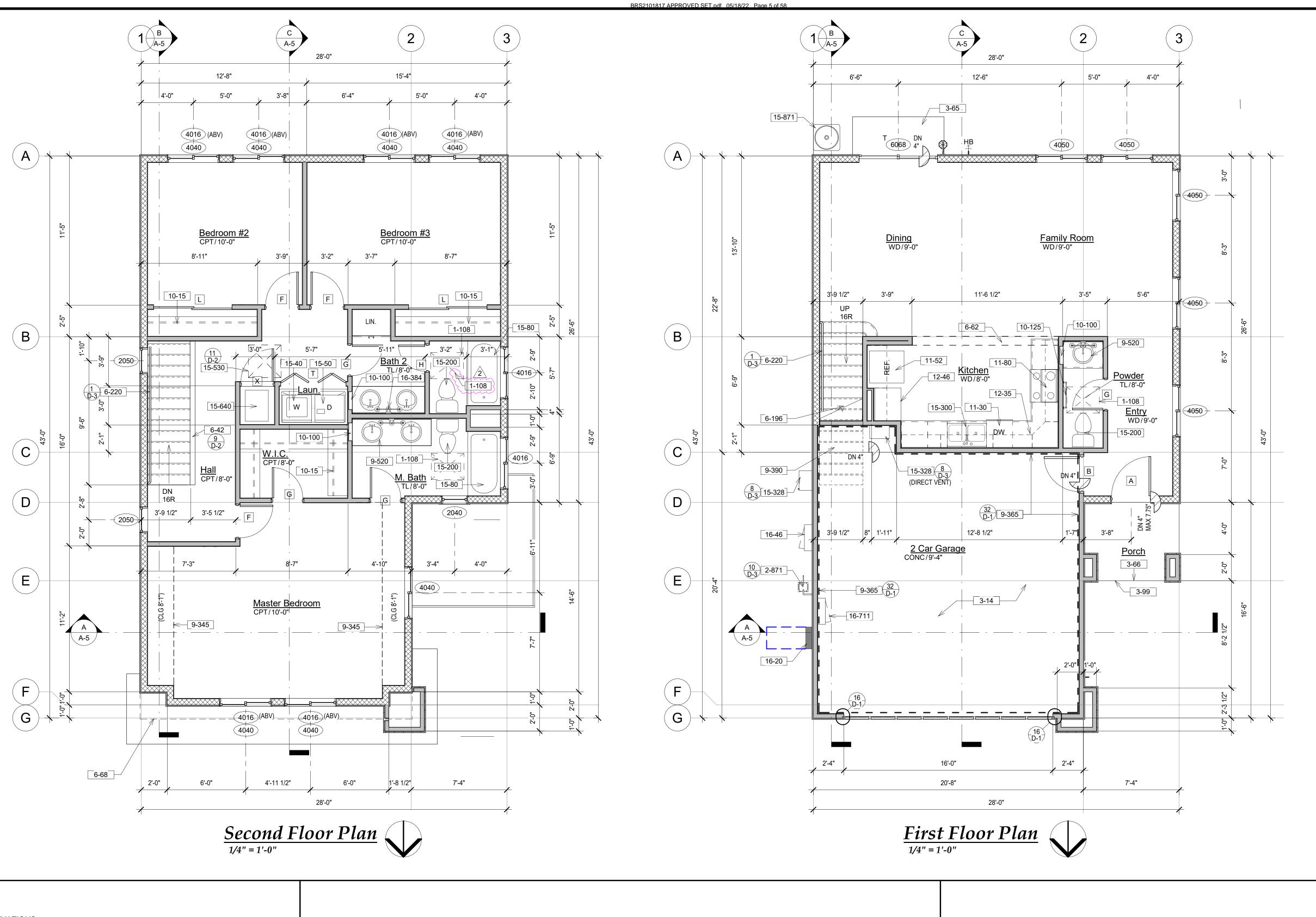


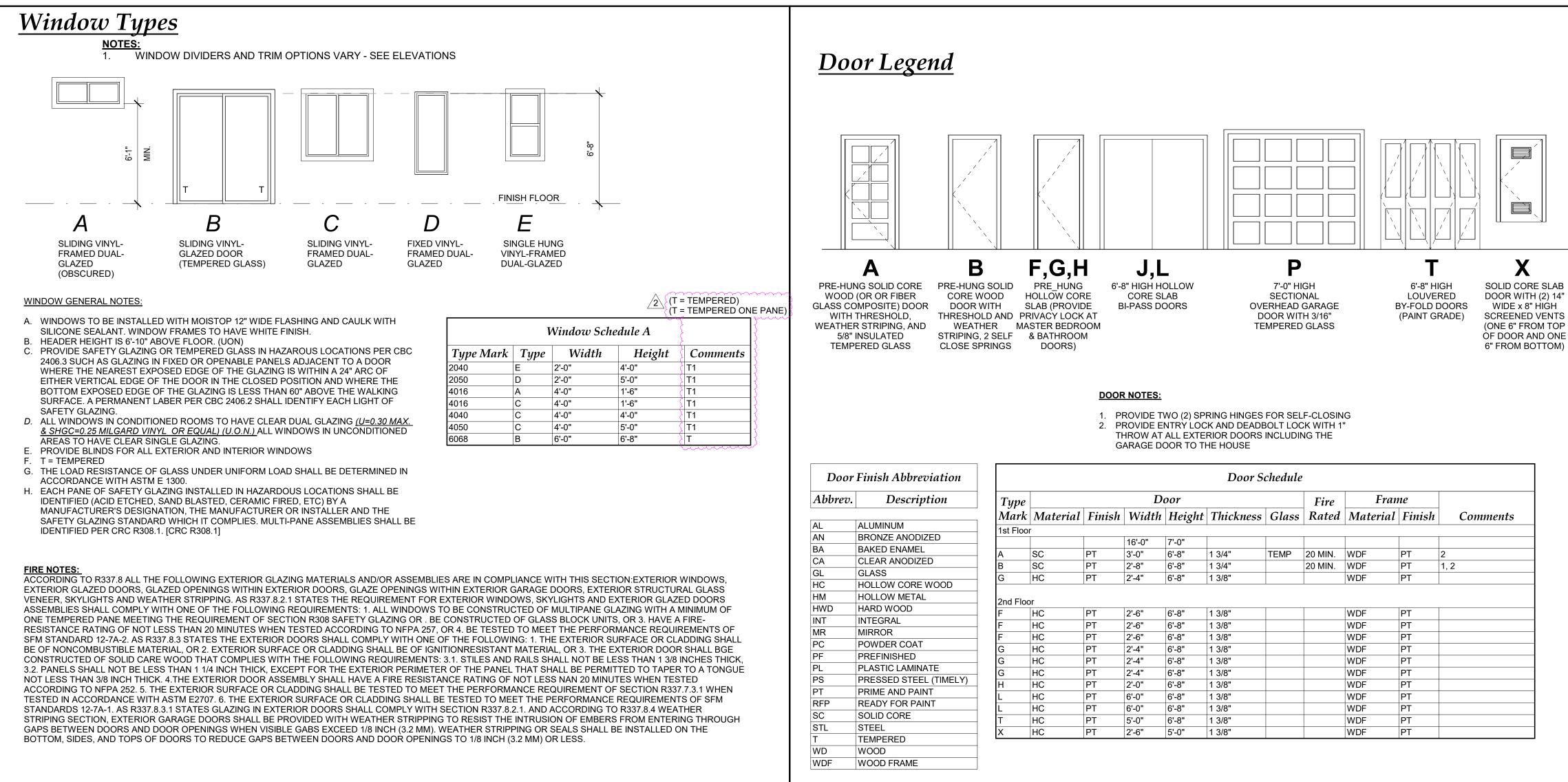


Plumbing Fix	ture Max. Flow Rate (4.303.1)
Plumbing Fixture	
Type	Max. Flow Rate
Water closets	1.28 gpf
Showerheads	1.8 gpm @ 80 psi
Kitchen faucets	1.8 gpm @ 60 psi
Lavatory faucets	1.2 gpm @ 60 psi
Metering faucets	0.20 gallons/cycle

## Wall Legend

2 x 6 WOOD STUDS @ 16" O/C (R-19 BATT INSULATION) 2 x 4 WOOD STUDS @ 16" O/C (R-15 BATT INSULATION AT GARAGE TO HOUSE FIREWALLS) 2" FURRING WALL, 2 x 4 LAID FLAT





h Abbreviation		Door Schedule										
Description	Туре		Door						Frame			
	Mark	Material	Finish	Width	Height	Thickness	Glass	Rated	Material	Finish	Comments	
INUM	1st Floor											
ZE ANODIZED	13(1100			16'-0"	7'-0"							
D ENAMEL	٨	SC	PT	3'-0"	6'-8"	1 3/4"	TEMP	20 MIN.	WDF	PT	2	
R ANODIZED	B	SC	PT	2'-8"	6'-8"	1 3/4"		20 MIN.	WDF	PT	1, 2	
S	G	HC	PT	2'-4"	6'-8"	1 3/4		20 101111	WDF	PT	1, 2	
OW CORE WOOD	6			<b>∠ -</b> 4	0-0	1 3/0			VVDF	ΓI		
OW METAL	2nd Floo	nr										
WOOD	F	HC	PT	2'-6"	6'-8"	1 3/8"			WDF	PT		
RAL	F	НС	PT	2'-6"	6'-8"	1 3/8"			WDF	PT		
DR	F	НС	PT	2'-6"	6'-8"	1 3/8"			WDF	PT		
ER COAT	G	HC	PT	2'-4"	6'-8"	1 3/8"			WDF	PT		
NISHED	G	HC	PT	2'-4"	6'-8"	1 3/8"			WDF	PT		
TIC LAMINATE	G	HC	PT	2'-4"	6'-8"	1 3/8"			WDF	PT		
SED STEEL (TIMELY)		HC	PT	2 <i>-</i> 4 2'-0"	6'-8"	1 3/8"			WDF	PT		
AND PAINT		HC	PT	2 <i>-</i> 0 6'-0"	6'-8"	1 3/8"			WDF	PT		
Y FOR PAINT		HC	PT	6'-0"	6'-8"	1 3/8"			WDF	PT		
CORE												
		HC	PT	5'-0"	6'-8"	1 3/8"			WDF	PT		
ERED	X	HC	PT	2'-6"	5'-0"	1 3/8"			WDF	PT		
)												
D FRAME												

<b>Room Finish Abbreviation</b>							
Abbreviation	Description						
CON	CONCRETE						
CONC	EXPOSED FINISHED CONC.						
CPT	CARPET						
E.C.	EXPOSED CONSTRUCTION						
EPOX	EPOXY FLOORING						
FRP	FIBER REINFORCED PANELS						
GB	GYPSUM BOARD						
INT	INTEGRAL						
PLY	PLYWOOD						
PT	PRIME AND PAINT						
RES	RESILIENT FLOORING						
RUB	RUBBER FLOORING						
SEAL	CLEAR CONCRETE FLOOR SEALER						
SV	SHEET VINYL						
T-BAR	SUSPENDED ACOUSTICAL CEILING						
TL	CERAMIC TILE						
TSB	TOP SET BASE						
V-T	VINYL COATED ACOUSTICAL CEILING						
WBB	WOOD BASE BOARD						
WD	WOOD FLOORING						
WRGB	WATER RESISTANT GYPSUM BOARD (PROVIDE CEILING FRAMING AT 12" O.C WHERE WATER RESISTANT GYPSUM WALL BOARD IS USED FOR CEILING APPLICATIONS)						

### **Room Finish Legend**

**GENERAL NOTES:** 

- 1. 5/8" GYPSUM BOARD ON WALLS & 5/8" GYPSUM BOARD ON CEILINGS TO RECEIVE KNOCK-DOWN TEXTURE
- WITH TWO COATS LATEX FLAT ENAMEL 2. FLOOR MATERIAL CHANGES TO OCCUR IN CENTER OF
- DOOR WHEN IN A CLOSED POSITION 3. ALL CORNERS TO BE BULLNOSED

#### **REVIEWED FOR CODE COMPLIANCE BY:** WILLDAN ENGINEERING

Approval of these plans & specifications shall not be construed to be a permit for, or an approval of any violation of any Federal, State, County or City laws or ordinances. One set of approved plans must be kept on the job until completion.

5:59:30 PM May 16, 2022

			Room	Finish S	Schedule					
Rooms	B	lase	Floo	Floor		Walls		Ceilings		
Name	Height	Material	Material	Finish	Material	Finish	Material	Finish	Height	
1st Floor			1		ŀ	1	1			
Family Room	4"	WBB	WD	INT	GB	PT	GB	PT	9'-0"	
Dining	4"	WBB	WD	INT	GB	PT	GB	PT	9'-0"	
2 Car Garage	-	-	CONC	INT	GB	PT	GB	PT	9'-4"	
Kitchen	4"	WBB	WD	INT	GB	PT	GB	PT	8'-0"	
Entry	4"	WBB	WD	INT	GB	PT	GB	PT	9'-0"	
Powder	6"	TL	TL	INT	WRGB	PT	WRGB	PT	8'-0"	
2nd Floor										
Master Bedroom	4"	WBB	CPT	INT	GB	PT	GB	PT	10'-0"	
Bedroom #2	4"	WBB	CPT	INT	GB	PT	GB	PT	10'-0"	
Bedroom #3	4"	WBB	CPT	INT	GB	PT	GB	PT	10'-0"	
Hall	4"	WBB	CPT	INT	GB	PPT	GB	PT	8'-0"	
M. Bath	6"	TL	TL	INT	WRGB	PT	WRGB	PT	8'-0"	
W.I.C.	4"	WBB	CPT	INT	GB	PT	GB	PT	8'-0"	
Bath 2	6"	TL	TL	INT	WRGB	PT	WRGB	PT	8'-0"	
Laun.	6"	TL	TL	INT	WRGB	PT	WRGB	PT	8'-0"	

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	Plan N
-108	24" x 30" CLEAR FLOOR SPACE IN FRONT OF W
-871	NEW GAS METER LOCATION (BY UTILITY). (VEF
-14	4" THICK CONCRETE GARAGE SLAB ON 2" SAN FINISH. SLOPE 2" TO DRAIN. SAWCUT WITHIN 2
65	3-1/2" THICK CONCRETE SLAB ON GRADE WITHIN 2
-65	MINIMUM AWAY FROM BUILDING. PROVIDE A L EACH SIDE OF DOOR AND A MINIMUM OF 3'-0"
66	3-1/2" THICK CONCRETE SLAB ON GRADE WITH
-66	MINIMUM AWAY FROM BUILDING.
-99	NEW LOCATION OF RELOCATED CONDENSING
-42	42" HIGH WOOD STUD WALL WITH DRYWALL SI
-62	LINE OF BEAM ABOVE (SEE FRAMING PLAN)
-68	LINE OF WALL BELOW
-196	VOID SPACE
-220	WOOD HANDRAIL WITH METAL BRACKET SUPP POUND LOAD AT ANY POINT IN ANY DIRECTION HANDGRIP PORTION OF THE HANDRAIL SHALL IN CROSS-SECTIONAL DIMENSION OR THE SHA SURFACE.
-345	LINE OF CEILING HEIGHT CHANGE
-365	5/8" TYPE "X" GYPSUM BOARD GARAGE SIDE O
	AND ALL WALLS SUPPORTING SECOND FLOOP
	BETWEEN OFFSET ELECTRICAL RECEPTACLES REPORT NO. ER 3686) GAS VENTS, METAL CHII
	STOPPED WITH AN APPROVED ASSEMBLY. PL/
	THE GARAGE SIDE SHALL BE A MINIMUM 26 GA
-390	PROVIDE ONE LAYER 5/8" TYPE "X" GYPSUM BO SPACE UNDER STAIRS. ELECTRICAL BOXES IN ONE-HOUR FIRE RATED.
-520	SYNTHETIC MARBLE TOP, SPLASH AND END SI
0-15	12" WIDE WOOD SHELF AND POLE AT +67" ABC
	36" O/C MAX
0-100	RECESSED MEDICINE CABINET (TOP AT +72" A
0-125	24" LONG TOWEL BAR (+54) PROVIDE 2 x 6 SOL
1-30	DISHWASHER SPACE
1-52	REFRIGERATOR SPACE (PROVIDE RECESSED
1-80}	SLIDE-IN GAS COOKTOP WITH OVEN BELOW AN HOOD AND 7" DIAMETER GALVANIZED SHEET N
2-35	
2-46	BASE CABINET WITH GRANITE TOP AND 6" SPL
5-40	HOT AND COLD WATER SHUT-OFF IN RECESSE WASHER IS NIC)
5-50	CLOTHES DRYER (NIC)
5-80	60" x 32" x 72" HIGH FIBERGLASS COMBINATION
	CONNECTIONS ARE PERMITTED IN WASTE LIN FLOOR WITH METAL ESCUTCHEON. PROVIDE S
	TUB/SHOWERS SHALL BE PROVIDED WITH IND
	BALANCE OR THERMOSTATIC MIXING VALVE T
5-200	TANK-TYPE WATER CLOSET (1.28 GALLONS PE
5-300	33" x 22" DOUBLE BOWL SELF-RIMMING ENAME
	DISPOSER
5-328	RESIDENTIAL TANKLESS GAS-FIRED HOT WAT CONNECTION AND 4" DIAMETER "B" VENT (SEE
	MANUFACTURER AND MODEL NUMBER). VERI
5-530	30" x 30" ATTIC ACCESS FOR ATTIC FAU. PROV
	ACCESS PANEL TO PREVENT DRAFTS. (ACCES OF LARGEST PIECE OF EQUIPMENT)
5-640	4 TON FAU WITH COOLING COIL. SET ON PLYW
	PROVIDE 4" DIAMETER "B" VENT TO OUTSIDE A 3/4" PVC CONDENSATE OVERFLOW TO DRAIN A
E 071	CONDENSING UNIT. PROVIDE 3-1/2" THICK POL
5-871	GROUND PER C.M.C.
6-20	400 AMP RECESSED MAIN PANEL (UNDERGROU
	(VERIFY EXACT LOCATION WITH UTILITY COMP SERVICE) PROVIDE 3'-0" DEEP BY 2'-6" WIDE M
	ARTICLE 110-26a
6-46	SOLAR READY - FUTURE PANEL
6-384	WALL SCONCE LIGHT (+84" UON)
6_711	EV PANEL "READY" - SEE NOTE 1 TO 6 ON EV N

16-711 EV PANEL "READY" - SEE NOTE 1 TO 6 ON EV NOTES

### Water Notes

- 1. "WATER PIPE AND FITTINGS WITH A LEAD CONTENT WHICH EXCEEDS 8% SHALL BE PROHIBITED IN SYSTEMS CONVEYING POTABLE WATER
- ALL FIXTURES, EQUIPMENT, PIPING, AND MATERIALS SHALL BE LISTED 3. ALL PLUMBING FIXTURES SHALL MEET THE FLOW REQUIREMENTS
- SPECIFIED IN THE CALIFORNIA GREEN BUILDING CODE. 4. THE FLOW RATES FOR ALL PLUMBING FIXTURES SHALL COMPLY WITH
- THE MAXIMUM FLOW RATES SPECIFIED IN SECTION 4.303.1

### *Fire Notes*

- ROOF COVERINGS SHALL BE EITHER NONCOMBUSTIBLE OR SHALL BE FIRE RETARDANT MATERIAL NOT COMPOSED OF ORGANIC FIBER WITH A MINIMUM CLASS "A" RATING ALL EXTERIOR WALL COVERINGS SHALL BE APPROVED NONCOMBUSTIBLE OR IGNITION-RESISTANT MATERIAL
- 9-110)
- NONCOMBUSTIBLE CONSTRUCTION . ADDRESS NUMBERS SHALL HAVE INTERNALLY ILLUMINATED, NONCOMBUSTIBLE
- EXTERIOR DOORS: EXTERIOR DOORS SHALL COMPLY WITH ONE OF THE FOLLOWING:
- SOLID WOOD DOORS HAVING STILES AND RAILS NOT LESS THAN 1-3/8" THICKNESS WITH THE INTERIOR FIELD
- MAY TAPER TO A TONGUE NOT LESS THAN 3/8" THICK SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 20 MINUTES SHALL BE TESTED TO MEET THE PERFORMACE REQUIREMENTS OF SFM STANDARD 12-7A-1
- 708A.4 (CRC R337.8.4)
- EXTERIOR GLAZING NOTES: EXTERIOR GLAZING IN EXTERIOR WINDOWS, EXTERIOR GLAZED DOORS, GLAZED OPENINGS IN EXTERIOR DOORS, GLAZED OPENINGS IN EXTERIOR GARAGE DOORS OR STRUCTURAL GLASS SHALL COMPLY WITH ONE OF THE
- FOLLOWING REQUIREMENTS: GI ASS
- EITHER THE INTERIOR OR EXTERIOR PANEL MAY BE TEMPERED GLASS BLOCK UNITS
- A TWENTY (20) MINUTE FIRE-RESISTIVE RATED WINDOW ASSEMBLY BE TESTED TO MEET THE PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A-2. STRUCTURAL GLASS VENEER. THE WALL ASSEMBLY BEHIND STRUCTURAL GLASS VENEER SHALL COMPLY WITH SECTION 707A.3 FOR EXTERIOR WALLS.

Proposed Single Family Residence For: Erick and Celia Yerena Via Verrazano, Riverside, CA 92503 (APN: 269-201-067) <u>10 May 2022 PCC</u> 6 May 2022 20-3864



### Notes

NATER CLOSET PER CBC SEC. 2904. ERIFY EXACT LOCATION WITH UTILITY COMPANY) ND BASE (2,500 PSI MIX) WITH SMOOTH TROWEL 24 HOURS WHERE INDICATED TH MEDIUM BROOM FINISH. SLOPE 1/8" PER FOOT ANDING AT ALL DOORS A MINIMUM OF 2" BEYOND " OUT FROM FACE OF DOOR. TH MEDIUM BROOM FINISH. SLOPE 1/8" PER FOOT

G AND CONCRETE PAD SIDES AND WOOD CAP.

PORTS AT 5'-0" O/C CAPABLE OF SUPPORTING A 200 ON ON THE RAIL (34" - 38" ABOVE NOSING.) THE BE NOT LESS THAN 1-1/4" NOR MORE THAN 1-1/2" HAPE SHALL PROVIDE AN EQUIVALENT GRIPPING

OF ALL WALLS AND CEILING ADJACENT TO HOUSE DR. PROVIDE MINIMUM 24" HORIZONTAL SEPARATION ES. (ELECTRICAL BOXES TO CONFORM TO ICC IIMNEYS PENETRATING THE FINISH SHALL BE FIRE LASTIC PIPE SHALL NOT PIERCE FINISH. DUCTS ON GAUGE SHEET METAL. BOARD ON ALL WALLS AND CEILINGS OF USABLE INSTALLED IN THESE WALLS OR CEILING SHALL BE

SPLASH WITH UNI-LAV. BOVE FLOOR WITH METAL BRACKET SUPPORTS AT

ABOVE FLOOR) OLID BACKING

SHUT-OFF IN PLASTIC BOX FOR ICEMAKER) AND MICROWAVE OVEN ABOVE WITH EXHAUST I METAL DUCT TO OUTSIDE AIR HOOD ABOVE 100cfm

LASH SED PLASTIC BOX FOR CLOTHES WASHER (CLOTHES

ON TUB/SHOWER UNIT. NO SLIP JOINT NE. SET SHOWER HEAD IN WALL AT +76" ABOVE SHOWER CURTAIN ROD. SHOWERS & DIVIDUAL CONTROL VALVES OF THE PRESSURE TYPE PER SEC. 408.3 2019 CPC. PER FLUSH MAXIMUM)

IELED STEEL KITCHEN SINK WITH21/2 HP GARBAGE TER FIXTURE ON WALL WITH 3/4" GAS AND WATER E MECHANICAL SYSTEM NOTES FOR RIFY REQUIRED INPUT BTU RATE WITH OWNER. VIDE WEATHERSTRIP OR SEAL AT THE ATTIC

ESS SHALL BE SIZED TO ACCOMMODATE REMOVAL WOOD PLATFORM WITH RETURN AIR BELOW. AIR. PROVIDE WATERTIGHT GALVANIZED PAN WITH ABOVE WINDOW.

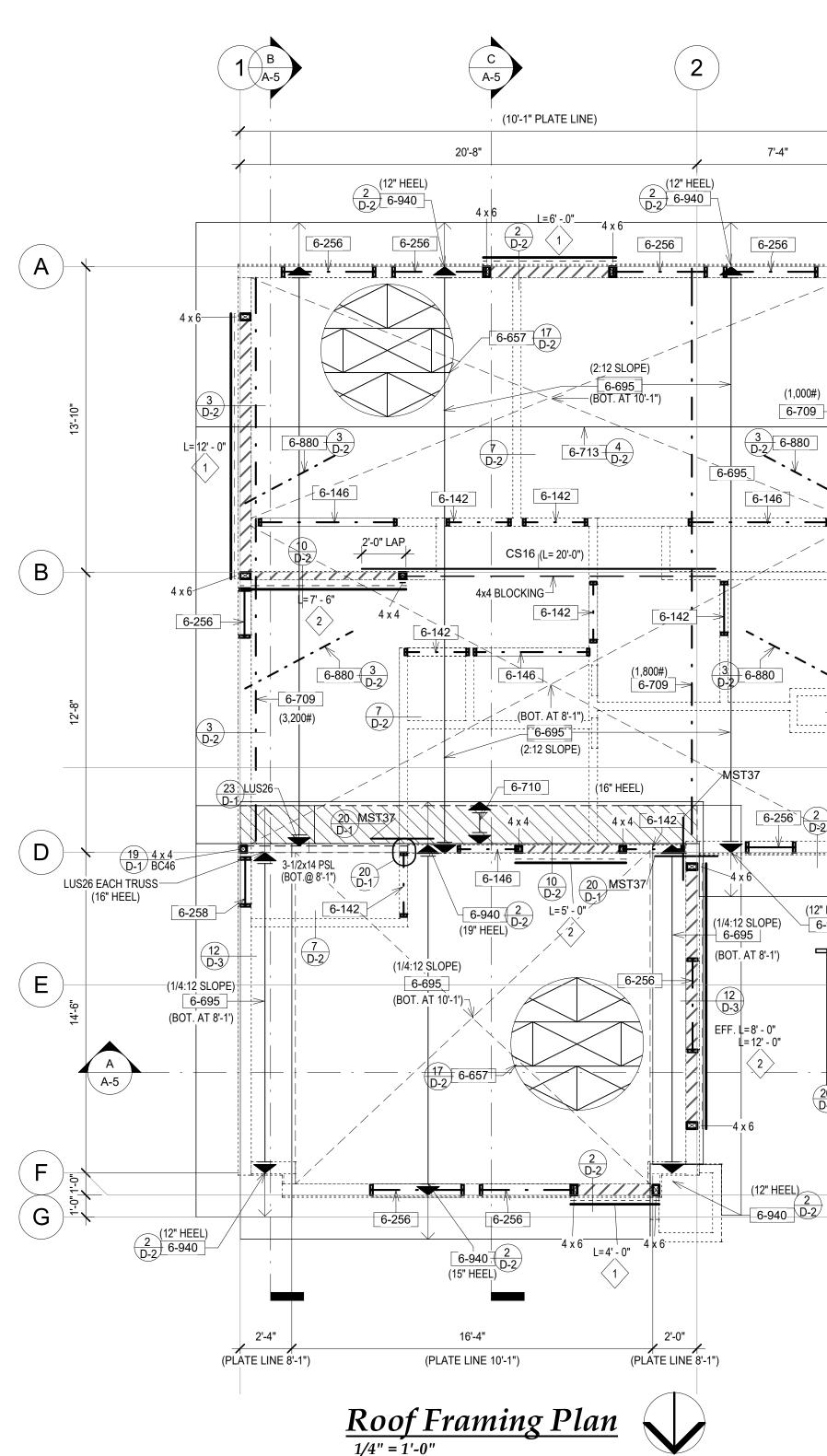
LYETHYLENE PAD EXTENDED 3" MINIMUM ABOVE UND FEED WITH TWO #3/0 AWG & ONE #2 GROUND) PANY) (PROVIDE GAS AND WATER BONDING TO MINIMUM CLEARANCE IN FRONT OF PANEL PER

. EAVES SHALL PROVIDE ONE-HOUR FIRE RESISTANCE-RATED CONSTRUCTION OR EQUIVALENT (SEE KEY NOTE . EXTERIOR DOOR ASSEMBLIES SHALL MEET STANDARD SFM 12-7A-1 OR SHALL BE OF APPROVED

THE EXTERIOR SURFACE OR CLADDING SHALL BE OF NONCOMBUSTIBLE OR IGNITION RESISTANT MATERIALS PANELS NOT LESS THAN 1-1/4" THICKNESS, EXCEPT FOR THE EXTERIOR PERIMETER OF THE RAISED PANEL THAT

GARAGE DOORS SHALL RESIST THE INTRUSION OF EMBERS BY PREVENTING GAPS BY THE ITEMS LISTED PER

DOUBLE GLAZED INSULATING GLASS WITH ONE OF THE PANES TEMPERED AND THE SECOND PANE MAY BE PLAIN



### Soils Recommendations

#### 6.1.1 CONVENTIONAL FOUNDATIONS

Exterior continuous footings may be 12 inches wide, founded at a minimum depth of 18 inches into competent graded pad or 18" into undisturbed competent natural soil. Footing to be reinforced with four No. 4 rebar, 2 at the top and 2 at the bottom, enclosed with minimum 2 inches of concrete. Shallow foundations may be designed for a maximum allowable bearing capacity of 1,500 lbft<sup>2</sup> for 12 inch continuous and 30 inch spread footings with a minimum of 18 inches embedment into certified compacted fill or 24 inches into competent natural ground. The bearing capacity value may be increased by 1/3 for wind load and seismic load. The bearing capacities should be re-evaluated when loads and footing sizes have been finalized.

Lateral forces on footings may be resisted by passive earth resistance and friction at the bottom of the footing. Foundations may be designed for a coefficient of friction of 0.30, and a passive earth pressure of 250 lb/ft<sup>2</sup>/ft. The passive earth pressure incorporates a factor of safety of about 1.5. When combining passive and friction forces, passive resistance should be reduced by 1/3. All footing excavations should be cut square and level, and should be free of sloughed materials.

#### 6.1.3 BUILDING FLOOR SLAB

As a minimum 4.5 inch thick slab, reinforced with one #4 rebar, 15 inches on center each direction, doweled into foundation to a minimum depth of 6 inches, is recommended. Interior floor slabs with moisture sensitive floor coverings should be underlain by a 6 mil thick moisture vapor barrier to help reduce the upward migration of moisture from the underlying subgrade soils. The moisture vapor barrier product used should meet the performance standards of an ASTM E 1745 Class A material, and be properly installed in accordance with ACI Publication 302. It is the responsibility of the contractor to ensure that the moisture vapor barrier systems are placed in accordance with the project plans and specifications, and that the moisture vapor retarder materials are free of tears and punctures prior to concrete placement. Additional moisture reduction and/or prevention measures may be needed, depending on the performance requirements of future interior floor coverings.

Sand layer requirements are the purview of the structural engineer, and should be provided in accordance with ACE Publication 302 "Guide for Concrete Floor and Slab Construction". Ultimately the design of the moisture retarder system and recommendations for concrete placement and curing are the purview of the foundation engineer, in consideration of the project requirements provided by the architect and developer.

Prior to placing concrete, the subgrade soils be floor slabs should be pre-moistened to achieve a moisture content that is at least equal or slightly greater that optimum moisture content. This moisture content should penetrate to a minimum depth of 18 inches in the subgrade soils.

	Beam Schedule	(Bo
Beam Calc #	Туре	
1	3-1/2 x 9-1/2 PSL	
2	3-1/2 x 9-1/2 PSL	
3	3-1/2 x 9-1/2 PSL	
4	5-1/4x14 PSL	
5	4x6 DF #2	
6	5-1/4x14 PSL	
7	4x12 DF #1	

							Strong-Tie	Steel Strong	Wall Schedı			
									Dimension	S		
	EFF. L=8'-0"	0	Manufacture	Part r Number	Part	Descrip	tion	Height	Width	Thickness	Anchor Bolt Diameter	Anchor Bolt Coun
	L=10'-0" - LENG 3 - SHEA	CTIVE SHEAR WALL GTHVALL GTH AR WALL REF. (SEE SHEAR L SCHEDULES)	Simpson Strong-Tie Company Inc.	e SSW24x7	Steel Strong Wal Thick, 2x4	ll, 24" Wide	e, 84" Tall, 3.5"	7'-0"	2'-0"	3 1/2"	1"	2
	Beam Schedule 3-1/2 × 14 PSL NUMI (Bot. @ 9'-0") BEAM	/ TAG (SEE BEAM SCHEDULI BER = BEAM SIZE; LETTER = / HEIGHT I NOTE TAG	,					Sim	oson Hardw	are Schedule		
Beam Calc #	E Type 3-1/2 x 9-1/2 PSL 3-1/2 x 9-1/2 PSL DETA	NIL REF. #				erdware Jumber	Comments	Min. Stud/ Post Sized			Note	
3 4 5	3-1/2 x 9-1/2 PSL DETA	IL SHEET # _ ELEVATION REF. #			HD1 HD2		STHD14 HDU5-SDS2.5		5,645# H	HOLDOWN STRAP \ HOLDOWN WITH "S AT EACH END AS SI	IMPSON SSTB2	
6 7	5-1/4x14 PSL         S-2         SHEE           4x12 DF #1         SHEE	ET #			HD3		HDU8-SDS2.5	4 X 4		HOLDOWN WITH "S AT EACH END AS SI		28" HOLDOWN
<ol> <li>ABUTTING P. HAVE 4x POS</li> <li>NO SHEAR P</li> <li>ANCHOR BO.</li> <li>(NON-SHEAR</li> <li>NAILS SHALL STUDS, PLAT FRAMER'S P.</li> <li>NAILS SHALL</li> <li>TAILS SHALL</li> <li>THE PLATE V</li> </ol>	<b>Wall Schedule Notes</b> ANEL EDGES AT PANELS <1>, <2> & <3> TO HAVE 3x POSTS (OR BLO STS (OR BLOCKING) ANEL WIDTHS <u>LESS THAN 2'-0"</u> ALLOWED (ie. 4'-6" WIDTH - USE 2'-0" A LT SPACING AT SLAB AND A35 (OR LTP4) SPACING ON TOP OF SHEAR RED WALL AREAS TO RECEIVE A35 OR LTP4 CLIPS AT 24" ON CENTER BE COMMON OR GALVANIZED BOX. (GALVANIZED NAILS SHALL BE TES AND BLOCKING. ALL EDGE NAILING AT TOP PLATES SHALL BE TATE IS NOT ACCEPTABLE. BE SPACED NOT LESS THAN 1/2" FROM PANEL EDGES AND NOT LES ICTURAL PANELS SHALL CONFORM TO C.B.C. SEC. 2303.1.4. WASHER SHALL EXTEND TO WITHIN 1/2" OF THE BOTTOM PLATE ON LS SHALL RUN CONTINUOUSLY FROM FOUNDATION TO ROOF/ FLOOR	AND 2'-6" PANELS). ALL EDG R WALL ONLY OCCURS WHE R). O UPPER TOP PLATE. STAG SS THAN 3/8" FROM EDGE ON THE SIDE (S) WITH SHEATH	ES SHALL BE BLOCKED. ERE SHEAR PANELS OCCUR . NAILING APPLIES TO ALL GERING OF NAILS TO F STUDS	D	<u>F</u> 1. 2. 3. 4. 5. 6. 7.	CEM WITH SOIL ANC COA SHE INSF <b>LIN</b> FINA PLAI PRIC	IENT TYPE II (M H MAXIMUM SL ALLOWABLE I HOR BOLTS AI TED GALVANIZ AR WALL ANC PECTION. <b>E, GRADE /</b> LDING INS AL COMPACTIONS PRIOR TO FEQUES	UMP OF 4". BEARING PRESS ND FASTENERS ZED STEEL. HOR BOLTS AND AND COMPA PECTOR AT ON REPORT SHA FOUNDATION IN	E 28 DAYS FOR SURE OF 1,500 IN CONTACT N O HOLDOWN H CTION TES INITIAL FO IL BE SUBMIT SPECTION. IG DEPARTME	R FLATWORK, MIN. POUNDS PER SQI WITH PRESERVATI ARDWARE MUST I <b>TRESULTS SI UNDATION INS</b> TED TO THE BUILD NT FOUNDATION IN AVATIONS	UARE FOOT. VE-TREATED V BE SECURED II HALL BE PI SPECTION. DING DEPARTM	WOOD SHALL E N PLACE PRIO <b>RESENTED</b> IENT TO VERIF
	1	r Wall Schedule (2019 C			1					Pad Footii	ıg Schedule	
Shear Wall Number	Extend Shear Panel From Floor to Floor or Floor to Roof Sheathing Above (Typical) Stud Spacing To Be 16' O/C (Typical)	2306.4.1	"Simpson A35 or LTP4" From Wall to Rim Joist or From Roof to Plates	Spacing	Second Floor	<u> </u>		<i>Mark</i> P-1 P-2	2'-3" SQ X 18	<i>Type</i> " DEEP 8" DEEP x 6'-6" LON	(5) #4 BA	<b>r Condition</b> AR E/W AR TOP & BOT.
2	3/8" WOOD STRUCTURAL PANEL (STRUCT I SHEATHING) WITH 8d NAILS AT 6" O/C EDGES AND 12" O/C IN FIELD (3x STUDS @ 48" O/C) 3/8" WOOD STRUCTURAL PANEL (STRUCT I SHEATHING) WITH 8d	280 PLF (EARTHQUAKE) & 349 PLF (WIND) 430 PLF (EARTHQUAKE) & 602 PLF (MUND)		16" O/C 16" O/C	16d STAGGERED AT 6" O/C 16d STAGGERED AT 4" O/C		2x 3x (2x @ 2nd FLR.)					
3	NAILS AT 4" O/C EDGES AND 12" O/C IN FIELD (3x STUDS @ 48" O/C)3/8" WOOD STRUCTURAL PANEL (STRUCT I SHEATHING) WITH 8dNAILS AT 3" O/C EDGES AND 12" O/C IN FIELD (3x STUDS @ 48" O/C)	602 PLF (WIND) 550 PLF (EARTHQUAKE) & 770 PLF (WIND)	8" O/C	12" O/C	AT 4" O/C 16d STAGGERED AT 2" O/C	D						

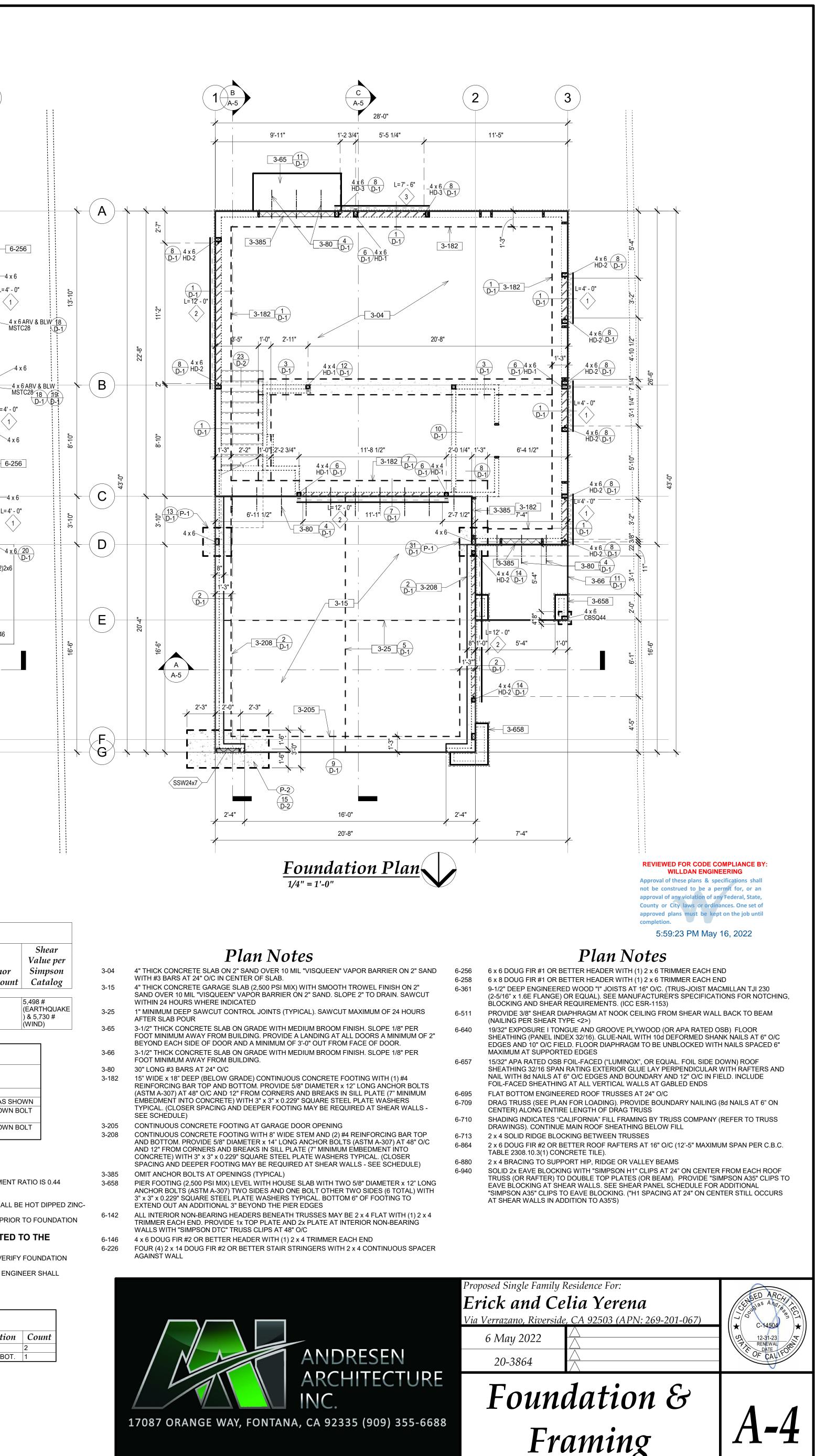
2 (3) (3) 28'-0" 3 4 x 6 ABV & BLW 1 MSTC 28 18 4 x 6 ABV & BLW D-1/MSTC28 A 6-256 18 19 4 x 6 ABV & BLW\_\_\_\_\_ D-1 D-1 MSTC28 L= 12' -3-1/2 x 9-1/2 PSL (BOT .@ 9'-1") B 18 19 4 x 6 ABV & BLW\_\_\_\_\_ D-1 D-1 MSTC28 4 x 4 ABV & BLW MSTC28  $\left( \mathbf{D} \right)$ 2-1/MSTC28 5-1/4x14 PSL (TOP@ 9'-10") (UP TO 18 4 x 4 ABV D-1 MSTC28 (12" HEEL) SHEATHING 6-940 /4x4BLW 4x6 DF #2 E 4 x 6 EPC46 6-940 A \_\_\_\_\_ \_\_\_\_\_ ∖ A-5 ∕ 4 x 6 ABV 18 4 x 4 BLW D-1 21 4 x 6 ABV D-1 MSTC28 4 <u>x 6 19</u>  $\frac{19}{D_{-1}}$  4 x 6 ┶╍┍┿╼╺┿╼╸┝╾╸┝╾╸┝╼╸┝╼╸╱╼╸╱╶╸┥╴╸┥╴╸┥╴╴┥╴╴┥  $\left( \mathbf{G} \right)$ 6-511 12 D-2 7 )(L=20'-8")<sup>\_</sup> SSW24x7 4x12 DF #1 L=20' - 8" (D-2) \_\_(BOT.@,7'-0")\_\_ (ABV. SLAB)  $\langle 1 \rangle$ (L= 20'-8") (ABV.)

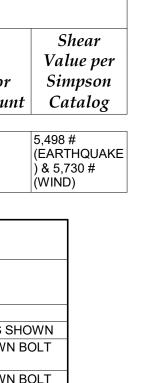
# 2nd Floor Framing Plan

7'-4"

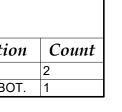
20'-8"

2101817 APPROVED SET.pdf 05/18/22 Page 6 of 58





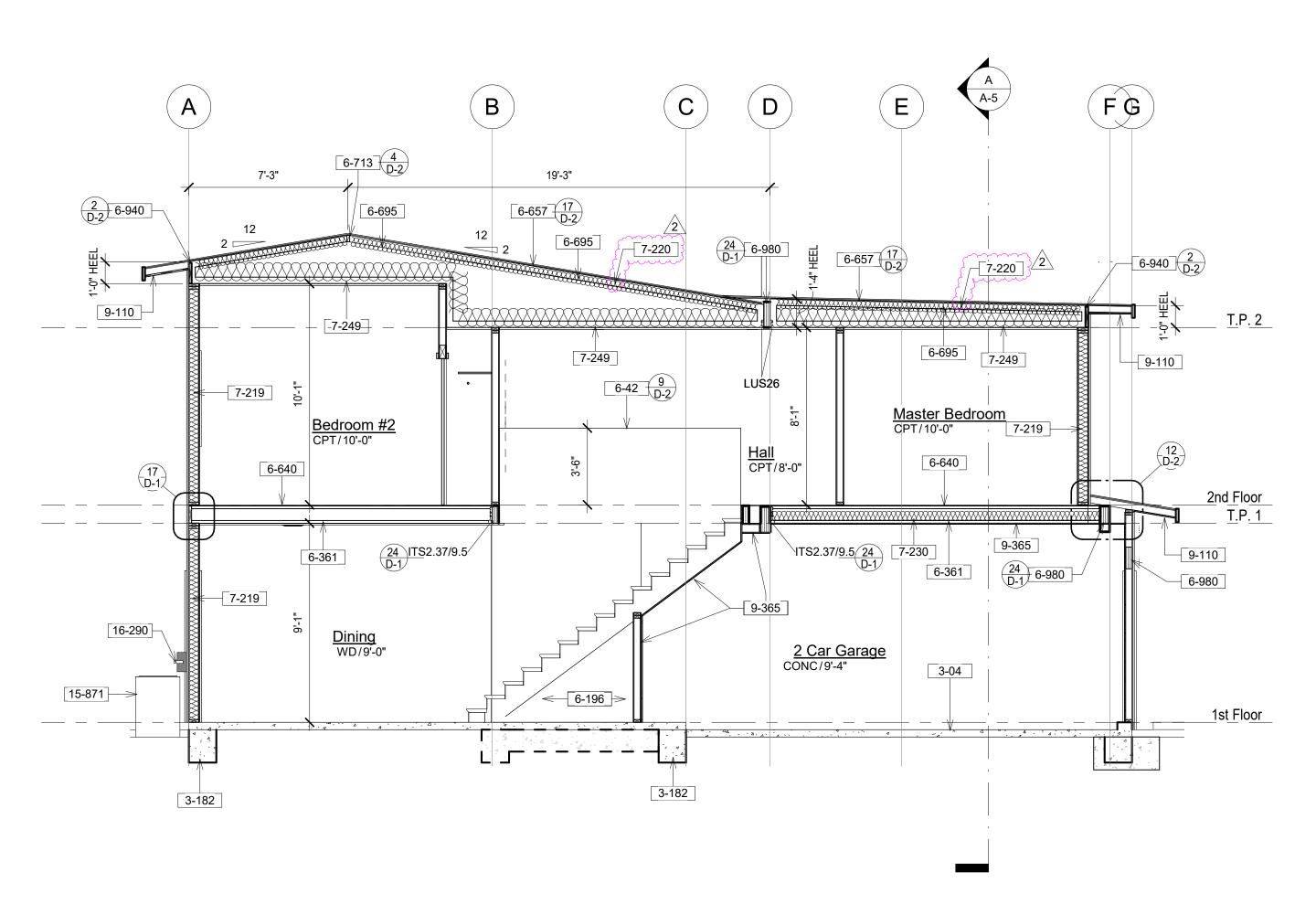
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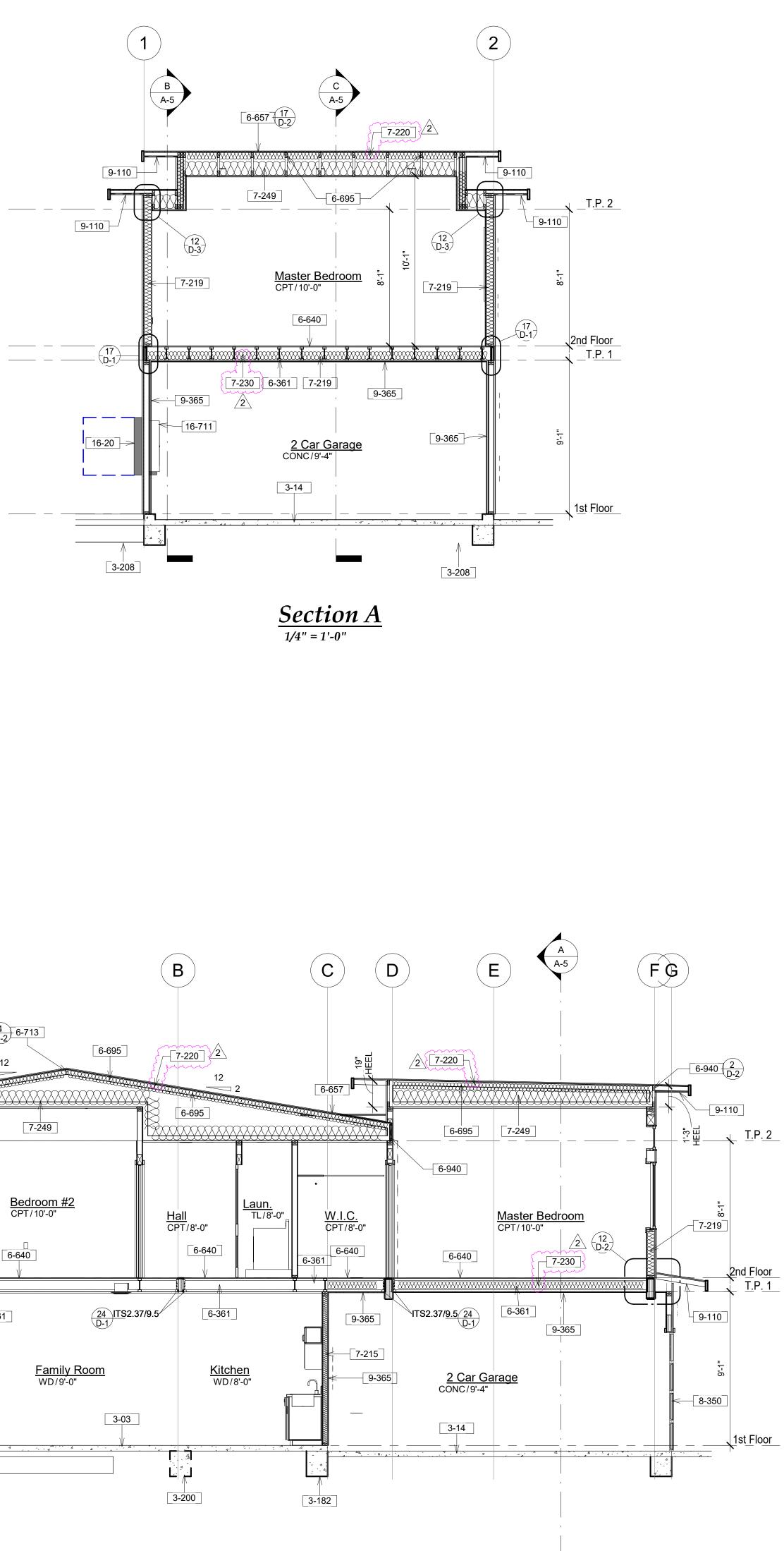
56	6 x 6 DOUG FIR #1 OR BETTER HEADER WITH
58	6 x 8 DOUG FIR #1 OR BETTER HEADER WITH
61	9-1/2" DEEP ENGINEERED WOOD "I" JOISTS / (2-5/16" x 1.6E FLANGE) OR EQUAL). SEE MAN BLOCKING AND SHEAR REQUIREMENTS. (IC
1	PROVIDE 3/8" SHEAR DIAPHRAGM AT NOOK (NAILING PER SHEAR TYPE <2>)
10	19/32" EXPOSURE I TONGUE AND GROOVE F SHEATHING (PANEL INDEX 32/16). GLUE-NAII EDGES AND 10" O/C FIELD. FLOOR DIAPHRAM MAXIMUM AT SUPPORTED EDGES
57	15/32" APA RATED OSB FOIL-FACED ("LUMIN SHEATHING 32/16 SPAN RATING EXTERIOR ( NAIL WITH 8d NAILS AT 6" O/C EDGES AND B FOIL-FACED SHEATHING AT ALL VERTICAL V
95	FLAT BOTTOM ENGINEERED ROOF TRUSSES
)9	DRAG TRUSS (SEE PLAN FOR LOADING). PR CENTER) ALONG ENTIRE LENGTH OF DRAG
10	SHADING INDICATES "CALIFORNIA" FILL FRA DRAWINGS). CONTINUE MAIN ROOF SHEATH
3	2 x 4 SOLID RIDGE BLOCKING BETWEEN TRU
64	2 x 6 DOUG FIR #2 OR BETTER ROOF RAFTER TABLE 2308.10.3(1) CONCRETE TILE).
30	2 x 4 BRACING TO SUPPORT HIP, RIDGE OR

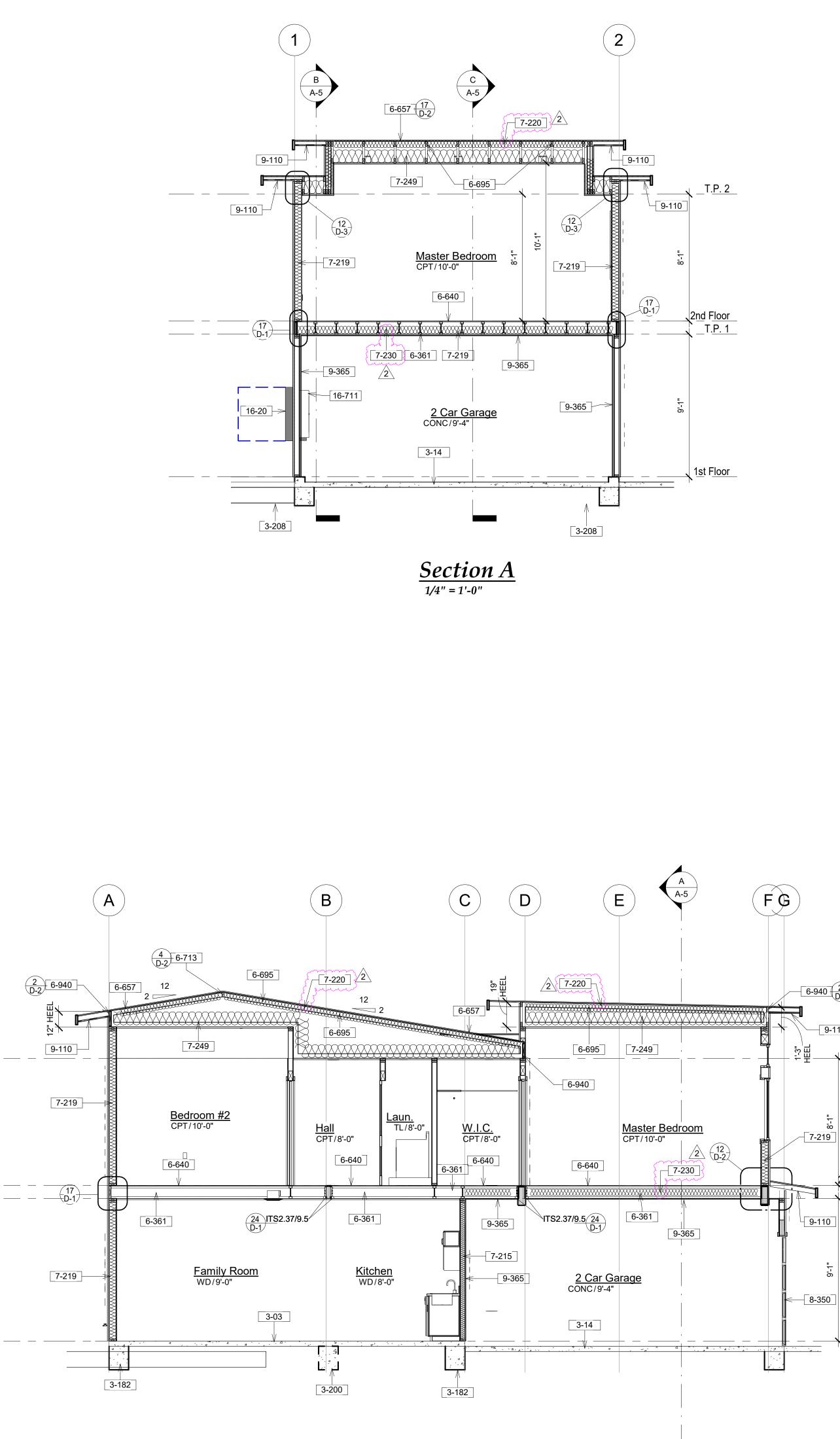


Erick and Ce	lia Yerena
Via Verrazano, Riverside	e, CA 92503 (APN: 2
6 May 2022	$\underline{\land}$
20-3864	$\bigwedge_{\bigwedge}$
Foun	dation
<b>F</b> r	amina



Section B 1/4" = 1'-0"





BRS2101817 APPROVED SET.pdf 05/18/22 Page 7 of 58

Section C 1/4" = 1'-0"



	Plan Notes
3-03	4" THICK CONCRETE SLAB ON 2" SAND OVER 10 MIL "VISQU BARS AT 18" O/C IN CENTER OF SLAB.
3-04	4" THICK CONCRETE SLAB ON 2" SAND OVER 10 MIL "VISQU SAND WITH #3 BARS AT 24" O/C IN CENTER OF SLAB.
3-14	4" THICK CONCRETE GARAGE SLAB ON 2" SAND BASE (2,50 TROWEL FINISH. SLOPE 2" TO DRAIN. SAWCUT WITHIN 24 F
3-182	15" WIDE x 18" DEEP (BELOW GRADE) CONTINUOUS CONCI REINFORCING BAR TOP AND BOTTOM. PROVIDE 5/8" DIAMI (ASTM A-307) AT 48" O/C AND 12" FROM CORNERS AND BRI EMBEDMENT INTO CONCRETE) WITH 3" x 3" x 0.229" SQUAF TYPICAL. (CLOSER SPACING AND DEEPER FOOTING MAY E SEE SCHEDULE)
3-200	CONTINUOUS CONCRETE FOOTING WITH STEM AND (1) #4 BOTTOM (SEE FOUNDATION PLAN FOR STEM WIDTH). PRO ANCHOR BOLTS (ASTM A-307) AT 48" O/C AND 12" FROM CO PLATE (7" MINIMUM EMBEDMENT INTO CONCRETE) WITH 3 PLATE WASHERS TYPICAL. (CLOSER SPACING AND DEEPE SHEAR WALLS - SEE SCHEDULE)
3-208	CONTINUOUS CONCRETE FOOTING WITH 8" WIDE STEM AN AND BOTTOM. PROVIDE 5/8" DIAMETER x 14" LONG ANCHO AND 12" FROM CORNERS AND BREAKS IN SILL PLATE (7" M CONCRETE) WITH 3" x 3" x 0.229" SQUARE STEEL PLATE WA SPACING AND DEEPER FOOTING MAY BE REQUIRED AT SH
6-42	42" HIGH WOOD STUD WALL WITH DRYWALL SIDES AND W
6-196	VOID SPACE
6-361	9-1/2" DEEP ENGINEERED WOOD "I" JOISTS AT 16" O/C. (TR (2-5/16" x 1.6E FLANGE) OR EQUAL). SEE MANUFACTURER'S NOTCHING, BLOCKING AND SHEAR REQUIREMENTS. (ICC E
6-640	19/32" EXPOSURE I TONGUE AND GROOVE PLYWOOD (OR SHEATHING (PANEL INDEX 32/16). GLUE-NAIL WITH 10d DEI EDGES AND 10" O/C FIELD. FLOOR DIAPHRAGM TO BE UNB MAXIMUM AT SUPPORTED EDGES
6-657	15/32" APA RATED OSB FOIL-FACED ("LUMINOX", OR EQUAL SHEATHING 32/16 SPAN RATING EXTERIOR GLUE LAY PERI NAIL WITH 8d NAILS AT 6" O/C EDGES AND BOUNDARY AND FOIL-FACED SHEATHING AT ALL VERTICAL WALLS AT GAB
6-695	FLAT BOTTOM ENGINEERED ROOF TRUSSES AT 24" O/C
6-713	2 x 4 SOLID RIDGE BLOCKING BETWEEN TRUSSES
6-940	SOLID 2x EAVE BLOCKING WITH "SIMPSON H1" CLIPS AT 24 TRUSS (OR RAFTER) TO DOUBLE TOP PLATES (OR BEAM). TO EAVE BLOCKING AT SHEAR WALLS. SEE SHEAR PANEL "SIMPSON A35" CLIPS TO EAVE BLOCKING. ("H1 SPACING A AT SHEAR WALLS IN ADDITION TO A35'S)
6-980	BEAM (SEE FRAMING PLAN)
7-215	R-15 FIBERGLASS BATT INSULATION TYPICAL AT WALLS
7-219 7-220	R-19 FIBERGLASS BATT INSULATION R-19 FIBERGLASS BATT INSULATION (SUPPORTED AT 12" C RESISTANT WIRE OR EQUIVALENT)
7-230	R-30 FIBERGLASS BATT INSULATION
7-249	R-49 FIBERGLASS BATT INSULATION AT ALL NEW ATTIC AF
8-350	OVERHEAD SECTIONAL GARAGE DOOR (RATED FOR 80 MF GARAGE DOOR OPENERS, SHALL BE LISTED IN ACCORDAN
9-110	STUCCO SOFFIT (USE HIGH-RIB METAL LATH AT ALL HORIZ ONE LAYER 5/8" TYPE "X" GYPSUM SHEATHING
9-365	5/8" TYPE "X" GYPSUM BOARD GARAGE SIDE OF ALL WALL HOUSE AND ALL WALLS SUPPORTING SECOND FLOOR. PR SEPARATION BETWEEN OFFSET ELECTRICAL RECEPTACL CONFORM TO ICC REPORT NO. ER 3686) GAS VENTS, MET/ FINISH SHALL BE FIRE STOPPED WITH AN APPROVED ASS PIERCE FINISH. DUCTS ON THE GARAGE SIDE SHALL BE A METAL.
15-871	CONDENSING UNIT. PROVIDE 3-1/2" THICK POLYETHYLENE ABOVE GROUND PER C.M.C.
16-20	400 AMP RECESSED MAIN PANEL (UNDERGROUND FEED W GROUND) (VERIFY EXACT LOCATION WITH UTILITY COMPA BONDING TO SERVICE) PROVIDE 3'-0" DEEP BY 2'-6" WIDE I OF PANEL PER ARTICLE 110-26a
16-290 16-711	220 V. DISCONNECT SWITCH (VERIFY CONDUCTOR SIZE AN

Proposed Single Family Residence For: Erick and Celia Yerena Via Verrazano, Riverside, CA 92503 (APN: 269-201-067) 10 May 2022 PCC 6 May 2022 20-3864

<u>T.P. 1</u>

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# ANDRESEN ARCHITECTURE INC.

### Notes

OVER 10 MIL "VISQUEEN" VAPOR BARRIER WITH #3 OVER 10 MIL "VISQUEEN" VAPOR BARRIER ON 2"

ER OF SLAB. 2" SAND BASE (2,500 PSI MIX) WITH SMOOTH AWCUT WITHIN 24 HOURS WHERE INDICATED ONTINUOUS CONCRETE FOOTING WITH (1) #4 PROVIDE 5/8" DIAMETER x 12" LONG ANCHOR BOLTS CORNERS AND BREAKS IN SILL PLATE (7" MINIMUM x 3" x 0.229" SQUARE STEEL PLATE WASHERS ER FOOTING MAY BE REQUIRED AT SHEAR WALLS -

H STEM AND (1) #4 REINFORCING BAR TOP AND STEM WIDTH). PROVIDE 5/8" DIAMETER x 14" LONG C AND 12" FROM CORNERS AND BREAKS IN SILL CONCRETE) WITH 3" x 3" x 0.229" SQUARE STEEL PACING AND DEEPER FOOTING MAY BE REQUIRED AT

H 8" WIDE STEM AND (2) #4 REINFORCING BAR TOP (14" LONG ANCHOR BOLTS (ASTM A-307) AT 48" O/C IN SILL PLATE (7" MINIMUM EMBEDMENT INTO E STEEL PLATE WASHERS TYPICAL. (CLOSER REQUIRED AT SHEAR WALLS - SEE SCHEDULE) WALL SIDES AND WOOD CAP.

STS AT 16" O/C. (TRUS-JOIST MACMILLAN TJI 230 MANUFACTURER'S SPECIFICATIONS FOR UIREMENTS. (ICC ESR-1153) VE PLYWOOD (OR APA RATED OSB) FLOOR -NAIL WITH 10d DEFORMED SHANK NAILS AT 6" O/C "HRAGM TO BE UNBLOCKED WITH NAILS SPACED 6"

JMINOX", OR EQUAL. FOIL SIDE DOWN) ROOF IOR GLUE LAY PERPENDICULAR WITH RAFTERS AND ND BOUNDARY AND 12" O/C IN FIELD. INCLUDE CAL WALLS AT GABLED ENDS ISSES AT 24" O/C

TRUSSES ON H1" CLIPS AT 24" ON CENTER FROM EACH ROOF PLATES (OR BEAM). PROVIDE "SIMPSON A35" CLIPS SEE SHEAR PANEL SCHEDULE FOR ADDITIONAL NG. ("H1 SPACING AT 24" ON CENTER STILL OCCURS

UPPORTED AT 12" ON CENTER WITH CORROSION

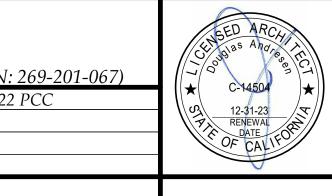
ALL NEW ATTIC AREAS. (RATED FOR 80 MPH WIND, EXP. "C") (AUTOMATIC STED IN ACCORDANCE WITH UL 325. (R309.4)) LATH AT ALL HORIZONTAL APPLICATIONS) OVER THING SIDE OF ALL WALLS AND CEILING ADJACENT TO ECOND FLOOR. PROVIDE MINIMUM 24" HORIZONTAL

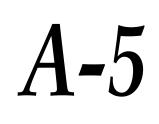
RICAL RECEPTACLES. (ELECTRICAL BOXES TO ) GAS VENTS, METAL CHIMNEYS PENETRATING THE AN APPROVED ASSEMBLY. PLASTIC PIPE SHALL NOT SIDE SHALL BE A MINIMUM 26 GAUGE SHEET CK POLYETHYLENE PAD EXTENDED 3" MINIMUM

RGROUND FEED WITH TWO #3/0 AWG & ONE #2 /ITH UTILITY COMPANY) (PROVIDE GAS AND WATER DEEP BY 2'-6" WIDE MINIMUM CLEARANCE IN FRONT ONDUCTOR SIZE AND FUSING WITH LOCAL CODES) 16-711 EV PANEL "READY" - SEE NOTE 1 TO 6 ON EV NOTES

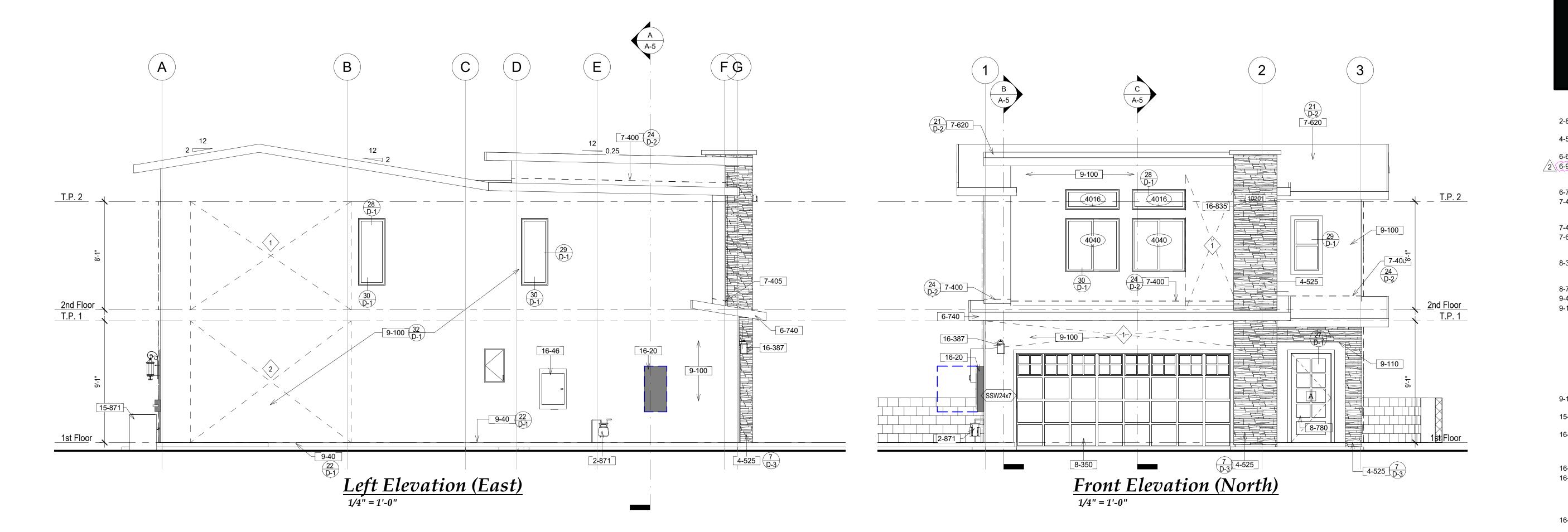
> **REVIEWED FOR CODE COMPLIANCE BY:** WILLDAN ENGINEERING Approval of these plans & specifications shall not be construed to be a permit for, or an approval of any violation of any Federal, State, County or City laws or ordinances. One set of approved plans must be kept on the job until completion.

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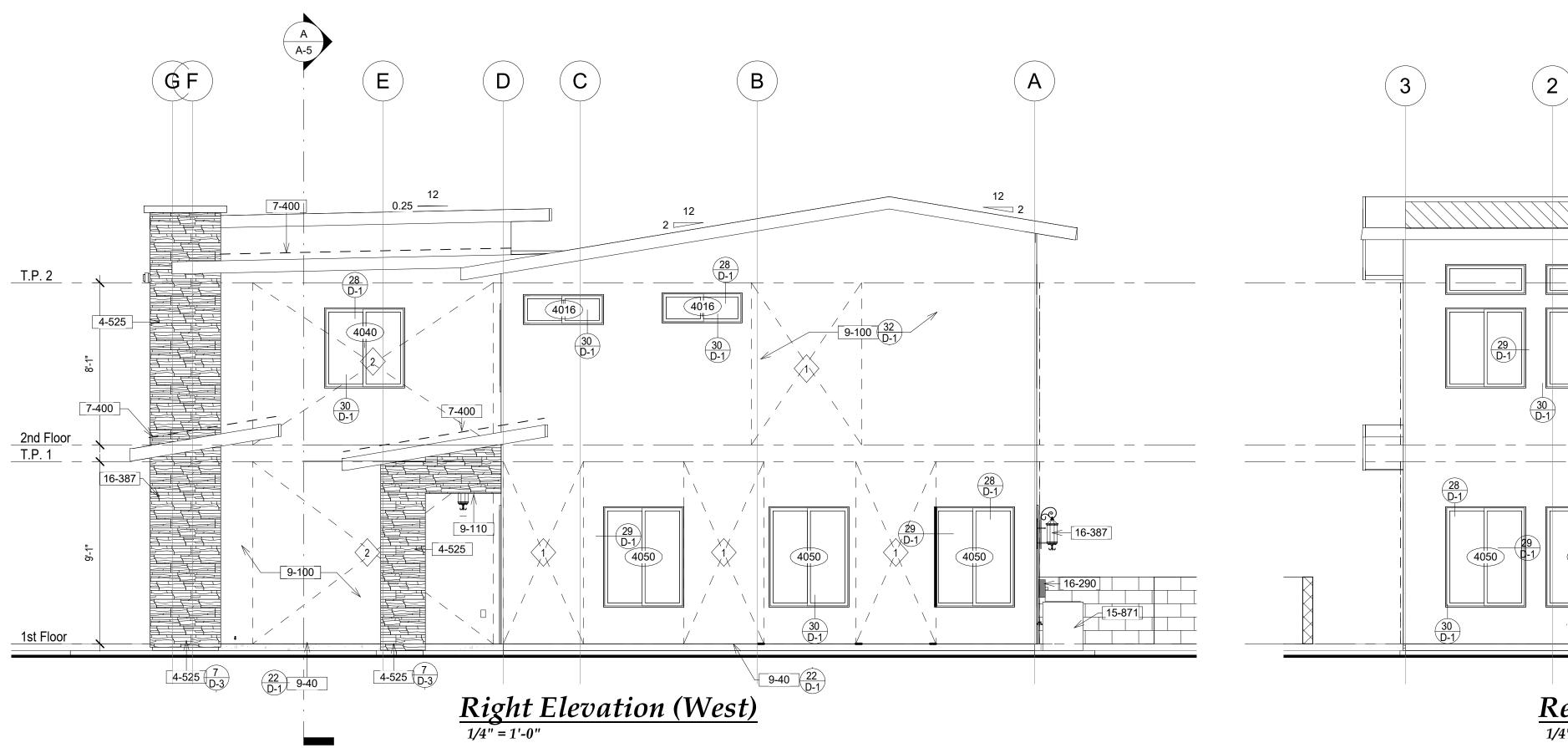




Sections



BRS2101817 APPROVED SET.pdf 05/18/22 Page 8 of 58



### Fire Notes

- 1. ROOF COVERINGS SHALL BE EITHER NONCOMBUSTIBLE OR SHALL BE FIRE RETARDANT MATERIAL NOT COMPOSED OF ORGANIC FIBER WITH A MINIMUM CLASS "A" RATING
- 2. ALL EXTERIOR WALL COVERINGS SHALL BE APPROVED NONCOMBUSTIBLE OR IGNITION-RESISTANT MATERIAL 3. EAVES SHALL PROVIDE ONE-HOUR FIRE RESISTANCE-RATED CONSTRUCTION OR EQUIVALENT (SEE KEY NOTE
- 9-110) 4. EXTERIOR DOOR ASSEMBLIES SHALL MEET STANDARD SFM 12-7A-1 OR SHALL BE OF APPROVED
- NONCOMBUSTIBLE CONSTRUCTION 5. ADDRESS NUMBERS SHALL HAVE INTERNALLY ILLUMINATED, NONCOMBUSTIBLE
- EXTERIOR DOORS: • EXTERIOR DOORS SHALL COMPLY WITH ONE OF THE FOLLOWING:
- THE EXTERIOR SURFACE OR CLADDING SHALL BE OF NONCOMBUSTIBLE OR IGNITION RESISTANT MATERIALS SOLID WOOD DOORS HAVING STILES AND RAILS NOT LESS THAN 1-3/8" THICKNESS WITH THE INTERIOR FIELD PANELS NOT LESS THAN 1-1/4" THICKNESS, EXCEPT FOR THE EXTERIOR PERIMETER OF THE RAISED PANEL THAT MAY TAPER TO A TONGUE NOT LESS THAN 3/8" THICK SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 20 MINUTES
- SHALL BE TESTED TO MEET THE PERFORMACE REQUIREMENTS OF SFM STANDARD 12-7A-1 GARAGE DOORS SHALL RESIST THE INTRUSION OF EMBERS BY PREVENTING GAPS BY THE ITEMS LISTED PER
- 708A.4 (CRC R337.8.4)
- EXTERIOR GLAZING NOTES: • EXTERIOR GLAZING IN EXTERIOR WINDOWS, EXTERIOR GLAZED DOORS, GLAZED OPENINGS IN EXTERIOR DOORS, GLAZED OPENINGS IN EXTERIOR GARAGE DOORS OR STRUCTURAL GLASS SHALL COMPLY WITH ONE OF THE
- FOLLOWING REQUIREMENTS: DOUBLE GLAZED INSULATING GLASS WITH ONE OF THE PANES TEMPERED AND THE SECOND PANE MAY BE PLAIN
- GLASS EITHER THE INTERIOR OR EXTERIOR PANEL MAY BE TEMPERED
- GLASS BLOCK UNITS A TWENTY (20) MINUTE FIRE-RESISTIVE RATED WINDOW ASSEMBLY
- BE TESTED TO MEET THE PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A-2. STRUCTURAL GLASS VENEER. THE WALL ASSEMBLY BEHIND STRUCTURAL GLASS VENEER SHALL COMPLY WITH SECTION 707A.3 FOR

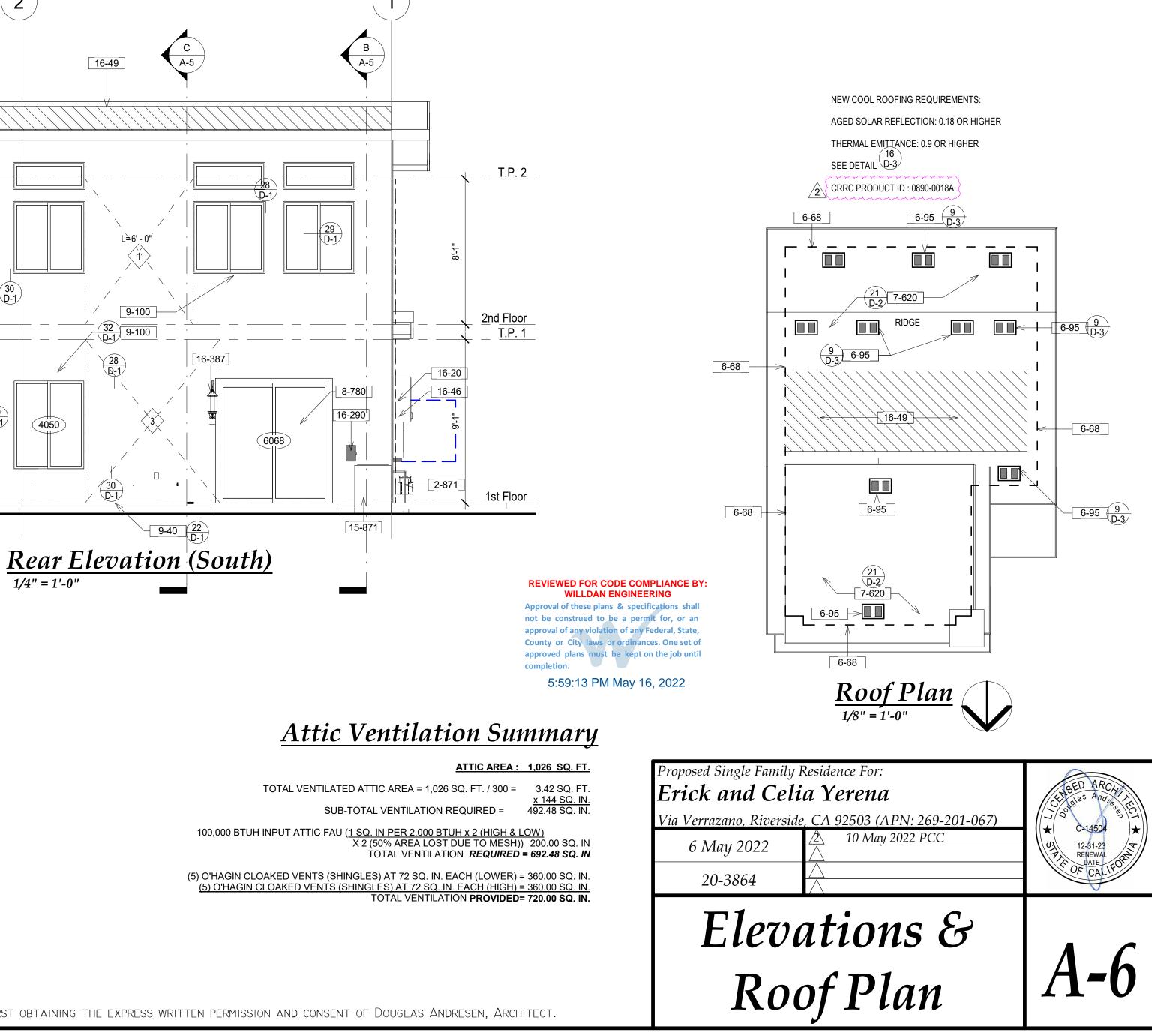
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EXTERIOR WALLS.



	Plan Notes
2-871	NEW GAS METER LOCATION (BY UTILITY). (VERIFY EXACT COMPANY)
1-525	SYNTHETIC STONE VENEER ("SOUTHWEST BLENDPRO-FI" "STONE PRODUCTS CORP.") I.C.C. REPORT NO. NER-358
6-68	LINE OF WALL BELOW
5-95	O'HAGIN CLOAKED VENT TILE (MODEL "S" FOR "S" TILE, M AND MODEL "FLAT" FOR FLAT CONCRETE TILE.) WITH 1/4" AT OPENING (O'HAGINS 1 (800) 394-3864) minimum of 1/
6-740	2 x 6 RESAWN FASCIA (HOLD UP AT EAVES FOR STARTER
7-400	CONTINUOUS 24 GAUGE ROOF/WALL FLASHING (TYPICAL AND INSTALLATION MUST COMPLY WITH THE PROVISION 1509.
7-405	CONTINUOUS 24 GAUGE GALVANIZED RAKE / WALL FLASH
7-620	NEW CLASS "A" 25 YEAR COMPOSITION ROOF SHINGLES ( LAYER 15 LB. FELT. (ROOF SHALL BE INSTALLED WITH WII WINDS)
3-350	OVERHEAD SECTIONAL GARAGE DOOR (RATED FOR 80 M (AUTOMATIC GARAGE DOOR OPENERS, SHALL BE LISTED 325. (R309.4))
3-780	T INDICATES TEMPERED GLASS
9-40	CONTINUOUS GALVANIZED SHEET METAL WEEP SCREED
9-100	7/8" EXTERIOR CEMENT PLASTER WITH PAPER-BACKED W COATS MINIMUM). PROVIDE ONE LAYER OF NO. 15 ASPHA AND BREAKS COMPLYING WITH ASTM D 226 FOR TYPE 1 F STUDS OF ALL EXTERIOR WALLS. PROVIDE TWO LAYERS ALL PLYWOOD SHEAR PANEL (USE HIGH RIB LATH AT HOF (USE EXTERIOR STUCCO PLASTER CONTROL JOINTS NO FEET VERTICAL AND 100 SQUARE FEET FOR HORIZONTAL DISTANCE BETWEEN CONTROL JOINTS SHALL NOT EXCEL DIRECTION WITH A LENGTH TO WIDTH RATIO OF 2.5: 1, PE R703.6.1 OF THE 2013 CRC.). FILL WALL CAVITY WITH R-19 INSULATION.
9-110	STUCCO SOFFIT (USE HIGH-RIB METAL LATH AT ALL HORI ONE LAYER 5/8" TYPE "X" GYPSUM SHEATHING
15-871	CONDENSING UNIT. PROVIDE 3-1/2" THICK POLYETHYLEN ABOVE GROUND PER C.M.C.
16-20	400 AMP RECESSED MAIN PANEL (UNDERGROUND FEED V GROUND) (VERIFY EXACT LOCATION WITH UTILITY COMP/ WATER BONDING TO SERVICE) PROVIDE 3'-0" DEEP BY 2'- IN FRONT OF PANEL PER ARTICLE 110-26a
16-46	SOLAR READY - FUTURE PANEL
16-49	PV SYSTEM WITH STANDARD DESIGN PV CAPACITY PER T COMPRISED OF AREAS THAT HAVE NO DIMENSION LESS LESS THAN 80 SQ. FT. EACH) PER ENERGY CODE, SECTIO CONTRACTOR TO VERIFY BEST DIRECTION TO FACE THE INSTALLATION.
16-290	220 V. DISCONNECT SWITCH (VERIFY CONDUCTOR SIZE A CODES)
16-387	SURFACE MOUNTED ADJUSTABLE FLOOD LIGHTS (+84" U
16-835	ILLUMINATED ADDRESS LIGHT AT +84" ABOVE FLOOR LINE WITH 4" HIGH MINIMUM HEIGHT NUMBERS ON CONTRAST ILLUMINATED AT ALL HOURS OF DARKNESS

NOTE: ROOF GUTTERS SHALL BE SCREENED TO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS. CRC R337.5.4.



### ı Notes

TY). (VERIFY EXACT LOCATION WITH UTILITY VEST BLENDPRO-FIT LEDGESTONE" PF-8019 BY

. "S" FOR "S" TILE, MODEL "M" FOR LOW PROFILE, ETE TILE.) WITH 1/4" GALVANIZED MESH SCREEN 64) minimum of 1/16-inch and shall not exceed 18-inch. AVES FOR STARTER COURSE OF CONCRETE TILE) LASHING (TYPICAL). ROOF FLASHING MATERIALS TH THE PROVISIONS OF CBC SECTIONS 1508 &

RAKE / WALL FLASHING (TYPICAL) N ROOF SHINGLES (ICC ER-5546) OVER ONE NSTALLED WITH WIND TABS TO RESIST 110 MPH

(RATED FOR 80 MPH WIND, EXP. "C") SHALL BE LISTED IN ACCORDANCE WITH UL

### TAL WEEP SCREED

H PAPER-BACKED WOVEN WIRE FABRIC LATH (3 ER OF NO. 15 ASPHALT FELT FREE FROM HOLES D 226 FOR TYPE 1 FELT SHALL BE APPLIED OVER VIDE TWO LAYERS OF GRADE "D" PAPER OVER GH RIB LATH AT HORIZONTAL APPLICATIONS) ONTROL JOINTS NO GREATER THAN 144 SQUARE T FOR HORIZONTAL APPLICATIONS. THE SHALL NOT EXCEED 18 LINEAR FEET IN EITHER RATIO OF 2.5: 1, PER ASTM C 1063 AND CH. L CAVITY WITH R-19 FIBERGLASS BATT

L LATH AT ALL HORIZONTAL APPLICATIONS) OVER EATHING HICK POLYETHYLENE PAD EXTENDED 3" MINIMUM

DERGROUND FEED WITH TWO #3/0 AWG & ONE #2 WITH UTILITY COMPANY) (PROVIDE GAS AND DE 3'-0" DEEP BY 2'-6" WIDE MINIMUM CLEARANCE

PV CAPACITY PER TITLE 24 (AREA SHALL BE D DIMENSION LESS THAN FIVE FEET AND ARE NO RGY CODE, SECTION 110.10(b). SOLAR PANELS CTION TO FACE THE PANELS AT TIME OF

CONDUCTOR SIZE AND FUSING WITH LOCAL DOD LIGHTS (+84" UON) WITH MOTION SENSOR ABOVE FLOOR LINE (UON) PER CITY STANDARD ERS ON CONTRASTING BACKGROUND AND

	CALIFORNIA ENERGY C	ARIES MUS			1.				ALL BE	GROU	
		M, GARAG	E, LAUNDRY ROOMS AND UTILI		2.	WATER PIPIN ALL NONLOC LISTED TAMP	G. KING TYPE ER-RESIST	125-V ANT F	OLT, 15 RECEPT	- AND ACLES	6. EXCEPT
	SWITCH. (CLOSETS UN	ST BE SWI NDER 70 SO	TCHED BY A OCCUPANT SENSO Q FT ARE EXEMPT.)		3.	MORE THAN S OF A LUMINA PROVIDE ONI	RE OR API E MINIMUM	PLIAN( SEPA	CE. RATE 2	0 AMP	CIRCUIT T
	MUST BE CONTROLLED AUTOMATIC CONTROL	) by a man	NUTDOOR LIGHTING MUST BE H NUAL ON AND OFF SWITCH AND PER CALIFORNIA ENERGY COD	D USE OF THESE		OTHER OUTL WHERE MOTO THAN 50% OF	OR LOADS, CONDUCT	APPL	IANCE, ATING N	LIGHT MAY BE	ING ARE IN E USED.
		ND AUTON	N SENSOR, OR MATIC TIME SWITCH CONTROL, THAT AUTOMATICALLY TURN (		6.	GROUNDING 200A AND #2 EACH ROOM PROVIDING A	COPPER O	F 400A IG A W	A. VATER (	CLOSE	T SHALL F
	OFF DURING DAYLIC (EMCS) THAT PROV	GHT HOUF /IDES THE	RS, OR ENERGY MANAGEMENT FUNCTIONALLY OF AN ASTRON VERRIDE OR BYPASS THAT ALL	CONTROL SYSTEM	7.	FLUORESCEN (MUST BE PIN INCANDESCE	IT FIXTURE I BASED) A	ES SHA ND SH	ALL NO	L CON.	TAIN MEDI
	LUMINARIES TO ALV THE OUTDOOR LIGH	WAYS ON, HTING OFF	AND IS PROGRAMMED TO AUT F DURING DAYLIGHT HOURS. VE NO MANUAL OVERRIDE AND	OMATICALLY TURN		ALL PROPOSI LIGHTING FIX	ED LIGHT F TURES IN T	IXTUR	R SHOV		
	TIMER AND BE A MICRO 6. HIGH EFFICACY LUMINA	OWAVE/UL ARIES MUS	TRASONIC OR PASSIVE INFA-RI	ED TYPE		OPENINGS AN WALLS, PART APPROVED M	ROUND ELE TITIONS, FL	ECTRI OORS	CAL PEI , OR CE	EILING	S SHALL B
	MUST BE JA8 CERTIFIED CEILING RECESSED DO	d to be in Wnlight	ISTALLED IN CEILING RECESSE S AND ENCLOSED LUMINARIES ACANCY SENSOR AS PER CAL	D DOWNLIGHTS. ALL MUST BE		PROVIDE TW ELECTRICAL 50 AMPS SHA	o minimun Equipmen	1 SEPA T REC	ARATE 2 UIRING	20 AMF 6 ELEC	CIRCUITS
			ION FOR ALL OUTLET, FIXTURE		) 12.	SIGHT FROM INSTALL DISC ALL LIGHTS IN	ONNECTS	BEHIN DMS A	ND EQU	IPMEN	T.
	JOB. 2. IF ANY FIELD CHANGES	S NEED TO	RESPONSIBLY OF LICENSED EL BE MADE THE LICENSED ELEC	TRICIAN HAS SOLE		FLUORESCEN SMOKE ALAR (SECTION 907	M/DETECT (.2.10)	ORS S	HALL S	OUND	
	GENERAL CONTRACTOR	R AND MU	GES. ALL CHANGES MUST BE AF IST FOLLOW THE 2005 NEC.		14.	PRODUCTS C CORRIDOR O ABOVE STAIR	R ROOM W WAY TO S	/HICH LEEPII	PROVIE NG ROC	DES AC	CESS TO
Π	SLAB AND 8" OFF FINISHED	COUNTER			15	8202 SINGLE COMPLY WIT UP AND INTE APPROVAL O	H SECTION	907.2 FED S0	of the D that	E C.B.C WHEN	C. HARD W NONE SOU
GFI/WP ∯GFI	SLAB AND 8" OFF FINISHED INTERRUPTION FOR ALL OU	O COUNTER	(12-2W/GROUND) TYPE. TO BE I RTOP. WEATHERPROOF COVEF UTLETS	R W/ GROUND FAULT		APPROVAL O APPROVAL FO SEPARATE AI ALL BEDROO	OR ANY TY PPROVALS	PE OF FOR /	ALARM	1 SYST ARM S	EM THAT
	DUPLEX RECEPTACLE: 15A- SLAB AND 8" OFF FINISHED	A-125V-2P, COUNTER	(14-2W/GROUND) TYPE. TO BE I RTOP	INSTALLED 12" OFF		ALL BATHROO FOLLOWS: A. A 20 AMP	OM CIRCUI	TS SH	ALL CO	NFORI	N TO CEC
₽220	RECEPTACLE: 20A-220V-2P, 3' FLOOR FINISHED SLAB U.	9, 3-WIRE G I.N.O.	ROUNDING TYPE. TO BE INSTA	ILLED		AMPERE CIRC B. AT LEAST C. ALL OUTL	ON 20 AM	lying P Circ	ONLY E CUIT FO	BATHR R ALL	OOM REC BATHROC
Ф О	HALF HOT RECEPTACLE	S ARE TO	BE THERMALLY PROTECTED A	LL LIGHT TO BE HIGH	19.	ELECTRICAL ALL EXHAUST ALL APPLIAN	BOXES SHA	ALL BE SHAL	E RATEI L BE PR	d & AP Rovide	PROVED A
Q	EFFICIENCY (LED) U.N.O. WALL MOUNTED FIXTURE H	HIGH EFFIC	CIENCY (LED) U.N.O.			ENERGY COM OCCUPANCY MAX TIMER A	FIXTURE S ND BE A M	ICROV	VAVE/U	LTRAS	ONIC OR
-¢-	MS - MOTION SENSOR BUILT	_T IN SWIT		FFICIENCY (LED)		WIRING SHAL VENTS AND D FLOOR/CEILIN	L BE SHEA OUCTS SHA NG LINES.	THED	WITH N Min. 26	/IN. 26 6 GA. N	GA. MATI IATERIAL
	U.N.O. LED LIGHT, ALL LIGHTS TO F			. ,		ALL CAN LIGH TUBS AND SH THE MAIN ELI	IOWERS M	UST B SERVI	E APPR CE PAN	OVED	FOR WE <sup>-</sup> ALL INCLU
SD	SMOKE DETECTORS HARD W/ BATTERY BACK UP	WIRE TO	POWER AND SECURITY SYSTEM	М		ALLOWING FO	RGING SYS	STEM. CAPA	THE RE	ESERV	ED SPAC
Ş	TOGGLE SWITCH, 15A-125V SYMBOL INDICATES THE FC 3 - THREE WAY		IOUNT AT +48" OR AS NOTED SI S:	UBSCRIPT AT		a) APPROVED THE INTERIO ABOVE THE C b) INSTALL A	R OF THE C GARAGE FL	GARAG	GE AT M	INIMU	M 30 INCH
	4 - FOUR WAY D - DIMMER OS - OCCUPANCY SENSOR	)				c) MINIMUM 1	RANCH CI	RCUIT ⁄IETER		) ELEC	
	VS - VACANCY SENSOR T - TIMER P - PHOTOCELL / MOTION SI		OMBINATION			REQUIRED EL SHALL PROVI CIRCUIT AND	ECTRICAL	JUNC	TION B	OX. TH LL A 4(	IE SERVIO D-AMPERI
()			FINSTALLATION MANUAL FOR E	DETAIL	25.	CIRCUIT OVE ELECTRICAL "FOR FUTURE	RCURRÈŃ <sup>-</sup> JUNCTION	r Pro Box s	TECTIV SHALL B	E DEV E PER	ICE. MANENT
	CABLE TELEVISION				26.	COMBUSTIBL MM) FROM RI DEVICES. [R3	ECESSED L				
×	FIREPLACE GAS KEY										
	<ul> <li>ALL BATHROOMS W/ TU SHALL BE PROVIDED AN SYSTEM THAT PROVIDE</li> <li>THE DISCHARGE POINT EXTERIOR OPENINGS W</li> <li>UNLESS FUNCTIONING J SYSTEM, THE FAN MUST READILY ACCESSIBLE. H</li> </ul>	JBS OR SH N ENERGY E A MINIMU F FOR THE WHICH ALL AS A COW ST BE CON HUMIDIST.	THAT IS TO HAVE AT LEAST 40 HOWERS, WATER CLOSETS AND STAR COMPLIANT MECHANICA JM OF 50 CFM DIRECTLY VENTE EXHAUST AIR SHALL BE AT LEA OWS AIR ENTRY INTO THE OCC IPONENT OF A WHOLE HOUSE TROLLED BY A HUMIDISTAT WH AT CONTROLS SHALL BE CAPAN ANGES OF 50% TO 80%	D LAUNDRY ROOMS AL VENTILATION ED TO THE OUTSIDE. AST 3' FROM ALL CUPIED AREAS. VENTILATION HICH SHALL BE							
	<ul> <li>ALL BATHROOMS W/ TU SHALL BE PROVIDED AN SYSTEM THAT PROVIDE</li> <li>THE DISCHARGE POINT EXTERIOR OPENINGS W</li> <li>UNLESS FUNCTIONING A SYSTEM, THE FAN MUST READILY ACCESSIBLE. H BETWEEN RELATIVE HU</li> </ul> ABBREVIATIONS: L = LED	JBS OR SH N ENERGY E A MINIMU F FOR THE WHICH ALL AS A COW ST BE CON HUMIDIST UMIDITY R	HOWERS, WATER CLOSETS AND Y STAR COMPLIANT MECHANICA JM OF 50 CFM DIRECTLY VENTE EXHAUST AIR SHALL BE AT LEA OWS AIR ENTRY INTO THE OCC IPONENT OF A WHOLE HOUSE Y TROLLED BY A HUMIDISTAT WH AT CONTROLS SHALL BE CAPAR ANGES OF 50% TO 80%	D LAUNDRY ROOMS AL VENTILATION ED TO THE OUTSIDE. AST 3' FROM ALL CUPIED AREAS. VENTILATION HICH SHALL BE		PANEL A				vc	DLTAGE: BUS:
	<ul> <li>ALL BATHROOMS W/ TU SHALL BE PROVIDED AN SYSTEM THAT PROVIDE</li> <li>THE DISCHARGE POINT EXTERIOR OPENINGS W</li> <li>UNLESS FUNCTIONING A SYSTEM, THE FAN MUST READILY ACCESSIBLE. H BETWEEN RELATIVE HU</li> <li>ABBREVIATIONS:</li> </ul>	JBS OR SH N ENERGY E A MINIMU F FOR THE WHICH ALL AS A COM HUMIDIST. UMIDITY R M F AI NO	OWERS, WATER CLOSETS AND Y STAR COMPLIANT MECHANICA JM OF 50 CFM DIRECTLY VENTE EXHAUST AIR SHALL BE AT LEA OWS AIR ENTRY INTO THE OCC IPONENT OF A WHOLE HOUSE TROLLED BY A HUMIDISTAT WH AT CONTROLS SHALL BE CAPAN ANGES OF 50% TO 80%	D LAUNDRY ROOMS AL VENTILATION ED TO THE OUTSIDE. AST 3' FROM ALL CUPIED AREAS. VENTILATION HICH SHALL BE						_	DLTAGE: BUS: MAIN:
	<ul> <li>ALL BATHROOMS W/ TU SHALL BE PROVIDED AN SYSTEM THAT PROVIDE</li> <li>THE DISCHARGE POINT EXTERIOR OPENINGS W</li> <li>UNLESS FUNCTIONING A SYSTEM, THE FAN MUST READILY ACCESSIBLE. H BETWEEN RELATIVE HU</li> </ul> ABBREVIATIONS: L = LED	JBS OR SH N ENERGY E A MINIMU F FOR THE WHICH ALL AS A COM ST BE CON HUMIDIST UMIDITY R M F AI NO TE	HOWERS, WATER CLOSETS AND Y STAR COMPLIANT MECHANICA JM OF 50 CFM DIRECTLY VENTE EXHAUST AIR SHALL BE AT LEA OWS AIR ENTRY INTO THE OCC IPONENT OF A WHOLE HOUSE Y TROLLED BY A HUMIDISTAT WH AT CONTROLS SHALL BE CAPAN ANGES OF 50% TO 80% IOUNTING: SURFACE TED FROM: NEMA: Type 3R	D LAUNDRY ROOMS AL VENTILATION ED TO THE OUTSIDE. AST 3' FROM ALL CUPIED AREAS. VENTILATION HICH SHALL BE	T	A (NEW) B	В	POLES 1	<b>АМР</b> 20 А	_	DLTAGE: BUS: MAIN: FEEDER:
	<ul> <li>ALL BATHROOMS W/ TU SHALL BE PROVIDED AN SYSTEM THAT PROVIDE</li> <li>THE DISCHARGE POINT EXTERIOR OPENINGS W</li> <li>UNLESS FUNCTIONING A SYSTEM, THE FAN MUST READILY ACCESSIBLE. H BETWEEN RELATIVE HU</li> </ul> ABBREVIATIONS: L = LED	JBS OR SH N ENERGY E A MINIMU F FOR THE WHICH ALL AS A COM ST BE CON HUMIDIST UMIDITY R M F AI NO TE	HOWERS, WATER CLOSETS AND Y STAR COMPLIANT MECHANICA JM OF 50 CFM DIRECTLY VENTE EXHAUST AIR SHALL BE AT LEA OWS AIR ENTRY INTO THE OCC IPONENT OF A WHOLE HOUSE Y TROLLED BY A HUMIDISTAT WHAT AT CONTROLS SHALL BE CAPAN ANGES OF 50% TO 80% HOUNTING: SURFACE FED FROM: NEMA: Type 3R C RATING: 10,000 AMPS DESCRIPTION Xterior WP/GFI ighting - Hall, Bed2 & Bed 3 ighting - Garage & Ext	D LAUNDRY ROOMS         AL VENTILATION         ED TO THE OUTSIDE.         AST 3' FROM ALL         CUPIED AREAS.         VENTILATION         HICH SHALL BE         BLE OF ADJUSTMEN         0         1       20 A         3       15 A         5       20 A	T <u>es</u> <u>A</u> 540 VA 12 200 VA 16	<b>A</b> (NEW) B 19 VA 700 VA	1280 VA	POLES 1 1 1	20 A 20 A 20 A	Г СКТ 2 4 6	DLTAGE: BUS: 4 MAIN: 4 EEDER: ( Lighting - Receptad Receptad
	<ul> <li>ALL BATHROOMS W/ TU SHALL BE PROVIDED AN SYSTEM THAT PROVIDE</li> <li>THE DISCHARGE POINT EXTERIOR OPENINGS W</li> <li>UNLESS FUNCTIONING A SYSTEM, THE FAN MUST READILY ACCESSIBLE. H BETWEEN RELATIVE HU</li> </ul> ABBREVIATIONS: L = LED	JBS OR SH N ENERGY E A MINIMU F FOR THE WHICH ALL AS A COM ST BE CON HUMIDIST. UMIDITY R M F AI NO TE Li Li Li R	HOWERS, WATER CLOSETS AND Y STAR COMPLIANT MECHANICA JM OF 50 CFM DIRECTLY VENTE EXHAUST AIR SHALL BE AT LEA OWS AIR ENTRY INTO THE OCC IPONENT OF A WHOLE HOUSE Y TROLLED BY A HUMIDISTAT WH AT CONTROLS SHALL BE CAPAR ANGES OF 50% TO 80% IOUNTING: SURFACE FED FROM: NEMA: Type 3R C RATING: 10,000 AMPS DESCRIPTION xterior WP/GFI ighting - Hall, Bed2 & Bed 3	D LAUNDRY ROOMS         AL VENTILATION         ED TO THE OUTSIDE.         AST 3' FROM ALL         CUPIED AREAS.         VENTILATION         HICH SHALL BE         BLE OF ADJUSTMEN'         I         1       20 A         3       15 A         5       20 A         7       15 A	T <u>es</u> <b>A</b> 540 VA 12 200 VA 16 228 VA 20	A (NEW) B 19 VA 700 VA 00 VA 1440 VA 00 VA		1 1	20 A 20 A	Г СКТ 2 4	DLTAGE: BUS: MAIN: FEEDER: Lighting Receptad Receptad
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Electrical Legend

PV SYSTEM

INDOOR AIR QUALITY FAN

1.5 x CFA = 1.5 x 1,635 SF = 2,452 CFM

PROVIDE 2,542 CFM, 343.45 WATTS MINIMUM

SEE CALCULATION ABOVE FOR WHOLE BUIDLING

VENTILATION REQUIREMENTS. (HERS VERIFICATION)

STANDARD DESIGN PV CAPACITY OF 2.56 kWdc

#### ED BY UFER W/ BONDS TO GAS & AMPERE RECEPTACLES SHALL BE XCEPT RECEPTACLES LOCATED D RECEPTACLES THAT ARE PART

RCUIT TO LAUNDRY APPLIANCES. NO ARE IN COMBINATION, NO MORE BE #6 COPPER FOR 100A & #4 FOR HALL HAVE AT LEAST ONE FIXTURE N MEDIUM BASE LAMP SOCKETS RATE SWITCHES FROM ANY

TED FOR THE PROPOSED LOCATION. OSURES SHALL BE LABELED NS THROUGH FIRE RESISTIVE RATED HALL BE FIRE STOPPED USING RESISTIVE RATING.

RCUITS TO KITCHEN APPLIANCES. CAL CONNECTIONS OF MORE THAN ISCONNECT ADJACENT TO AND IN DE DISCONNECT(S) AT A/C. DO NOT LL BE FLUORESCENT, COMPACT

DIBLE IN ALL SLEEPING AREAS E REQUIRED AT ALL OR CEILING OF SS TO SLEEPING ROOMS/CEILING GENERAL ELECTRIC NO8201 OR NO NG SYSTEM-SMOKE DETECTORS TO ARD WIRE TYPICAL W/BATTERY BACK E SOUNDS, THEY ALL SOUND. DEPARTMENT DOES NOT INCLUDE THAT MAY BE SHOWN OR REQUIRED EM MUST BE OBTAINED. RC FAULT CIRCUIT PROTECTED O CEC. THE REQUIREMENTS ARE AS

H BATHROOM OR AT LEAST ONE 20 I RECEPTACLE OUTLETS. HROOMS. TERIOR. TO BE G.F.I. OVED AT FIREWALLS

VITH BACK DRAFT DAMPERS. ANDARDS SET FORTH BY THE STATE OVERRIDE AND HAVE A 30 MIN. C OR PASSIVE INFRA-RED TYPE . MATERIALS AND TIGHTLY SEALED;

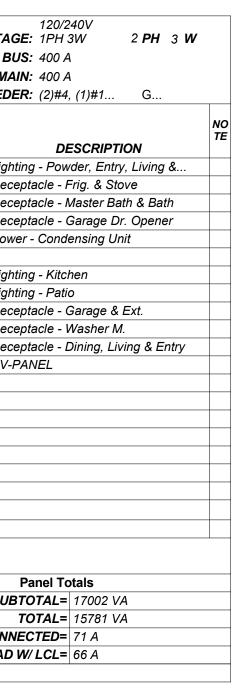
ERIAL AND FIRE STOP AT ECTED AND ALL LIGHTING ABOVE R WET PLACES. INCLUDE RESERVED SPACE

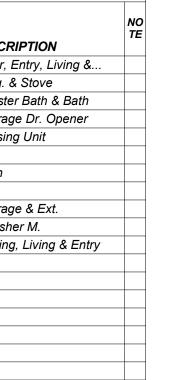
REAKER FOR A FUTURE ELECTRIC SPACE SHALL BE PERMANENTLY AND FRICAL JUNCTION BOX LOCATED ON 0 INCHES AND MAXIMUM 48 INCHES

CCOMMODATING A 208/240-VOLT ICAL METALLIC RACEWAY CE PANEL AND TERMINATING AT THE ERVICE PANEL AND/OR SUBPANEL

IPERE MINIMUM DEDICATED BRANCH INSTALLATION OF A BRANCH NENTLY AND VISIBLY MARKED AS

TED NOT LESS THAN 3 INCHES (76 DRS AND OTHER HEAT-PRODUCING





150 CFM HES WIDE C 904. 10.2). 0) INCHES

D AT THE IANCES IN

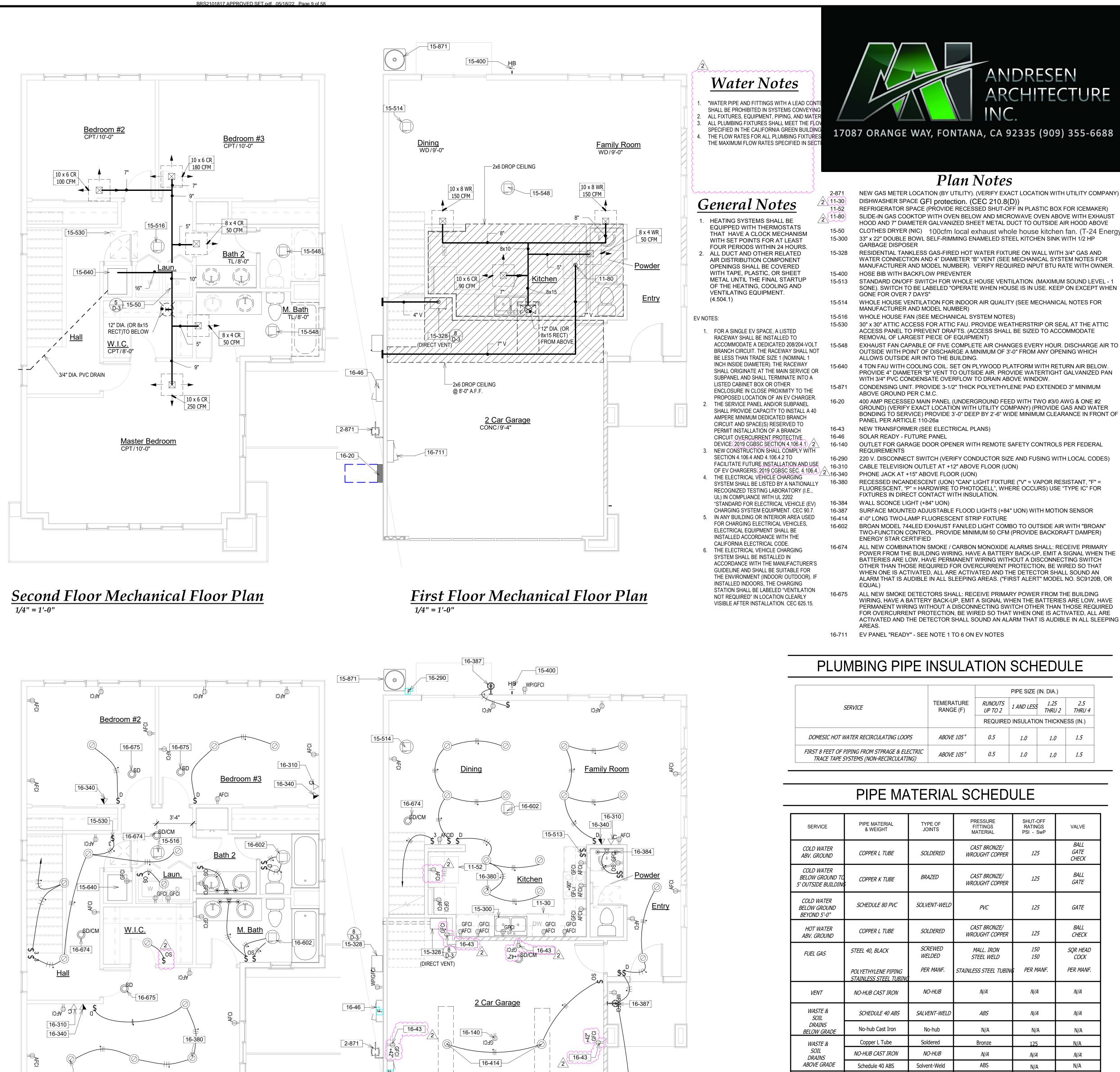
THAN 1/2 INCH OF AN OPENINGS. CMC 502.1.

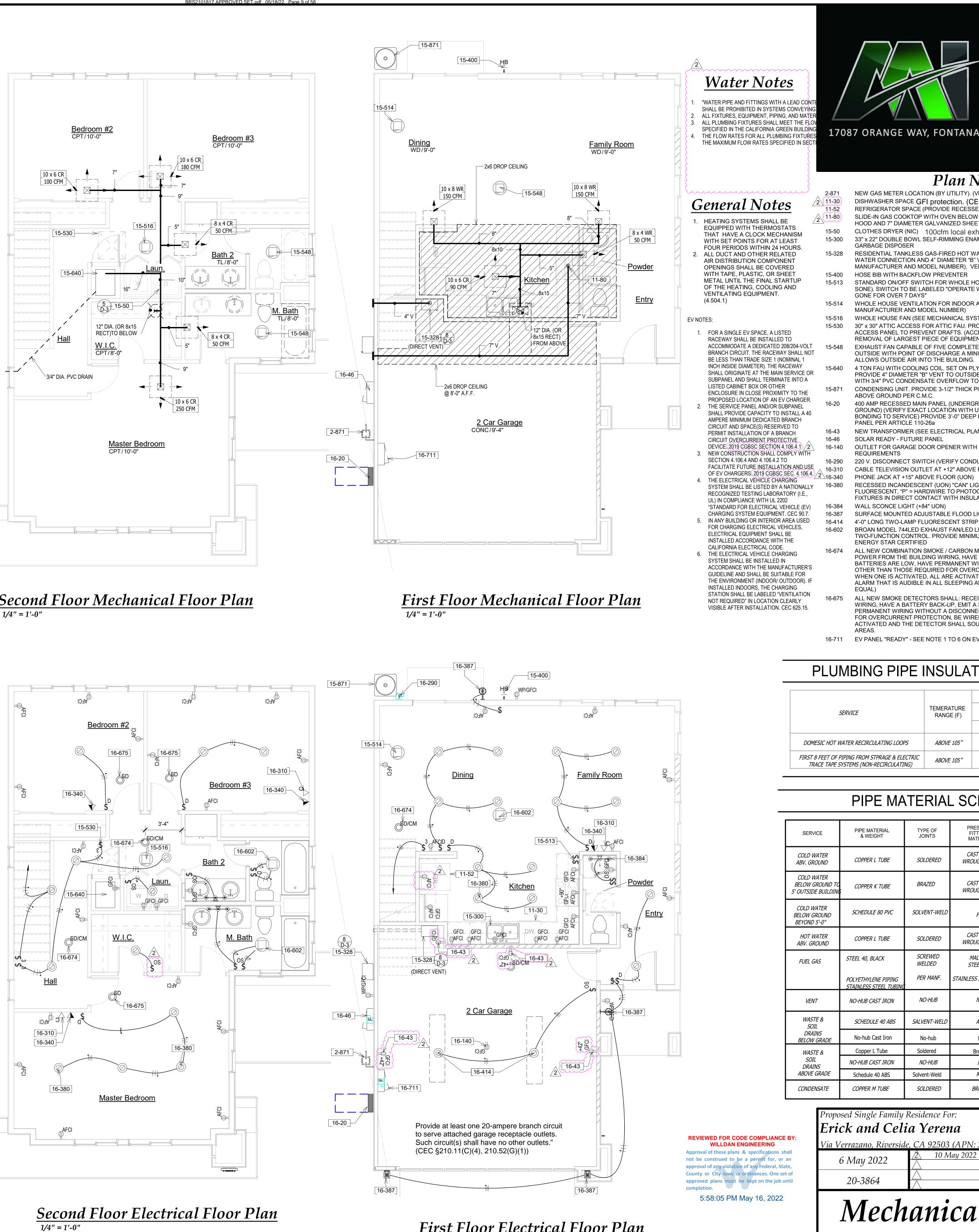
INTO THE BUILDING PER CMC 502.2

COVERED WITH A CORROSION RESISTANT SCREEN HAVING NOT

11. EXHAUST DUCT TERMINATION SHALL BE 3 FEET FROM OPENINGS

LESS THAN 1/4 OF AN INCH OPENINGS AND SHALL HAVE NOT MORE





1/4'' = 1'-0''

### First Floor Electrical Floor Plan 1/4" = 1'-0"

# ANDRESEN ARCHITECTURE NC

NEW GAS METER LOCATION (BY UTILITY). (VERIFY EXACT LOCATION WITH UTILITY COMPANY) REFRIGERATOR SPACE (PROVIDE RECESSED SHUT-OFF IN PLASTIC BOX FOR ICEMAKER) SLIDE-IN GAS COOKTOP WITH OVEN BELOW AND MICROWAVE OVEN ABOVE WITH EXHAUST HOOD AND 7" DIAMETER GALVANIZED SHEET METAL DUCT TO OUTSIDE AIR HOOD ABOVE CLOTHES DRYER (NIC) 100cfm local exhaust whole house kitchen fan. (T-24 Energy

WATER CONNECTION AND 4" DIAMETER "B" VENT (SEE MECHANICAL SYSTEM NOTES FOR

SONE). SWITCH TO BE LABELED "OPERATE WHEN HOUSE IS IN USE. KEEP ON EXCEPT WHEN

ACCESS PANEL TO PREVENT DRAFTS. (ACCESS SHALL BE SIZED TO ACCOMMODATE

OUTSIDE WITH POINT OF DISCHARGE A MINIMUM OF 3'-0" FROM ANY OPENING WHICH 4 TON FAU WITH COOLING COIL. SET ON PLYWOOD PLATFORM WITH RETURN AIR BELOW. PROVIDE 4" DIAMETER "B" VENT TO OUTSIDE AIR. PROVIDE WATERTIGHT GALVANIZED PAN

CONDENSING UNIT. PROVIDE 3-1/2" THICK POLYETHYLENE PAD EXTENDED 3" MINIMUM

GROUND) (VERIFY EXACT LOCATION WITH UTILITY COMPANY) (PROVIDE GAS AND WATER BONDING TO SERVICE) PROVIDE 3'-0" DEEP BY 2'-6" WIDE MINIMUM CLEARANCE IN FRONT OF

FLUORESCENT, "P" = HARDWIRE TO PHOTOCELL", WHERE OCCURS) USE "TYPE IC" FOR

BROAN MODEL 744LED EXHAUST FAN/LED LIGHT COMBO TO OUTSIDE AIR WITH "BROAN TWO-FUNCTION CONTROL. PROVIDE MINIMUM 50 CFM (PROVIDE BACKDRAFT DAMPER)

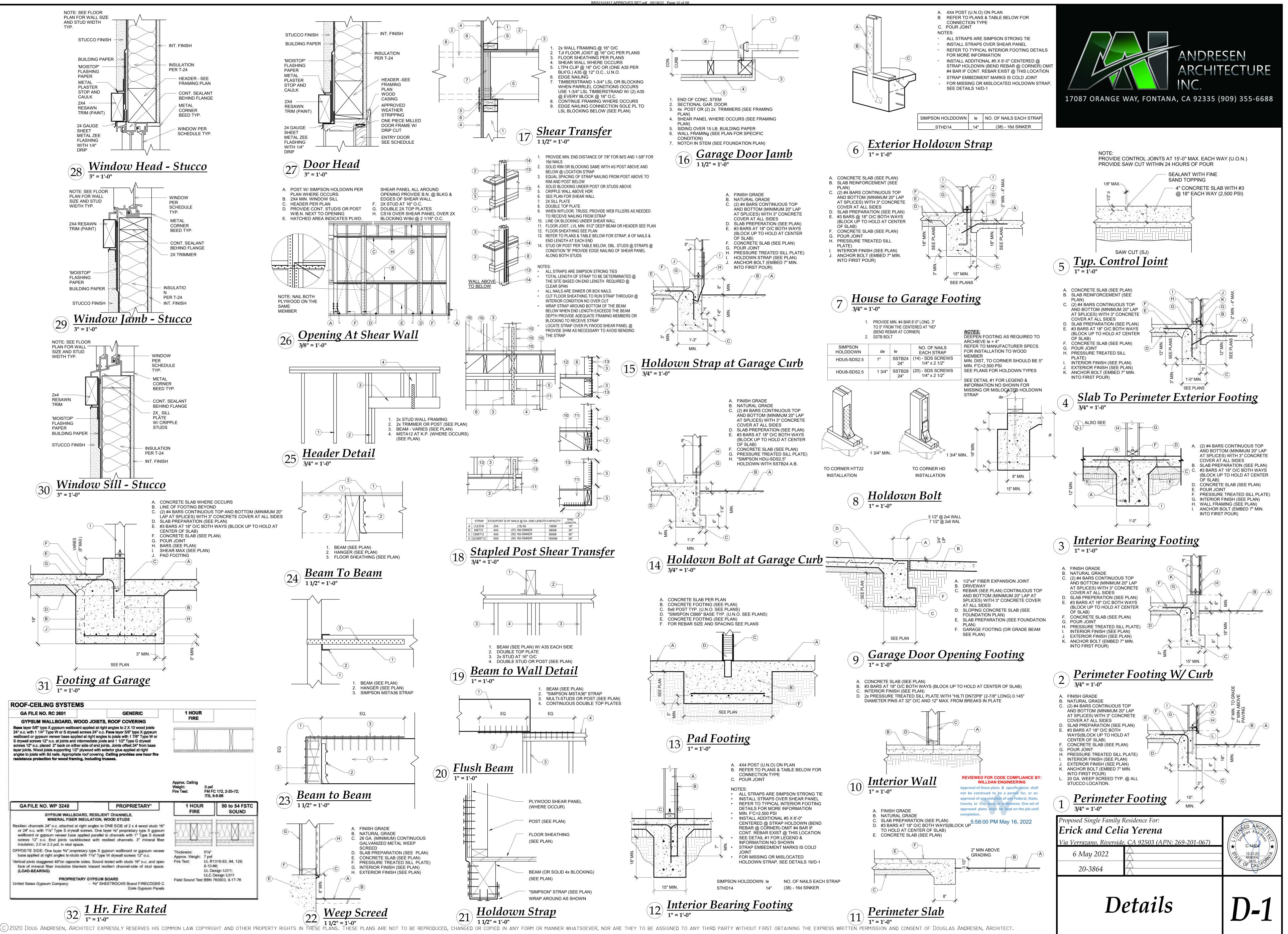
ALL NEW COMBINATION SMOKE / CARBON MONOXIDE ALARMS SHALL: RECEIVE PRIMARY POWER FROM THE BUILDING WIRING, HAVE A BATTERY BACK-UP, EMIT A SIGNAL WHEN THE BATTERIES ARE LOW, HAVE PERMANENT WIRING WITHOUT A DISCONNECTING SWITCH OTHER THAN THOSE REQUIRED FOR OVERCURRENT PROTECTION, BE WIRED SO THAT WHEN ONE IS ACTIVATED, ALL ARE ACTIVATED AND THE DETECTOR SHALL SOUND AN ALARM THAT IS AUDIBLE IN ALL SLEEPING AREAS. ("FIRST ALERT" MODEL NO. SC9120B, OF

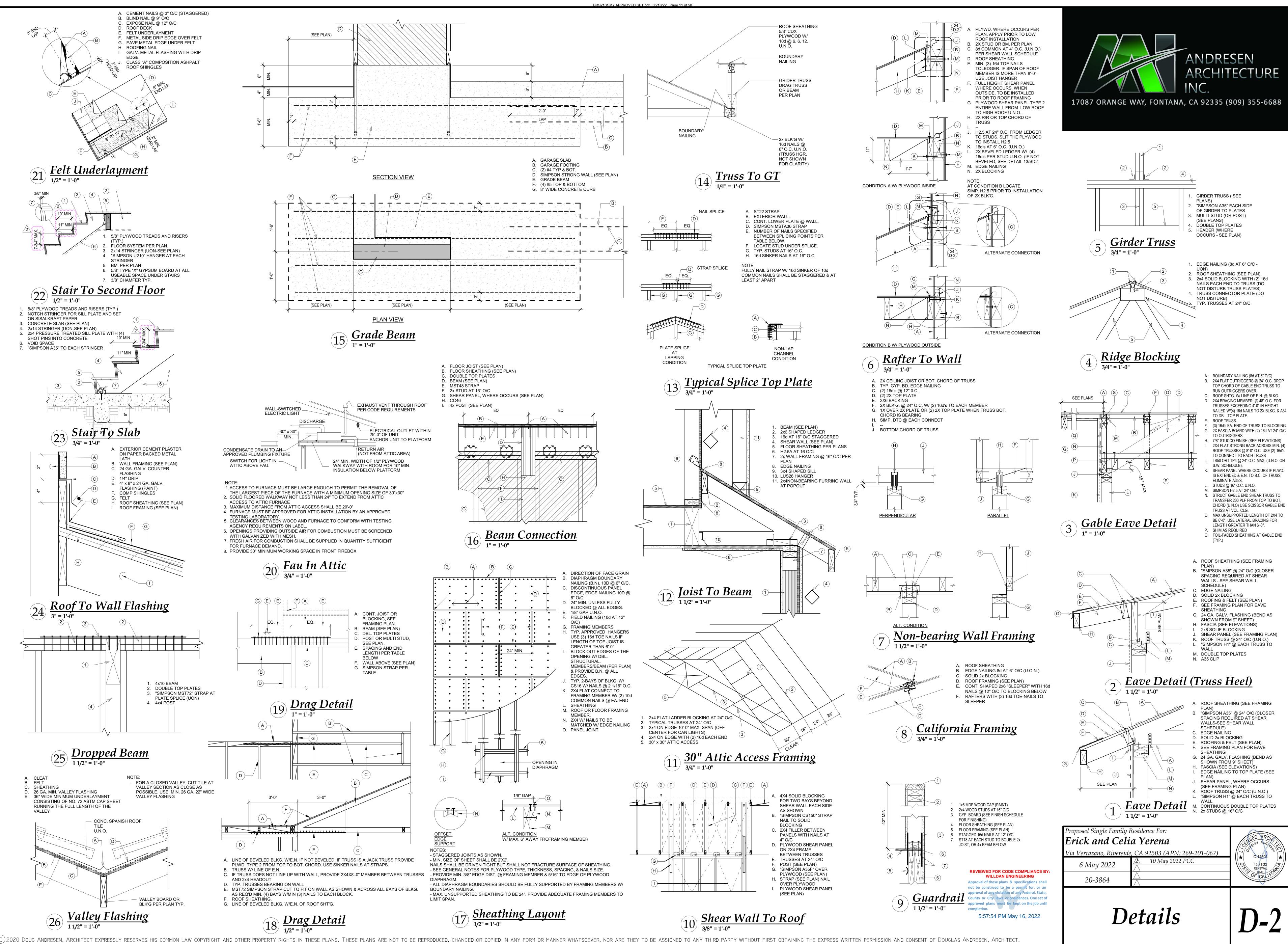
ALL NEW SMOKE DETECTORS SHALL: RECEIVE PRIMARY POWER FROM THE BUILDING WIRING, HAVE A BATTERY BACK-UP, EMIT A SIGNAL WHEN THE BATTERIES ARE LOW, HAVE PERMANENT WIRING WITHOUT A DISCONNECTING SWITCH OTHER THAN THOSE REQUIRED FOR OVERCURRENT PROTECTION, BE WIRED SO THAT WHEN ONE IS ACTIVATED, ALL ARE ACTIVATED AND THE DETECTOR SHALL SOUND AN ALARM THAT IS AUDIBLE IN ALL SLEEPING

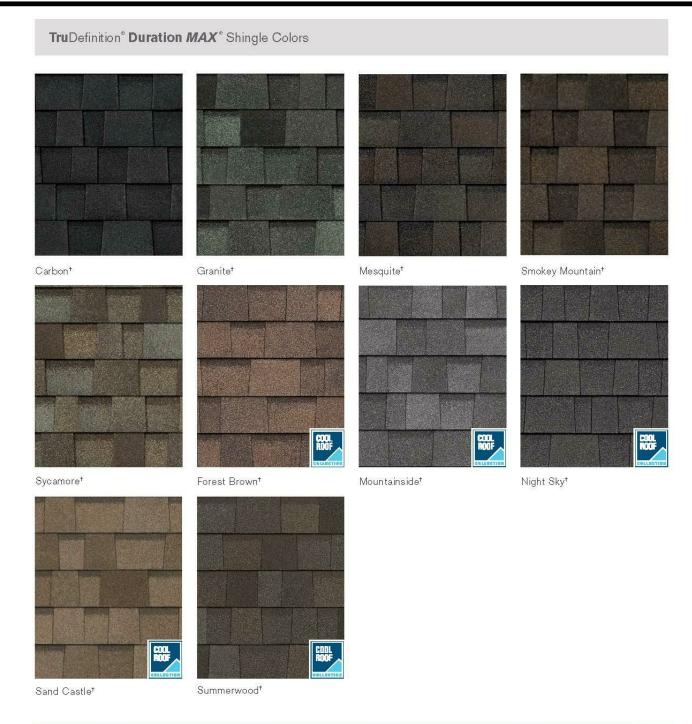
	PIPE SIZE	(IN. DIA.)	
RUNOUTS UP TO 2	1 AND LESS	1.25 THRU 2	2.5 THRU 4
REQUIRED	) INSULATIO	ON THICKNE	ESS (IN.)
0.5	1.0	1.0	1.5
0.5	1.0	1.0	1.5

PRESSURE FITTINGS MATERIAL	SHUT-OFF RATINGS PSI - SwP	VALVE
CAST BRONZE/ POUGHT COPPER	125	BALL GATE CHECK
CAST BRONZE/ POUGHT COPPER	125	BALL GATE
PVC	125	GATE
CAST BRONZE/ POUGHT COPPER	125	BALL CHECK
MALL. IRON STEEL WELD ESS STEEL TUBING	150 150 PER MANF.	SQR HEAD COCK PER MANF.
N/A	N/A	N/A
ABS	N/A	N/A
N/A	N/A	N/A
Bronze	125	N/A
N/A	N/A	N/A
ABS	N/A	N/A
BRONZE	125	N/A

Mechanical & Electrical Plans	<i>A-</i> 7
20-3864 <u> </u>	F OF CALIFO
6 May 2022 (American Science S	C 12-31-23 RENEWAL
Via Verrazano, Riverside, CA 92503 (APN: 269-201-067)	→ C-14504 →
Erick and Celia Yerena	CHISED ARCH
Proposed Single Family Residence For:	





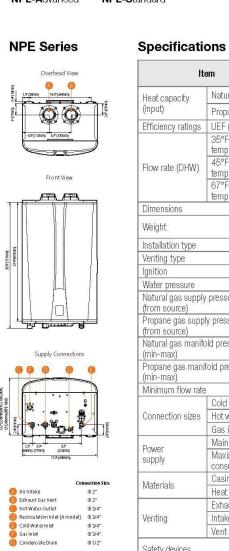


	COOL				
Owens Corning" COOL Roof Shingles	CRRC Product ID	Warranty Length	Solar Reflectance	Thermal Emittance	Solar Reflectance Index (SRI)
TruDefinition <sup>®</sup> Duration MAX <sup>®</sup> Forest Brown	0890-0018A	Limited Lifetime*/‡ (for as long as you own your home)	0.18♦	0.91 🕅	17††
TruDefinition <sup>®</sup> Duration MAX <sup>®</sup> Mountainside	0890-0016A	Limited Lifetime*/‡ (for as long as you own your home)	0.19♦	0.9200	19††
TruDefinition® Duration MAX® Night Sky	0890-0026	Limited Lifetime*/‡ (for as long as you own your home)	0.18♦	0.9000	16††
TruDefinition® Duration MAX® Sand Castle	0890-0020	Limited Lifetime*/t (for as long as you own your home) -	0.17	0.92	16
TruDefinition <sup>®</sup> Duration MAX <sup>®</sup> Summerwood	0890-0015A	Limited Lifetime*/‡ (for as long as you own your home)	0.18♦	0.91 00	18††

# (16) <u>Cool Roo</u>t



**NPE-Standard** NAVIEN PREMIUM EFFICIENCY CONDENSING TANKLESS WATER HEATERS



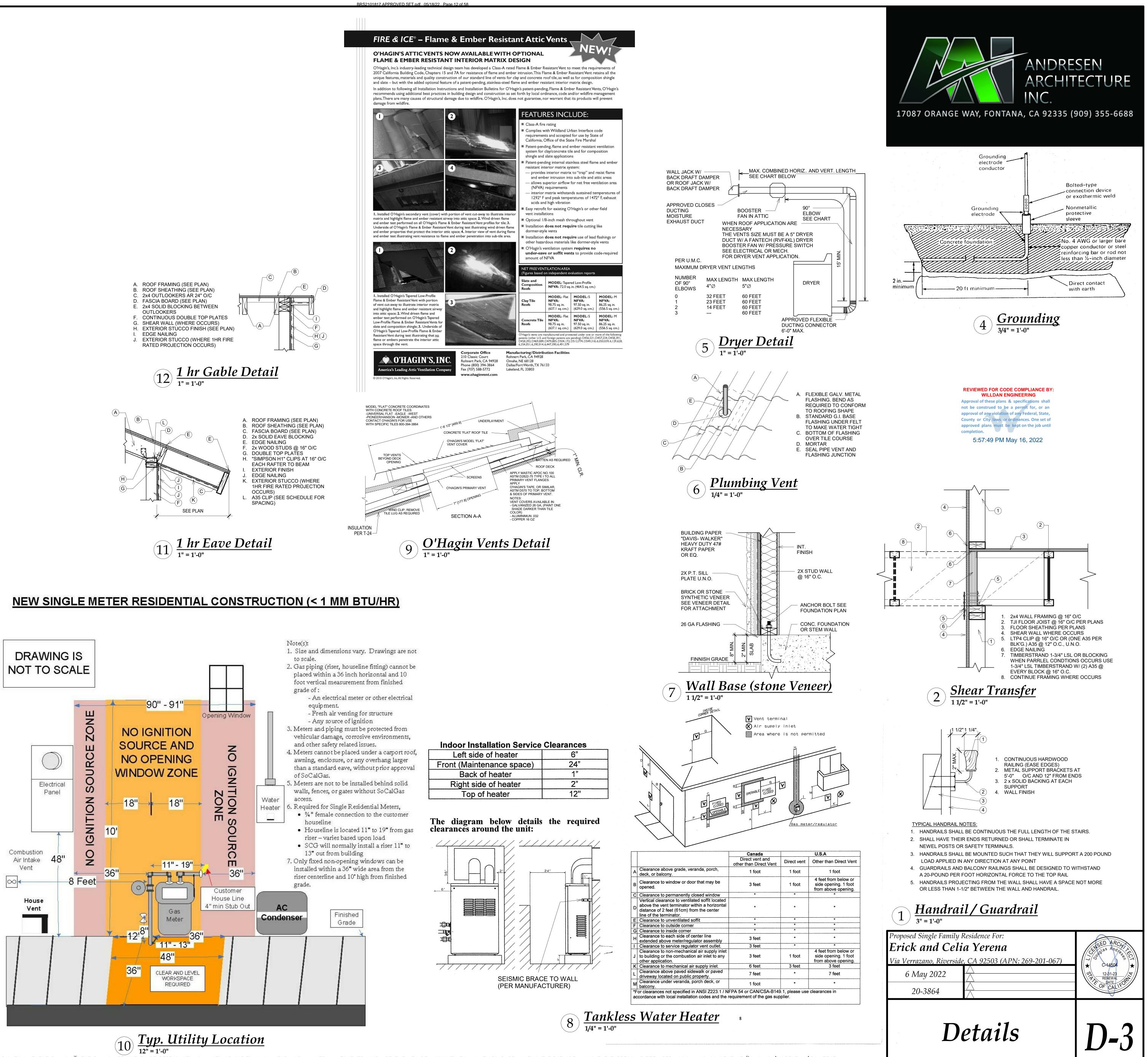
14					Model			
п	em	NPE-150S	NPE-180A	NPE-180S	NPE-210A	NPE-210S	NPE-240A	NPE-2409
Heat capacity	Natural gas	18,000- 120,000	15,000-15	0,000	19,900–18	0,000	19,900–19	9,900
(input)	Propane gas	(BTU/H)	(BTU/H)		(BTU/H)		(BTU/H)	
Efficiency ratings	UEF (NG & LP)	0.96	0.96	0.97	0.96	0.97	0,96	0.97
	35°F (19°C) temp rise	6.8 GPM (26 L/m)	8.4 GPM (	32 L/m)	10.1 GPM	(38 L/m)	11.2 GPM	(42 L/m)
Flow rate (DHW)	45°F (25°C) temp rise	5.3 GPM (20 L/m)	6.5 GPM (2	25 L/m)	7.8 GPM (3	30 L/m)	8.7 GPM (3	33 L/m)
	67°F (36°C) temp rise		4.3 GPM (16 L/m)	4.2 GPM (16 L/m)	5.0 GPM (19 L/m)	5.2 GPM (20 L/m)	5.6 GPM (21 L/m)	5.7 GPM (22 L/m)
Dimensions	ons 17.3"W x 27.4"H x 13.2"D		1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -					
Weight		55lbs (25kg)	75lbs (34kg)	67lbs (30kg)	82lbs (37kg)	75lbs (34kg)	82lbs (37kg)	75lbs (34kg)
Installation type		Indoor or outdo	or wall-hung	1				
Venting type		Forced draft di	rect vent					
Ignition		Electronic ignit	ion					
Water pressure		15-150 PSI						
Natural gas supply (from source)	r pressure	3.5"–10.5" WC	9					
Propane gas supp (from source)	ly pressure	8"-13" WC						
Natural gas manifo (min-max)	old pressure	-0.04" WC to -0.38" WC	-0.04" WC -0.84" WC		-0.05" WC -0.36" WC		-0.05" WC -0.58" WC	to
Propane gas mani (min-max)	fold pressure	-0.04" WC to -0.42" WC	-0.05" WC -0.50" WC		-0.10" WC -0.66" WC		-0.10" WC -0.78" WC	to
Minimum flow rate	1	0.5 GPM (1.9 L	/m), < 0.01	GPM (0.04 L	./m) option f	or "A" models	s*	
	Cold water inlet	3/4" NPT						
Connection sizes	Hot water outlet	3/4" NPT						
	Gas inlet	3/4" NPT						
Power	Main supply	120V AC, 60 H	Z					
supply	Maximum power consumption	200W (max 2A	4), 350W (ma	ax 4A) with e	xternal pump	) connected		
Materials	Casing	Cold rolled car	bon steel					
materials	Heat exchangers	Primary heat ex	changers: sta	inless steel, s	econdary hea	at exchangers	: stainless ste	el
	Exhaust	2" or 3" PVC, (						
Venting	Intake	2" or 3" PVC, (	CPVC, PP, SS	5 / 2" or 3"	special gas v	ent type BH	(Class II, A/E	3/C)
	Vent clearances	0" to combusti	bles					
Safety devices		Flame rod, APS temperature hi				nperature hig	th limit switch	n, exhaust

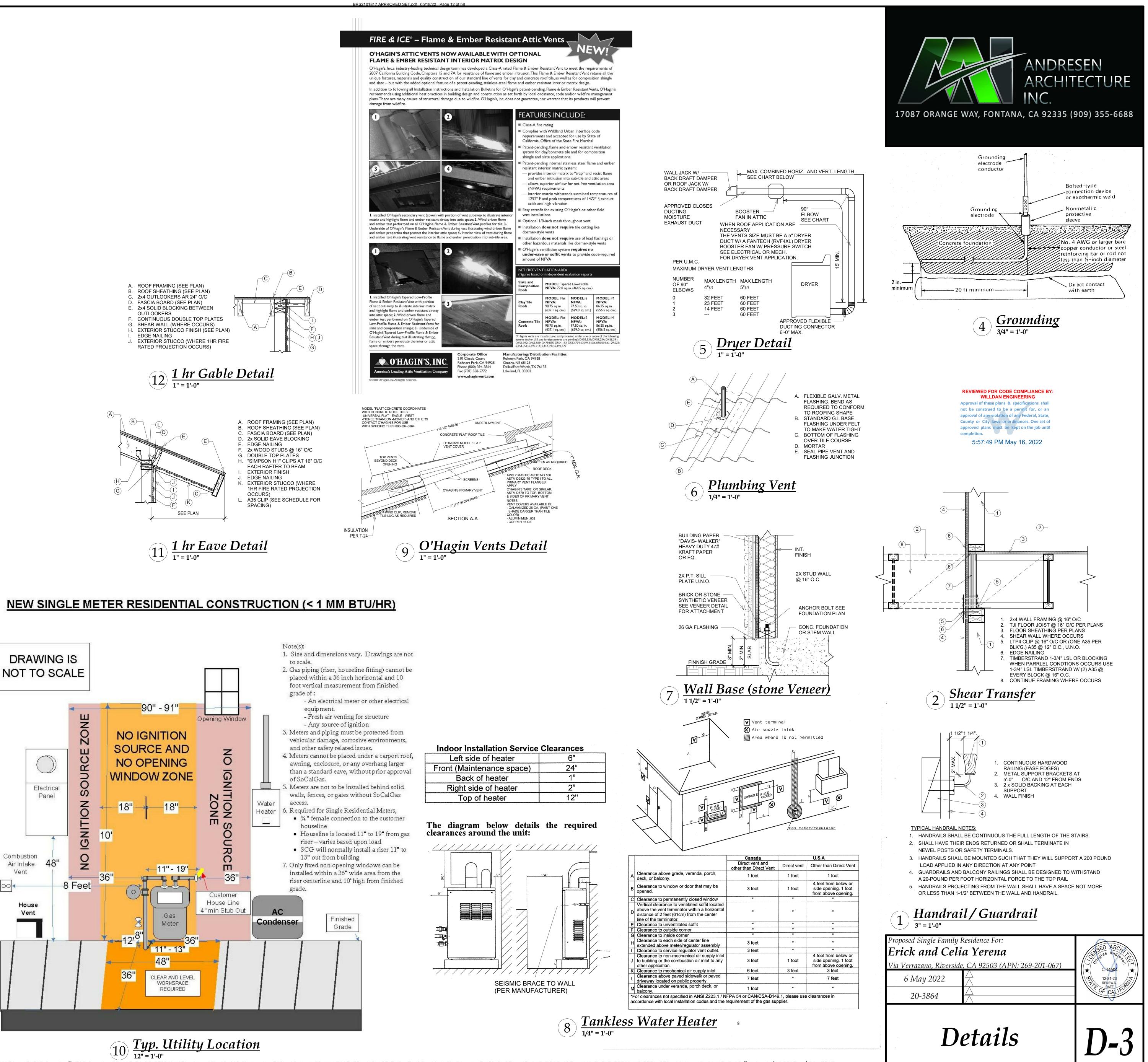
\*Available for \*A" models configured in an optional ComfortFlow recirculation mode. Additional energy use will occur when using recirculation. Navien reserves the right to change specifications at any time without prior notice. Please refer to Navieninc.com to verify you have the most current information.

			Product A			Efficiency	/ Ratings*		gas) nergy Consumption* (Residential)			
Model	CSA	NSF (Standard 5)	Low Lead	SCAQMD 1146.2 (NOx, <20ppm)	AHRI Number	Energy Star	Uniform Energy Factor (UEF)	Max GPM (67°F Rise)	Natural Gas (Therms, Year)	Propa	ane ns/	, Estimated Operating Cost**
NPE-180A-NG	Yes	Yes	Yes	Yes	6678380	Yes	0.96	4.3	176			\$192
VPE-180A-LPG	Yes	Yes	Yes	Yes	6678380	Yes	0.96	4.3		193	3	\$465
NPE-210A-NG	Yes	Yes	Yes	Yes	6678381	Yes	0.96	5.0	176			\$192
NPE-210A-LPG	Yes	Yes	Yes	Yes	6678381	Yes	0.96	5.0		193	3	\$465
NPE-240A-NG	Yes	Yes	Yes	Yes	6678382	Yes	0.96	5.6	176			\$192
NPE-240A-LPG	Yes	Yes	Yes	Yes	6678382	Yes	0.96	5.6		193	3	\$465
NPE-150S-NG	Yes	Yes	Yes	Yes	8235610	Yes	0.96	3.2	115			\$125
NPE-150S-LPG	Yes	Yes	Yes	Yes	8235610	Yes	0.96	3.2		126	3	\$304
NPE-180S-NG	Yes	Yes	Yes	Yes	6478771	Yes	0.97	4.2	175			\$191
NPE-180S-LPG	Yes	Yes	Yes	Yes	6478771	Yes	0.97	4.2		192	2	\$463
NPE-210S-NG	Yes	Yes	Yes	Yes	6478772	Yes	0.97	5.2	175			\$191
NPE-210S-LPG	Yes	Yes	Yes	Yes	6478772	Yes	0.97	5.2		192	2	\$463
NPE-240S-NG	Yes	Yes	Yes	Yes	6478773	Yes	0.97	5.7	175			\$191
NPE-240S-LPG	Yes	Yes	Yes	Yes	6478773	Yes	0.97	5.7		192	2	\$463
Based on a national Cemperatu Temp rise			im output)			Opera Navien Ta	ting co	St 175 therms		\$191*		
(°F)	GPM	GPM	GPM	GP		Other tan		209 therm		\$22	8*	
35	6.8	8,4	10,1	11	201122	50 gallon		269 therm	601			\$293*
40	5.9	7.4	8.8	9.			10. NH2 22	1	er Nachtart	v thorm of	patur-l	1.000
45	5.3	6.5	7.8	8.	×	*Based on Er Cost is in US	ergy Guide co S dollars.	ist estimates t	iailiù \$1.09 bi	a unerm of	natural	985.
50	4.8	5.9	7.1	7.								
55	4.3	5.3	6.4	7.		U.S. G	reen B	uildina	Cound	il LE	ED	points
60	4.0	4.9	5.9	6.	5						6	
65	3.7	4.5	5.4	6.			r heater		ocation			culation
70	3.4	4.2	5.0	5.		1	Point	2	? Points		31	Points
75	3.2	3.9	4.7	5.								
80	3.0	3.7	4.4	4.		Warra	ntv					
85	2.8	3.5	4.2	4.	6				- F	-		
90	2.6	3.3	3.9	4.			Applica	ition	L	abor P	arts	Heat
		0.0		3.	0		10.1					Exchanger
100	2.4	2.9	3.5 3.2	3.			Of an -1	ard or contr	allad		vears	

	Application	Labor	Parts	Heat Exchanger
Residential	Standard or controlled recirculation <sup>2</sup>	1 year	5 years	15 years
Residential	Uncontrolled recirculation <sup>3</sup>	trolled 1 year 5 years 1 year 3 years trolled units 1 year 5 years trolled units 1 year 5 years trolled 1 year 3 years 1 year 3 years water and space heating applications. through the water heater is control	5 years	
	Standard or controlled recirculation <sup>2</sup> for units produced on or after Jan. 1, 2016	1 year	5 years	8 years
Commercial or Combi <sup>1</sup>	Standard or controlled recirculation <sup>2</sup> for units produced before Jan. 1, 2016	1 year	3 years	10 years
	Uncontrolled recirculation <sup>3</sup>	1 year	3 years	3 years
Water heaters ca Controlled-Recirc the water heater, Uncontrolled-Rec through the wate An aquastat is th recirculation in o	nnot be used in space heating : pulation: Recirculation through t a timer or an external aquastat sirculation: External pumps con n heater are subject to the uncc e minimum pump control requir der to maintain the full controll	only applica he water he figured to ci ntrolled reci rement for D ed recircula	tions. ater is contr rculate cont irculation wa iHW or stora tion warrant	olled by either inuously arranty terms. age tank







DHW capac

Models

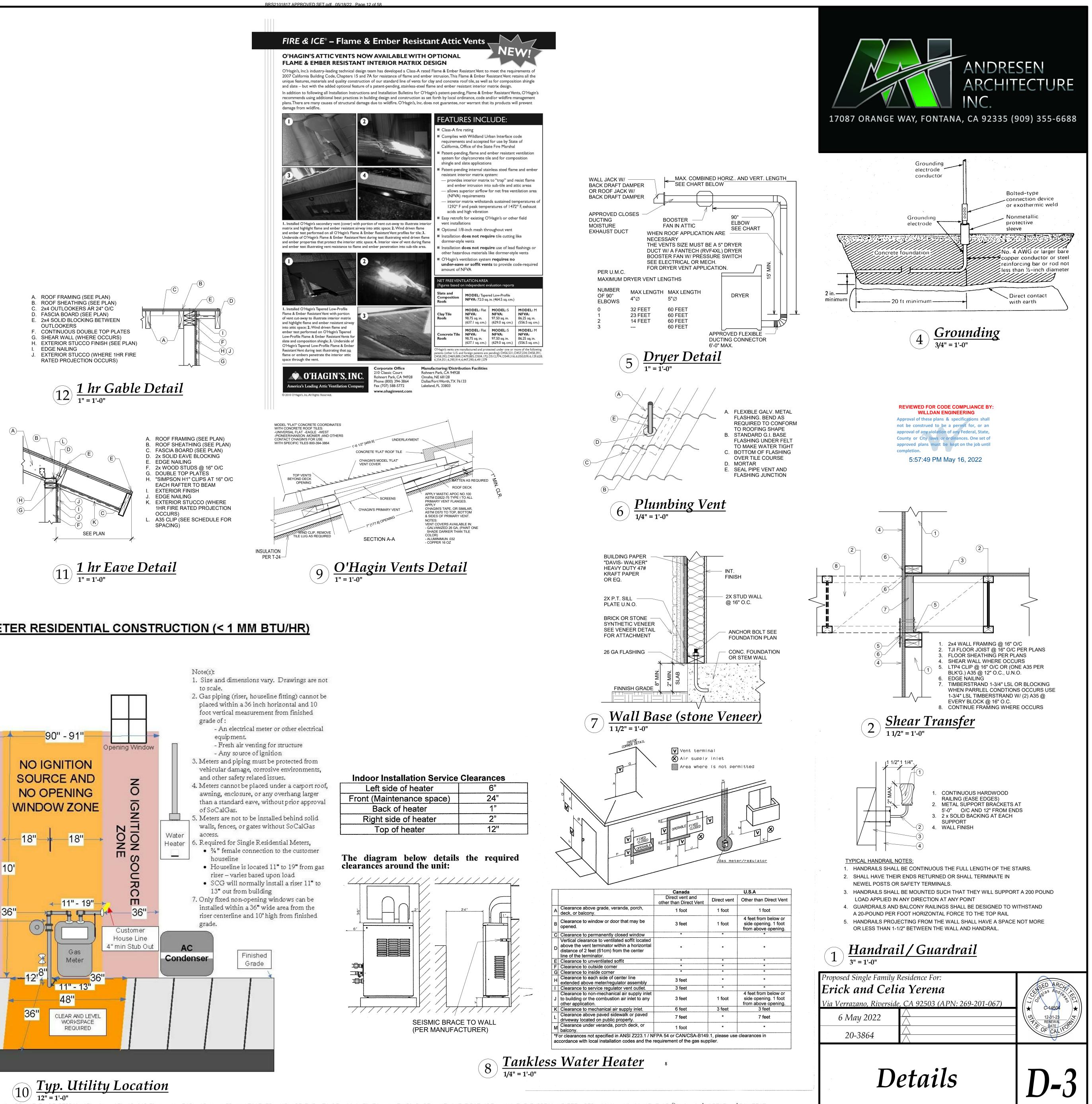
E-180 A/S Series

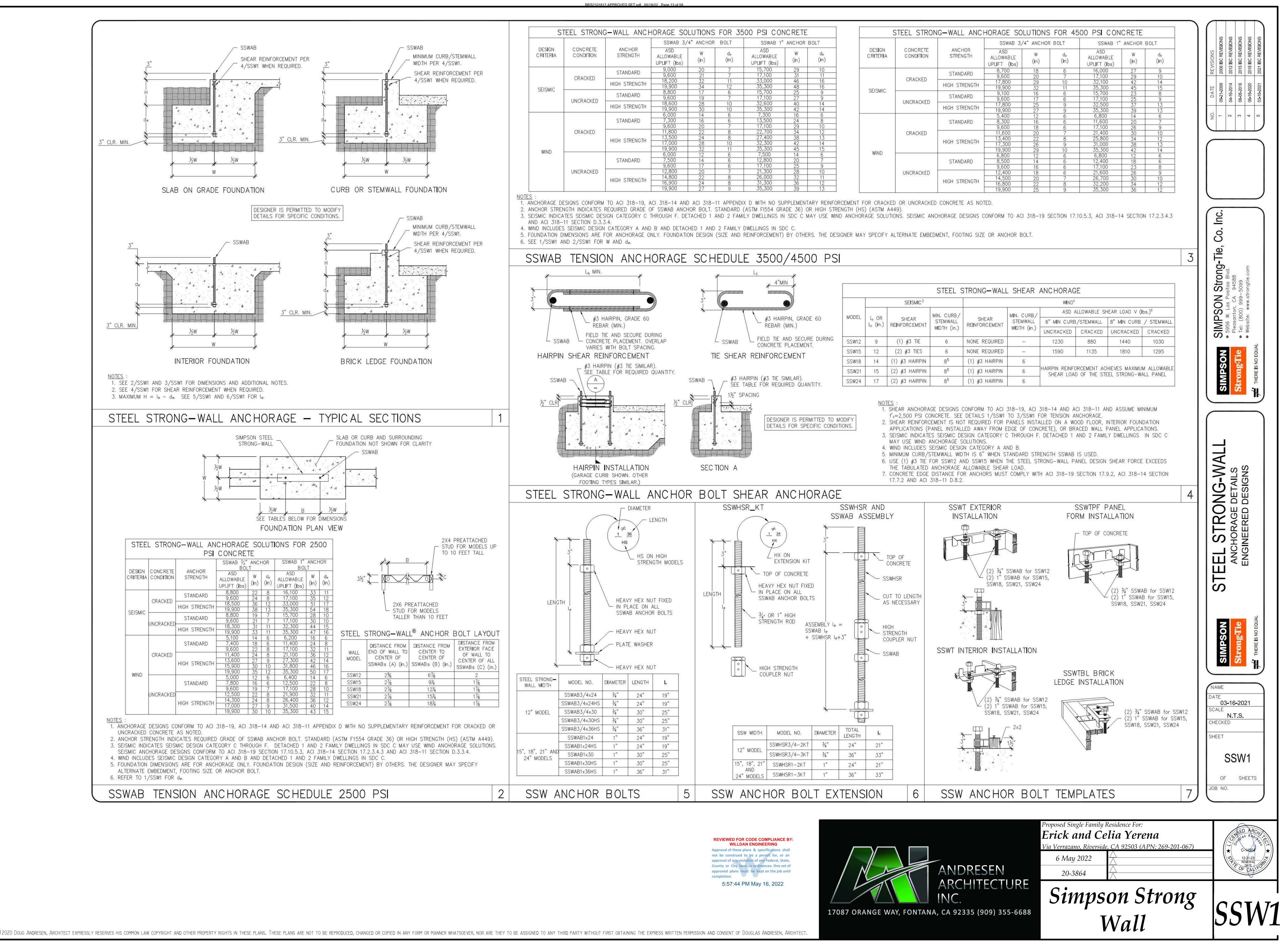
Propane Gas (BTU/H)

Natural gas (BTU/H)

Lower HERS home index score

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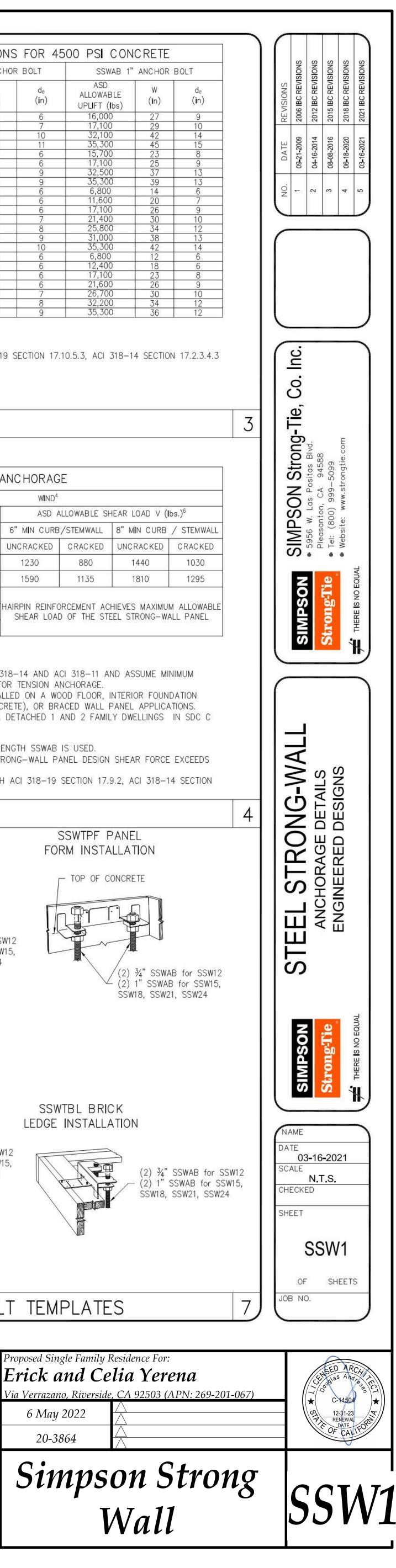


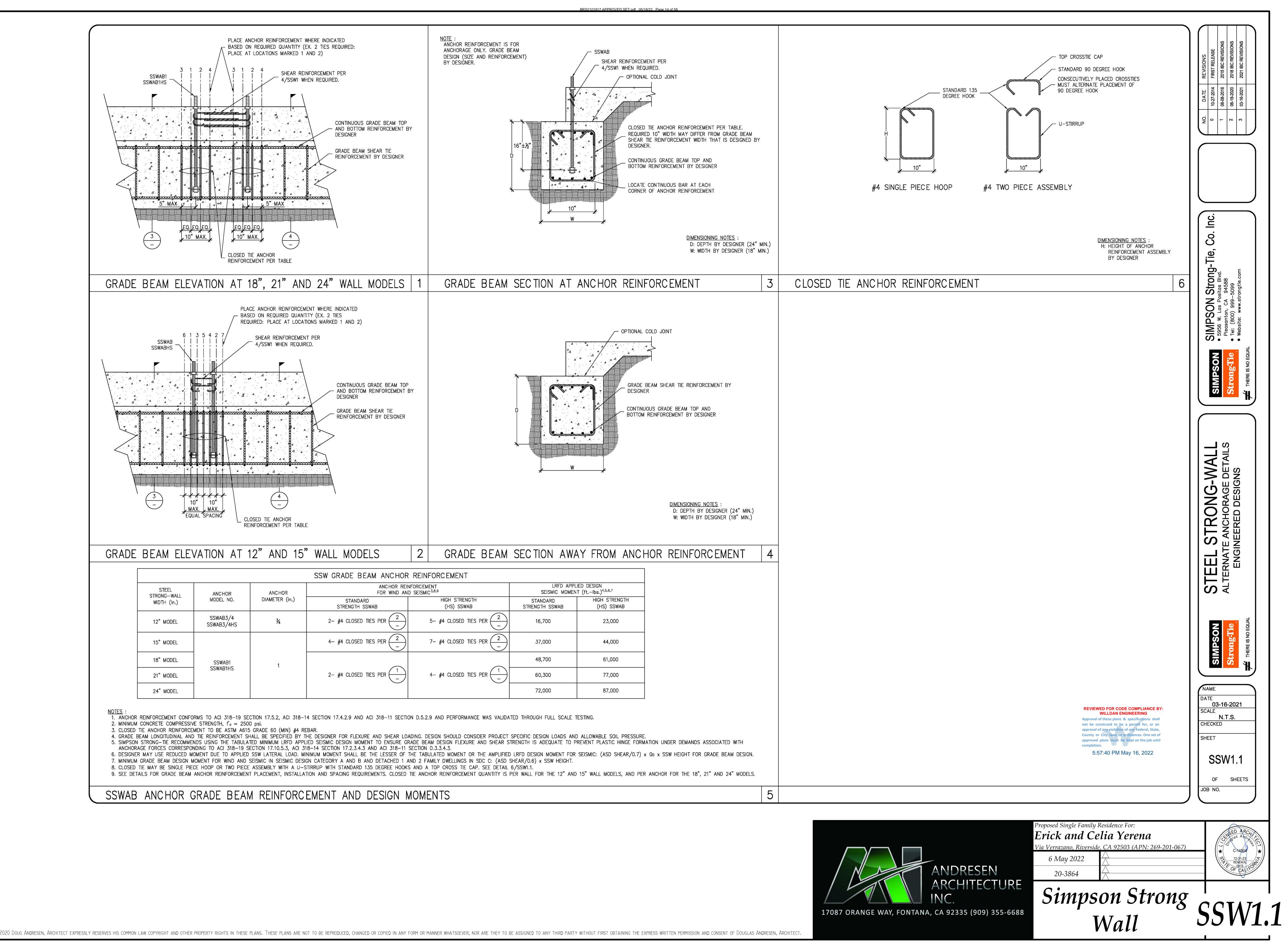


OWABLE (IFT (tbs)         W (in)         Oe (in)         CRITERIA         C ONDITION         STRENGTH (UPLFT (tbs)         ALLOWABLE (UPLFT (tbs)         W (in)         ALLOWABLE (UPLFT (tbs)         W (in)         M (in)         M de (in)         ALLOWABLE (UPLFT (tbs)         W (in)         M (in)														
ASD OWABLE (IFT (bs)         W (In)         de (In)         DESIGN (In)         CONCRETE CRITERIA         ANCHOR STRENGTH         ASD ALLOWABLE UPLIFT (bs)         M (In)         ASD (In)         M ALLOWABLE (In)         M (In)         de (In)         ASD ALLOWABLE UPLIFT (bs)         W (In)         M (In)         M (In)	PSI CON	ICRETE			5	STEEL STRON	IG-WALL ANC	HORAGE SOL	UTIONS	FOR 45	00 PSI CON	CRETE		
OWABLE (In)         W (in)         de (in)         CRITERIA         CONDITION         STRENGTH (IC)         ALLOWABLE UPUFT (Ibs)         W (in)         de (In)         ALLOWABLE UPUFT (Ibs)         W (in)         de (In)         ALLOWABLE UPUFT (Ibs)         W (in)         M (in)	SSWAB 1"	ANCHOR I	BOLT					SSWAB 3/	SSWAB 3/4" ANCHOR BOLT			SSWAB 1" ANCHOR BOLT		
7.100         31         11           3,000         46         16           5,300         48         16           5,700         25         9           7,100         27         9           2,600         40         14           5,300         42         14           5,300         42         14           5,300         42         14           5,300         42         14           5,300         42         14           5,300         42         14           5,300         42         14           5,300         42         14           5,300         16         6           6         17,100         25           9         32,500         37           13,500         24         8           7,100         29         10           2,700         34         12           7,400         38         13           2,300         45         15           7,500         14         6           2,300         45         15           7,500         14         6	OWABLE IFT (Ibs)	(in)	(in)					ALLOWABLE	50 S		ALLOWABLE			
3,000         46         16           5,300         48         16           5,700         25         9           7,100         27         9           2,600         40         14           5,300         42         14           7,100         27         9           2,600         40         14           5,300         42         14           7,300         14         6           7,100         29         10         32,100         42           14         6         17,100         25         9           2,600         14         6         6         17,100         25         9           3,500         24         8         7         7         9         35,300         39         13           7,100         29         10         2         6         6,800         14         6           7,400         38         13         2         2,300         45         15         7         5         9         31,000         38         13           7,500         14         6         17,100         22         8         25,	7,100	31	11				STANDARD			6				
5,700       25       9       9       9       100       27       9       9       100       16       6       15,700       23       8         2,600       40       14       4       9,600       17       6       17,100       25       9       32,500       37       13         5,300       42       14       14       14       17,800       25       9       35,300       39       13         7,300       16       6       3,500       24       8       3       19,900       27       9       35,300       39       13         7,100       29       10       2,700       34       12       6       6,800       14       6         7,400       38       13       2,300       42       14       6       11,600       20       7       21,400       30       10         7,400       38       13       12       6       6,800       14       6       6       13,400       22       8       25,800       34       12         2,300       42       14       6       13,400       22       8       25,800       34       12       6	5,300	48			0510140	CRACKED	HIGH STRENGTH	17,800	29		32,100	42	14	
2,600         40         14           5,300         42         14           7,300         16         6           3,500         24         8           7,100         29         10           2,700         34         12           7,400         38         13           2,300         42         14           6,000         18         6         11,600         20         7           2,700         34         12         7,100         26         9         9           2,700         34         12         6         6,800         14         6           2,300         42         14         5         15         9         31,000         38         13           7,500         14         6         12         6         6,800         12         6           2,800         20         7         21,400         38         13           19,900         29         10         35,300         42         14           6,000         12         6         6,800         12         6           1,300         28         10         6,800	7,100	25 27			SEISMIC		STANDARD	9,100	16	6	15,700	23	8	
7,300         16         6           3,500         24         8           7,100         29         10           7,100         34         12           7,400         38         13           2,300         42         14           5,300         45         15           7,500         14         6           2,300         45         15           7,500         14         6           2,800         20         7           2,800         20         7           2,800         20         7           1,300         28         10           6,000         32         11           1,300         36         12           1,300         36         12	5,300				UNCRACKED	UNCRACKED	HIGH STRENGTH	17,800	25	9	32,500	37	13	
2,700       34       12         7,400       38       13         2,300       42       14         5,300       45       15         7,500       14       6         2,800       20       7         2,800       20       7         2,300       25       9         11,300       25       9         11,300       28       10         6,000       32       11         11,300       36       12	3,500	24	8		1		STANDARD	5,400 8,300	12	6	6,800 11,600	14	6	
7,400       38       13         2,300       42       14         2,300       45       15         5,300       45       15         7,500       14       6         2,800       20       7         7,100       25       9         11,300       28       10         6,000       32       11         1,300       36       12         HIGH STRENGTH       HIGH STRENGTH         HIGH STRENGTH       HIGH STRENGTH         12,400       14         13,400       22         14       6         15       12         13,400       12         14       6         15       12         14       6         15       12         14       6         15       12         14       6         15       12         11,300       36         12       12         14,500       20         14,500       20         14,500       20         12       8         12       8	2,700	34				CRACKED	37 A 9 19 ( M ) - B ( M )	9,600		6				
5,300       45       15         7,500       14       6         2,800       20       7         7,100       25       9         1,300       28       10         6,000       32       11         1,300       36       12         12       6       6,800       12       6         9,600       16       6       17,100       23       8         1,300       22       11       14,500       20       7       26,700       30       10         1,300       36       12       11       16,800       22       8       32,200       34       12	2,300	42	14					13,400	22		25,800	34	12	
2,800       20       7         7,100       25       9         1,300       28       10         6,000       32       11         1,300       36       12             NUNCRACKED       STANDARD       8,500       14       6       12,400       18       6         11,300       36       12       11       14,500       20       7       26,700       26       9	7,500				WIND	<u></u>		19,900	29		35,300	42	14	
1,300     28     10       6,000     32     11       1,300     36     12         UNCRACKED     12,400     18     6     21,600     26     9       14,500     20     7     26,700     30     10       1,300     36     12     16,800     22     8     32,200     34     12	2,800 7,100		7 9				STANDARD	8,500	14	6	12,400	18	6	
HIGH STRENGTH 16,800 22 8 32,200 34 12	1,300 6,000		111.1.17502			UNCRACKED		12,400	18		21,600	26	9	
		36 39	12				HIGH STRENGTH			8				

* 4"MIN				OTEL				-			
	STEEL STRONG-WALL SHEAR ANCHORAGE										
			SEISMIC <sup>3</sup>	9.	WIND <sup>4</sup>						
	MODEL	L <sub>t</sub> OR SHEAR L <sub>h</sub> (in.) REINFORCEN		MIN. CURB/ STEMWALL		MIN. CURB/	ASD ALLOWABLE SHEAR LOAD V (Ibs.)6				
_ #3 HAIRPIN, GRADE 60 REBAR (MIN.)	MODEL		SHEAR REINFORCEMENT		REINFORCEMENT STEMWALL 6		6" MIN CURB	/STEMWALL	8" MIN CURB / STEMW		
				WIDTH (in.)		WIDTH (in.)	UNCRACKED	CRACKED	UNCRACKED	CRACKE	
FIELD TIE AND SECURE DURING CONCRETE PLACEMENT.	SSW12	9	(1) #3 TIE	6	NONE REQUIRED		1230	880	1440	1030	
INFORCEMENT	SSW15	12	(2) #3 TIES	6	NONE REQUIRED	<del>17</del> 1	1590	1135	1810	1295	
	SSW18	14	(1) #3 HAIRPIN	8 <sup>5</sup>	(1) #3 HAIRPIN	6	9 	19 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			
	SSW21	15	(2) #3 HAIRPIN	8 <sup>5</sup>	(1) #3 HAIRPIN	6			HIEVES MAXIMUI		
(#3 TIE SIMILAR). FOR REQUIRED QUANTITY.	SSW24	17	(2) #3 HAIRPIN	8 <sup>5</sup>	(1) #3 HAIRPIN	6					

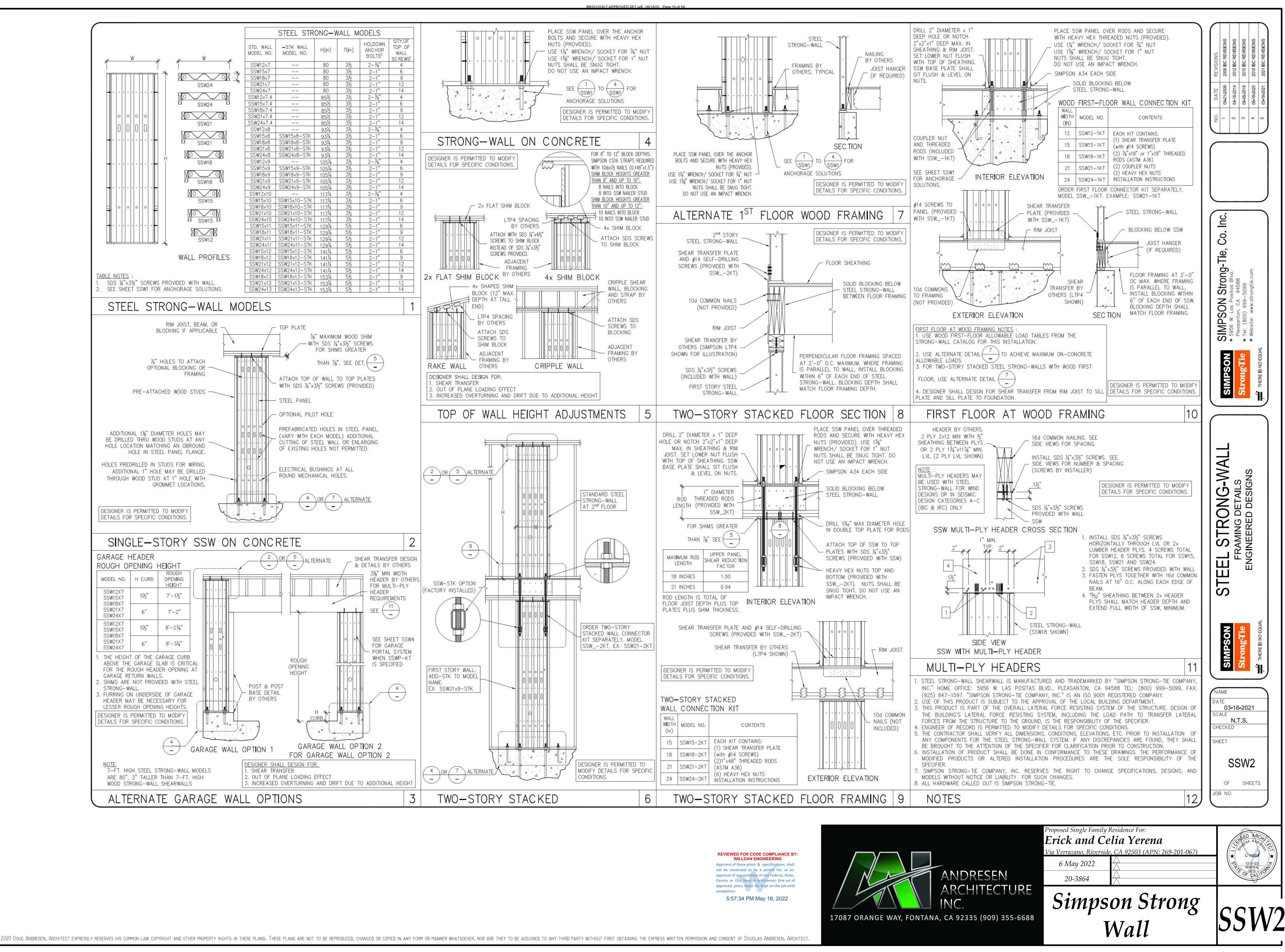






NDARD TH SSWAB	HIGH STRENGTH (HS) SSWAB	STANDARD STRENGTH SSWAB	HIGH STRENGTH (HS) SSWAB
OSED TIES PER 2	5- #4 CLOSED TIES PER $\begin{pmatrix} 2 \\ - \end{pmatrix}$	16,700	23,000
OSED TIES PER 2	7- #4 CLOSED TIES PER $\begin{pmatrix} 2 \\ - \end{pmatrix}$	37,000	44,000
(	(	48,700	61,000
Dised ties per $\begin{pmatrix} 1 \\ - \end{pmatrix}$	4- #4 CLOSED TIES PER $\begin{pmatrix} 1 \\ - \end{pmatrix}$	60,300	77,000
		72.000	87.000





### General Requirements

Mork performed shall comply with the following: Compliance: These General Notes apply unless otherwise stated on plans or specifications.

- Codes: California modified version (2019 Edition) of the International Building Code, Uniform Plumbing Code, Uniform Mechanical Code, International Fire Code, National Electrical Code, 2019 Edition of the California Energy Standards and all other applicable laws and regulations governing the site of the work. 3. ASTM: Standard Specifications (In case of conflict, the more
- expensive requirements shall govern. Quality of Work: All work needs to be performed by qualified
- and experienced contractors familiar with this type of work. Quality of Materials: All materials furnished shall be new and of
- first quality. No used materials or seconds will be permitted. "Or equal": The contractor shall submit for the Architect's or
- Builder's acceptance all materials or equipment which is considered "or equal" to that specified. On Site Verification of all dimensions and conditions shall be the responsibility of the Contractor and the Sub-Contractors. Noted
- dimensions take precedent over scale. Each Contractor or Sub-Contractor shall report to Project Superintendent all conditions which prevent the proper execution of their work. Project Superintendent: The on-site construction superintendent shall provide on site supervision to the extent necessary to assure that the improvements are being constructed in conformance with the construction documents and the performance standards of the industry trades. He/she shall inspect all structural framing members, concrete anchors, tie-downs, flashing framing members, roof materials and underlayment for each building. The inspection is to assure that all materials and applications meet the manufacturer's specifications and installation guidelines or A.S.T.M.
- requirements, whichever is more stringent, and to notify the Architect and Owner in sufficient time to prevent any defective materials from being incorporated into the work. Client's Architect and Project Superintendent to be notified immediately by the Contractor should any question arise or any
- discrepancies be found pertaining to the working drawings and/or specifications. The Contractor shall be held responsible for any errors, discrepancies, or omissions which the Contractor failed to notify the Architect of before construction or fabrication of the work. 10. The Builder has requested, contracted with, and is compensating
- Andresen Architecture, Inc. for the limited services of providing the minimum structural engineering drawing required, when combined with the other builders consultants drawings, to obtain a building permit for this project. These drawing are not intended to, nor do they, detail all conditions, identify all materials, or define or limit the scope of work required to complete the project. The builder has requested, accepts, and represents that he/she will select all materials and manufactures, qualify and select all sub-contractors and installers, direct all ways and means of construction, and provide all additional information, above and beyond these drawings, required to complete the project in conformance with all governing agencies and the work will meet or exceed accepted industry standards.
- Sub-Contractor shall: insure that all work is done in a professional and workmanlike manner by skilled mechanics and shall replace any materials or items damaged by Sub-Contractor's performance and no additional cost to Builder. Sub-Contractors and Suppliers are hereby notified that they are to confer and to cooperate fully with each other during the course of construction to determine the exact extent and overlap of each other's work and to successfully complete the execution of the work. All Sub-Contractors shall be of quality to pass inspections by local authorities, lending institutions, Architect, or Builder. Any one or all of the above mentioned inspectors may inspect workmanship at any time and and corrections needed to enhance the quality of the building will be done immediately . Each Sub-Contractor, unless specifically exempted by his Sub-Contract Agreement, shall be responsible for cleaning up and removing from the job site all trash and debris not left by other Sub-Contractors. Builder will determine how soon after each Sub-Contractor completes each phase of his work that trash and debris will be removed from the site. 12. Drawings and Specifications represent the finished structure. All bracing, temporary supports, shoring, etc. is the sole
- responsibility of the Contractor. Observation visits to the job site by the Architect do not Include inspection of Construction procedures. The Contractor is solely responsible for all construction methods and for safety conditions of the worksite. These visits shall not be construed as continuous and detailed inspections. 13. Intent: It is the intent of the construction documents that all
- work be performed in a sound manner providing a completed project with all materials, assemblies, and systems correctly installed and performing in a manner consistent with the standards of the industry for this type of project.
- Construction documents include, but are not limited to, working drawings, specifications, structural calculations, state mandated energy calculations and notes, soil report, geology report, acoustical engineer's report, addendum and change orders, and these general notes unless otherwise noted on plans or specifications.
- Details: Contractors and Sub-Contractors recognize that the Architect cannot prepare plans and drawings that cover all conceivable construction details or site conditions. 16. Interpretation: Contractor and Sub-Contractor shall inform the Architect of any missing details or corrections which are believed by them to be necessary or appropriate for the proper construction of the project and which would not normally
- be their responsibility under standard industry practices and techniques. 17. Terminology, abbreviations, and symbols used on the construction documents are those recognized in the construction industry for the purposes indicated by the context in which used. In the event that industry publications do not adequately define any given
- term, the definitions found in Webster's unabridged dictionary of the American language will govern. Refer uncertainties to Architect before proceeding 18. Testing & Inspections: Arrange for all testing and inspections required by the construction documents, local building
- department, health department, and other agencies having jurisdiction over the project Manufacturer's name: Products specified on the construction documents by manufacturer's name or other designation are a project requirement, unless specifically noted otherwise. Substitutions are permitted only with prior written approval of the Architect and Owner. Selection of products which comply with requirements including applicable standards is Contractor's option where no product names are indicated by owner or
- documents. Contractor/Sub-Contractor shall bear all responsibility for products which he/she selects and installs. 20. <u>Substitution</u>: No substitutions shall be made without Owner's written authorization. Any substitution shall be made known to Builder and Architect in advance to avoid any delay in the project schedule. The General Contractor and any Sub-Contractors shall not make structural substitutions or changes without prior written authorization from the Structural
- Engineer and written notification to the Architect. 21. <u>Conflicts</u>: Where construction documents conflict with codes, the more stringent shall apply. 22. Changes: No changes are to be made on these plans without the
- prior knowledge and consent of the Architect whose signature appears hereon. Approval by city or county inspector does not constitute authority to deviate from plans or specifications. 23. Builder Set: This set of drawings is a "builder set". It is sufficient to obtain a building permit, however, all materials and methods of construction necessary to complete the project are not necessarily described in this "builder set". The implementation of the plans requires a Client/Contractor (General Contractor and Sub-Contractors) thoroughly knowledgeable with the applicable building codes and methods of construction. The plans and general notes delineate and describe only locations, dimensions, types of materials and
- neral methods of assembling or fastening 24. <u>Structural Analysis</u> for this project is done per applicable Building Code at the time of design considering standard of
- 25. Upon Completion of the above by the Architect and prior to the start of construction, the Contractor is responsible to check all dimensions, coordinate with the work or architectural, mechanical and other trades to ensure compliance with his/her requirements.

#### Structural Engineering: Refer to the current calculations for any question regarding lumber grades, beam and header sizes, footing and shear

requirements. No deviations from structural details shall be made without the written approval of Andresen Architecture, Inc. Approval by the City Inspector does not constitute authority to deviate from plans or specifications. Contractor is to comply with manufacturer's instruction and recommendation to the extent that printed information is more detailed or stringent than requirements contained directly in construction documents.

#### Division 2 Sitework

- I. <u>All footings</u> shall rest on firm natural soil or approved compacted fill. All filling, backfilling, recompaction, etc., is to be accomplished only under the supervision of a Soils Engineer.
- No Soils Report (Assumed soil bearing value 1,000 PSF). All finish grade to drain away from the building footings. Termite Control: Soil shall be treated as per H.U.D./.M.P.S. 602-3.2 for termite control.
- 5. Utilities: Contractor is responsible for locating all existing utilities whether shown hereon or not and to protect them from damage. The Contractor shall bear all expenses for repair or replacement necessary in the prosecution of this work.
- 6. Protection: Protect structures, utilities, sidewalks, pavements. and other facilities in areas of work. Barricade open excavations and provide warning lights. Comply with regulations of authorities having jurisdiction.
- Retaining Walls: Furnish foundation drainage pipe complete with bends, reducers, adapters, couplings, collars, and joint materials 8. Backfill: Use evenly graded mixture of gravel or crushed stone,
- and natural sand with 100% passing a 1-1/2" sieve and 0-5% passing a No. 50 sieve for filterina material. 9. Grading: Grade ground surface to conform to required contours and to provide surface drainage minimum 1% away from
- building for a minimum of 10 feet. 10. Pipe Backfill: Place supporting layer of filtering material over compacted subgrade where drainage pipe is to be laid to a compacted depth of not less than 4" after testing drain lines, place additional filtering material to a 4" depth around sides and top of drains. Lay drain pipe solidly bedded in filtering material. Provide full bearing for each pipe section throughout its length, to true grades and alignment.
- Test or check lines before backfilling to assure free flow. Remove obstructions, replace damaged components, and retest sustem until satisfactory. 12. Backfill shall not be placed until supporting foundations, walls, and/or slabs have attained sufficient strength to support

### Division 3

lateral soil pressures.

### Concrete

- . All reinforced concrete materials and construction shall conform to Building Code, Chapter 19. 2. <u>Comply</u> with the following:
- A. ACI 301 "Specification of Structural Concrete Buildings". B. ACI 318 "Building Code Requirements for Reinforced Concrete". 3. <u>Mix designs</u> may be adjusted when material characteristics, job
- conditions, weather, test results or other circumstances warrant. Do not use revised concrete mixes until submitted to and accepted by Architect. 4. Minimum design mix parameters: Use design mix that will provide a stable durable concrete surface free of pocks, spalls and
- other defects resulting from chemical incompatibility of constituent materials or adjacent conditions. Maximum 7-1/2 gallons of water per sack of cement. Maximum slump 4".
- Materials: Cement shall conform to Section 1903.2 of Building Code and shall be Portland Cement conforming to ASTM C-150, Type i or 11, low alkali. Use Type V cement for soil containing a sulfate concentration of 0.2% or more (min. f'c=2,500 psi, 28 days). Aggregates shall conform to Building Code 1903A.2 and shall
- be natural sand and rock conforming to ASTM C33, except local aggregates of proven suitability may be used when acceptable to Architect. Mater shall be drinkable Air-entraining admixture, when required, shall be ASTM C-260.
- <u>Underslab vapor barrier</u> shall be polyethylene vapor barrier under all house slabs with sand fill above and below (see plans). Install vapor barrier with 12" minimum laps. Do not puncture with stakes or screened pins. Use blocking to support and level screeds and remove all such blocking after screeding 6. Formwork shall be of materials with sufficient stability to
- withstand pressure of placed concrete without deflection. Special Exposure: Refer to Table 1904A.2.2 of Building Code for special exposure condition as required by soils engineer.
- <u>Reinforcing Steel</u> All reinforcing shall be ASTM A-615-40 for #4 bars and smaller. All reinforcing shall be ASTM A-615-60 for #5 bars and larger. Welded wire fabric is to be ASTM-185, lap 1-1/2 spaces, 9" min. for structural slabs, all reinforcing #5 and larger to be ASTM A-615-60. Unless otherwise noted or shown on plans, the minimum clear distance or reinforcement to face of concrete slab shall be:
- Concrete against earth: Formed.
- Concrete Exposed to weather..... 1-1/2" All bars shall be deformed as per ASTM A-305. <u>All bars</u> shall be clean of loose flakey rust, grease, or other materials likely to impair bond.
- All bends shall be made cold for #8 and smaller. Splicing of bars shall have lapping of 30 dia. or 2'-0" min. in all continuous reinforcement of footings and concrete walls, except as noted on plans. Masonry reinforcement shall have lappings
- of 40 dia. or 2'-0" whichever is greater. 6. <u>All reinforcing bars</u> shall be accurately and securely placed before pouring concrete.
- Welding and reinforcing steel shall conform to AWS DI.4 using low hydrogen electrodes & A706 rebar.
- 8. Splices of horizontal rebar in walls and footings shall be staggered 4'-0" min. 9. Dowels for walls and columns shall be the same size and
- spacing as the wall/column reinforcing unless noted otherwise. Concrete

#### Drupack shall be composed of one part Portland cement to not more than three parts sand & shall be non-shrink. Construction

- <u>All continuous exterior footing</u> shall have 5/8" dia. x min. 12" anchor bolts with 3"x3"x.229" plate washer, min. 7" embedment into concrete, at 48" O/C unless noted otherwise on plans. One anchor bolt should be located max. 12" away from the end of the sill plates. min. (2) A.B.'s per sill plate per shear panel. 2. <u>Sill fastening</u>:
- All Continuous Footings: Embed 5/8" diameter x 12" anchor bolts 7" into concrete. per sec. 2308.6 Monolithic Pour System: Embed anchor bolts 7" into concrete. Two-Pour System: Embed anchor bolts 4" past cold joint into footing. Use 5/8" diameter x 14" long anchor bolts at all 3x sill plate locations.
- 3. All interior non-shear walls shall have HILTI X-DNI (with a minimum penetration of 1-1/4" into slab) at 24" O/C unless noted otherwise to be installed in accordance with I.C.C. ESR-1663 March 2014. Actual slab thickness to be minimum 4".

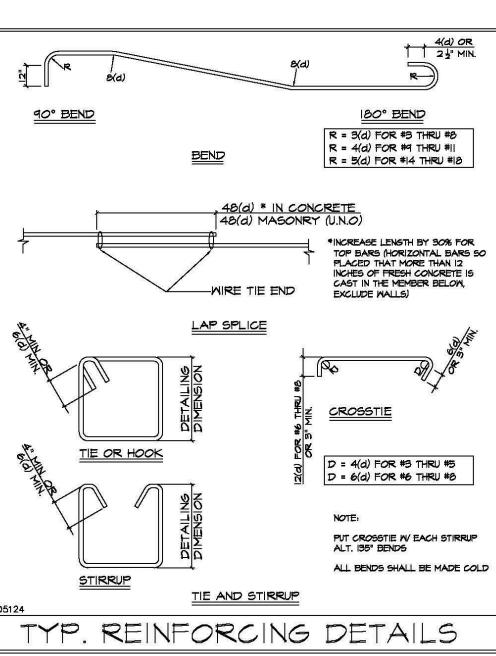
#### Concrete shall be proportioned to provide a minimum compressive strength, f'c, equal to 3,000 psi (after 28 days), unless noted otherwise per Building Code Sections 1805. All reinforcing, dowels, holdowns and other inserts shall be secured in position and approved by the local building official prior to

#### Execution Position, support and secure reinforcement against displacement with metal chairs, runners, bolsters, spacers and hangers, as required. Direct wire ties into concrete, not toward exposed concrete surfaces. Maintain minimum clear distance between soil and reinforcing of 3" at bottom and 2" at sides of excavation.

the pouring of any concrete.

- Lap reinforcing bars a minimum of 40 bar diameters. Provide construction, isolation, and control joints as required. Locate joints so as to not impair strength and appearance of structure. Place isolation and control joints in slab-on-grade to minimize random cracking.
- 4. Use ICC-ES approved shot pins with cadmium washers, 3'-0" O.C. max., 6" from corners and splices in interior bearing walls unless otherwise noted. Use same at 4'-0" max. for interior non-bearing walls. Slab to be thickened to 3 times pin penetration for 8" min. width where shot pins are to be used. Verify required thickness prior to placing concrete. 5. <u>Consolidate placed concrete</u> using mechanical vibrating equipment with hand, rodding, and tamping, so that concrete is worked around reinforcement and other embedded items and
- into forms. 6. Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placement and curing. A. In cold weather comply with ACI 306.

Division 3 (continued) Concrete



7. Prior to placing concrete, remove all water, mud, loose earth, and debris from excavations 8. Foundation (widths and depths) and reinforcing as shown on plans are superseded by any local codes or ordinances which require

- increases in same. 9. <u>All load-bearing footings</u> shall be on-level, undisturbed soll to depth shown on drawings and shall conform to the Soils Report. 10. Do not place concrete until all reinforcement, conduit, outlet, boxes, anchors, hangers, sleeves, bolts and other embedded materials and items are securely and properly fastened in their proper places and positions. Sub-Contractor shall verify installation of hold-down and anchor bolts, "PA" straps and other anchorage material and items prior to placement of concrete. Holdowns to be installed in accordance with ICC-ES Report
- #ESR-2604. Pipes may pass through structural steel in sleeves, but shall not be embedded therein. Pipes or ducts exceeding one-third the slab or wall thickness shall not be placed in the structural concrete unless specifically detailed. For residential construction: The Concrete Sub-Contractor shall install a minimum of (1) 3/4" plastic pipe under the driveway, located at the street side of the entry walk, for future sprinkler system (verify with Landscape Sub-Contractor). Concrete Sub-Contractor shall also install plastic conduits in garage stem wall for power, telephone, CATV, and irrigation controller. Plastic pipe shall be provided by the
- Plumbing Contractor and the conduits by the Electrical Contractor. 12. Refer to architectural drawings and details for reveals, areas of textured concrete or special finishes, items required to be cast into the concrete, curbs, and slab depressions. 13. <u>Finish of slabs</u> shall be trowelled smooth and level around all plumbing pipes, electrical conduit, and miscellaneous iron straps
- protruding therefrom. 14. Repairs shall be made promptly by the Concrete Sub-Contractor to remove any anchor bolts or any steel inadvertently misplaced
- in or at openings and shall patch any surface damaged by the removal thereof. 15. <u>Cleanup</u> shall occur after completion of pouring each slab. Concrete sub-contractor shall remove all form lumber, miscellaneous lumber and cement debris, leaving the job-site
- clean and graded smooth for other workmen 16. Trenches for footings shall be cleaned before concrete is poured. An imaginary line from the bottom corner of any footing, extending downward at 45° from the horizontal shall not intersect any excavation for gas, sewer, or drainage purposes
- All holdowns and post anchors to be installed according to most current Simpson Strong-Tie specifications and requirements of ICC-ES Report #ESR-2604 shall be tied in place prior to
- foundation inspection 2. Min. concrete width to be 8" for receiving STHD's. Verify locations of holdowns and anchor bolts with rough framing to assure prior and accurate installation.
- Provide #3 x 24" dowel at 24 O.C. and 12" from the corner at all concrete stoops and porches. 4. <u>Provide min. (1) #4 reinforcing</u> for electrical ground, location to be
- verified with the electrical contractor 5. Verify min. foundation depth, width, reinforcing steel and additional expansive soil requirements with valid soils report and if any more stringent they shall supersede the above minimum
- restrictions. 6. See Division 3, Section "Strength" for concrete strength Admixtures in concrete mixture containing calcium chlorides shall not be used
- 8. Footing shall be examined and certified in writing by the project Soil/Geology Engineer prior to inspection and placement of concrete. 9. Concrete shall be to the strength and slump as specified per structural design and consist of Portland cement ASTM CI50 Type V per Solls Engineer's recommendations and Building Code Table
- 1904.2.2 when concrete is exposed to sulfate containing solutions and aggregates per ASTM C33, water to be clean and potable. 10. Placement shall be in one continuous operation unless otherwise specified and slab surface shall be cured with Hunts compound or equal or other methods in accordance with good construction practices at Contractor's option.
- 11. Contractor shall dampen slab underlayment of sand/membrane just prior to concrete placement to assist uniform concrete curing. 12. The bottoms of footing excavations shall be level, clean, and free of loose material or water when concrete is placed. Over excavation shall be filled with concrete or properly compacted
- fill that has been tested and approved by the Soils Engineer. Backfill shall not be placed until supporting foundations, walls, and slab have attained sufficient strength to support lateral soil pressure. 13. Floor slab shall be poured level to 1/8" in 10'-0".
- 14. Requirements for pre-saturation of sub grade soil and daylight setback of footing from any descending slope shall comply with current soils report 15. Finish arade around the perimeter of slab shall be constructed
- such that rain and irrigation water is drained away from the slab. 16. All site and pad preparation, such as but not limited to shading compacting of the fill, pre-saturation, and concrete slab base preparation, shall be performed in accordance with the Soils Engineer's recommendation and soil report.
- 17. Foundations drawings prepared by Andresen Architecture, Inc. reflect the structural requirements, refer to architectural plans for dimensions depressions, slope shelves patios, stoops, and porches not shown. Accuracy of the dimensions and final fit of the building shall be reviewed by the Architect and the Contractor prior to construction
- 18. Waiting period for concrete slabs-on-grade prior to start of construction as follow: a) Walk on slab 24 hours after concrete has been poured. b) Begin wall framing 4-5 days after concrete poured.
- c) Begin roof/floor framing 7-10 days after concrete poured. d) Do not load roof prior to 14 days after concrete poured. 19. The Contractor shall arrange for observation of the work by the Soils Engineer. The following are reqt's of the Soils Engineer: a) All footing excavations shall be inspected and certified in
- compliance with the soils report by the Soils Engineer prior to placing of concrete or steel. b) Soil conditions, including compactions and moisture content, shall be inspected and certified in compliance with the soils report by the Soils Engineer prior to placing of concrete or
- c) A certificate of compliance shall be submitted to the Building Official prior to his foundation inspection, and to the Architect and Structural Engineer
- 23. Prior to the Contractor requesting a Building Department foundation inspection, the Soil Engineer shall advise the Building Official in writing that:
- a. The building pad was prepared in accordance with the soil report. b. The utility trenches have been properly backfilled and compacted. c. The foundation excavations, the soils expansive characteristics and bearing capacity conform to the soils report. 24. The Concrete Contractor is to verify location of holdowns and anchor bolts with rough framing to assure proper and accurate
- installation, with framing contractor.

#### Division 4 Masonry

All Concrete masonry materials and construction shall be in accordance with Building Code, Chapter 21. <u>Water</u> used in mix shall be potable.

- Sand shall meet the requirements for "Aggregate For Masonry" Mortar," ASTM C144.
- 4. Portland Cement shall meet the requirements for "Portland Cement" ASTM CI50.
- 5. Plastic Cement shall comply with the latest adopted edition of the Code. 6. Lime putty shall be made of high calcium lime and aged to ensure
- complete slacking. Hydrated lime to meet the requirements for "Hydrated Lime For
- lasonry Purposes" ASTM C207, Type "S". 8. Steel reinforcing to be deformed bars to meet ASTM A615,
- Grade 40 for sizes #3 and #4 and Grade 60 for sizes #5 and larger. <u>Lightweight concrete precision block</u> to conform to standars for
- hollow load concrete masonry units and to conform to ASTM C90, Grade "N-I" (tab color). 10. Mortar to conform to Code and to the following: I part Portland cement
- 4-1/2 parts dry loose sand 1/3 to 1/2 lime putty or hydrated lime
- may be composed of the following: I part plastic cement
- 3 parts dry loose sand 1/10 parts lime
- Grout shall be 2,500 psi concrete. Solid grout all cells. 12. <u>Ultimate compressive strength</u> of foundation concrete shall be 2,500 psi at 28 days.
- 13. Brick shall be medium weight (MW) grade in accordance with ASTM C62, with an allowable compressive strength of 2,000 psi. 14. Agaregate shall conform to ASTM CI44 (Mortar) and ASTM C404 (Grout). 15. Samples: Masonry Sub-Contractor shall submit samples of veneer

to Builder for written approval prior to proceeding with installation. Materials

- All materials making up finished concrete masonry construction shall conform to standards required by Building Code Sec. 2103. Lumber: Dimensional lumber shall be of Douglas Fir-Larch of the
- following product classification in grade indicated. Alignment of vertical cells: Masonry shall be built to preserve the unobstructed vertical continuity of the cells. The vertical
- alignment shall be sufficient to maintain a clear, unobstructed vertical opening not less than 2" x 3". Lay units clean and dry. 4. <u>Cleanouts</u>: Cleanout opening shall be provided at the bottoms of
- all cells to be filled at each lift or pour of grout, when such lift or pour of grout is in excess of 4'-0" in height. Cleanouts shall be sealed after inspection and before grouting.
- 5. Grout solid all cells which contain rebar, bolts, etc. Grout solid all cells below grade. All reinforcements shall have a minimum grout
- coverage of 3/4". All brick shall have a minimum of 2" grout space. 6. Nonexpansive fill shall be used in backfilling behind walls. All walls
- shall be adequately shored during the backfill operation. When absolutely necessary for construction purposes to stop off longitudinal runs of masonry, stop off only by racking back one half unit length in each course. Toothing shall not be permitted.
- Masonry shall comply with 2019 C.B.C. 9. Reinforcing shall be accurately placed, and held in position top and botton
- 10. Masonry veneer: Provide I" mortar between masonry veneer and 'Aqua Lath" as manufactured by Tree Island Steel ICC-ES Report #ESR-2267 or equal.

The specified compressive strength of masonry, f'm, shall be 1500 psi, unless noted otherwise. If higher f'm is noted, it shall be verified by prism tests as required in Building Code, Section 2105.2.1

<u>Concrete Unit Masonry</u>

- Concrete masonry units for load bearing systems may be brick as specified by ASTM C55, Specifications for Concrete Building Brick. Grade N concrete bricks are for use as architectural veneer and facina limits in exterior walls. Grade 5 concrete bricks are for general use where moderate strength and resistance to frost action and moisture penetration is required.
- 2. <u>Grout:</u> Mix one part Portland cement, 1/10 hydrated lime, not more than 3 parts sand and not more than 2 parts 3/8" maximum size pea gravel by volume, and shall have a minimum compressive strength of 2000 PSI at 28 days of age, aggregates per ASTM C476.
- Martar-Mix: Type S ASTM C270 and consisting of one part Portland cement, 1/10 hydrated lime, not more than 3 parts sand, all by volume. Type 5 mortar shall have a minimum compressive strength of 1800 PSI at 28 days of age. No fire clay permitted in mortar used for structural units. All materials for mortars shall be measured by volume, sand and cement mixed dry, lime added, and then water added to bring to the proper consistency for use. No mortars that have stood for more than one hour shall be used.

<u>Construction (General)</u> Walls shall be straight, plumb, and true, with all courses true to line and level, built to dimensions shown. Cells shall be filled solid with grout as indicated. Blocks shall be laid up with waterproof type S mortar. Clean units before placing. Use masonry saw for cutting.

<u>Special Inspection</u> For concrete masonry construction which is noted as requiring special inspection per drawings, such inspection shall be carried out in accordance with Building Code, Section 1704. Concrete masonry construction which requires special inspection also is required to have masonry prism testing prior to and during construction as described in Building Code, Section 2105A.3

#### Division 5 Metals

General: <u>Comply</u> with the following: A. AISC "Code of Standard Practice for Steel Buildings and Bridges."

- B. AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings" including "commentary."
- C. AWS "Structural Welding Code," comply with applicable provisions except as otherwise indicated.
- D. D.All structural steel materials and construction shall conform to the reqt's specified in Building Code, Ch. 22.

### <u>Materials:</u>

- Structural Steel and miscellaneous iron shall be primed with a rust resistance primer \$ should conform to ASTM A36 as a minimum, unless otherwise noted. All W shapes to be ASTM A992. Cold-formed steel tubing shall conform to ASTM A500, grade B
- (Fu=46 ksi). <u>Steel pipes</u> shall conform to ASTM A53, Type E or S, Grade B
- (Fy=36 ksi). 4. Fasteners such as bolts, nuts, and screws shall conform to ASTM A325N, unless otherwise noted. Provide bolts, nuts, laq bolts, machine screws, wood screws, toggle bolts, masonry anchorage devices, lock washers as required for application indicated. Hot-dip galvanized fasteners for exterior applications to comply with ASTM AI53.
- 5. Holes for bolts should be drilled or punched & shall be 1/16" larger than bolt diameter. 6. Shop paint: SSPC-Paint 13, shop prime structural steel except
- portions to be embedded in concrete or mortar. Galvanizing shall conform to ASTM A386 for assembly products; ASTM A123 for rolled, pressed and forged steel shaped, plates,
- bars and strip 1/8" and thicker; galvanizing repair paint: MIL-P-21035 or SSPC-Paint-20 or "Galvaloy" paint. Welding rods shall conform to AWS for intended use. All structural welding procedures and materials shall conform to Building Code, Section 2204.1 All welding shall be by the

quality of welds.

submerged arc process using E70XX-low hydrogen electrodes, u.n.o. Comply with AWS DI.I code for procedure, appearance, and

Set base plates on cleaned bearing surfaces, using wedges or other adjustments as required. Solidly pack open spaces.

<u>Fabricate steel pipe railings</u> to dimensions shown, with smooth bends and welded joints using 1-1/2 steel pipe, u.n.o. 4. Touch-up shop paint after installation. Clean field welds, bolted connections and abraded areas, and apply same type paint as used in shop. Use galvanizing repair paint on damaged galvanized surfaces.

I. <u>All shop welding</u> and fabrication must be done in a shop certified by AISC Quality Certification Program and approved by the Building Official. All field welding must be performed by a certified welder and a special inspector shall continuously inspect all structural field welding. Both shall be approved by the Building Official. <u>Weld corners</u> and seam continuously, grind exposed welds smooth and flush. Weld cap on exposed ends of pipes and tubes.

### Division 6 Nood

ROUGH CARPENTRY <u>General:</u> I. <u>All reference specifications</u> are the latest edition adopted or approved by the enacting authority. A. CBC Chapter 23.

- NDS "National Design Specifications for Wood Construction" PS 20 "Softwood Lumber Standards"
- WWPA "Standard Grading Rules for Western Lumber" RIS "Standard Specification for Grades of California
- Redwood Lumber" Manufactured lumber, 545 and grade stamped, to comply with
- PS20 and applicable framing rules of inspection agencies certified by ALSC's board of review. Moisture Content: Provide seasoned lumber with 19% or less
- moisture content at time of dressing and shipment (for sizes 6" or areater in thickness). 4. <u>Refer to structural calculations</u> for any questions regarding
- lumber grades, beams, and header sizes. Construction materials shall be spread out if placed on framed floors or roof. Load shall not exceed the design live load per square foot. Provide adequate shoring and/or bracing where structure has not attained design strength.

#### <u>Materials:</u> Framing:

- A. Light-framing and Studs: (2"-4" thick, 2"-6" wide): Stud or standard grade
- Joists and Rafters: (2"-4" thick, 5" and wider): No. I arade Posts, Beams, Headers, and Timbers: (4" and thicker): No. 1 C.
- Grade, free of heart center Redwood Foundation Grade: all heart u.n.o. (if lumber D. species other than Douglas Fir-Larch is to be used, Contractor shall request in writing, approval from Architect and Structural Engineer prior to construction). E. Top Plates: All top plates to be Hem-Fir or Doug-Fir,
- standard grade or better. Resawn: All exterior fascias, trims, posts and beams shall be re-sawn lumber. 2. <u>Mood Panels:</u>
- Particleboard underlayment: ANSI A208.1, Grade I-M-I in thickness indicated. <u>Wall Sheathing:</u> American Plywood Association approved Oriented Strand Board (O.S.B.) Waferboard (Grade 2-M-W) may be used instead of Structural II plywood as indicated on
- shear panel schedule. 3. <u>Typical Floor Sheathing:</u> A. 23/32" APA rated Sturd-I-Floor T&G EXP I with min. a panel index of 32/16".
- Refer to NER 108 for installation and conditions of use B.N.: 10d common nails at 6" O.C. E.N.: IOd common nails at 6" O.C
- F.N.: IOd common nails at 12" O.C C. Use ring or screw shank nails and glue sheathing to framing using adhesives meeting APA specification AFG-OI or ASTM
- D. Apply glue in accordance with manufacturer's recommendations. E. Use Grabber plywood screw min. 2" long at 6" O.C. B.N., 6" O.C. E.N., and 12" O.C. field nailing (ICC-ES Report #ESR-1271, Dated January 1, 2002, ANSI, ASME B 18.6.1)
- 4. Typical Roof Sheathing A. 15/32" APA rated sheathing Exp 1 with a min. panel index of 24/0. refer to NER 108 for installation and condition of use. B.N.: 8d common nails at 6" O.C. E.N.: 8d common nails at 6" O.C.
- F.N.: 8d common nails at 12" O.C. \*Note: All structural rated panel must be stamped by one of the following agencies: APA, PFS/TECO, or Pittsburg Metal hangers and framing anchors of size and type recommended for intended use by manufacturer. Hot-dip
- galvanize fasteners and anchorages for work exposed to weather, in ground contact and high relative humidity. Preservative pressure-treated products: A. <u>Preservatives:</u> Lumber and plywood with water-borne
- preservatives to comply with AWPA C2 and C9 respectively, and 2019 CBC SEC. 2303.1.8 Above Ground: Wood for above-ground use: AWPB LP-2. Roofing: Treat cants, nailers, blocking, stripping, and similar
- items in conjunction with roofing, flashing, vapor barriers, and waterproofing, or use Redwood Concrete Contact: Treat sills. sleepers, blocking, furring, stripping and similar items in direct contact with masonry or concrete, or use Redwood.
- E. <u>Sill Caulking</u>: Apply a bead of mastic caulking under sill plates of all exterior walls at interior bottom of sill plate. Shop Drawings
- I. <u>Sufficient copies</u> of shop drawings for any member or product designed by an entity other than Andresen Architecture, Inc. shall be submitted to Andresen Architecture. Inc. prior to fabrication for review, to be reviewed and returned in 3 to 5 working days. Review of shop drawings by Andresen Architecture, Inc. does not relieve the Engineer responsible for the design or the Contractor from compliance with Building Code.
- 3. Andresen Architecture, Inc. review of the shop drawing consists of checking general conformance with structural drawings. Design accuracy of such product, dimensions, and quantity of the project is not reviewed by Andresen Architecture, Inc 4. Trusses shall be designed in accordance with the latest local
- Building Code for all loads imposed, including lateral loads and mechanical equipment loads. 5. <u>Nood truss manufacturer</u> shall supply to the Architect and the building department calculations and shop drawings for approval of design loads, configuration (2 or 3 point bearing), and shear transfer, prior to fabrication. It shall be the responsibility of the
- manufacturer to obtain building department approval of calculations and shop drawings prior to fabrication. 6. Trusses shall be designed in accordance with the latest local Building Code for all loads imposed, including lateral loads and mech. equipment loads.
- 7. <u>All connections</u> involving trusses shall be ICC-ES approved and of adequate strength to resist stresses due to the loadings involved and shall be designed and specified by the truss manufacturer.
- 8. Dead load and live load deflections shall be limited to min L/240, live load deflection min. L/360 9. Cross bridging and/or bracing shall be provided and detailed by truss manufacturer as required to adequately brace all trusses. 10. Truss manufacturer to provide details which allow for normal deflection without imposing lateral loads on their supports (i.e.,
- scissors trusses). Truss manufacturer is responsible for providing additional shear and drag trusses as shown on the framing plan. 12. Truss manufacturer is responsible for reviewing framing plans and
- structural details prior to fabrication of trusses and specifying 13. All trusses designed by truss manufacturer shall be design to sustain all vertical, lateral, and other pertinent loads, including
- bracing of top and bottom chords, in addition to any connections related to trusses. Contractor is to coordinate with truss manufacturer. 14. The truss manufacturer is responsible to meet the profile as
- indicated in the drawings. 15. All truss lumber shall be Douglas Fir-Larch (u.n.o.). 16. Each truss shall be legibly branded, marked, or otherwise have
- permanently affixed thereto the following information located within 2'-0" of the center of span on the face of the bottom chord a. Identity of the company manufacturing the truss b. The design load.
- c. The spacing of the trusses.
- . <u>Bracing</u>: All members shall be framed, anchored, tied and braced so as to develop the strength and rigidity necessary for the purposes for which they are used. Framing Sub-Contractor shall adequately brace floor joists to prevent sagging where materials are stockpiled prior to erection.
- Let-in bracing: Provide I x 6 diagonal (at approx. 45 degrees) every 25'-0" maximum in stud walls not sheathed. Bracing shall run continuous from sill plate to top plate. Nail with two 8d per stud and three 8d each end to plates.
- All metal connectors shall be "Simpson Strong-Tie Connectors" or ICC-ES approved equivalent in structural design and load values. The nails for these connectors shall be joist hanger nails as manufactured by the Simpson Company (or equal). 4. Top plates of all stud walls shall be two pieces the same size as
- studs. Splices to lap 4'-0" minimum and be nailed with 16 16d nails minimum 5. Bolting: Bolt holes in wood shall be 1/32" to 1/16" larger than the nominal bolt diameter. All bolts shall have standard cut washer
- under head and nut unless otherwise noted. All bolts shall be retightened prior to application of sheathing, gypsum board, plaster, etc.
- 6. <u>Structural members</u> shall not be cut for pipes, etc. unless specifically detailed. Predrill for nailing when nail spacing results in the wood splitting.



6 May 2022

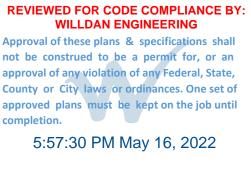
Approval of these plans & specifications shall not be construed to be a permit for, or an approval of any violation of any Federal, State, County or City laws or ordinances. One set of approved plans must be kept on the job until completion. 5:57:30 PM May 16, 2022

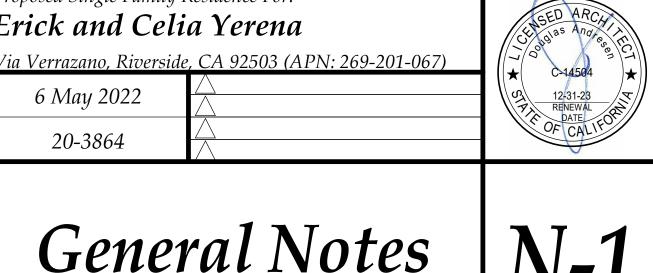
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20-3864	$\Delta$

*Proposed Single Family Residence For:* 

Erick and Celia Yerena







1 • 1	ision e 00	6 (continued)
8.		ans and girders
υ.	<u> </u>	<u>Bearing on masonry:</u> The ends of beams or girders supported on masonry or concrete shall have not less than 3" of bearing.
	В.	<u>Bearing on wood:</u> All beams or girders supported on wood shall have full bearing and bearing shall be comprised of one
	С.	(I) solid post (or multi-stud) constructed in an approved manner unless otherwise specified on plans. Bracing: Provide 2 × 4 temporary bracing to all beams
٩.		<u>Bracing:</u> Provide 2 x 4 temporary bracing to all beams projecting 3'-0" beyond building line to prevent warpage. If and Ceiling Framing
	А.	<u>Framing Rafters</u> shall be framed directly opposite each other at the ridge. There shall be a ridge board at least 2" nominal
		thickness at all ridges and not less in depth than the cut end of the rafter. At all valleys or hips there shall be a single valley or hip rafter not less than 2" nominal thickness and not
	В.	less than the cut end of the rafters. <u>Rafters</u> shall be nailed to an adjacent ceiling joist to form a
		continuous tie between exterior walls when such joists are parallel to the rafters. Where not parallel, rafters shall be tied to 2" by 4" (nominal) minimum size cross ties. Rafters ties
	С.	shall be spaced not more than 4' on center. <u>Purlins</u> to support roof loads may be installed to reduce the
		span of rafters within allowable limits and shall be supported by struts to bearing walls. The maximum span of a 2" by 8" purlin shall be 8'. In no case shall a purlin be smaller than the
		supported rafter. The unbraced length of the $2 \times 4$ struts shall not exceed 8' (10'-0" for $2 \times 6$ struts) and the minimum
	Ð	slope of the struts shall not be less than 45 degrees above the horizontal.
	D.	<u>Blocking:</u> Rafters more than 8" in depth shall be supported laterally at the ends and at each support by solid blocking not less than 2" in thickness and the full depth of the rafter
		unless nailed to a header, band or rim joist or to an adjoining stud and as required by Code. Provide 2x solid blocking at
	E.	10'-0" intervals for all rafters more than 8" deep. <u>Fascia and Barge Boards</u> shall be resawn materials, free of splinters and shall have a texture not so rough so as to be
		injurious or irritating to the skin if located where it can be touched under normal living conditions. If there are any
	F.	questions regarding the acceptability of any material, contact the Project Superintendent. <u>California Framing</u> to be 2 x 6 Douglas Fir #2 or better
10.	<u>Star</u>	rafters at 24" o.c., with a maximum span of 10'-0" typical. <u>Indards:</u> For sheathing, underlayment and other products not
II.	man	ered in above standards, comply with recommendations of ufacturer of product involved for use intended. <u>Iring:</u> Cut, shape, cope, plumb, level and turn all framing
12.	men Prot	nbers to provide full bearing. tection from deterioration:
	A.	<u>Separation:</u> Where wood is nearer than 8" to earth, use treated or natural decay resistant wood unless separated by a 3" concrete slab with an impervious membrane between
	B.	earth and concrete. <u>Embedded:</u> Wood shall not be embedded in the ground or in direct contact with the earth and used for the support of
	С.	permanent structures. <u>Sills:</u> All foundation plates, sills and sleepers on a concrete
		or masonry slab, which is in direct contact with earth shall be treated wood of the same species and should be marked or branded by an approved agency. As an alternate, use a layer
	D.	of 22 gauge sheet metal between the sill and concrete/masonry. <u>Exposed:</u> Columns and posts located on concrete floors or decks exposed to weather or to water splash and which
		support permanent structures shall be supported by metal pedestals projecting at least 6" above exposed earth and at
13.	Pro (bot	least 1" above such floors. <u>vide Fire-Stopping</u> to cut off all concealed draft openings h vertical and horizontal) and to form an effective barrier in
		cific locations, as follows: <u>Walls At Floor/Ceilings:</u> In exterior or interior stud walls, at
	B.	ceilings and floor levels. <u>Stud spaces:</u> In all stud walls and partitions, including furred spaces, so placed that the maximum dimensions of any
	C.	concealed space is not over 10'-0". <u>Stringers:</u> Between stair stringers at top \$ bottom, between studs in line with run of stair if wall below stair is unfinished.
	D.	<u>Pocket Doors:</u> Around top, bottom, sides and ends of sliding door pockets.
	E.	<u>Vents:</u> In openings around vents, ducts, chimneys, fireplaces and similar openings with non-combustible fire stop material only. A metal collar tightly fitted to the chimney and nailed to
	F.	the wood framing may be used. <u>Other:</u> Any other locations not specifically mentioned above,
	G.	such as holes for pipes, shafting, behind furring strips and similar places which could afford a passage for flames. <u>Thickness:</u> Firestops of wood shall be 2" nominal thickness. If
		the width of the opening is such that more than one piece of lumber is necessary, there shall be 2 thickness of 1" nominal material with joints broken or one thickness of 3/4" Plywood.
4.	н. <u>Оре</u>	<u>Gypsum Board:</u> Firestops may also be of Gypsum wall board. enings in floor or roof structures: Where header span exceeds
15.	hang	zet, double header and trimmer members and support with metal gers. <u>ching and drilling</u> of joists, rafters, and studs are permitted as
6.		ailed in standard details. <u>tical Assemblies</u> <u>Provide</u> 2 x 4 studs at 16" O.C. for bearing and exterior walls on
		the top two stories and either $2 \times 6$ or $3 \times 4$ studs at 16" O.C. for bearing and exterior walls on floor below the top two stories.
	B.	<u>Cutting, notching, and boring</u> of studs is permitted in accordance with #15 above. Minimum distance between hole and edge of stud 5/8".
	C.	<u>Place</u> studs with wide dimension perpendicular to wall. Frame corners with 3 studs or where walls intersect back up cleats
		may be used when adequate backing is provided for finish material. Minimum stud length for foundation wall is 14", provide solid blocking where this length does not occur. Where
	D.	foundation cripple wall exceeds 4" high frame as required for additional story. <u>At all walls</u> provide double top plates lap corners and
	ν.	stagger splices minimum 4'-0". At all walls, provide single bottom plate except where lightweight concrete floor fill is
		used . Provide double bottom plated where plates are cut or bored to pass other work. Provide 1/8" x 1-1/2" metal strap each side with 4-16d nails. All plates size 2x stud width min.
	E.	Brace all exterior walls and main cross walls at or near ends and at max. 25'-O" intervals by an approved method. Brace
		cripple walls as required for full height walls. Framer is responsible for installing temporary bracing to adequately support framing during construction. This bracing is to remain in
	F.	place until structural integrity has been achieved. <u>Cripple walls</u> shall be framed of studs not less in size than the studding above with a min. length of 24" or shall be framed of
		solid blocking. When exceeding 4'-0" in height, such walls shall be framed of studs having the size req'd for an add'l story.
	G.	<u>Stud partitions</u> containing plumbing, heating, or other pipes shall be so framed and the joists underneath it so spaced as to give proper clearance for the piping.
	H.	<u>Blocking</u> (2 × 6 min) to be provided at all handrails and at all bath accessories.
	 , , ,	<u>Timber:</u> Douglas Fir-Larch 19% moisture content <u>Lumber</u> shall be free of heart center. <u>Bridging:</u> All stud partitions or walls with studs having a
		height-to-a-least-thickness ratio exceeding 50 shall have blocking not less than 2" in thickness and of the same width as the studs fitted snugly and nailed to provide adequate lateral support.
12471121	L.	<u>Window sills</u> 8'-0" in length or longer shall be doubled. All windows shall have a gypsum board stool u.n.o.
17.	<u>Con</u> A.	<u>nections</u> <u>Post/Beam:</u> Provide positive connection between posts and beams to prevent up lift or lateral displacement and at beam
	В.	splices to prevent separation. <u>Nails</u> may be common, box or vinyl coated sinkers unless
		specifically noted otherwise or required otherwise by the governing codes. Where necessary to prevent splitting, predrill pilot holes smaller than nail; provide maximum nailing
18.	120 110	per CBC 2304.9.1. c Ventilation:
	cro: prol	osed attics and enclosed rafter spaces shall have so-ventilation for each separate space by ventilating openings tected against entrance of rain. The net free ventilating area
	The	I not be less than 1/150 of the area of the space ventilated. openings shall be covered with corrosion resistant metal mesh nings of 1/4" in dimension. Do not block vents with insulation.
19.		<u>ming</u> <u>Stud walls</u> perpendicular to a concrete or masonry wall shall be bolted to the concrete or masonry wall with 5/8" diameter
	B.	x 8" A307 bolts at top, mid-height and bottom. <u>Structural information</u> shown on framing plans is for the main
	C.	structural elements. Non-structural elements shall be constructed per approved code requirements. <u>Weight of the roof tile</u> is considered as IO psf max. (total
		roof dead load of 20 psf). If roofing material exceeds this load, the Framing Contractor should notify Andresen Architecture Inc. in writing prior to construction

- load, the Framing Contractor should notify Andresen Architecture, Inc. in writing prior to construction. D. All shear panels shall have continuous sheathing material from one end to the other and from plate to plate as specified on the drawings. Contractor shall coordinate framing such that continuity of shear panels is assured.
- E. <u>All ledgers</u> shall be spliced with ST22 strap, u.n.o.

- 2×6 16'-7" 12" 15'-1" 16 24" 13'-2" 2x8 12" 2|'-||" 19'-11" 17'-4" 24" 21. <u>Minimum Quality</u>

Division 6 (continued)

Nood

- E. <u>All machine bolts</u> shall conform to ASTM A307. Holes for bolts should be drilled 1/16" larger than bolt dia. Savare washers shall be mild steel. Use min. 2" sq. x 3/16"
- thick washers for bolts with 5/8" dia., use 3-1/2" sq. x 3/8" thick washers for bolts with I" dia. G. Adhesive used to attach floor floor sheathing to framing elements shall conform with APA specification AFG-OI.
- Manufactured hardware specified on the drawings are to be Simpson Strong Tie (unless specifically authorized in writing by Andresen Architecture, Inc.). Follow all manufacturer's requirements & recommendations for installation # handling of the product.
- Do not bend the Simpson PA straps. Sheet rock on framing: Stacked sheet rock loading shall be limited to the following
- quantities in any one room: 5/8": 16 individual 4x10 sheets (8 pairs of sheets) 1/2": 20 individual 4x10 sheets (10 pairs of sheets) The shoring of the 2nd floor is required if the number of sheet rock exceeds the quantities listed above.
- K. Fasteners specified on the drawings may be colored using manufacturer's brands that utilize the Trackers color coded system. Follow all manufacturer's requirements and recommendations for installation and handling of the products.

	-
Ø=0.131 - L=2 1/2"	COLOR CHA
Ø=0.148 - L=3"	Bd Cooler
Ø=0.162 - L=3 1/2"	8d Common
Ø=0.113 - L=2 1/4"	10d Common
Ø=0.131 - L=2 7/8"	l2d Commor (l6d Sinker
Ø=0.148 - L=3 1/4"	léd Commor

STRUCTURAL GLUE-LAMINATED UNITS

- General: All fabrication and workmanship shall conform to the current edition of the Standard Specifications for Structural Glued Laminated Douglas Fir. (Coast Region) Lumber by the West Coast Lumbermen's Association and the current edition of Timber Construction. 2. <u>All glued-laminated members</u> shall be Douglas Fir Larch, with
- 1-1/2" outer and core laminations, combination 24F with waterproof resorcinal or phenol resorcinal glue conforming to Federal Specification MIL-A-397-B. Use Combination 24F-V4 or 24F-V5 for simply supported beams, and Combination 24F-V8 or 24F-VIO for cantilevered beams.
- Comply with ANSI/AITC AI90.1 "Structural guide laminated timber. Provide factory-glued structural units, produced by AITC-licensed firm, qualified to apply the AITC "Quality inspected" mark. Factory mark each piece of glued-laminated structural units with
- AITC quality inspected mark. 6. Design: Where portions of final design for glued-laminated timber members are indicated as manufacturer's responsibility (any element of design consideration), comply with applicable
- provisions of AITC 117- "Designing, Standard specifications for structural glued-laminated timber of softwood species." 7. <u>A certificate of inspection</u> for each Glu-lam beam from an approved Testing Agency shall be submitted to, and approved by the local Building Department and the Architect.
- Provide glued-laminated timber members sized as shown on drawings that meet or exceed the following stress values for normal loading duration and condition of use: Bending (Fb), 2400 psi. Horizontal shear (Fv), 165 psi.
- Compression perpendicular to grain (Fc-Tension Face), 560 psi. Compression perpendicular to grain (Fc-Compression Face), 560 psi. Modules of elasticity (E), 1,800,000 psi. Tension parallel to grain (Ft-Axially loaded), 1150 psi. Compression parallel to grain (Fc-Axially loaded), 1650 psi.
- ASTM D 2559 "Wet-use" adhesive, unless otherwise indicated. <u>Use manufacturer's standard</u> transparent, colorless wood sealer, effective in retarding transmission of moisture at cross grain cuts.
- 4. <u>Use manufacturer's standard</u> translucent penetrating wood sealer, which will not interfere with application of wood stain and transparent finish, or paint finish as indicated. 5. Moisture content of the lumber at the time of gluing shall not be
- more than 16% with a maximum variation of 5% in any beam.
- Required camber for fabrication of each member is shown on drawings, and may be either circular or parabolic, at manufacturer's option. If not shown, use standard camber per manufacturer. 2. <u>Immediately after end-cutting</u> each member to final length, and after wood treatment, if any, apply a saturation coat of end sealer to ends and other cross-cut surfaces, keeping surfaces "flood coated" for not less than 10 minutes. Beams shall be load
- wrapped for protection during shipping After fabrication and sanding of each unit, and end coat sealing, apply a heavy saturation coat of penetration sealer on surfaces of each unit, except for treated wood where treatment has included a water repellent.
- Finish of the members shall be industrial appearance arade (unless otherwise noted) in conformance with Standard Appearance Grades of the A.I.T.C.

total deflection =

with ceiling drywall

e. use #2 Douglas Fir Larch

SIZE SPACING MAX. SPAN

24"

a. dead load =

b. live load =

between floors at such locations

- Building Code 2308.9.1 balloon framed walls (non-bearing) stud heights:
- 2x4's @ 16" O.C. maximum 14'-0" height 2x6's @ 16" O.C. maximum 20'-0"height
- No multiples of 2x4's are allowed to span more than 14'-0" bearing walls, exceeding 10'-0" must be designed case by case. without point loads, or at openings less than 4'-0" at non-bearing walls. Use 2x framing @ medicine cabinet and garage vent (u.n.o.).

10'-6'

9'-7"

8'-4"

6.0 psf

10.0 psf

L/240

- K. Use 4x4 header for openings less than 16" at bearing walls

#### F. <u>All shear transfer nailing</u> shall be per drawings. Contractor shall provide proper notification for inspections to review the same. 6. Provide posts at lower floor under posts or multiple studs above. Provide full width and depth compression block H. <u>All joist hangers</u> shall be Simpson U hanger, all beam hangers shall be Simpson HU hangers u.n.o. on plan or detail. Follow manufacturer's recommendations for installation. If a double sIII plate is used at light-weight concrete flooring, then the framing contractor shall apply sill plate nailing to both sill plates, at 16" O.C. max. or as specified per schedule.

### HART FOR STRUCTURAL NAILS

2	SIZE & DIAMETER	COLORS
5	2 3/8 x .113	YELLOW
	2 1/2 X .131	BLUE
	3 I/4 X .131	BLACK
ı	2 1/8-3X.148	PURPLE
)	3 1/4 x .148	GREEN
t	2  /2 3  /2 × .162	ORANGE

### Division 7 Thermal & Moisture Protection

ATTIC ACCESS I. <u>Provide attic access</u> with insulation where indicated on plans.

EXTERIOR WALL COVERINGS Weather-Resistive Barrier provide one (1) layer of 60 pound asphalt saturated felt minimum under all exterior finishes. 2. <u>Shear Walls and Horizontal Applications</u> require a minimum of two (2) layers of grade "D" building paper.

<u>Materials</u> All exterior materials shall conform to the requirements of the Uniform Building Code, applicable edition, and all State and Local codes.

- ROOFING AND MEMBRANES Scope: Furnish and install roofing and waterproofing work complete, including cant strips and incorporating other trades flashing, sleeves and jacks.
- 2. Installation: Install roofing and wall corrosion resistant metal flashing per manufacturer's recommendations including the use of fasteners and anchoring devices for high wind areas, and per C.B.C. Chapter 1503, carefully incorporating flashing, scuppers,
- jacks, sleeves, roof drains, skylights, etc. supplied by others. 3. Inspection: Owner shall provide a waterproofing specialist to review built-up roofing, waterproof decking, foundation wall waterproofing , and flashing details and provide continuous inspection during field installation of all waterproof and flashing surfaces and materials to insure adherence to manufacturer's specifications and the highest standards of construction practice.

#### Special Conditions Provide cant strips at all vertical surfaces.

Provide crickets as indicated, and as necessary, for proper water drainage and to redirect channeled or runoff water away from vertical surfaces.

Materials: Refer to plans for type and manufacturer of roofing. BUILT-UP ROOFING

- General: Plywood Deck: This specification is applicable to built-up roofina systems applied directly to plywood substrates. Should any other substrate be encountered submit a written list of required modifications as recommended by standard reference specifications to the Architect for approval. 2. Standard reference specifications:
- A. NRCA: "Roofing & Waterproofing Manual". Published specifications, recommendations and instructions B by manufacturer of products used.
- CBC Chapter 15. 3. <u>Coordinate</u> with other trades to insure proper sequencing of
- each installation. 4. Manufacturer's guarantee/warranty: MFR's Standard 10-year avarantee
- Roofing warranty: Provide "Roofing Contractor's" standard 2-year roofing guarantee; NRCA Form 1970A or equivalent form. 6. Testing Lab: Each package of felts, cements, and base-, ply-, combination or cap sheets shall bear the label of an approved testing laboratory having a service for the inspection of materials and finished products during manufacture for such built-up roofing material.
- 7. Roof Deck: Built-up roofing shall be applied to solid roof sheathings as specified in Division 6 of these general notes.
- Materials: Provide materials complying with governing regulations and NRCA roofing and waterproofing manual specifications #31, NADA diagram A, as follows:
- A. Sheathing paper: single ply 5 lb. rosin sized sheathing B. <u>Base plies:</u> 2 plies #15 perforated asphalt-saturated organic felt complying with ASTM D-226.
- Ply felts: 3 plies #15 perforated asphalt-saturated organic felt complying with ASTM D-226.
- Base plies: 3 plies #15 asphalt impregnated glass fiber mat or complying with ASTM D-2178, Type IV. Interply bitumens roofing asphalt complying with ASTM D-312, Type 11.

#### Execution: Weather: Proceed with roofing work only when existing and forecasted weather conditions will permit work to be performed in accordance with recommendations.

- 2. <u>Substrate Corrections</u>: Examine substrate surfaces to receive built-up roofing systems and associated work; and conditions under which roofing will be installed. Do not proceed with roofing until unsatisfactory conditions have been corrected in a manner acceptable to installer.
- 3. Substrate Surface: Verify that substrate is securely fastened with no projecting fasteners and no adjacent units in excess of 1/16" out of plane. 4. <u>Protection</u>: Protect other work from spillage of built-up roofing
- materials. 5. <u>Heat and apply bitumen</u> in accordance with equiciscos temperature (EVT) method as recommended by NRCA.
- 6. Base sheets shall be nailed, using not less than one nailer each 1-1/3 square feet with nails of the type required by the manufacturer for the type of deck. Successive layers shall be cemented to the base sheets using 20 pounds of hot asphalt for solid mopping (10 pounds for spot or strip-mopping), or not less than two gallons of cold bituminous compound in accordance with manufacturer's published specifications, or 30 pounds of hot coal tar pitch per roofing square.
- Minimum Weight: Mineral aggregate surfaced roofs shall be surfaced with not less than 60 pounds of hot asphalt or other cementing material in which is embedded not less than 400 pounds of gravel or other approved surfacing materials or other 350 pounds of crushed slag per roofing square. 8. Cap sheets shall be cemented to the base sheets using no less
- cementing material than that specified for solidly cemented base sheets. 9. Tape joints of substrate to prevent penetration by roofing
- materials. 10. Shingle multiple plies of roofing unless otherwise required by felt manufacturer's instructions 11. On sloping substrates (sloping more than 3/8" for coaltar
- bitumen, 3/4" for asphalt with asbestos felts, or 1" for asphalt with other felts) comply with NRCA "roofing manual" for nailing plies of B.U.R. to substrate or to nailers in the substrate and comply with composition roofing manufacturer's instructions for
- nailing composition roofing. 12. Nail edges of roofing where possible (without causing leaks), and nail composition flashing to vertical surfaces at edges and penetrations of roofing.

#### INSULATION: General:

- Certificate: After installing insulation, the Installer shall post in a conspicuous location in the building a certificate signed by the Installer that the installation conforms with the requirements of Title 24, Part 6, and that the materials installed conform with the requirements of Title 20, Chapter 2. The certificate shall state the Manufacturer's name and material identification, the installed R-value, and weight per square foot.
- Materials: Mineral fiber blanket/batt insulation of inorganic non-asbestos fibers formed into resilient batts. Semi-rigid type where required for self support.
- Execution: Provide insulation at all exterior walls, walls between living space and unheated garage or storage room, between jambs and framing, ceilings with cold areas above, attic access panel, knee walls adjacent to heated space, between combination rafter and ceiling joist (leave open space above for ventilation) to receive (batt) insulation
- Malls to be minimum of R-13 unless otherwise noted. Ceilings to be minimum of R-30 unless otherwise noted.
- 4. Floors Over Unconditioned: to be minimum of R-19 unless otherwise noted.
- 5. See Energy Compliance Sheet for California Energy Title 24 Requirements.
- 6. <u>Infiltration</u>: the following openings in the building envelope must be caulked, sealed, or weather stripped. A. Exterior joints around window and door frames, between wall panels, wall and sill plates.
- B. Openings for plumbing, electrical and gas lines in exterior and interior walls, ceilings, and floors. C. Openings in attic floor (such as where ceiling panels meet
- interior and exterior walls, and masonry fireplaces) D. All other such openings in building envelope. (No gaps or voids will be accepted)
- Alternative approved techniques may be used to meet the standard caulking reqt's for exterior walls, including but not limited to, continuous stucco, building wraps, or rigid wall insulation.
- Balcony and Deck Coating: Elastomeric or membrane deck coatings shall be installed per manufacturer's specifications. Color and finish and detailing to be approved by Aarchitect and/or Owner.

#### Division 7 (continued) Thermal & Moisture Protection

Exterior Decks: I. <u>Decks, balconies, landings, exterior stairways</u> and similar

- surfaces exposed to the weather and sealed underneath shall be waterproofed.
- ensure adequate drainaae
- 2. <u>All exterior decks and balconies exposed</u> to weather shall be constructed with sufficient slope (minimum 1/4 inch per foot) to 3. Unless designed to drain over deck edges, drains and overflows of adequate size shall be installed at the low points of the deck. 4. Provide minimum 2 inch drop from finished interior floor to the highest floor level on any adjoining deck or balcony.

### JOINT SEALERS

- <u>General:</u> I. <u>Compatibility</u>: Provide materials selected for compatibility with each other and with substrates in each joint system; confirm with manufacturer.
- 2. <u>General characteristics</u>: Provide type, grade, class, hardness and similar characteristics or material to comply with manufacturer's recommendations relative to exposures, traffic, weather conditions and other factors of the joint system for best possible overall performance. Joint sealers are required to permanently maintain airtight and waterproof seals, without failures in joint movement accommodation, cohesion, adhesion (where applicable), migrations, staining and other performances as specified.
- Execution: Weather conditions: Install exterior elastomeric sealants when temperature is in lower third of temperature range
- recommended by manufacturer for installation. 2. <u>Clean joint surfaces</u> and prime or seal as recommended by sealant manufacturer.
- 3. Support sealants from back with construction as shown or with ioint filler or back rod.
- Install liquid sealants by proven methods which will ensure "wetting" of joint bond surfaces, without gaps or air pockets in beads, slightly concave on surface and slightly below adjoining surfaces, except form slight cove with sealant at inverted corner joints.

#### FLASHING AND SHEET METAL General:

- <u>General reference specifications:</u> A. Comply with "Architectural Sheet Metal Manual" by SMACNA for each general category for work required. NRCA" "Roofing and Waterproofing Manual".
- CBC Chapter 15. Published installation instructions by manufacturer of
- roofing material used. 2. <u>Coordinate</u> with other trades to ensure proper sequencing of each installation.
- Materials: I. Zinc-coated steel: commercial quality, .20% copper, ASTM
- A-653, G 90 hot-dip galvanized, min. 26 gage. 2. <u>Aluminum</u>: ASTM B-209, Alloy 3003, temper H 14, anodized or
- bakes enameled to match adjacent aluminum products min. 0.032" thick. Solder: for steel 50, 50 tin/lead solder (ASTM B 32), with rosin flux.
- Epoxy seam sealer: 2-part non-corrosive metal seam cementing compound for non-moving joints. Fasteners: compatible with metals being fastened.
- Bituminous coatings: (for use as a dielectric separation): FS TF0494 or SSPC-paint 12, solvent type. Nominally free of sulfur,
- compound for 15 mil dry thickness per coat. 7. <u>Roofing cement:</u> ASTM D-2822 asphalt.
- Execution Seams: Fabricate sheet metal with flat-lock seams: solder with solder and flux recommended by manufacturer, except seal aluminum seams with epoxy metal seam cement and where required for strength rivet seams and joints.
- 2. Shop fabricate to greatest extent possible in accordance with applicable reference standards to provide a permanently waterproof weather resistant installation provide for separation of non-compatible materials hem all exposed edges. 3. Anchor units securely in place using concealed fasteners where possible in a manner that will be true to line plumb and level
- where indicated with a minimum of joints.
- Seal Laps: Set flanges in full bed of roofing cement. Expansion: Provide for thermal expansion of running sheet metal work 6. <u>Roof/Wall:</u> Flash and counter flass at all roof to wall conditions. G.I. flash and caulk wood beams and outlookers projecting
- through exterior walls or roof surfaces. 7. <u>Roof valley flashing</u> shall be provided of not less than No. 26 galvanized sheet gauge corrosion-resistant metal and shall extend at least II" from the center line each way and shall have a splash diverter rib not less than I" high at the flow line formed as part of the flashing. Sections of flashing shall have an end lap of not less than 4" set in a bed of continuous roofing mastic.
- Seal moving joints in metal work with elastomeric sealants. Exterior openings exposed to the weather shall be flashed in such a manner as to make them waterproof. Flashing and counterflashing shall be provided at the junction of roof and
- vertical surfaces (walls, etc.) 10. <u>Nood beams and Outlookers</u> projecting through exterior walls and roof surfaces shall be flashed with galvanized iron flashing and caulked <u>Mood Trim Exposed to Neather</u> shall be flashed where butting
- to exterior finish.

Norkmanship Work shall be accurately fabricated to match detail and fitted to job conditions.

- 2. <u>Molded and brake-formed members</u> shall be finished true and
- straight with sharp lines and angles. 3. Lock seams flat and true to line, 1/2 inch wide, sweated full with
- solder where overlapping does not provide water tight connections. 4. <u>Sheet metal work</u> shall be designed to provide complete
- weather tight and waterproof connections. 5. <u>All galvanized metal</u> shall be shop primed with one coat of zinc

Doors and Windows

and SMA 2005 apply to work.

meet performance requirements.

Housing and Community Development.

type SGD-BL (residential).

only on each sliding panel.

infiltration.

OVERHEAD DOOR SPRINGS

by metal specialist

such materials.

<u>skylights</u>

DOORS

General

Execution:

Standards"

apply to the work.

- dust-zinc oxide primer over all surfaces and as recommended 6. Sheet metal used as flashing adjacent to wood surfaces shall
- be set in high quality sealant to ensure waterproofing between
- Skylights are to be constructed and installed as per manufacturer's specifications and Section 2610 of CBC

#### I. <u>Standards:</u> Comply with requirements of ANSI/NWMA I.S. I and Section 1300 of AWI "Architectural Woodwork Quality

- 2. <u>Mood door standards</u>: the requirements of NWMA 1.5. 3-70 3. <u>Aluminum door standards</u>: requirements of ANSI/AAMA 402.9
- 1. <u>Fire-rated doors</u> to be labeled and listed with rating required by a testing inspection agency acceptable to authority. 2. Door classification: provide aluminum sliding glass doors of

#### Install doors to comply with manufacturer's instructions. 2. Maintain design concept as indicated (door sizes, member sizes, basic profiles, and operating units), modify only as necessary to

- 3. Install units with accurately aligned and tight joints manufacturer instructions. Apply hardware and adjust weather tight closure. Set sill members in a full bed of sealants and fillers. 4. Provide pulls and keyless locking device, lockable from inside
- Provide deadbolt and latchset at all exterior swinging doors, including house to garage doors, or as required by local codes. 6. <u>Viewer:</u> All main, or front entry doors shall be equipped with a wide angle viewer (180 degree) except where the occupant has a clear vision of the area outside the door without opening the
- <u>Meather</u> stripping: All sliding, swinging doors and windows opening to the exterior or to unconditioned areas shall be fully weather stripped, gasketed or otherwise treated to limit air
- 1. <u>Spring must be contained</u> with a restraint device to anchor the spring or any part thereof in the event it fractures. 2. Both the spring and the restraint devices must be identified as conforming to the requirements of the California Department of

#### Division 9 Finishes

General:

- GYPSUM DRYWALL
- Gypsum board standard: ASTM C-840. Comply with the following:
- A. CBC, Chapter 25.
- B. Fire resistant design manual, eleventh edition, gypsum association. All gypsum wallboard at tubs to be installed in such a manner that there are not surfaces out of alignment with adjacent surfaces and the true plane of the wall is maintained.
- Materials: Exposed gypsum board: ASTM C-36.
- Mater-resistant gypsum backing board: ASTM C-630.
- Rounded Corner Bread: Provide rounded corner bread except at windows and wardrobes. Sound reduction: Where shown as "resilient", provide manufacturer's special type designed to reduce sound
- transmission type RC-1. Acoustical sealant: non-drying, non-hardening, non-staining,
- non-bleeding, gumable sealant for concealed sealant for exposed applications. Sound attention blankets: semi-grid mineral fiber without membrane.
- Joint tape & compound: CBC standard 47-6. Fasteners: 5d cooler nails, except 6d cooler nails where necessary for structural or fire-restrictive requirements. Other fasteners with ICC-ES approvals may be used.
- Execution: Taping: except as otherwise indicated, apply joint tape and joint compound at joints (both directions) between gypsum boards. Apply compound at accessory flanges, penetrations, fasteners heads and surface defects.
- 2. Joints: Treated joints, fastener heads, cut edges and penetrations in water-resistant backing board to comply with board manufacturer's directions 3. Protection: Gypsum wallboard shall not be installed until weather
- protection for the installation is provided. Edge Bearing: All edges and ends of gypsum wallboard shall occur on the framing members, except those edges and ends which are perpendicular to the framing members. Gypsum board nailing shall be as follows: (Unless otherwise noted
- on plans) Fasteners shall be spaced not less than 3/8 inch from edges and ends of gypsum wall board. Apply fasteners in a manner that does not fracture paper face. The size and spacing of fasteners shall comply with UBC application edition, state and local codes A. 1/2" and 5/8" type "X" gypsum board to receive 6d cooler
- nails at 7" O.C. to all studs, plates and blocking. B. Gypsum board attached to trusses at 24" O.C. shall have long dimension perpendicular to framing members. Installation: Install board continuous behind tubs, showers, and
- under stairs, at all party, sound, and fire walls. Fire Resistance: Provide type "X" where indicated and where required in fire-resistance rated assemblies.

#### TILEWORK Scope:

<u>Furnish</u> and install tile, grout, mastic, mortar, sealer, etc., complete. Work shall be clean, plumb, level, except at areas intended to drain, true to line with consistent joints.

- Standards: apply to the work except as otherwise indicated. A. American National Standards Institute (ANSI), mortar and arout materials and installation standards. Standard specification for ceramic tile ANSI A137.1
- Single-component sealants: ASTM C-920, Type S, Grade NS, use NT for use in joints in non-traffic areas.
- Installation Tile on floor, slab or wood framed shall be installed per the Ceramic Tile Institute standards and the Tile Council of America.
- Install mud set tile at counters, tubs and showers per the Ceramic Tile Institute and Tile Council of America Standards. Provide waterproof membrane beneath tile over water resistant
- backing board as recommended by manufacturer and Ceramic Tile Institute and the Tile Council of America Standards at all areas subject to moisture and water (i.e., tubs and showers).
- <u>Tile and grout</u> as selected by Owner. Installation of grouted tile flooring is not recommended over wood framed floor systems.

### PAINTING:

- Provide painting work as indicated and specified, complete including preparation of surfaces other than those that are factory primed.
- General <u>Color Selection:</u> Seven (7) days prior to beginning work, furnish Architect with color ships for surfaces other than those that are factory primed. Submit samples for Architect's review of color and texture only.
- Norkmanship: Each coat shall be uniformly applied, well brushed out and free of
- brush marks, runs, sags, or skips. Paint finishes shall be cut sharply to line. Protect adjacent surfaces
- Mix and apply paint and stains in accordance with the З. manufacturer's instructions.
- 4. Hardware shall be masked or removed prior to painting or
- Subcontractor will be responsible for any damage resulting from overspray, and all necessary clean-up. <u>Semi-gloss paint</u> to be roller or brush applied.
- Preparation of Surfaces:
- Surfaces shall be clean and dry, and in suitable condition for finish specified. Remove all oil, grease, bond breaking agents, dust, mill scale and efflorescence. 2. <u>Cracks, holes, and knots</u> shall be filled, sanded smooth, and sealed. Wood surfaces, except resawn wood, shall be sanded perfectly smooth. Sanding dust shall be completely removed.
- 3. <u>Trim</u> and other finish work shall be back-painted prior to installation, to minimize inconsistent shrinkage.
- Mix, prepare, and store painting and finishing materials in accordance with manufacturer's directions. <u>Submit list</u> of materials and manufacturers for Owner's and
- Architect's approval. 3. <u>All materials</u> shall be delivered to the site in sealed original manufacturer's containers.
- Execution: <u>Preparation:</u> Prepare cementitious surfaces of concrete, concrete block and similar materials to be painted by removing efflorescence, chalk, dust, dirt, grease and oils, and by roughing to remove glaze. Do not paint over surfaces where alkalinity or moisture content exceeds manufacturer's recommendations. <u>Seal wood</u> required to be job-painted, prime edges, ends, face, undersides and backsides of counters, cases, cabinets, etc., use
- spare varnish for back priming where transparent finish is required. Paneling: Back prime interior paneling only where masonry, plaster or other wet wall construction occurs on backside.
- Ferrous metal: Clean ferrous surfaces which are not galvanized or shop-coated; remove oil, grease, loose dirt, mill scale and other foreign substances by solvent or mechanical cleaning. Touch-up shop-applied prime coats wherever damaged. Non-ferrous metal: Clean galvanized surfaces free of oil and
- surface contaminants with non-petroleum based solvent. Rough sawn and resawn surfaces to receive stain. DO NOT prime unless otherwise noted on plans. Roof Flashings: Painting Sub-Contractor shall provide paint to
- match roofing color for painting roof flashings and vents. Painting of such flashings and vents shall be by Roofing Sub-Contractor. EXTERIOR PLASTER

### General

- <u>Comply with the following:</u> A. "Plaster/Metal Framing Systems/Lath Manual." B. California Lathing and Plastering Contractors Association recommendations.
- Plaster: Portland Cement Plaster, ASTM CI50, Type 1, 11, 111.
- Lime: ASTM C-206. Aggregates: Clean and graded from coarse to fine, ASTM Cl44-
- <u>Mater:</u> Potable. Lath: Wire fabric over 15 lbs. paper or paper backed woven wire



### **REVIEWED FOR CODE COMPLIANCE BY:** WILLDAN ENGINEERING Approval of these plans & specifications shall not be construed to be a permit for, or an approval of any violation of any Federal, State,

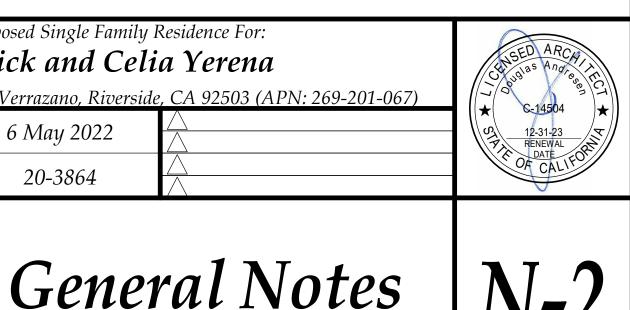
County or City laws or ordinances. One set of approved plans must be kept on the job until completion. 5:57:25 PM May 16, 2022

Proposed Single Family <b>Erick and Cel</b>	
Via Verrazano, Riversi	de, CA 92503 (API
6 May 2022	$\Delta$
20-3864	$\bigwedge$



ANDRESEN

17087 ORANGE WAY, FONTANA, CA 92335 (909) 355-6688



#### Division 9 (continued, Finishes

### Execution:

- Weather: Do not apply plaster when temperature is below 40 dearees t
- 2. Expansion Joints: Use metal expansion joints as required to control cracking.
- Corners: Use corner reinforcing at all corners, verify type with Architect.
- . <u>Scratch Coat:</u> Apply scratch coat with sufficient material and pressure to form good keys on lath. Allow the scratch coat to cure for 48 hours before applying brown
- 5. Brown Coat: Apply brown coat to scratch coat, bring out grounds, straighten to a true surface, and leave tough to assure adequate bond for finish. Allow finish 48 hours for curing prior to finish Variation: Brown coat to have no greater variation than 1/2" in
- Finish Coat: Apply finish coat of 1/8" minimum thickness
- Soffits: Use only expanded metal or ribbed metal lath at horizontal surfaced such as bottom of soffits, etc. <u>Coats</u>: Use not less than three (3) coats when applied over metal lath and not less than 2 coats when applied over
- masonru 10. <u>Apply building paper and lath</u> per manufacturer's recommendations, use 2 layers of Grade D paper minimum over wood based sheathing. Weep Screed: Provide continuous galvanized stucco based
- screed per Section 2512.1.2 of the CBC by Plaster Sub-Contractor. 12. <u>Finish</u>: Exterior stucco to have a smooth float finish and shall be color-coated.

#### STUCCO <u>Standards:</u>

I. All work shall comply with Chapter 2512 of the C.B.C.

Materials - I Coat Exterior Plaster: Exposed concrete foundation: Finish color coat all exposed surfaces

#### Materials - 7/8 inch Stucco:

- <u>Wire mesh:</u> I-I/2 inch mesh, 17 gauge, galvanized netting or preferred paperback stucco netting and plasterback stucco netting (ICC-ES Report #ESR-2595) and "Aqua Lath" as manufactured by Tree Island Steel Inc. (ICC-ES Report #ESR-2267). 2. Building Paper: Install Type 15 felt or other approved.
- Under exterior trim and siding apply so as to form a watertight membrane. Overlap each course below 2 inch minimum horizontal joints and 6 inch minimum at vertical
- Flashing at wall penetrations: Install Sisalkraft paper as flashing in a weatherboard fashion slip window under horizontal head Sisalkraft and secure metal window and door fin over Sisalkraft at sides and bottom. Note: Provide a head of Butyl sealant on interface of fins at sides and bottom, also exterior face of tip fin, before inserting metal frames.

#### FLOORING Resilient Flooring:

- <u>Scope:</u> A. Furnish and install all resilient flooring material complete as scheduled B. General Contractor shall coordinate Flooring Sub-Contractor with Framing and Concrete Contractors to ensure
- compatibility of adhesives and subfloor surface texture, materials, and preparation Installation: Install all work in strict accordance with manufacturer's written instructions and only by contractors
- approved by the manufacturer. A. Subfloors shall be clean, free of dust and perfectly dry,
- level, and smooth. B. Surfaces shall be primed as recommended by the manufacturer.
- Materials shall be applied in accordance with the manufacturer's instructions. <u>Materials:</u>
- A. <u>Vinyl sheeting</u>, as selected by owner. Adhesives: As recommended by the manufacturer of the B. floor covering. Provide positive slope at tile sheets within showers and at floor towards floor drain.

#### LAMINATE PLASTIC FINISHES

- Laminate plastic: Formica, Wilson art or Nevamar. 1/16th inch general purpose grade 10. <u>Application</u>: Laminate plastic shall be installed in strict accordance with the manufacturer's instructions. Splashes shall be fully formed (U.N.O.) range cuts and counters shall be self-edged
- SYNTHETIC COUNTER TOPS <u>Where indicated on interior elevations</u>, shall be cultured marble or Corian with splash. Colors shall be selected by owner. All Pullman tops shall be installed per manufacturer's recommendations.

#### Division 10 Specialties

### LOUVERS & VENTS

- <u>Performance standard:</u> For performance-rated louvers, provide units whose ratings have been determined in compliance with AMCA Standard 500 SMACNA Standard: Comply with "Architectural Sheet Metal Manual" recommendations for fabrication, construction, and installation procedures
- <u>Materials:</u> Galvanized sheet steel: ASTM A-653/A-653M-00. G90. Mill phosphatized not less than 16 gauge Cold-rolled sheet steel: ASTM A-1008, Class I, matte finish. Louver screens: on inside face of exterior louvers, provide 1/4" square mesh galvanized steel wire mesh.

#### Execution:

- Field measurements: verify size, location, and placement of louver units prior to fabrication, where possible. <u>Preassemble units</u> in shop to greatest extent possible.
- Metal finish: comply with NAAMM "Metal Finished Manual" to provide uniformly finished products. Installation: Locate and place louver units plumb, level in proper
- alignment with adjoining work and in accordance with manufacturer's instructions Fastening: Use non-ferrous metal or galvanized anchors and
- inserts for exterior installation and elsewhere where required for corrosion resistance <u>Meather Protection:</u> Provide concealed gasket, flashing and joint fillers as indicated and as required to make installation water
- Attic ventilation: Enclosed attic spaces and enclosed roof rafters shall have cross ventilation for each separate
- space by ventilating openings protected against the entrance of rain. The net free ventilating area shall be not less than 1/150 of the area of the space ventilated, except that the area may be 1/300 provided at least 50 percent of the required ventilated area is provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents.
- 8. Ventilation: Provide all concealed under floor spaces with ventilation which provides not less than I square foot of vent area for each 150 square feet under floor area. Such openings shall be approximately equally distributed along the length of at least two opposite sides.
- Attachment: Mirrors shall be set in "J" metal at top of splash with a minimum of two clips at top.

Not Applicable to this Project

Mechanical and Plumbing HEATING

- Supply all labor, transportation, materials, etc. for installation of a complete heating and air conditioning system to operate according to the best practices of the trade including, but not limited to: mechanical units, ducts, registers, catwalks, grilles boots, vent pipes, dampers, combustion air, fans, ventilators, refrigerant lines, refrigerant, etc. All materials, work, etc. to comply with all requirements of all legally constituted public authorities having jurisdiction including all County and State ordinances. Furnish and install all equipment complete and operable. Verify all material and installation requirements and limitations at fire and sound assemblies.
- Installation: 1. <u>No alterations</u> to the structural frame, diaphragms, connections or shear panels shall be made which would compromise the designed structural integrity of such elements without prior written approval from the Structural Engineer.
- 2. Fuel burning equipment located in garages and subject to mechanical damage from the normal vehicular path shall be protected as indicated in drawings and as required by C.M.C. 3. <u>Provide high and low</u> combustion air in accordance with
- manufacturer's requirements. 4. Ducts piercing wall between house living area and garage shall be 26 GA G.I. material in the garage sealed at the edges with
- no opening into the garage. 2019 C.M.C. 5. <u>Appliances</u> shall be accessible for inspection, service, repair and replacement without removing permanent construction. 6. Equipment regulated by the C.M.C. shall have an electrical
- disconnect within line of sight and a 120-volt receptacle located within 25-feet for service and maintenance purpose. Materials: Ducts: Constructed, installed and insulated per C.M.C.
- Dampers: Provide approved automatic fire dampers of minimum 26 gauge corrosion resistant metal material with sealed edges at all ductwork penetrating fire rated walls, floors or ceilings as required and allowed by the C.M.C. All fan systems exhausting air from the building envelope to the outside shall be provided with the backdraft dampers.
- Calculations and Drawings: I. Contractor to supply and submit to the building department, calculations and drawings for approval. Submit one (1) set to the Architect for review for conformance with the visual design concept prior to commencing work. Equipment shall comply with State energy requirements for efficiency. Duct work "R" value shall also comply with State energy requirements.

#### PLUMBING Scope:

Supply all labor, transportation, materials, etc. for installation of complete plumbing system to operate according to the best practices of the trade and including, but not limited to: fixtures, hot and cold water piping, exhaust fuels, combustion air, gas piping, log lighters, drains, soil and vent piping, hot water heaters, pipe insulation, meters, valves, vaults, etc. All materials, work, etc. to comply with all requirements of all legally constituted public authorities having jurisdiction, including all County and State ordinances. Furnish and install plumbing work complete and operable, including trenching and backfilling. Verify all material and installation requirements and limitations at fire and sound assemblies.

#### I. <u>Codes</u>: Comply with the following: 2019 California Plumbing Code. 2019 California Mechanical Code.

#### 2019 California Electrical Code. 2019 Title 24

### Local codes and ordinances.

- I. <u>Roughing-in</u> shall be completed, tested and inspected as required by code before closing-in with other work. Openings in pipes, drains, and fittings shall be kept covered during construction.
- Provide solid backing for securing fixtures. All fixtures to be set level. Provide cleanouts at ends of all lines and where required by codes. Copper tubing shall be fully sweated to fittings. All copper pipe
- connections to ferrous piping shall be made with dielectric coupling or isolation flanges. 6. Black iron and galvanized steel pipe joints shall be made with
- approved pipe thread compound. Provide shut-off valves at each fixture. Provide condensate line at each F.A.U. location. Provide primary
- and secondary condensate line to an approved drainage receptacle at attic F.A.U. locations. 9. Provide cold water line with shut off value to refrigerator space in recessed box or in cabinet immediately adjacent to
- refrigerator space. 10. All vents to lead outside air. Where practical locate all roof vents to rear side of ridges
- Provide water heater seismic restraints as required by local code. 12. Shower stalls must conform to requirements of C.P.C. 417 (1024 sq. in.) Materials
- <u>Mater piping:</u> Copper tube for water piping shall have a weight of not less than copper water tube Type L. Exception: Type M copper tubing may be used for water piping when piping is above ground, and the normal maximum pressure does not exceed 100 pounds, and the working temperature does not
- exceed 210 degrees F. Water heater: with non-rigid water connections shall be strapped for lateral support. 2. <u>Gas Piping:</u> A. All pipe used for the installation of any gas piping shall be
- standard weight wrought iron or steel (black), yellow brass (containing not more than seventy-five (75) percent copper), or internally timed or equivalently treated copper or iron pipe size. B. All fittings used in connection with the above piping shall be of malleable iron or yellow brass (containing not more than
- seventy-five (75) percent copper), or internally timed or equivalently treated copper or iron pipe size. 3. <u>Maste Piping:</u> All waste piping which penetrates walls with I hour fire resistive materials applied shall be cast iron.
- Oatey waste and overflow fittings shall be used in lieu of access panel as per IAPMO file No. 1646. 4. <u>Corrosive properties of soil</u>: Follow all recommendations in the final soils report for all materials placed within or in proximity of
- soil as necessary. 5. <u>Mater heaters</u> over 4 feet high with non-rigid water connections shall be secured to resist earthquakes, per C.M.C. requirements. 6. No gas piping shall be installed in or on the ground, under any building or structure. All exposed gas piping shall be kept at least 6 inches above grade or structure. The term "building or
- structure" shall include structures such as porches and steps, whether covered or uncovered, breezeways, roo porte-cocheres, roofed patios, carports, covered walks, covered driveways, and similar structures or appurtenances. All hose bibs to have non-removable anti-siphon device.
- Calculations and drawings: Contractor to supply and submit to the building department load calculations and drawings for approval prior to commencing work. Submit one (1) set to the Architect for review for conformance with the visual design concept prior to commencing work.

#### 1. Testing: Perform hydrostatic testing of completed conduit lines in accordance with local authorities having jurisdiction. 2. Valves: Perform operational testing of valves by opening and closing under water pressure to ensure proper operation.

- 3. <u>Backfilling</u>: Conduct backfilling operations of open-cut trenches closely following laying, jointing and bedding of pipe, and after initial inspection and testing are completed. 4. Combustion Air Vents: Combustion air vents and ducts shall be
- provided with minimum unobstructed combustion air openings equal to that set forth in Chapter 7 of C.M.C. 5. Fan or other exhaust systems exhausting air from the building to
- the outside shall be provided with backdraft dampers or automatic dampers to prevent air leakage. 6. Ducts shall be constructed, installed and insulated according to
- Chapter 6 of C.M.C. (Title 24, Part 4). 7. <u>Setback</u> <u>Thermostat</u>: Thermostatically controlled heating or cooling systems, except electric heat pumps, shall have an automatic thermostat with a clock mechanism which the building occupant can manually program to automatically set back the thermostat set point for at least 2 periods within 24 hours.
- 8. <u>Mater Heating System Insulation:</u> A. Tank Wrapping: Storage type water heaters and storage and backup tanks for solar water heating systems shall be externally wrapped with insulation having an installed thermal
- resistance of R-12 or greater. Piping in unconditioned space leading to and from water heaters shall be insulated with an installed thermal resistance of R-4 or greater for the five feet of pipe closest to the water heater, or whatever shorter length is the unconditioned space.

#### Division 15 (continued) Mechanical and Plumbing

9. <u>Icemaker:</u> Provide recessed plastic box in wall for water stub-out at refrigerator space for icemaker. Locate 6" above floor line

- 10. Access Panel: Provide direct plumbing connection at tub/shower drain so that no access panel is required. Equipment Locations: No mechanical equipment shall be installed on roofs or within side yards less than 7'-O" wide. 12. <u>Clearances:</u> Range hood, vent exhaust ducts and cabinet
- clearances shall be as per Ch. 8 of the CMC. 13. The sound levels of kitchen exhaust range hood fans shall not exceed 8.0 sones. Bathroom exhaust shall not exceed 6.5 sones. 14. <u>Cleanouts:</u> An approved, two-way cast iron cleanout, shall be provided at the front of each new single family residence prior to final inspection. Do not locate soil line cleanout or condensate lines within front porch or entry walk. Locate in an inconspicuous
- location 15. All water heaters shall be vented for combustion air and shall be equipped with a pressure and temperature relief valve piped to within 6" of grade outside and shall be anchored or strapped to resist horizontal displacement due to earthquake motion. Strapping shall be at points within the upper one-third (1/3) and lower one-third (1/3) of its vertical dimensions. At the lower point, a minimum distance of four (4) inches above the controls with the
- strappina. Per California Plumbing Code, Section 510.5. 16. HVAC Sustem: Sun-Contractor to follow plans for size and location of ducts, registers, and return air arilles. F.A.U. system shall be thermostatically controlled and properly sized with regards to the State Energy Ordinance Standards. Mechanical Contractor is responsible for all air balance adjusting of installed
- 17. Irrigation Pipe: Plumbing Sub-Contractor shall provide one 3/4 inch schedule 40 PVC pipe for future sprinkler system under driveway (Verify with Landscape Contractor). Pipe shall be installed by Concrete Sub-Contractor. 18. Roof Vents: Wherever possible, roof vents shall be ganged and
- carried to the back of the structure. 19. Maximum flow for shower heads is 1.8 qpm. For lavatory and sink faucets the maximum flow is 1.2 gpm at 60 psi. Maximum flush volume for water closets is 1.28 apf. The flow rate must be
- marked on the valves. 20. "As-Builts": Plumbing Sub-Contractor to provide an "As-Built" drawing of the sewer line and cleanout locations for approval by the Building Inspector at the time of inspection (before covering) of the underground plumbing. The "As-Built" drawing must show the building footprint and the location of the line and the cleanouts must be fully dimensioned.
- 21. Showerheads must be certified by California Energy Commission and be marked with a flow rate of 1.8 apm max. 22. Lavatory & Sink Faucets and tub spout diverters must be certified by California Energy Commission and be marked with a flow rate of 1.2 gpm at 60 psi.

#### Division 16 Electrica

### ELECTRICAL

- Electrical System Layouts are generally diagrammatic, location of outlets and equipment is approximate. Exact routing of wiring, locations of outlets to be governed by structural conditions and constructions. Wiring for equipment requiring maintenance and inspection to be readily accessible. 8. Scope: Supply all labor, transportation, materials, etc., for
- installation of complete electrical system to operate according to the best practices of the trade and including, but not limited to: fixtures, appliances, wiring, switches, outlets, television jacks, services, ground, temporary power, junction boxes, conduit, subpanels, etc. All work materials, etc. to comply with all requirements of all legally constituted authorities having jurisdiction, including all County and State ordinances. Furnish and install electrical work complete and operable. Verify all material and installation requirements and limitations at fire and sound assemblies.

- I. All work shall be in full accordance with all codes, rules and regulations of Governing Agencies and shall comply with all requirements of the serving power and telephone companies.
- Electrical services: Underground the serving utility will provide and install all primary and secondary service raceways and conductrs including transformer pads and connections to the line side of all building main disconnects. Raceways, sized as designated by the service utility, shall be provided by the electrical contractor from each building main disconnect to the exterior building line for continuation by the servicing utility. 2. <u>Mork and equipment</u> shall be in accordance with the best practices of the trade and conform to all local governing
- adencies Materials and equipment shall be U.L. approved. Corrosive properties of soil: Follow all recommendations in the
- final soils report for all materials within or in proximity of soil as necessari 5. <u>Should a conflict arise</u> between this specification, the drawings or another electrical specification issued as a part of these documents, the more stringent shall prevail.
- Installation Provide separate circuits each for dishwasher, garbage disposal, refrigerator, washer, dryer, F.A.U. and microwave oven.
- Switched outlets shall be 1/2 hot. All equipment installed outdoors and exposed to weather shall
- be weatherproo 4. <u>Provide ground fault circuit interrupters</u>, G.F.I., at all baths,
- aaraaes, outdoor and wet area outlets. 5. <u>Provide low voltage stub out</u> for house numbers if local code
- requires illumination 6. <u>Kitchen and bathroom lighting</u> shall be in accordance with State
- energy mandatory requirements Each conductor of every system shall be permanently tagged in
- compliance with O.S.H.A. All conduit shall be installed concealed where physically possible. All exposed conduit shall be intermediate metal conduit or E.M.T. and installed parallel to or at right angles with the building walls. If viewed by the public, paint to match surface to which it is attached.
- 9. The complete electrical system shall be grounded in accordance with the presently adopted edition of the C.E.C., Art. #250. 10. Penetrations to fire-rated materials shall be restored to equal rating as required by local enforcing agency. Flame seal as manufactured by Nelson Electric or approved equal. All electrical system conductors shall be installed in approved raceways. Non-metallic, sheathed cable "Romex" is not approved for penetrations of fire-rated assemblies.
- Use only competent and skilled personnel and perform all work, including aesthetic as well as electrical and mechanical aspects to standards consistent with the best practices of the trade. 12. All conduit only installations shall have a pull wire or rope.
- 13. No alterations to the structural frame, diaphragms, connections or shear panels shall be made which would compromise the designed structural integrity of such elements without prior written approval from the structural engineer
- 14. Electrical panels, including mechanical equipment disconnects, require 30" wide, 36" deep and 75" high clear working space in front. Air conditioning equipment shall not be located in required path of bedroom egress. CEC Section 110-26: CBC 1026.
- 15. Exterior receptacles cannot be connected to a kitchen counter top GFCI protected receptacle. CEC Section 210-52(B)(2).
- 16. <u>Bathroom receptacles</u> must be connected to a 20 ampere branch circuit interrupters (GFCI). CEC Section 210-52(D). 17. All kitchen counter receptacles must be protected by ground fault circuit interrupters (GFCI). CEC Section 210.8(A)(6).
- 18. Verify and locate all outlets prior to installation of gypsu wallboard. Locate all switches and fixtures from finished floor per electrical plans and notes.
- <u>Materials:</u> Aluminum wire No. 6 AWG and smaller shall not be used in electrical wiring. Switches: Silent type.
- Interior outlets: Duplex type, 15A, 125 volt. Exterior outlets: Single weatherproof type, G.F.I.
- Outlets and pullboxes: Galvanized or shearardized.
- Panel boxes: Circuit breaker type, recessed flush mounted, galvanized and prime coated with latch. Provide typewritten card identifying circuits.
- Conduit, cable, wire: Per presently adopted edition of the C.E.C. Fluorescent tubes and bulbs: Fill spectrum 3500K. Recessed incandescent light fixtures: In the proximity of attic, ceiling or floor insulation shall be I.C. type.

#### Division 16 (continued) Electrica

- 10. All materials shall be new and of the same manufacturer for each alass or aroup of equipment. Materials shall be listed and approved by Underwriter's Laboratories and shall bear the inspection label where subject to such approval. Materials shall meet with the approval of the Division of Industrial Safety and all governing bodies having jurisdiction. Materials shall be manufactured in accordance with applicable standards
- manufacturer's recommendations. II. Conductors shall be code grade, 600 volt class, copper, marked 24 inch along its length showing manufacturer's name, maximum allowage voltage and size. Conductors shall be type "THWN"- wet. Deliver the wire to the site in unbroken packages. 12. If aluminum feeder conductors are approved for substitution,
- copper only within units, and installed, final connections to vibrating equipment shall be copper only and all aluminum terminations shall be made using a "Hypress" tool or other manufacturer's recommendations. Provide anti-oxide compound on all aluminum terminations. No aluminum conductor smaller than #4
- 13. House service: Size per requirements, minimum 60A, 1 inch diameter, 3 W service.
- Execution: Outdoor Protection: All equipment installed outdoors and exposed to weather shall be weather-proof 2. Countertops: Receptacles in kitchen and bathrooms shall be installed above work top unless otherwise noted on plans.
- 3. <u>Receptacles</u> shall be installed vertically at 12"+ above floor. Electrical switches and boxes shall be plastic as per National Electric Code. 4. <u>Wall switches</u> to be 36" above floor to switch centerline.
- 5. Fans & Suspended Fixtures: Provide metal junction boxes with solid 2x backing where hanging fixtures and fans occur. Lighting fixture supplier to supply two (2) additional feet of chain and wiring at dining fixture and all other suspended fixtures. 6. GFCI: All receptacles in kitchen, bathrooms, garage, and at exterior shall be equipped with ground fault circuit interrupter.
- GFCI test button shall be located in Master Bathroom electrical 7. <u>Grounding:</u> Provide two (2) spaces of electrical grounding: A. Clamp at hose bib. One additional #4 bar 20'-0" long in footing at electric meter location for "UFER Ground".
- 8. Provide exhaust fans at al baths and laundry areas which are not capable of being exhausted by natural means. Fans shall be capable of producing one complete air change every twelve (12) minutes. Fans shall be switched separately from lights. 9. Fluorescent fixtures: Provide direct connections to all luorescent fixtures.
- 10. Provide chimes in a central location or as indicated on the plans. Provide push button located at the front door. Street Numbers: Install low voltage illuminated street numbers easily visible from the street (4 inches high). Verify exact
- location with Project Superintendent 12. PVC Conduit in Footings: Electrical Sub-Contractor shall supply a separate I" diameter capped PVC conduit for irrigation controller, CATV, and telephone underground feed. Conduit shall
- be installed by Concrete Sub-Contractor. 13. <u>Required smoke detectors</u> shall receive their primary power from the building wiring. Such wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection. Smoke detectors shall be equipped with a battery backup power source and shall be wired so that when one is activated, all are activated.

<u>Colors and Design</u>

- Switch plates, covers, etc.: As selected by Owner. Fixtures: As selected by Owner.
- Fire warning system: 1. Smoke detectors and alarm system shall be hard-wired with battery back-up power and low battery signal and installed as required. Detectors shall be placed in corridors, adjacent rooms and sleeping rooms - per manufacturer's recommendations. Detectors shall be placed in close proximity to stairway when bedrooms are located on upper floor. All detectors shall be interconnected to sound a simultaneous alarm audible in all sleeping areas of the dwelling unit.

I. Verify all requirements with governing utility company. Electrical plans and calculations:

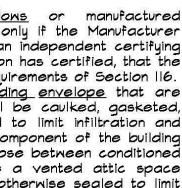
I. Shall be drawn and submitted by the Electrical Sub-Contractor to the building department for approval. Submit one (1) set to the Architect for review for conformance with the visual design concept. Electrical Sub-Contractor shall coordinate his drawings with the Architect's.

Equipment Requirements Mandatory requirements for the manufacture, construction, and installation of systems, equipment, and building components - State of California.

- Any appliance for which there is a California standard established in the appliance efficiency regulations may be installed only if the Manufacturer has certified to the Commission that the appliance complies with the applicable standard for that appliance.
- 2. <u>Controls for heat pumps</u> with supplementary electric resistance heaters shall comply with the requirements of Section 112(b). 3. Any service water heating system or equipment may be installed
- only if the Manufacturer has certified that the system or equipment complies with the requirements of Section 113. 4. Any pool or spa heating system or equipment may be installed
- only if the Manufacturer has certified that the system or equipment complies with Section 114. Any natural gas system or equipment listed below may be installed only if it does not have any continuously burning pilot
- (a) Fan type central furnaces. (b) Household cooking appliances.
- Exception: Household cooking appliances without an electrical supply voltage connection and in which each pilot consumes less than 150 btu/hr. (c) Pool heaters. (d) Spa heaters.
- 6. <u>Any manufactured doors or windows</u> or manufactured fenestration product may be installed only if the Manufacturer has certified to the Commission, or if an independent certifying organization approved by the Commission has certified, that the
- product complies with all applicable requirements of Section 116. 7. Joints and other openings in the building envelope that are potential sources of air leakage shall be caulked, gasketed, weather-stripped, or otherwise sealed to limit infiltration and exfiltration. Drop ceilings that are a component of the building envelope, including but not limited to those between conditioned
- and unconditioned spaces that create a vented attic space above, shall be caulked, gasketed, or otherwise sealed to limit infiltration and exfiltration 8. Any insulation of the type and form listed in Section 118 may be installed only if the Manufacturer has certified that the insulation complies with the California quality standards for insulating
- material. 9. Any automatic time switch control device, occupant-sensing device, automatic daylighting control device, lumen maintenance control device, or interior photocell sensor device may be
- installed only if the Manufacturer has certified to the Commission that the device complies with all applicable requirements of Section 119, and if the device is installed in compliance with Subsection 119(h).

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# established by A.N.S.I., U.L., N.E.M.A., N.B.F.U. Install per



### Mandatory Measures (MF-IR)

Lowrise residential buildings subject to the standards must contain these measures regardless of the compliance approach used. Items marked with an asterisk (\*) may be superseded by more stringent compliance requirements listed on the Certificate of Compliance. When this checklist is incorporated into the permit documents, the features noted shall be considered by all parties as binding minimum component performance specifications for the mandatory measures whether they are shown elsewhere in the documents or on this checklist only.

#### Building Envelope Measures:

118:

116-17:

150(e):

150(i):

150(m):

114:

115:

\*150(a): Minimum R-19 ceiling insulation Loose fill insulation manufacturers labeled R-value. 150(b): Minimum R-13 wall insulation in framed walls (does not \*150(c): apply to exterior mass walls).

\*150(d): Minimum R-13 raised floor insulation in framed floors; Minimum R-8 in concrete raised floors Insulation specified or installed meets CEC quality standards. Indicate type and form.

Fenestration products, exterior doors and nfiltration/exfiltration controls a. Doors and windows between conditioned and unconditioned spaces designed to limit air

eakage b. Manufactured fenestration products have label with certified U-value, and infiltration certification. c. Exterior doors and windows weather-stripped; all ioints and penetration caulked and sealed.

Installation of fireplaces, decorative gas appliances and Masonry and factory-built fireplaces have:

- a. Closeable metal or glass doors covering the entire opening of the fire box which can be closed when the fire is burning. b. A combustion air intake to draw air from the outside of the building directly into the firebox,
- which is at least six  $(\overline{6})$  sa, inches in area and is equipped with a readily accessible, operable and tight fitting damper or combustion air control device. c. Flue damper with readily accessible control.

2. No continuous burning gas pilots allowed. Vapor barriers mandatory in climate zones 14 and 16 only. Special infiltration barrier installed to comply with Section 151 meets CEC quality standards. Slab edge insulation - water absorption rate no greater

Space Conditioning, Water Heating and Plumbing System Measures: HVAC equipment, water heaters, showerheads and faucets certified by the CEC. 150(i):

- Pipe and tank insulation Indirect hot water tanks (e.g., unfired storage tanks or backup solar hot water tanks) have insulation blanket (R-12 or greater) or combined
- interior/exterior insulation (R-16 or greater). 2. First 5 feet of pipes closest to water heater tank, non-recirculation systems, insulated (R-4 or greater).
- 3. All buried or exposed piping insulated in re-circulation sections of hot water system.
- 4. Cooling system piping below 55 degrees insulated. 5. Piping insulated between heating source and indirect
- hot water tank. Ducts and fans

than 2.0 perm.inch.

- Ducts constructed, installed and sealed to comply with CMC Chapter 6; ducts insulated to a minimum installed value of R-6 or ducts enclosed entirely within conditioned space.
- 2. Exhaust fan systems have back draft or automatic dampers 3. Gravity ventilating systems serving conditioned space
- have either automatic or readily accessible, manually operated dampers. Pool and spa heating systems and equipment
- 1. System is certified with 78% thermal efficiency, on-off switch, weatherproof operating instructions, no electric resistance heating and no pilot light. 2. System installed with:
- a. At least 36 inches pipe between filter and heater for future solar heating. b. Cover for outdoor pools or outdoor spa.
- 3. Pool system has directional inlets and a circulation pump time switch. Gas-fired central furnace, pool heater, spa heater or
- household cooking appliance have no continuously burning pilot light (exception: non-electrical cooking appliance with pilot <150 btu/hr).

### Design Criteric

Foundation engineering has been predicated on data and recommendations contained in the soils report (when available) Report is considered part of the calculations and construction documents and is to be adhered to in all of its recommendations and requirements. Verify minimum foundation depth, width, reinforcing steel and additional expansive soil requirements with valid soils report and if they are any more restrictive, then they shall supersede the Andresen Architecture, Inc. minimums.

<u>Lateral Loads & Design Loads</u> (Refer to Structural Calculations for Loading Conditions)



#### **REVIEWED FOR CODE COMPLIANCE BY** WILLDAN ENGINEERING

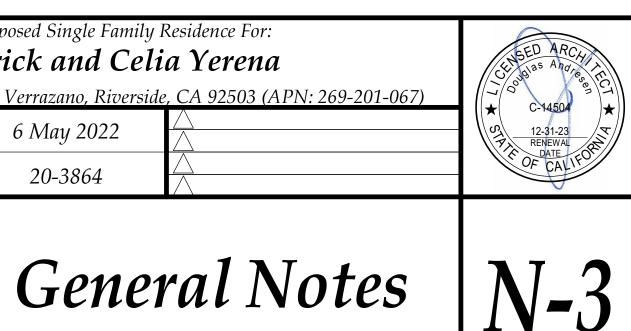
Approval of these plans & specifications shall not be construed to be a permit for, or an approval of any violation of any Federal, State, County or City laws or ordinances. One set of approved plans must be kept on the job until completion.

Proposed Single Family 1	
Erick and Celi	a Yerena
Via Verrazano, Riverside	e, CA 92503 (APN:
6 May 2022	$\Delta$
0 1 1 1 1 y 2022	$\blacksquare$ / \

20-3864

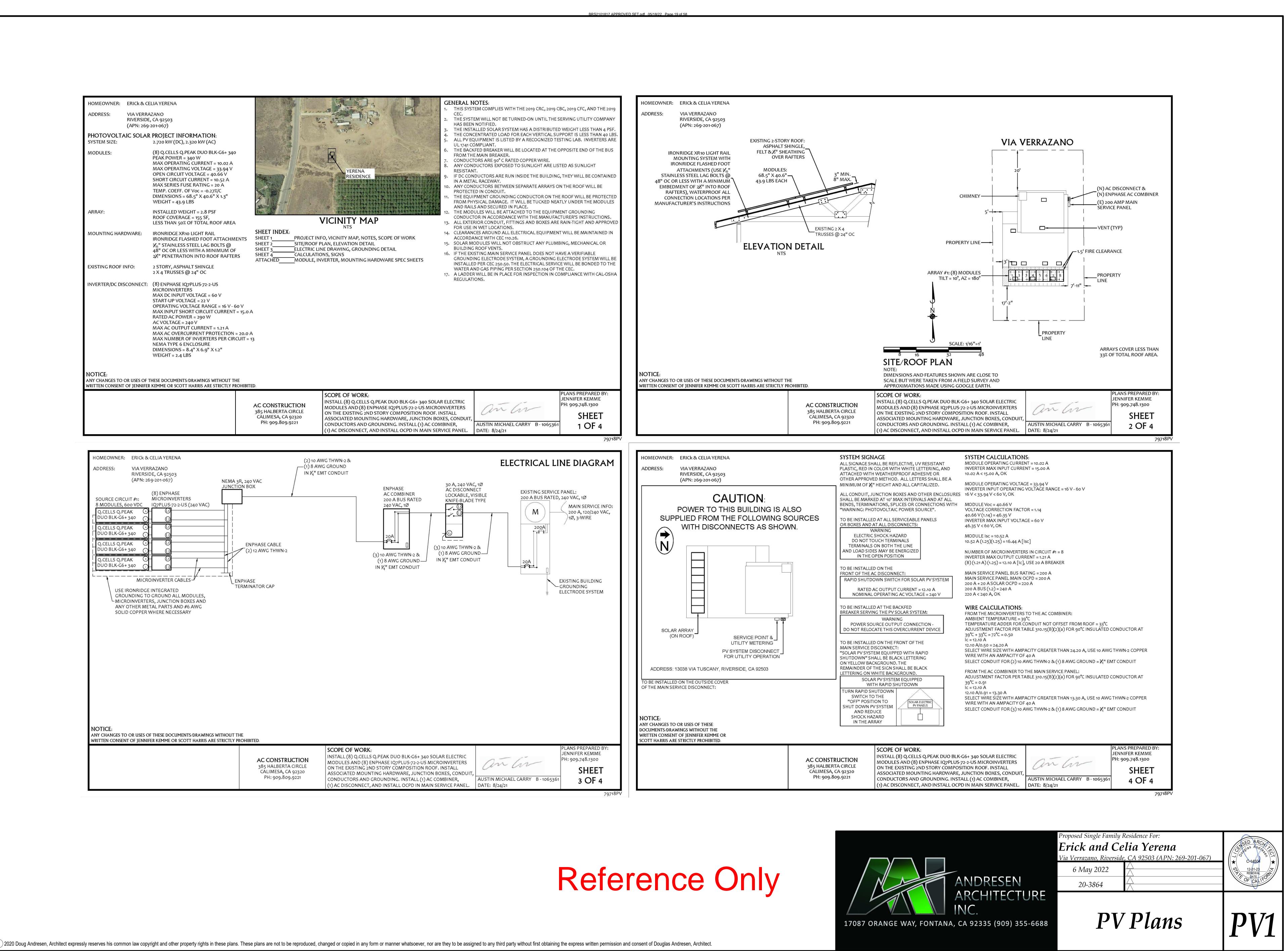


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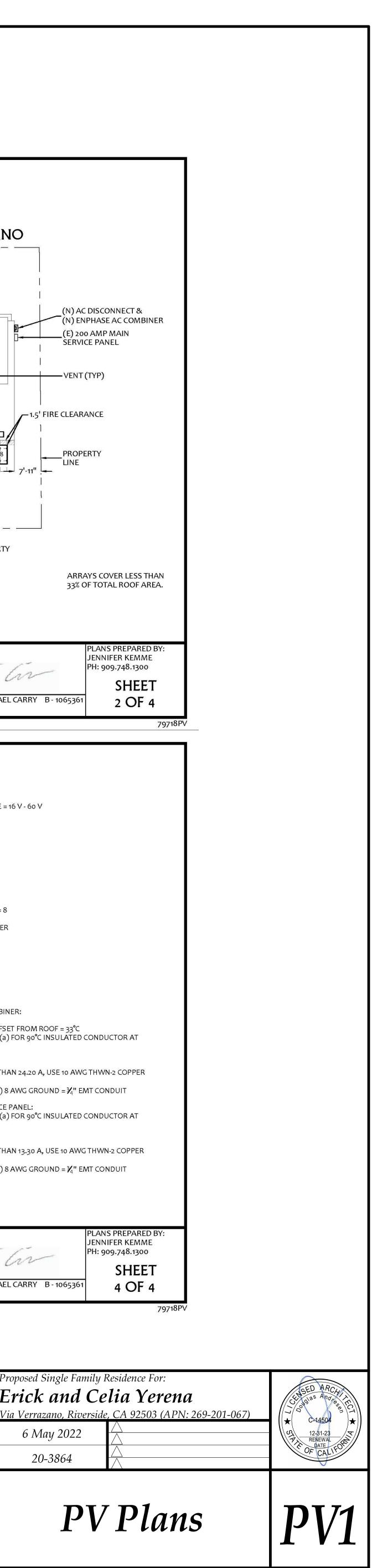


HOMEOWNER: ERIO	Ck & CELIA YERENA		
ES 3005630052005300 0000000 001 00000000	VERRAZANO		and the second second
	ERSIDE, CA 92503 N: 269-201-067)		
PHOTOVOLTAIC S	OLAR PROJECT INFORMATION:		and all the second
SYSTEM SIZE:	2.720 kW (DC), 2.320 kW (AC)		Pro-
MODULES:	(8) Q.CELLS Q.PEAK DUO BLK-G6+	340	
	PEAK POWER = 340 W MAX OPERATING CURRENT = 10.02	A	
	MAX OPERATING VOLTAGE = 33.94		YERENA
	OPEN CIRCUIT VOLTAGE = 40.66 V SHORT CIRCUIT CURRENT = 10.52 A	Section 1	RESIDEN
	MAX SERIES FUSE RATING = 20 A		- TITTTY
	TEMP. COEFF. OF Voc = -0.27%/C	C	
	DIMENSIONS = 68.5" X 40.6" X 1.3" WEIGHT = 43.9 LBS	5	
		and the second s	* ATTATAT
ARRAY:	INSTALLED WEIGHT = 2.8 PSF ROOF COVERAGE = 155 SF,		TISTERIA
	LESS THAN 50% OF TOTAL ROOF AR	EA	
MOUNTING HARDWA	RE: IRONRIDGE XR10 LIGHT RAIL	SHEET INDEX:	NTS
	IRONRIDGE FLASHED FOOT ATTACI		ROJECT INFO, VICINITY MAP, N
	₹ STAINLESS STEEL LAG BOLTS @	· · · · · · · · · · · · · · · · · · ·	ITE/ROOF PLAN, ELEVATION DE LECTRIC LINE DRAWING, GROU
	48" OC OR LESS WITH A MINIMUM 22/2" PENETRATION INTO ROOF RAF		ALCULATIONS, SIGNS
			10DULE, INVERTER, MOUNTING
EXISTING ROOF INFO:	2 STORY, ASPHALT SHINGLE 2 X 4 TRUSSES @ 24" OC		
INVERTER/DC DISCON	NECT: (8) ENPHASE IQ7PLUS-72-2-US MICROINVERTERS MAX DC INPUT VOLTAGE = 60 V START-UP VOLTAGE = 22 V OPERATING VOLTAGE RANGE = 16 V MAX INPUT SHORT CIRCUIT CURRE RATED AC POWER = 290 W AC VOLTAGE = 240 V MAX AC OUTPUT CURRENT = 1.21 A MAX AC OVERCURRENT PROTECTIO MAX NUMBER OF INVERTERS PER O NEMA TYPE 6 ENCLOSURE DIMENSIONS = 8.4" X 6.9" X 1.2" WEIGHT = 2.4 LBS	NT = 15.0 A DN = 20.0 A	
	SES OF THESE DOCUMENTS/DRAWINGS WITHOU ENNIFER KEMME OR SCOTT HARRIS ARE STRICTL		CLE ON THE EXISTING
		PH: 909.809.922	

HOMEOWNER:	ERICK & CELIA YERENA		(2)10 AW	'G THWN-2 &
ADDRESS:	VIA VERRAZANO RIVERSIDE, CA 92503 (APN: 269-201-067)	NEMA 3R, 240 VAC JUNCTION BOX	(1) 8 AWC	GROUND T CONDUIT
	DO VDC     IQ7PLUS-72-2-US (240 VAC)       AK     •       340     •       AK     •       340     •       AK     •       AK     •       AK     •       AK     •       AK     •       AK     •       O     •       Q     •       AK     •       O     •       Q     •       AK     •       O     •       Q     •	ENPHASE CABLE (2) 12 AWG THWN- ENPHASE TERMINATOR CAP	.2	
	OR USES OF THESE DOCUMENTS/DRAWINGS OF JENNIFER KEMME OR SCOTT HARRIS AR			
WRITTEN CONSENT	COLJENNIER REFINE OR SCOTT HARRIS AN			SCOPE OF WO
		AC CONSTI 385 HALBER CALIMESA, PH: 909.8	TA CIRCLE CA 92320	INSTALL (8) Q.CE MODULES AND ( ON THE EXISTING ASSOCIATED MC CONDUCTORS AI (1) AC DISCONNE







#### Data Sheet Enphase Microinverters Region: AMERICAS

### Enphase IQ 7 and IQ 7+ Microinverters

To learn more about Enphase offerings, visit enphase.com

CERTIFIED SAFETY US-CA E341165

The high-powered smart grid-ready Enphase IQ 7 Micro<sup>™</sup> and Enphase IQ 7+ Micro<sup>™</sup> dramatically simplify the installation process while achieving the highest system efficiency. Part of the Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software. IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.

### Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling • Built-in rapid shutdown compliant (NEC 2014 & 2017)
- Productive and Reliable
- Optimized for high powered 60-cell and 72-cell\* modules More than a million hours of testing
- Class II double-insulated enclosure UL listed
- Smart Grid Ready
- · Complies with advanced grid support, voltage and
- frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles • Meets CA Rule 21 (UL 1741-SA)
- \* The IQ 7+ Micro is required to support 72-cell modules.





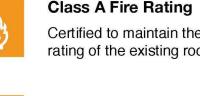
### Built for solar's toughest roofs.

IronRidge builds the strongest mounting system for pitched roofs in solar. Our components have been tested to the limit and proven in extreme environments, including Florida's high-velocity hurricane zones. Our rigorous approach has led to unique structural features, such as curved rails and reinforced flashings, and is also why our products are fully certified, code compliant and backed by a 25-year warranty.



Strength Tested All components evaluated for superior structural performance.





Certified to maintain the fire resistance rating of the existing roof.



UL 2703 Listed System Entire system and components meet

newest effective UL 2703 standard.



PE Certified Pre-stamped engineering letters available in most states.

Design Assistant Online software makes it simple to create, share, and price projects.



25-Year Warranty Products guaranteed to be free

of impairing defects.

INPUT DATA (DC)	IQ7-60-2-US /	IQ7-60-B-US	IQ7PLUS-72-2	-US / IQ7PLUS-72-B-US	
Commonly used module pairings <sup>1</sup>	235 W - 350 W +		235 W - 440 W +		
Module compatibility	60-cell PV modu	les only	60-cell and 72-o	cell PV modules	
Maximum input DC voltage	48 V		60 V		
Peak power tracking voltage	27 V - 37 V		27 V - 45 V		
Operating range	16 V - 48 V		16 V - 60 V		
Min/Max start voltage	22 V / 48 V		22 V / 60 V		
Max DC short circuit current (module Isc)	15 A		15 A		
Overvoltage class DC port	11		П		
DC port backfeed current	0 A		0 A 0		
PV array configuration		the second s	nal DC side protec DA per branch circu	Allowed and the state of the st	
OUTPUT DATA (AC)	IQ 7 Microinve	rter	IQ 7+ Microin	verter	
Peak output power	250 VA		295 VA		
Maximum continuous output power	240 VA		290 VA		
Nominal (L-L) voltage/range²	240 V / 211-264 V	208 V / 183-229 V	240 V / 211-264 V	208 V / 183-229 V	
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.21 A (240 V)	1.39 A (208 V)	
Nominal frequency	60 Hz	······································	60 Hz		
Extended frequency range	47 - 68 Hz		47 - 68 Hz		
AC short circuit fault current over 3 cycles	5.8 Arms		5.8 Arms		
Maximum units per 20 A (L-L) branch circuit <sup>3</sup>	16 (240 VAC)	13 (208 VAC)	13 (240 VAC)	11 (208 VAC)	
Overvoltage class AC port				and the set	
AC port backfeed current	0 A		0 A		
Power factor setting	1.0		1.0		
Power factor (adjustable)	0.7 leading 0.7	lagging	0.7 leading 0.	7 lagging	
EFFICIENCY	@240 V	@208 V	@240 V	@208 V	
Peak CEC efficiency	97.6 %	97.6 %	97.5 %	97.3 %	
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %	
	97.0 %	97.0 %	57.0 /8	97.0 %	
NUE BARRINA I I DEVER DAGE	-40°C to +65°C				
Ambient temperature range Relative humidity range	4% to 100% (con	denaine)			
Connector type (IQ7-60-2-US & IQ7PLUS-72-2-US)	<b>x</b>	0,	ditional O DCC E	adaptar)	
Connector type (IQ7-60-B-US & IQ7PLUS-72-B-US)	Friends PV2 (MC Adaptors for mo	24 intermateable). dules with MC4 or der ECA-S20-S22	UTX connectors:	auapter)	
Dimensions (WxHxD)	212 mm x 175 m	m x 30.2 mm (with	nout bracket)		
Weight	1.08 kg (2.38 lbs)	)			
Cooling	Natural convection	on - No fans			
Approved for wet locations	Yes				
Pollution degree	PD3				
Enclosure	Class II double-in	sulated corrosio	n resistant polyme	ricenclosure	
Environmental category / UV exposure rating	NEMA Type 6 / o		in constant porynne		
FEATURES					
Communication	Power Line Com	munication (PLC)			
		· · ·	en monitoring optic		
Monitoring	Both options req	uire installation of	an Enphase IQ En	voy.	
Disconnecting means	disconnect requi	ired by NEC 690.	een evaluated and	approved by UL for use as the load-break	
Compliance	CAN/CSA-C22.2 This product is U NEC-2017 sectio	741/IEEE1547, FCC NO. 107.1-01 JL Listed as PV Ra n 690.12 and C22	pid Shut Down Equ 1-2015 Rule 64-218	CES-0003 Class B, ipment and conforms with NEC-2014 and 3 Rapid Shutdown of PV Systems, for AC acturer's instructions.	

1. No enforced DC/AC ratio. See the compatibility calculator at https://enphase.com/en-us/support/module-compatibility. Nominal voltage range can be extended beyond nominal if required by the utility.
 Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area. To learn more about Enphase offerings, visit **enphase.com** © 2018 Enphase Energy. All rights reserved. All trademarks or brands used are the property of Enphase Energy, Inc. 2018-05-24



THE IDEAL SOLUTION FOR: Rooftop arrays on residential buildings

Engineered in Germany

RS2101817 APPROVED SET.pdf 05/18/22 Page 20 of 58



—— XR Rails 🕀 —

- A low-profile mounting rail The ultimate residential for regions with light snow. 6' spanning capability Moderate load capability Clear and black finish
- ----- Clamps & Grounding 🖶



- bond modules to rails. Fully assembled & lubed
- Single, universal size Clear and black finish

---- Attachments 🕀



- Flash and mount XR Rails with superior waterproofing. strut, or junction boxes. • Twist-on Cap eases install • Twist-on Cap eases install • Flat, S, & W tile profiles • Works on flat, S, & W tiles
- Wind-driven rain tested Mill and black finish

— Resources —



XR1000 Rail

12' spanning capability

Clear anodized finish

CAMO™

Extreme load capability

staying completely hidden.

Tool-less installation

Fully assembled

solar mounting rail. 8' spanning capability Heavy load capability Clear and black finish

XR100 Rail

Stopper Sleeves



- into a bonded end clamp. Bonds modules to rails Sized to match modules
- Clear and black finish

Flash and mount conduit,

**FlashVue**<sup>T</sup>

Design Assistant

Go from rough layout to fully

engineered system. For free.

Go to IronRidge.com/desian



Replace tiles and ensure superior waterproofing.

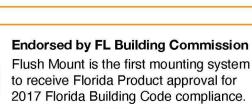
- Wind-driven rain tested
   Form-fit compression seal
   Single-socket installation



\* 6 FL#29843 2

STATE OF

Secures ¾" or 1" conduit
 Single-lag universal base
 Optional deck flashing



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# BOSS<sup>™</sup> Bonded Splices

**ENPHASE**.



Bonded Structural Splices connect XR Rails together. Integrated bonding No tools or hardware Self-centering stop tab

**Bonding Hardware** 



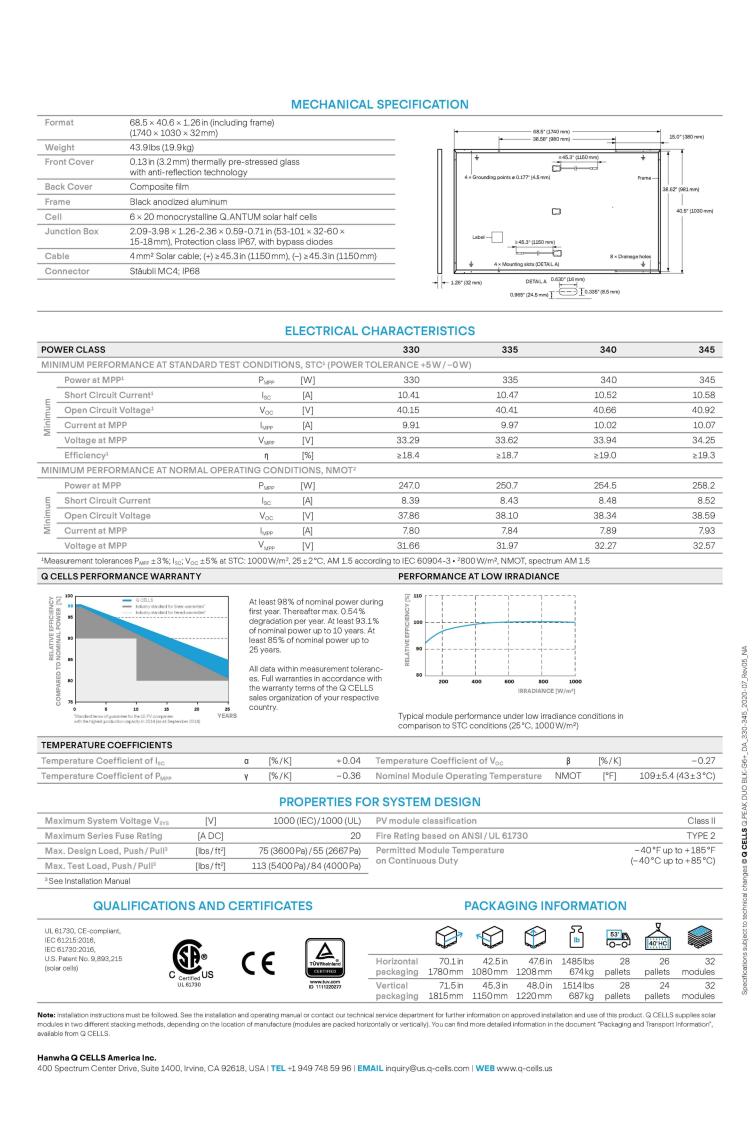
 Nut uses 7/16" socket Assembled and lubricated

All Tile Hook



Mount on tile roofs with a simple, adjustable hook.

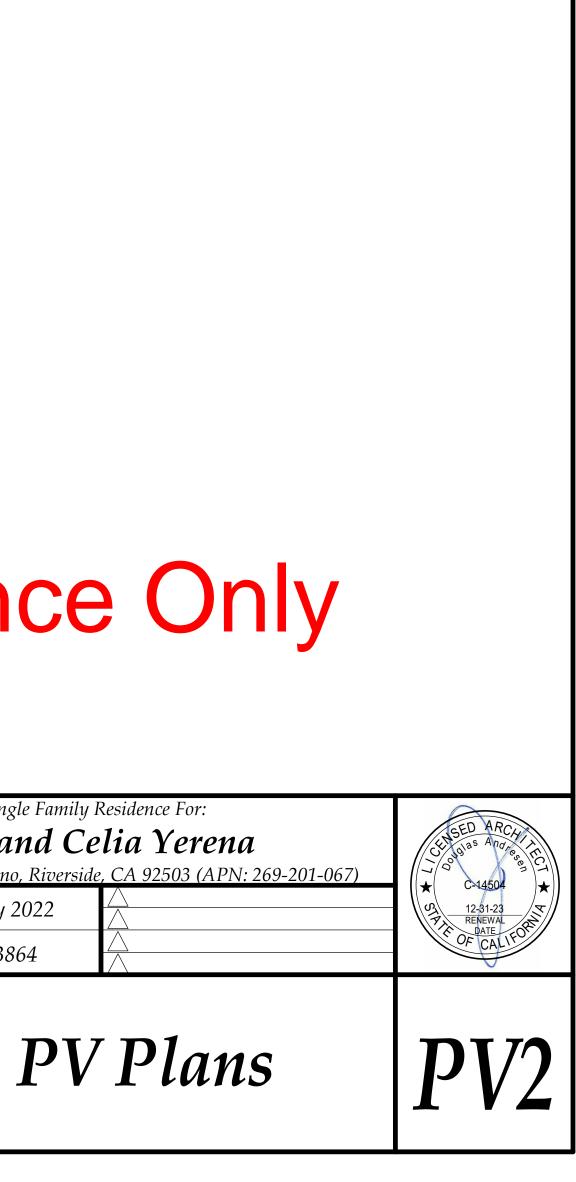
QCELLS



Reference Only



Proposed Single Family I	Residence For:
Erick and Ce	lia Yeren
Via Verrazano, Riverside	e, CA 92503 (APN
6 May 2022	$ \land \qquad \land $
20-3864	$ \land $



#### AAI ARCHITECTURAL ENGINEERING 17087 ORANGE WAY, FONTANA, CA. 92335 (909) 355-6688 (TEL.) <u>doug.andresen@aaifirm.com</u>

#### YERENA RESIDENCE 13023 VIA VERRAZANO RIVERSIDE, CA



20-3864 9 AUG. 2021

#### REVIEWED FOR CODE COMPLIANCE BY: WILLDAN ENGINEERING

SHEET INDEX:	PAGES:
LOADING CONDITIONS & SEISMIC PARAMETERS	1 - 2
LATERAL ANALYSIS	3 - 17
BEAM CALCULATIONS	18 - 31
FOOTING CALCULATIONS	32 - 37

Approval of these plans & specifications shall not be construed to be a permit for, or an approval of any violation of any Federal, State, County or City laws or ordinances. One set of approved plans must be kept on the job until completion.

6:00:54 PM May 16, 2022

#### ROOF LOAD

DEAD LOAD:				
CONCRETE TILE		9.5	PSF	
SHTG		2.0	PSF	
FRAMING		3.0	PSF	
INSULATION		1.0	PSF	
MISCELLANEOUS		2.0	PSF	
GYP BOARD		2.5	PSF	
TOTAL		20.0	PSF	
LIVE LOAD:		20.0	PSF	
	W <sub>T</sub> =	40.0	PSF	
INTERIOR WALLS DEAD LOAD:				
GYP BOARD		4.0	PSF	

W <sub>T</sub> =	55.0	PSF
LIVE LOAD:	40.0	PSF
TOTAL	15.0	PSF
FRAMING	2.0	PSF
INSULATION	1.0	PSF
MISCELLANEOUS	8.0	PSF
GYP BOARD	2.0	PSF
SHEATHING	2.0	PSF
DEAD LOAD:		
LUADS FLOOR		

#### EXTERIOR WALLS

LOADS FLOOD

DEAD LOAD:		
STUCCO	10.0	PSF
GYP BOARD	2.0	PSF
MISC.	2.0	PSF
FRAMING	2.0	PSF
TOTAL	16.0	PSF

#### CHECK UPLIFT AT OVERHANG (ASCE 7-16)

EoH = (24.1 PSF)(2' OVERHANG)(2' O/C TRUSSES) = 97 # UPLIFT < 455 # OK!

2.0 PSF

PSF

6.0

#### CHECK GUARDRAIL CONNECTION

FRAMING

TOTAL

 $G = 0.49 (DF) D = 0.265 (ROOT DIA.) L = 2.5" (PEN.) (1,800)(0.49^{3/2})(0.265^{3/4})(2.5") = 570 # PER SCREW P = 200 # AT ANY POINT ALONG TOP OF RAIL.$ 

(WITH POSTS AT 4'-0" O/C, WORST CASE IS A 200 # LOAD IN CENTER OF TWO POSTS SHARING THE LOAD) T = C = (200 #)(42") / (3.75")(2 POSTS) = 1,120 # < (570 #)(2) = 1,140 # OK!

USE FOUR 3/8" DIA. x 3" LONG WOOD SCREWS (2-1/2" PENETRATION) ON 4-1/2" SQ. x 1/4" THICK STEEL PLATE TO 6x MIN. BEAM (OR BLOCKING) AT 4'-0" ON CENTER MAXIMUM

M = (200 #)(42") = 8,400 IN-LBS / (1.5" WELD)(3 SIDES) = 1,867 # < (0.707)(3/16")(1.5")(14,400) = 2,683 # OK! <u>USE</u> 3/16" WELD AT BASE 1-1/2" x 0.060" TOP RAIL SPANNING 4'-0" IS <u>OK BY INSPECTION</u>

CONSTRUCTION OF THIS PROJECT SHALL BE IN CONFORMANCE WITH THE 2019 CALIFORNIA BUILDING CODE





PGAd

C<sub>RS</sub>

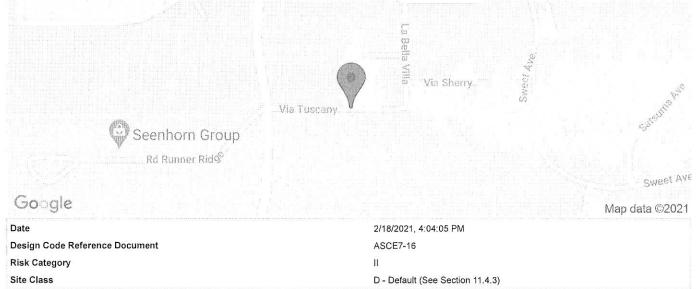
C<sub>R1</sub>

### OSHPD

### **Contreras SFR**

#### Via Tuscany, Riverside, CA 92503, USA

#### Latitude, Longitude: 33.874298, -117.434385



Туре	Value	Description
SS	1.5	MCE <sub>R</sub> ground motion. (for 0.2 second period)
S <sub>1</sub>	0.591	MCE <sub>R</sub> ground motion. (for 1.0s period)
S <sub>MS</sub>	1.8	Site-modified spectral acceleration value
S <sub>M1</sub>	null -See Section 11.4.8	Site-modified spectral acceleration value
S <sub>DS</sub>	1.2	Numeric seismic design value at 0.2 second SA
S <sub>D1</sub>	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA
Туре	Value	Description
SDC	null-See Section 11.4.8	Seismic design category
Fa	1.2	Site amplification factor at 0.2 second
Fv	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.548	MCE <sub>G</sub> peak ground acceleration
F <sub>PGA</sub>	1.2	Site amplification factor at PGA
PGA <sub>M</sub>	0.657	Site modified peak ground acceleration
ΤL	8	Long-period transition period in seconds
SsRT	1.648	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.753	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
S1RT	0.591	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.642	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)

- 0.548 Factored deterministic acceleration value. (Peak Ground Acceleration)
- 0.94
   Mapped value of the risk coefficient at short periods

   0.92
   Mapped value of the risk coefficient at a period of 1 s

4

Lateral Analysis for: Contreras SFR Via Tuscany Riverside, CA 92503

#### Second Floor Lateral Analysis (Seismic) ASCE 7-16 Section 12.8 Equivalent Lateral Force Procedure

1,200	Floor Area - Including Overhangs (sf)	
20	Roof Weight (psf)	
8	Wall Height (ft.)	
12	Average Wall Weight (psf)	
42	Length of Building (ft) (North / South Direction)	
28	Length of Building (ft) (East / West Direction)	
12	Height of Building From This Floor to Ridge (ft)	
120	Length of All Walls (Interior & Exterior, one Direction - lf)	2d Flr Base Shear (psf)
29,760 #	Seismic Load (lbs) 7,241 # (Use V 2)	<b>5.60</b> <i>psf</i>

#### First Floor Lateral Analysis (Seismic)

1,130	Floor Area - Including Overhangs (sf)	
15	Floor Weight (psf)	
9	Wall Height (ft.)	
12	Average Wall Weight (psf)	
43	Length of Building (ft) (North / South Direction)	
28	Length of Building (ft) (East / West Direction)	
22	Height of Building From This Floor to Ridge (ft)	
100	Length of All Walls (Interior & Exterior, One Direction - lf)	<u>1st Flr Base Shear (psf)</u>
27,750 #	Seismic Load (lbs) $3,376 \# (Use V_1)$	<b>2.77</b> <i>psf</i>

Lateral Load	d in $N/S$	S Direction	(Wi)(hi)		Fx (lbs)	ρ	EQ Shear (plf)
29,760	$V_2$	18 Hgt. (ft)	535,680	0.68	7,241 lbs.	1.30	160.09 plf
27,750	$V_{1}$	9 Hgt. (ft)	249,750	0.32	3,376 lbs.	1.30	74.64 plf
57,510			785,430		10,617 lbs.		• • • • • • • • • • • • • • • • • • •
Lateral Load	1 in E/V	N Direction	(Wi)(hi)		Fx (lbs)	ρ	EQ Shear (plf)
<u>Lateral Load</u> 29,760	<u>t in E/V</u> V 2	<u>N Direction</u> 18 Hgt. (ft)	(Wi)(hi) 535,680	0.68	Fx (lbs) 7,241 lbs.	ρ 1.30	
					A	ρ 1.30 1.30	

#### Seismic Base Shear

$1.50 = S_{S}$	Fa = 1.20	1.80	=	$S_{MS} = F_a * S_S$	1.20 =	$S_{DS} = 2/3 S_{MS}$
$0.59 = S_1$	Fv = N/A	N/A	=	$\frac{MS}{S_{M1}} = F_v * S_1$		$S_{D1} = 2/3 S_{M1}$
6.50 = R	-	D	=	Site Class	D =	SDC
$0.20 = T_a =$	$= C_t * h_n^x$ (Eq. 12.8-7)	II	=	Risk Category	1.00 =	I <sub>E</sub> Factor
$8.00 = T_L =$	= Long Period Transition (Fig.	22-12)				
ASCE 7-16 (Eq. 12.8-	$Cs = S_{DS} * I_E / R$	0.18	GOVE	RNS		
ASCE 7-16 (Eq. 12.8-	$Cs_{MAX} = S_{DS} * I_E / R * T$	7.04				
ASCE 7-16 (Eq. 12.8-	4) $Cs = S_{DS} * T_L * I_E / R * T^2$	36.92	Only o	ccurs when Ta >	$T_L$ (N/A of	n this project)
ASCE 7-16 (Eq. 12.8-	5) $Cs = 0.44 * S_{DS} * I_{E}$	0.528				
ASCE 7-16 (Eq. 12.8-	$C_{S} = 0.5^{*}S_{D1}^{*}I_{E}/R$	N/A				



#### Two Story Lateral Analysis (Wind) ASCE 7-16 Section 28: Envelope Procedure

1111119313 (Willia) 118 CE / 10 Section 20.	Lineerope	1.10000	me		
Basic Wind Speed (mph) (Fig. 26.5-1)		Α	В	С	D
Directionality Factor, Kd (Table 26-6.1)		26.6	-7	17.7	-3.9
Risk Factor, I (Table 1.5-2)			>		
Exposure Category (Sec. 26.7)	Eave Ht.		×		
Topographic Factor, Kzt (Sec. 26.8)			⇒		
Terrain Exp. Constant, α (Table 26.9-1)	8	ft		Second Fl	loor
Adjustment Factor, $\lambda$ (Sec. 26.8)	Flr Fmg		<b>≩</b>		20 f
Terrain Exposure Constant, Zg (feet)	1	ft	*		
Gust Factor, G or Gf (Sec. 26.9)	9	ft	≯		
Enclosure Classification (Sec. 26.10)			3	First Floo	nr 🗍
Internal Pressure Coefficient, GCpi (Table	e 26.11-1)			h protocol de la	The second second
External Pressure Coefficient, Cp (Fig. 28	-6.1)	Greenintenin			ormanization and the second
Design Wind Load, p = qGCp - qGCpi (E	q. 28-4.1)			Hip Roo	f
	Basic Wind Speed (mph) (Fig. 26.5-1) Directionality Factor, Kd (Table 26-6.1) Risk Factor, I (Table 1.5-2) Exposure Category (Sec. 26.7) Topographic Factor, Kzt (Sec. 26.8) Terrain Exp. Constant, $\alpha$ (Table 26.9-1, Adjustment Factor, $\lambda$ (Sec. 26.8) Terrain Exposure Constant, Zg (feet) Gust Factor, G or Gf (Sec. 26.9) Enclosure Classification (Sec. 26.10) Internal Pressure Coefficient, GCpi (Table External Pressure Coefficient, Cp (Fig. 28)	Basic Wind Speed (mph) (Fig. 26.5-1)Directionality Factor, Kd (Table 26-6.1)Risk Factor, I (Table 1.5-2)Exposure Category (Sec. 26.7)Exposqraphic Factor, Kzt (Sec. 26.8)Terrain Exp. Constant, $\alpha$ (Table 26.9-1),Adjustment Factor, $\lambda$ (Sec. 26.8)Terrain Exposure Constant, Zg (feet)Gust Factor, G or Gf (Sec. 26.9)	Basic Wind Speed (mph) (Fig. 26.5-1)ADirectionality Factor, Kd (Table 26-6.1) $26.6$ Risk Factor, I (Table 1.5-2)Exposure Category (Sec. 26.7)Eave Ht.Topographic Factor, Kzt (Sec. 26.8) $Eave Ht.$ Terrain Exp. Constant, $\alpha$ (Table 26.9-1)8 ftAdjustment Factor, $\lambda$ (Sec. 26.8) $Flr Fmg$ Terrain Exposure Constant, Zg (feet)1 ftGust Factor, G or Gf (Sec. 26.9)9 ftEnclosure Classification (Sec. 26.10)Internal Pressure Coefficient, GCpi (Table 26.11-1)External Pressure Coefficient, Cp (Fig. 28-6.1) $\blacksquare$	Basic Wind Speed (mph) (Fig. 26.5-1)ABDirectionality Factor, Kd (Table 26-6.1) $26.6$ $-7$ Risk Factor, I (Table 1.5-2)Eave Ht. $3$ Exposure Category (Sec. 26.7)Eave Ht. $3$ Topographic Factor, Kzt (Sec. 26.8) $3$ $3$ Terrain Exp. Constant, $\alpha$ (Table 26.9-1, $8$ $ft$ Adjustment Factor, $\lambda$ (Sec. 26.8) $Flr Fmg$ $3$ Terrain Exposure Constant, Zg (feet) $1$ $ft$ Gust Factor, G or Gf (Sec. 26.9) $9$ $ft$ Enclosure Classification (Sec. 26.10) $3$ Internal Pressure Coefficient, GCpi (Table 26.11-1) $3$ External Pressure Coefficient, Cp (Fig. 28-6.1) $4$	Basic Wind Speed (mph) (Fig. 26.5-1)ABCDirectionality Factor, Kd (Table 26-6.1) $26.6$ $-7$ $17.7$ Risk Factor, I (Table 1.5-2)Eave Ht. $36.6$ $-7$ $17.7$ Exposure Category (Sec. 26.7)Eave Ht. $36.6$ $-7$ $17.7$ Topographic Factor, Kzt (Sec. 26.8)Farrain Exp. Constant, $\alpha$ (Table 26.9-1, $8$ $ft$ $36.6$ $36.6$ Terrain Exp. Constant, $\alpha$ (Table 26.9-1, $8$ $ft$ $36.6$ $36.6$ $36.6$ Terrain Exposure Constant, $\alpha$ (Table 26.9-1, $86.7$ $16.7$ $16.7$ $36.6$ Gust Factor, G or Gf (Sec. 26.8)Flr Fmg $16.7$ $36.7$ Gust Factor, G or Gf (Sec. 26.9) $9$ $ft$ $37.7$ Enclosure Classification (Sec. 26.10) $37.7$ $56.7$ $56.7$ Internal Pressure Coefficient, GCpi (Table 26.11-1) $56.7$ $56.7$ External Pressure Coefficient, Cp (Fig. 28-6.1) $56.7$ $56.7$

#### **Building** Data

	4 :12
L	18.4
	42
	28
	20
	9
	8
	1

Floor Diaphragm

North-South Direction

Trib.

4.00

5.50

Roof Slope (inches per foot)
Theta $\Theta$ (degrees)
North / South Dimension (ft)
East / West Dimension (ft)
Mean Roof Height, h (ft)
First Floor Plate Height (ft)
Second Floor Plate Height (ft)
Floor Depth (ft)

99.93

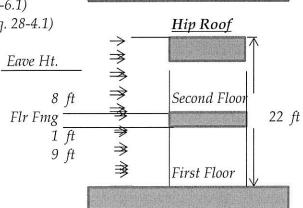
117.05

Load \*w

77.95

91.30

169.25



East-West Direction				Gable F	Roof
10000020	1.1100 M	121	/	~	

Trib.	Pressure	Loud	Load *w
4.00	25.21	100.85	78.66
5.50	21.48	118.12	92.13
	4.00	4.00 25.21	4.00 25.21 100.85

#### Hip Roof

Location

Wall Above

Wall Below

Total (plf)

Location	Trib.	Pressure	Load	Load *w
Wall Above	2.00	19.19	38.37	29.93
Wall Below	4.00	24.98	99.93	77.95
Total (plf)				107.88

Pressure Load

24.98

21.28

#### Gable Roof

Location	Trib.	Pressure	Load	Load *w
Wall Above	2.00	24.98	49.97	38.97
Wall Below	4.00	24.98	99.93	77.95
Total (plf)				116.92

#### Hip Roof

Location	Trib.	Pressure	Load	Load *w
Wall Above	2.00	19.33	38.67	30.16
Wall Below	4.50	25.21	113.45	88.49
Total (plf)				118.65

#### Gable Roof

Location	Trib.	Pressure	Load	Load *w
Wall Above	2.00	25.21	50.42	39.33
Wall Below	4.50	25.21	113.45	88.49
Total (plf)				127.82

When Alternative Basic Load Combination, Sec. 1605.3.2 is used, the wind load is magnified by  $0.6 \omega = 0.78$ Since all internal wind pressures for enclosed buildings act equally on all the internal surfaces (equally and in opposite directions) these pressures cancel each other out in the lateral directions only. Net uplift pressures acting on components to be analyzed and designed separately.

Line 1 - Second Floor
-----------------------

 $\wedge$ 

Line 2 corer									
8	Wall Height (ft.)								
12	Total Shear Wall Length (ft.)								
12	Shortest Shear Wall Segment (ft.)								
12	Effective Shear Wall Length (ft.)								
0.67	Shortest Shear Wall Height to Width Ratio ( $\leq 2.0$ is OK - 2:1 Max Without Reduction)								
43	Total Diaphragm Length (ft.)								
30	Total Non-Shear Wall Length (ft.)								
0	Diaphragm Length Requiring a Drag Strap (d	or Drag Tr	uss)						
11.83	Wall Length to the Center of the Holdown (ft)								
12	Wall Weight (psf)								
2	1/2 of Tributary Floor or Roof Length (ft)								
20	Floor or Roof Weight (psf)								
5.60	Seismic Base Shear (psf)								
550	Seismic Tributary Area (sf)								
3,082	Seismic Shear Load This Line (lbs)								
10	Wind Tributary Area (lf)								
116.92	Wind Load (plf)								
1,169	Wind Load This Line (lbs)								
24,654	Overturning Moment (ft-lbs)								
1,632	Dead Load of Wall								
1.20	S <sub>DS</sub>								
705	Resisting Moment (Seismic) (ft-lbs) (0.6 - 0.1	4 S <sub>DS</sub> )D -	<u>+</u> ρ <i>E</i> /1.4						
1,088	Resisting Moment (Wind) (ft-lbs) (2/3)D +	ωW							
2,024	Uplift (lbs) (Seismic) D <u>+</u> E < 3,455 # C	DK! Use M	STC28 Ho	oldown Str	ар				
699	Uplift (lbs) (Wind) $D \pm W < 3,815 \# C$	DK! Use ST	THD14 Ha	ldown Stri	ıp at Fdn.				
Determine Sh	ear Wall Type (Seismic)	<1>	<2>	<3>	<4>				
257	plf < 280 plf OK! Use Shear Wall Type <1>	280 plf	430 plf	550 plf	730 plf				
Determine Sh	ear Wall Type (Wind)	<1>	<2>	<3>	<4>				
97	<i>plf</i> < 349 <i>plf</i> OK! Use Shear Wall Type <1>	349 plf	602 plf	770 plf	1,022 plf				
Diaphragm N	lailing (Seismic)								
72	plf < 240 plf OK! Use Standard Nailing at Roof 3	Sheathing (	(8d @ 6", 6	5" & 12")					
	Case 1 AF&PA Table 4.2C (Unblocked Load I	Parallel to	Framing)						
Diaphragm N	lailing (Wind)								
27	plf < 335 plf OK! Use Standard Nailing at Roof S	Sheathing (	(8d @ 6", 6	5" & 12")					
	Case 1 AF&PA Table 4.2C (Unblocked Load	Parallel to	Framing)	12					
Drag Truss									
3,082	lbs								
Plates to Dra	<u>ng Truss</u>								
12,120	# > 1,169 # OK! Use A35 at 12" O/C at Sh	ear Wall &	24" O/C	Elsewhere					

Line	2	-	Second	Floor
10000	-		Cecontre	1.001

Line 2 - Secor	nd Floor V						
8	Wall Height (ft.)						
12	Total Shear Wall Length (ft.)						
12	Shortest Shear Wall Segment (ft.)						
8	Effective Shear Wall Length (ft.)						
0.67	Shortest Shear Wall Height to Width Ratio ( $\leq 2.0$ is OK - 2:1 Max Without Reduction)						
39	Total Diaphragm Length (ft.)						
0	Total Non-Shear Wall Length (ft.)						
24	Diaphragm Length Requiring a Drag Strap	(or Drag Truss)					
11.83	Wall Length to the Center of the Holdown (f	t)					
12	Wall Weight (psf)						
2	1/2 of Tributary Floor or Roof Length (ft)						
20	Floor or Roof Weight (psf)						
5.60	Seismic Base Shear (psf)						
500	Seismic Tributary Area (sf)						
2,802	Seismic Shear Load This Line (lbs)						
14	Wind Tributary Area (lf)						
116.92	Wind Load (plf)						
1,637	Wind Load This Line (lbs)						
22,413	Overturning Moment (ft-lbs)						
1,632	Dead Load of Wall						
1.20	S <sub>DS</sub>						
705	Resisting Moment (Seismic) (ft-lbs) (0.6 - 0.	14 S <sub>DS</sub> )D <u>+</u> ρE/1.4					
1,088	Resisting Moment (Wind) (ft-lbs) (2/3)D $\pm$	ωW					
1,835	<i>Uplift (lbs) (Seismic)</i> D <u>+</u> E < 3,455 #	OK! Use MSTC28 Ho	oldown Stra	пр			
1,015	Uplift (lbs) (Wind) $D \pm W < 3,815 \#$	OK! Use STHD14 Ho	oldown Stra	ap at Fdn.			
	ear Wall Type (Seismic)	<1> <2>	<3>	<4>			
350	plf < 430 plf OK! Use Shear Wall Type <2>	280 plf 430 plf	550 plf	730 plf			
	ear Wall Type (Wind)	<1> <2>	<3>	<4>			
205	plf < 602 plf OK! Use Shear Wall Type <2>	349 plf   602 plf	770 plf	1,022 plf			
	Iailing (Seismic)						
72	plf < 240 plf OK! Use Standard Nailing at Roof	and the second the second s	5" & 12")				
	Case 1 AF&PA Table 4.2C (Unblocked Load	Parallel to Framing)					
	lailing (Wind)						
42	plf < 335 plf OK! Use Standard Nailing at Roof		5" & 12")				
	Case 1 AF&PA Table 4.2C (Unblocked Load	l Parallel to Framing)					
<u>Drag Truss</u>							
1,724							
<b>.</b> .	o Roof Diaphragm						
1,724 ‡	8 1	o Drag Truss					
Plates to Eav							
5,400 ‡	# > 1,637 # OK! Use A35 at 12" O/C at Si	iear Wall & 24" O/C	Elsewhere	$\sim$			
				(6)°			



Line 3	- Second Floor
--------	----------------

<u>Line 3 - Secon</u>	<u>d Floor</u> *				
8	Wall Height (ft.)				
5.5	Total Shear Wall Length (ft.)				
5.5	Shortest Shear Wall Segment (ft.)				
5.5	Effective Shear Wall Length (ft.)				
1.45	Shortest Shear Wall Height to Width Ratio (	< 2.0 is OI	K - 2:1 Ma	x Without	Reduction)
26.5	Total Diaphragm Length (ft.)				
20.5	Total Non-Shear Wall Length (ft.)				
0	Diaphragm Length Requiring a Drag Strap (c	or Drag Tr	uss)		
5.33	Wall Length to the Center of the Holdown (ft)				
16	Wall Weight (psf)				
2	1/2 of Tributary Floor or Roof Length (ft)				
20	Floor or Roof Weight (psf)				
5.60	Seismic Base Shear (psf)				
150	Seismic Tributary Area (sf)				
840	Seismic Shear Load This Line (lbs)				
4	Wind Tributary Area (lf)				
116.92	Wind Load (plf)				
468	Wind Load This Line (lbs)				
6,724	Overturning Moment (ft-lbs)				
924	Dead Load of Wall				
1.20	S <sub>DS</sub>				
399	Resisting Moment (Seismic) (ft-lbs) (0.6 - 0.1	$4 S_{DS})D =$	<u>+</u> ρ <i>E</i> /1.4		
616	Resisting Moment (Wind) (ft-lbs) (2/3)D $\pm$	ωW			
1,187	$Uplift (lbs) (Seismic) D \pm E < 3,455 \# C$	DK! Use M	STC28 Ha	oldown Str	ар
586	Uplift (lbs) (Wind) $D \pm W < 3,815 \# C$	DK! Use ST	THD14 Ho	ldown Stri	ap at Fdn.
Determine She	ear Wall Type (Seismic)	<1>	<2>	<3>	<4>
153 sp	olf < 280 plf OK! Use Shear Wall Type <1>	280 plf	430 plf	550 plf	730 plf
Determine She	ear Wall Type (Wind)	<1>	<2>	<3>	<4>
85 p	olf < 349 plf OK! Use Shear Wall Type <1>	349 plf	602 plf	770 plf	1,022 plf
<u>Diaphragm Na</u>	<u>ailing (Seismic)</u>				
32 p	olf < 240 plf OK! Use Standard Nailing at Roof S			5" & 12")	
	Case 1 AF&PA Table 4.2C (Unblocked Load I	Parallel to I	Framing)		
Diaphragm Na					
18 p	olf < 335 plf OK! Use Standard Nailing at Roof S	Sheathing (	′8d @ 6", 6	5" & 12")	
	Case 1 AF&PA Table 4.2C (Unblocked Load .	Parallel to	Framing)		
<u>Drag Truss</u>					
840 ll	bs				
Plates to Drag					
7,067 #	> 840 # OK! Use A35 at 12" O/C at She	ear Wall &	24" O/C .	Elsewhere	



Line A - Second	Floor $\longleftrightarrow$				
8	Wall Height (ft.)				
6	Total Shear Wall Length (ft.)				
6	Shortest Shear Wall Segment (ft.)				
6	Effective Shear Wall Length (ft.)				
1.33	Shortest Shear Wall Height to Width Ratio (	< 2.0 is OF	K - 2:1 Ma:	x Without	Reduction)
28	Total Diaphragm Length (ft.)				
22	Total Non-Shear Wall Length (ft.)				
0	Diaphragm Length Requiring a Drag Strap (c	or Drag Tr	uss)		
5.83	Wall Length to the Center of the Holdown (ft)	0	0.0000000000 <b>-</b> 0.		
16	Wall Weight (psf)				
14	1/2 of Tributary Floor or Roof Length (ft)				
20	Floor or Roof Weight (psf)				
5.60	Seismic Base Shear (psf)				
280	Seismic Tributary Area (sf)				
1,569	Seismic Shear Load This Line (lbs)				
7	Wind Tributary Area (lf)				
116.92	Wind Load (plf)				
818	Wind Load This Line (lbs)				
12,551	Overturning Moment (ft-lbs)				
2,448	Dead Load of Wall				
1.20	S <sub>DS</sub>				
1,058	Resisting Moment (Seismic) (ft-lbs) (0.6 - 0.1	$4 S_{DS})D =$	<u>+</u> ρE/1.4		
1,632	Resisting Moment (Wind) (ft-lbs) (2/3)D +	ωW			
1,971	$Uplift$ (lbs) (Seismic) $D \pm E < 3,455 \# C$		STC28 Ho	ldown Stri	пр
843	Uplift (lbs) (Wind) $D \pm W < 3,815 \# C$	DK! Use ST	THD14 Ho	ldown Stri	ip at Fdn.
Determine Shear	·Wall Type (Seismic)	<1>	<2>	<3>	<4>
261 plf	< 280 plf OK! Use Shear Wall Type <1>	280 plf	430 plf	550 plf	730 plf
Determine Shear	·Wall Type (Wind)	<1>	<2>	<3>	<4>
136 plf	< 349 plf OK! Use Shear Wall Type <1>	349 plf	602 plf	770 plf	1,022 plf
Diaphragm Nail	ing (Seismic)				
56 plf	< 180 plf OK! Use Standard Nailing at Roof S	Sheathing (	(8d @ 6", 6	5" & 12")	
	Case 3 AF&PA Table 4.2C (Unblocked Load 1	Perpendicu	lar to Fran	ning)	
Diaphragm Nail	ing (Wind)				
29 plf	< 252 plf OK! Use Standard Nailing at Roof S	Sheathing (	(8d @ 6", E	5" & 12")	
	Case 3 AF&PA Table 4.2C (Unblocked Load 1	Perpendicu	lar to Fran	ning)	
<u>Plates to Eave B</u>					
7,628 #>	1,569 # OK! Use A35 at 12" O/C at Sh	ear Wall &	24" O/C I	Elsewhere	

 $\rightarrow$ <-----

	$\longleftrightarrow$						
Line B - Second							
8	Wall Height (ft.)						
7.5	Total Shear Wall Length (ft.)						
7.5	Shortest Shear Wall Segment (ft.)						
7.5	Effective Shear Wall Length (ft.)						
1.07	Shortest Shear Wall Height to Width Ratio (	≤ 2.0 is OI	K - 2:1 Ma:	x Without	Reduction)		
28	Total Diaphragm Length (ft.)						
0	Total Non-Shear Wall Length (ft.)						
20	Diaphragm Length Requiring a Drag Strap (	or Drag Tr	uss)				
7.33	Wall Length to the Center of the Holdown (ft,	)					
12	Wall Weight (psf)						
2	1/2 of Tributary Floor or Roof Length (ft)						
20	Floor or Roof Weight (psf)						
5.60	Seismic Base Shear (psf)						
400	Seismic Tributary Area (sf)						
2,241	Seismic Shear Load This Line (lbs)						
13	Wind Tributary Area (lf)						
127.82	Wind Load (plf)						
1,662	Wind Load This Line (lbs)						
17,931	Overturning Moment (ft-lbs)						
1,020	Dead Load of Wall						
1.20	S <sub>DS</sub>						
441	Resisting Moment (Seismic) (ft-lbs) (0.6 - 0.1	$(4 S_{DS})D$ -	+ ρE/1.4				
680	Resisting Moment (Wind) (ft-lbs) (2/3)D +	C	,				
2,386	Uplift (lbs) (Seismic) $D \pm E < 3,455 \# ($		STC28 Ho	oldown Str	ар		
1,721	<i>Uplift (lbs) (Wind)</i> $D \pm W < 3,815 \# ($						
10000 • 0000 000 0000	ar Wall Type (Seismic)	<1>	<2>	<3>	<4>		
	f < 430 plf OK! Use Shear Wall Type <2>	280 plf	430 plf	550 plf	730 plf		
	ar Wall Type (Wind)	<1>	<2>	<3>	<4>		
	f < 602 plf OK! Use Shear Wall Type <2>	349 plf	602 plf	770 plf	1,022 plf		
Diaphragm Na			12				
	f < 180 plf OK! Use Standard Nailing at Roof	Sheathing (	'8d @ 6", 6	5" & 12")			
I.	Case 3 AF&PA Table 4.2C (Unblocked Load .	U					
Diaphragm Na		1		0,			
	If < 252 plf OK! Use Standard Nailing at Roof	Sheathing (	′8d @ 6", 6	5"&12")			
1	Case 3 AF&PA Table 4.2C (Unblocked Load .	-					
Drag Strav to 1	Roof Diaphragm	I		0/			
1,601 #		olid Blockii	lg(L = 20)	'-0")			
Plates to Truss		1999-1999-1999-1999-1999-1999-1999-199	0	~			
3,375 #	-	ear Wall &	24" O/C	Elsewhere			
- / - · · · ·	,		, -				
					-		

Line D - Secon	$d$ Floor $\longleftrightarrow$
8	Wall Height (ft.)
5	Total Shear Wall Length (ft.)
5	Shortest Shear Wall Segment (ft.)
5	Effective Shear Wall Length (ft.)
1.60	Shortest Shear Wall Height to Width Ratio ( $\leq 2.0$ is OK - 2:1 Max Without Reduction)
20.67	Total Diaphragm Length (ft.)
0	Total Non-Shear Wall Length (ft.)
12	Diaphragm Length Requiring a Drag Strap (or Drag Truss)
4.83	Wall Length to the Center of the Holdown (ft)
6	Wall Weight (psf)
2	1/2 of Tributary Floor or Roof Length (ft) <u>Downward Reaction (lbs.)</u>
20	Floor or Roof Weight (psf) $257 \text{ Load Combo 5 } (1.0 + 0.14 \text{ S}_{DS})D \text{ (lbs.)}$
5.60	Seismic Base Shear (psf) + $5,491$ Load Combo 5 + (0.7 $\Omega_0 Q_E$ )
350	Seismic Tributary Area (sf) 5,748 lbs. (Combo 5 Governs Downward)
1,961	Seismic Shear Load This Line (lbs) <b>8,212</b> (Strength Load) (Beam #6)
2.5	Seismic Force Overstrength Factor (ASCE Table 12.2-1.A.15 - see footnote g)
4,903	Em (lbs) <u>Downward Reaction (lbs.)</u>
14	Wind Tributary Area (lf) 292 Load Combo 6 $(1.0 - 0.105 S_{DS})D$ (lbs.)
127.82	Wind Load (plf) + $4,118$ Load Combo 6 + (0.525 $\Omega_0 Q_E$ )
1,790	Wind Load This Line (lbs) 4,410 lbs. 6,300 (Strength Load)
15,689	Overturning Moment (ft-lbs) <u>Upward Reaction (lbs.)</u>
440	Dead Load of Wall 95 Load Combo 8 $(0.6 - 0.14 S_{DS})D$ (lbs.)
5,748	Downward Reaction (lbs.) _ <u>5,491</u> Load Combo 8 - (0.7 $\Omega_0 Q_E$ )
1.20	S <sub>DS</sub> 5,396 lbs. <b>7,709</b> (Strength Load)
475	Resisting Moment (Seismic) (ft-lbs) (0.6 - 0.14 S <sub>DS</sub> )D
733	Resisting Moment (Wind) (ft-lbs) (2/3)D $\pm \omega W$
3,150	Uplift (lbs) (Seismic) $D \pm E < 3,455 \# OK!$ Use MSTC28 Holdown Strap
2,812	Uplift (lbs) (Wind) $D \pm W < 3,815 \# OK!$ Use STHD14 Holdown Strap at Fdn.
Determine She	<i>ar Wall Type (Seismic)</i> <1> <2> <3> <4>
	<i>If</i> < 430 <i>plf</i> OK! Use Shear Wall Type <2> 280 <i>plf</i> 430 <i>plf</i> 550 <i>plf</i> 730 <i>plf</i>
	ar Wall Type (Wind) <1> <2> <3> <4>
Construction of the second	<i>lf</i> < 602 <i>plf</i> OK! Use Shear Wall Type <2> 349 <i>plf</i> 602 <i>plf</i> 770 <i>plf</i> 1,022 <i>plf</i>
, 0	uiling (Seismic)
95 p	If < 180 plf OK! Use Standard Nailing at Roof Sheathing (8d $@$ 6", 6" & 12")
	Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)
Diaphragm Na	
87 p.	lf < 252 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12") Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)
Duga Stuan to	,
1,139 #	<u>Drag Beam (or Plate Splice)</u> <
Plates to Truss	5 1
2,700 #	



Line G - Second	Floor $\iff$
8	Wall Height (ft.)
4	Total Shear Wall Length (ft.)
4	Shortest Shear Wall Segment (ft.)
4	Effective Shear Wall Length (ft.)
2.00	Shortest Shear Wall Height to Width Ratio ( $\leq 2.0$ is OK - 2:1 Max Without Reduction)
20.67	Total Diaphragm Length (ft.)
12	Total Non-Shear Wall Length (ft.)
0	Diaphragm Length Requiring a Drag Strap (or Drag Truss)
3.83	Wall Length to the Center of the Holdown (ft)
6	Wall Weight (psf)
2	1/2 of Tributary Floor or Roof Length (ft) <u>Downward Reaction (lbs.)</u>
20	Floor or Roof Weight (psf) 206 Load Combo 5 $(1.0 + 0.14 S_{DS})D$ (lbs.)
5.60	Seismic Base Shear (psf) + $3,334$ Load Combo 5 + (0.7 $\Omega_0 Q_E$ )
170	Seismic Tributary Area (sf) 3,540 lbs. (Combo 5 Governs Downward)
953	Seismic Shear Load This Line (lbs) <b>5,056</b> (Strength Load) (Beam #4)
2.5	Seismic Force Overstrength Factor (ASCE Table 12.2-1.A.15 - see footnote g)
2,381	Em (lbs) Downward Reaction (lbs.)
8	Wind Tributary Area (lf) 233 Load Combo 6 $(1.0 - 0.105 S_{DS})D$ (lbs.)
127.82	Wind Load (plf) + $2,500$ Load Combo 6 + (0.525 $\Omega_0 Q_E$ )
1,023	Wind Load This Line (lbs) 2,734 lbs. <b>3,905</b> (Strength Load)
8,181	Overturning Moment (ft-lbs) <u>Upward Reaction (lbs.)</u>
352	Dead Load of Wall 76 Load Combo 8 $(0.6 - 0.14 S_{DS})D$ (lbs.)
3,540	Downward Reaction (lbs.) _ <u>3,334</u> Load Combo 8 - (0.7 $\Omega_0 Q_E$ )
1.20	S <sub>DS</sub> 3,258 lbs. <b>4,654</b> (Strength Load)
304	Resisting Moment (Seismic) (ft-lbs) (0.6 - 0.14 S <sub>DS</sub> )D
469	Resisting Moment (Wind) (ft-lbs) (2/3)D $\pm \omega W$
1,910	Uplift (lbs) (Seismic) $D \pm E$ < 3,455 # OK! Use MSTC28 Holdown Strap
2,013	Uplift (lbs) (Wind) $D \pm W < 3,815 \# OK!$ Use STHD14 Holdown Strap at Fdn.
Determine Shear	r Wall Type (Seismic) <1> <2> <3> <4>
	280 plf OK! Use Shear Wall Type <1> 280 plf 430 plf 550 plf 730 plf
	<i>r</i> Wall Type (Wind) <1> <2> <3> <4>
	<pre>349 plf OK! Use Shear Wall Type &lt;1&gt; 349 plf 602 plf 770 plf 1,022 plf</pre>
Diaphragm Nail	
46 plf	< 180 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
	Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)
Diaphragm Nail	ling (Wind)
49 plf	252 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
	Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)
Plates to Truss	
4,488 #>	1,023 # OK! Use A35 at 12" O/C at Shear Wall & 24" O/C Elsewhere

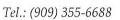


#### <u> Line 1 - First Floor</u>

Line 1 - 1 1151 1	$\frac{1001}{\sqrt{1001}}$				
18	Total Wall Height (ft.)				
9	First Floor Wall Height (ft.)				
12	Total Shear Wall Length (ft.)				
12	Shortest Shear Wall Segment (ft.)				
12	Effective Shear Wall Length (ft.)				
1.50	Shortest Shear Wall Height to Width Ratio	$(\leq 2.0 is OF$	K - 2:1 Ma:	x Without	Reduction)
44	Total Diaphragm Length (ft.)				
32	Total Non-Shear Wall Length (ft.)				
0	Diaphragm Length Requiring a Drag Strap	(or Drag Tr	uss)		
11.83	Wall Length to the Center of the Holdown (j	ft)			
12	Wall Weight (psf)				
1	1/2 of Tributary Floor or Roof Length (ft)				
15	Floor or Roof Weight (psf)				
2.77	First Floor Seismic Base Shear (psf)				
450	Seismic Tributary Area (sf)				
3,082	Second Floor Seismic Shear Load This Line	(lbs)			
4,330	Total Seismic Shear Load This Line (lbs)				
169.25	First Floor Wind Load (plf)				
10	Wind Tributary Area (lf)				
1,169	Second Floor Wind Load This Line (plf)				
2,862	Total Wind Load This Line (lbs)				
77,944	Overturning Moment (ft-lbs)				
2,772	Dead Load of Wall				
1.20	S <sub>DS</sub>				
1,198	Resisting Moment (Seismic) (ft-lbs) (0.6 - 0	.14 S <sub>DS</sub> )D _	<u>+</u> ρE/1.4		
1,848	Resisting Moment (Wind) (ft-lbs) (2/3)D +	ωW			
5,538	Uplift (lbs) (Seismic) $D \pm E < 5,645 \#$	OK! Use H.	DU5-SDS	2.5 Holdor	งท
2,910	Uplift (lbs) (Wind) $D \pm W$ With SS	STB24 Anch	or Bolt		
Determine She	ar Wall Type (Seismic)	<1>	<2>	<3>	<4>
361 p	lf < 430 plf OK! Use Shear Wall Type <2>	280 plf	430 plf	550 plf	730 plf
Determine She	ar Wall Type (Wind)	<1>	<2>	<3>	<4>
238 p	<i>If</i> < 602 <i>plf</i> OK! Use Shear Wall Type <2>	349 plf	602 plf	770 plf	1,022 plf
Diaphragm Na	niling (Seismic)				
98 p	lf < 215 plf OK! Use Standard Nailing at Floc	or Sheathing	(10d @ 6"	, 6" & 10"	)
	Case 3 AF&PA Table 4.2C (Unblocked Load	l Perpendicu	lar to Fran	ning)	
Diaphragm Na	ailing (Wind)				
65 p	lf < 300 plf OK! Use Standard Nailing at Floc	or Sheathing	(10d @ 6"	, 6" & 10"	)
	Case 3 AF&PA Table 4.2C (Unblocked Load				
Plates to Rim	Board				
13,648 #	> 4,330 # OK! Use A35 at 10" O/C at S	hear Wall &	24" O/C	Elsewhere	



Riverside, CA 925	03	*			
	$\uparrow$				
Line 2 - First Flo	V				
18	Total Wall Height (ft.)				
9	First Floor Wall Height (ft.)				
12	Total Shear Wall Length (ft.)				
12	Shortest Shear Wall Segment (ft.)				
12	Effective Shear Wall Length (ft.)			<b>T 4 71 - 1</b>	
1.50	Shortest Shear Wall Height to Width Ratio (	$\leq 2.0$ is OK -	- 2:1 Max	x VVithout I	Reduction)
44	Total Diaphragm Length (ft.)				
0	Total Non-Shear Wall Length (ft.)				
23	Diaphragm Length Requiring a Drag Strap		s)		
11.83	Wall Length to the Center of the Holdown (f	<i>t</i> )			
16	Wall Weight (psf)				
10	1/2 of Tributary Floor or Roof Length (ft)				
15	Floor or Roof Weight (psf)				
2.77	First Floor Seismic Base Shear (psf)				
560	Seismic Tributary Area (sf)				
2,802	Second Floor Seismic Shear Load This Line (	lbs)			
4,355	Total Seismic Shear Load This Line (lbs)				
169.25	First Floor Wind Load (plf)				
14	Wind Tributary Area (lf)				
1,637	Second Floor Wind Load This Line (plf)				
4,006	Total Wind Load This Line (lbs)				
78,394	Overturning Moment (ft-lbs)				
5,256	Dead Load of Wall				
1.20	S <sub>DS</sub>				
2,271	Resisting Moment (Seismic) (ft-lbs) (0.6 - 0.	14 S <sub>DS</sub> )D <u>+</u>	ρ <i>E</i> /1.4		
3,504	Resisting Moment (Wind) (ft-lbs) (2/3)D +	ωW			
5,253	Uplift (lbs) (Seismic) $D \pm E < 5,645 \#$	OK! Use HD	U5-SDS2	2.5 Holdou	m
3,997	Uplift (lbs) (Wind) $D \pm W$ With SS	TB24 Anchor	Bolt		
Determine Shea	<u>r Wall Type (Seismic)</u>	<1>	<2>	<3>	<4>
	430 plf OK! Use Shear Wall Type <2>	280 plf	430 plf	550 plf	730 plf
1 2	r Wall Type (Wind)	<1>	<2>	<3>	<4>
	602 plf OK! Use Shear Wall Type <2>	349 plf	602 plf	770 plf	1,022 plf
Diaphragm Nai	ANNOV REAL TO BE DECEMBER OF STREET, ST				
	< 215 plf OK! Use Standard Nailing at Floo	r Sheathing (1	0d @ 6",	, 6" & 10",	)
, ,	Case 3 AF&PA Table 4.2C (Unblocked Load	U			
Diaphragm Nai				U	
	Solution Standard Nailing at Floo	r Sheathing (1	0d @ 6",	, 6" & 10",	)
,,,	Case 3 AF&PA Table 4.2C (Unblocked Load	l Perpendicula	ar to Fran	ning)	
Drag Strap to D	Drag Beams			0.	
2,277 # <	•	g Beams			
Plates to Rim B	200 · · · · · · · · · · · · · · · · · ·	0			
6,480 # >	THE REPORT OF A DESCRIPTION OF A DESCRIP	hear Wall & 2	4" O/C I	Elsewhere	$\sim$
	a <b>1</b>		994 		(13) %



Line	3 -	First	Floor
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<u>Line 3 - First Fl</u>	$\underline{oor}$ $\forall$							
18	Total Wall Height (ft.)							
9	First Floor Wall Height (ft.)							
12	Total Shear Wall Length (ft.)							
4	Shortest Shear Wall Segment (ft.)							
12	Effective Shear Wall Length (ft.)							
4.50		Shortest Shear Wall Height to Width Ratio ( $\leq 2.0$ is OK - 2:1 Max Without Reduction)						
0.89	Modifier Where $H/W$ Exceeds 2:1 (r = 2*L/							
26.5	Total Diaphragm Length (ft.)							
14.5	Total Non-Shear Wall Length (ft.)							
0	Diaphragm Length Requiring a Drag Strap (	or Drag Tr	uss)					
3.83	Wall Length to the Center of the Holdown (ft	)						
16	Wall Weight (psf)							
2	1/2 of Tributary Floor or Roof Length (ft)							
15	Floor or Roof Weight (psf)							
2.77	First Floor Seismic Base Shear (psf)							
120	Seismic Tributary Area (sf)							
840	Second Floor Seismic Shear Load This Line (l	bs)						
1,173	Total Seismic Shear Load This Line (lbs)							
169.25	First Floor Wind Load (plf)							
4	Wind Tributary Area (lf)							
468	Second Floor Wind Load This Line (plf)							
1,145	Total Wind Load This Line (lbs)							
7,040	Overturning Moment (ft-lbs)							
1,272	Dead Load of Wall							
1.20	S <sub>DS</sub>							
550	Resisting Moment (Seismic) (ft-lbs) (0.6 - 0.1	$(4 S_{DS})D =$	<u>+</u> ρ <i>E</i> /1.4					
848	Resisting Moment (Wind) (ft-lbs) (2/3)D +	ωW						
4,589	Uplift (lbs) (Seismic) $D \pm E < 5,645 \# ($	OK! Use H.	DU5-SDS	2.5 Holdor	vn			
3,567	Uplift (lbs) (Wind) $D \pm W$ With SS	TB24 Anch	or Bolt					
Determine Shea	r Wall Type (Seismic)	<1>	<2>	<3>	<4>			
98 plj	f < 249 plf OK! Use Shear Wall Type <1>	249	382	489	649			
Determine Shea	r Wall Type (Wind)	<1>	<2>	<3>	<4>			
95 plj	f < 349 plf OK! Use Shear Wall Type <1>	349 plf	602 plf	770 plf	1,022 plf			
Diaphragm Nai	ling (Seismic)							
44 plj	f < 215 plf OK! Use Standard Nailing at Floor	Sheathing	(10d @ 6"	, 6" & 10"	)			
	Case 3 AF&PA Table 4.2C (Unblocked Load	Perpendicu	lar to Fran	ning)				
Diaphragm Nai	ling (Wind)							
43 plj	f < 300 plf OK! Use Standard Nailing at Floor	Sheathing	(10d @ 6"	, 6" & 10"	)			
	Case 3 AF&PA Table 4.2C (Unblocked Load	Perpendici	ilar to Fra	ning)				
Plates to Rim E	Board							
8,648 # >	> 1,173 # OK! Use A35 at 12" O/C at Sh	ear Wall &	24" O/C	Elsewhere				

8,648 # > 1,173 # OK! Use A35 at 12" O/C at Shear Wall & 24" O/C Elsewhere



Line A - First Fle	$oor$ $\leftrightarrow$					
18	Total Wall Height (ft.)					
9	First Floor Wall Height (ft.)					
7.5	Total Shear Wall Length (ft.)					
7.5	Shortest Shear Wall Segment (ft.)					
7.5	Effective Shear Wall Length (ft.)					
2.40	Shortest Shear Wall Height to Width Ratio (	< 2.0 is OF	K - 2:1 Ma:	x Without	Reduction)	
28	Total Diaphragm Length (ft.)	-			,	
14.5	Total Non-Shear Wall Length (ft.)					
0	Diaphragm Length Requiring a Drag Strap (c	or Drag Tr	uss)			
7.33	Wall Length to the Center of the Holdown (ft)	0	,			
16	Wall Weight (psf)					
5	1/2 of Tributary Floor or Roof Length (ft)					
15	Floor or Roof Weight (psf)					
2.77	First Floor Seismic Base Shear (psf)					
320	Seismic Tributary Area (sf)					
2,316	Second Floor Seismic Shear Load This Line (lt	os) (Incl. 1/	'3 of Line H	3)		
3,204	Total Seismic Shear Load This Line (lbs)					
169.25	First Floor Wind Load (plf)					
11.5	Wind Tributary Area (lf)					
1,372	Second Floor Wind Load This Line (plf) (Incl.	1/3 of Line	e B)			
3,319	Total Wind Load This Line (lbs)					
59,736	Overturning Moment (ft-lbs)					
2,723	Dead Load of Wall					
1.20	S <sub>DS</sub>					
1,176	Resisting Moment (Seismic) (ft-lbs) (0.6 - 0.1		<u>+</u> ρE/1.4			
1,815	Resisting Moment (Wind) (ft-lbs) (2/3)D ± 0	ωW				
6,617	$Uplift (lbs) (Seismic) D \pm E < 6,970 \# C$	DK! Use H	DU8-SDS	2.5 Holdot	vn	
5,512	$Uplift (lbs) (Wind) D \pm W \qquad With SST$	B28 Anch	or Bolt			
	· Wall Type (Seismic)	<1>	<2>	<3>	<4>	
	< 550 plf OK! Use Shear Wall Type <3>	280 plf	430 plf	550 plf	730 plf	
Determine Shear	·Wall Type (Wind)	<1>	<2>	<3>	<4>	
442 plf	< 770 plf OK! Use Shear Wall Type <3>	349 plf	602 plf	770 plf	1,022 plf	
Diaphragm Nail						
114 plf	< 215 plf OK! Use Standard Nailing at Floor	Sheathing	(10d @ 6")	, 6" & 10"	)	
	Case 3 AF&PA Table 4.2C (Unblocked Load I	Perpendicu	lar to Fran	ning)		
Diaphragm Nail	-					
119 plf	< 300 plf OK! Use Standard Nailing at Floor	Sheathing	(10d @ 6"	, 6" & 10"	)	
	Case 3 AF&PA Table 4.2C (Unblocked Load	Perpendicı	ilar to Frai	ming)		
<u>Plates to Rim B</u>						
8,311 #>	3,319 # OK! Use A35 at 8" O/C at Shea	ir Wall & 2	24" O/C E	lsewhere		

(15)4

Line D - First F	loor <>				
18	Total Wall Height (ft.)				
9	First Floor Wall Height (ft.)				
12	Total Shear Wall Length (ft.)				
12	Shortest Shear Wall Segment (ft.)				
12	Effective Shear Wall Length (ft.)				
1.50	Shortest Shear Wall Height to Width Ratio (	< 2.0 is Ol	K - 2:1 Ma	x Without	Reduction)
28	Total Diaphragm Length (ft.)	_			1872
14.5	Total Non-Shear Wall Length (ft.)				
0	Diaphragm Length Requiring a Drag Strap (	or Drag Tr	uss)		
11.83	Wall Length to the Center of the Holdown (ft	0			
16	Wall Weight (psf)				
5	1/2 of Tributary Floor or Roof Length (ft)				
15	Floor or Roof Weight (psf)				
2.77	First Floor Seismic Base Shear (psf)				
600	Seismic Tributary Area (sf)				
3,455	Second Floor Seismic Shear Load This Line (l	bs) (Line D	) + 2/3 of L	ine B)	
5,120	Total Seismic Shear Load This Line (lbs)				
169.25	First Floor Wind Load (plf)				
21.5	Wind Tributary Area (lf)				
2,897	Second Floor Wind Load This Line (plf) (Line	e D + 2/3 oj	f Line B)		
6,536	Total Wind Load This Line (lbs)				
58,825	Overturning Moment (ft-lbs)				
4,356	Dead Load of Wall				
1.20	S <sub>DS</sub>				
1,882	Resisting Moment (Seismic) (ft-lbs) (0.6 - 0.1	$(4 S_{DS})D$	<u>+</u> ρE/1.4		
2,904	Resisting Moment (Wind) (ft-lbs) (2/3)D +	$\omega W$			
3,736	Uplift (lbs) (Seismic) D <u>+</u> E < 3,815 # (	OK! Use SI	THD14 Ho	ldown Stra	ιр
3,650	Uplift (lbs) (Wind) $D \pm W < 3,815 \# 0$	OK! Use ST	THD14 Ho	ldown Stra	пр
Determine Shea	ar Wall Type (Seismic)	<1>	<2>	<3>	<4>
427 plj	f <430 plf OK! Use Shear Wall Type <2>	280 plf	430 plf	550 plf	730 plf
Determine Shea	ar Wall Type (Wind)	<1>	<2>	<3>	<4>
545 plj	f < 602 plf OK! Use Shear Wall Type <2>	349 plf	602 plf	770 plf	1,022 plf
Diaphragm Nat	iling (Seismic)				
183 plj	f < 215 plf OK! Use Standard Nailing at Floor	• Sheathing	(10d @ 6"	, 6" & 10",	)
	Case 3 AF&PA Table 4.2C (Unblocked Load	Perpendicu	lar to Fran	ning)	
Diaphragm Nat					
233 plj	f < 300 plf OK! Use Standard Nailing at Floor				)
1017 ağ	Case 3 AF&PA Table 4.2C (Unblocked Load	Perpendici	ular to Fra	ming)	
Plates to Rim E					
9,728 # >	> 6,536 # OK! Use A35 at 10" O/C at Sh	ear Wall &	24" O/C	Elsewhere	

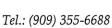
Lateral Analysis for: Contreras SFR Via Tuscany Riverside, CA 92503

Line G - First Floor

 $\leftarrow$ 

 $\rightarrow$ 

Line G - First Fl	<u>oor</u>													
6.5	Wall Height (ft.)													
2	Total Shear Wall Length (ft.)													
2	Shortest Shear Wall Segment (ft.)													
2	Effective Shear Wall Length (ft.) Shortest Shear Wall Height to Width Ratio ( $\geq 2.0$ is OK With Steel Strong Wall)													
3.25	Shortest Shear Wall Height to Width Ratio ( 2	2.0 is Ol	K With Ste	el Strong W	'all)									
20.67	Total Diaphragm Length (ft.)													
0	Total Non-Shear Wall Length (ft.)													
0	Diaphragm Length Requiring a Drag Strap (c	r Drag Tr	uss)											
1.83	Wall Length to the Center of the Holdown (ft)													
16	Wall Weight (psf)													
2	1/2 of Tributary Floor or Roof Length (ft)													
20	Floor or Roof Weight (psf)													
2.77	Seismic Base Shear (psf)													
210	Seismic Tributary Area (sf)													
953	Second Floor Seismic Shear Load This Line (lt	os)												
1,534	Total Seismic Shear Load This Line (lbs)													
170.79	Wind Load (plf)													
10	Wind Tributary Area (lf)													
1,023	Second Floor Wind Load This Line (plf)													
2,730	Total Wind Load This Line (lbs)													
17,748	Overturning Moment (ft-lbs)													
288	Dead Load of Wall													
1.20	S <sub>DS</sub>													
114	Resisting Moment (Seismic) (ft-lbs) (0.6 - 0.14	$4S_{DS})D$	$\pm \rho E / 1.4$											
176	Resisting Moment (Wind) (ft-lbs) (2/3)D ± of	ωW												
5,387	Uplift (lbs) (Seismic) $D \pm E < 17,100 \#$	OK! Use 1	" Std. SSV	V Anchor Bo	olt									
9,602	Uplift (lbs) (Wind) $D \pm W < 17,100 \#$													
Determine Shear	Wall Type (Seismic)													
1,534 #	< 5,495 # OK! Use (1) Steel Strong Wall Type	e <ssw24< td=""><td>x7&gt;</td><td></td><td></td></ssw24<>	x7>											
<b>Determine</b> Shear	Wall Type (Wind)													
2,730 #	< 5,730 # OK! Use (1) Steel Strong Wall Type	e <ssw24< td=""><td>x7&gt;</td><td></td><td></td></ssw24<>	x7>											
<b>Determine</b> Shear	Wall Type Above Cont. Hdr.	<1>	<2>	<3>	<4>									
	< 280 plf OK! Use Shear Wall Type <1>	280 plf	430 plf	550 plf	730 plf									
Diaphragm Nail	ing (Seismic)	·												
74 plf	< 180 plf OK! Use Standard Nailing at Roof S	Sheathing (	(8d @ 6", 6	5" & 12")										
	Case 3 AF&PA Table 4.2C (Unblocked Load F	Perpendicu	lar to Fran	ning)										
Diaphragm Nail	ing (Wind)			20 <del>0</del> - 470										
132 plf	< 252 plf OK! Use Standard Nailing at Roof S	Sheathing (	(8d @ 6", 6	5" & 12")										
	Case 3 AF&PA Table 4.2C (Unblocked Load F													
<u>Plates to Eave B</u>	locking	<i>3</i>		N712	$\sim$									
3,600 #>	2,730 # OK! Use Simpson Provided Scre	ews to Bea	m Above	(	(17)04									
				,										
		1000000000												



# TABLE 3—ALLOWABLE ASD IN-PLANE SHEAR (LBS) FOR SIMPSON SSW PANEL ON CONCRETE FOUNDATIONS<sup>1,3,4,6</sup>

			Seismic			Wind	
SSW Model	Allowable Axial Load <sup>2</sup> (Ibs)	Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Maximum Uplift at Allowable Shear <sup>5</sup> (Ibs)	Allowable ASD Shear Load V (Ibs)	Drift at Allowable Shear (in)	Maximum Uplift at Allowable Shear <sup>5</sup> (Ibs)
	1,000	955	0.36	9,840	1,215	0.46	13,620
SSW 12x7	4,000	955	0.36	9,840	1,095	0.42	11,765
	7,500	890	0.34	9,010	890	0.34	9,010
000007	1,000	1,855	0.36	15,655	1,860	0.36	15,715
SSW15x7	4,000 7,500	1,665	0.33	13,550	1,665	0.33	13,550 11,340
	1,000	1,445 2,905	0.34	11,340 19,660	1,445 3,480	0.28	25,805
SSW18x7	4,000	2,905	0.34	19,660	3,250	0.38	23,135
	7,500	2,905	0.34	19,660	2,980	0.35	20,370
	1,000	4,200	0.32	23,755	4,440	0.34	25,710
SSW21x7	4,000	4,200	0.32	23,755	4,440	0.34	25,710
	7,500	4,200	0.32	23,755	4,310	0.33	24,635
001104-7	1,000	5,495	0.29	26,270	5,730	0.31	27,835
SSW24x7	4,000 7,500	5,495 5,495	0.29	26,270 26,270	5,730 5,730	0.31	27,835 27,835
	1,000	870	0.39	9,515	1,105	0.49	13,070
SSW12x7.4	4,000	870	0.39	9,515	970	0.43	10,940
	7,500	750	0.33	7,940	750	0.33	7,940
	1,000	1,685	0.39	15,035	1,700	0.39	15,215
SSW15x7.4	4,000	1,500	0.34	12,905	1,500	0.34	12,905
	7,500	1,270	0.29	10,510	1,270	0.29	10,510
0011110 7 1	1,000	2,700	0.37	19,475	3,255	0.44	25,790
SSW18x7.4	4,000	2,700	0.37	19,475	3,040	0.42	23,125
	7,500	2,700	0.37	19,475 23,420	2,790 4,230	0.38	20,390 26,405
SSW21x7.4	4,000	3,890	0.35	23,420	4,230	0.38	26,405
OUTLINT.4	7,500	3,890	0.35	23,420	4,035	0.36	24,655
ALCONTRACTOR DUCTO	1,000	5,330	0.34	27,610	5,450	0.34	28,485
SSW24x7.4	4,000	5,330	0.34	27,610	5,450	0.34	28,485
A LANGE CARLS	7,500	5,330	0.34	27,610	5,450	0.34	28,485
	1,000	775	0.42	9,180	985	0.53	12,560
SSW12x8	4,000	775	0.42	9,180	865	0.47	10,550
	7,500	665	0.36	7,630	665	0.36	7,630
SSW15x8	1,000 4,000	1,505 1,345	0.42	14,515 12,545	1,530 1,345	0.43	14,835 12,545
00001000	7,500	1,135	0.32	10,190	1,135	0.32	10,190
	1,000	2,480	0.41	19,525	2,985	0.50	25,795
SSW18x8	4,000	2,480	0.41	19,525	2,790	0.47	23,160
	7,500	2,480	0.41	19,525	2,560	0.43	20,410
	1,000	3,560	0.39	23,360	3,960	0.43	27,240
SSW21x8	4,000	3,560	0.39	23,360	3,960	0.43	27,240
	7,500	3,560	0.39	23,360	3,700	0.41	24,660
SSW24x8	1,000 4,000	4,865 4,865	0.37	27,435 27,435	5,105 5,105	0.39	29,370 29,370
00002440	7,500	4,865	0.37	27,435	5,055	0.39	29,370
	1,000	660	0.47	8,745	840	0.60	11,915
SSW12x9	4,000	660	0.47	8,745	705	0.50	9,485
The state of the	7,500	505	0.36	6,380	505	0.36	6,380
Core of the second	1,000	1,315	0.45	14,250	1,315	0.47	14,250
SSW15x9	4,000	1,130	0.38	11,740	1,130	0.40	11,740
Sector Contractor	7,500	925	0.31	9,235	925	0.33	9,235
000000	1,000	2,145	0.47	18,890	2,645	0.58	25,800
SSW18x9	4,000 7,500	2,145	0.47	18,890	2,470	0.54	23,130
	1,000	2,145 3,145	0.47	18,890 23,265	2,265	0.50	20,370 28,215
SSW21x9	4,000	3,145	0.46	23,265	3,530	0.51	27,490
	7,500	3,145	0.46	23,265	3,280	0.47	24,680
	1,000	4,285	0.44	27,210	4,605	0.47	30,150
SSW24x9	4,000	4,285	0.44	27,210	4,605	0.47	30,150
	7,500	4,285	0.44	27,210	4,480	0.46	28,970
00000	1,000	570	0.52	8,345	725	0.67	11,300
SSW12x10	4,000	570	0.52	8,345	570	0.52	8,345
	7,500	360	0.33 0.53	4,930	360	0.33	4,930 13,690
SSW 15x10	4,000	1,110 960	0.53	<u>13,150</u> 10,975	1,145 960	0.45	10,975
001110410	7,500	715	0.34	7,775	715	0.34	7,775
1	1,000	1,860	0.53	18,030	2,360	0.67	25,545
SSW 18x10	4,000	1,860	0.53	18,030	2,215	0.63	23,095
	7,500	1,860	0.53	18,030	2,035	0.57	20,395



Vood Beam c. # : KW-06012912		Software	copyright ENERCALC, INC. 1	File: 20-3991.ect 983-2020, Build:12.20.5.3 resen Architecture,
DESCRIPTION: Beam #1 - Grid B Flush Beam (3-1/2" x 9-	1/2" Parallam)		2000	roson Arennoocuro,
CODE REFERENCES				
alculations per NDS 2018, IBC 2018, CBC 2019, ASC oad Combination Set : IBC 2018	E 7-16			
Material Properties				
Analysis Method : Allowable Stress Design Load Combination IBC 2018 Wood Species : iLevel Truss Joist	Fb + Fb - Fc - Prll Fc - Perp	2,900.0 psi 2,900.0 psi 2,900.0 psi 750.0 psi	<i>E : Modulus of Elast</i> Ebend- xx Eminbend - xx	<i>icity</i> 2,000.0ksi 1,016.54ksi
Wood Grade         : Parallam PSL 2.0E           Beam Bracing         : Beam is Fully Braced against lateral-to	Fv Ft orsional buckling	290.0 psi 2,025.0 psi	Density	45.070 pcf
¢\$	D(0.165) L(0.44)		\$	Ş
	3.5x9.5			
	Span = 11.250 ft			/iiiii

Applied Loads	Service loads entered. Load Factors will be applied for calculations.

Uniform Load	: D = 0.0150,	L = 0.040  ksf,	Tributary	Width = $1$	11.0 ft, (Floor)	
--------------	---------------	-----------------	-----------	-------------	------------------	--

DESIGN SUMMARY					Design OK
Maximum Bending Stress Ratio Section used for this span	=	3.5x9.5	laximum Shear Stress Ratio Section used for this span	=	0.456 : 1 3.5x9.5
	Ξ	2,181.66psi		Ξ	132.23 psi
	=	2,900.00psi		=	290.00 psi
Load Combination Location of maximum on span Span # where maximum occurs	=	+D+L 5.625ft Span # 1	Load Combination Location of maximum on span Span # where maximum occurs	=	+D+L 10.470 ft Span # 1
Maximum Deflection Max Downward Transient Defle Max Upward Transient Deflection Max Downward Total Deflection Max Upward Total Deflection	on	0.319 in Ratio 0.000 in Ratio 0.439 in Ratio 0.000 in Ratio	= 0<360 = 307>=180		

Load Combination		Max Stres	s Ratios			Moment Values				Shear Values						
Segment Length	Span #	М	V	Cd	C <sub>F/V</sub>	Ci	Cr	Cm	C t	CL	М	fb	F'b	V	fv	F'v
D Only		- door-be onk											0.00	0.00	0.00	0.00
Length = 11.250 ft	1	0.228	0.138	0.90	1.000	1.00	1.00	1.00	1.00	1.00	2.61	595.00	2610.00	0.80	36.06	261.00
+D+L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.250 ft	1	0.752	0.456	1.00	1.000	1.00	1.00	1.00	1.00	1.00	9.57	2,181.66	2900.00	2.93	132.23	290.00
+D+0.750L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.250 ft	1	0.492	0.298	1.25	1.000	1.00	1.00	1.00	1.00	1.00	7.83	1,785.00	3625.00	2.40	108.19	362.50
+0.60D					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.250 ft	1	0.077	0.047	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.57	357.00	4640.00	0.48	21.64	464.00
<b>Overall Maxin</b>	num De	flectio	ns													
Load Combination		S	pan	Max. "-"	Defl	Location	n in Span	]	Load Co	mbination	n		Max. "+"	Defl	Location in	Span
+D+L			1	0.4	385		5.666						0.0	000	0.	000



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Lic. # : KW-06012912

DESCRIPTION: Beam #1 - Grid B Flush Beam (3-1/2" x 9-1/2" Parallam)

Vertical Reactions		Suppor	notation : Far left is #1	Values in KIPS	
Load Combination	Support 1	Support 2			
Overall MAXimum	3.403	3.403			
Overall MINimum	2.475	2.475			
D Only	0.928	0.928			
D Only +D+L	3.403	3.403			
+D+0.750L	2.784	2.784			
+0.60D	0.557	0.557			
L Only	2.475	2.475			



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# Lic. # : KW-06012912

DESCRIPTION: Beam #2 - Stair Headout Bm (3-1/2" x 9-1/2" Parallam)

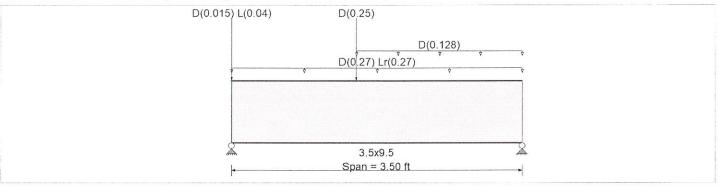
#### CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16 Load Combination Set : IBC 2018

#### **Material Properties**

Analysis Method : Allowable Stress Design	Fb +	2,900.0 psi	E : Modulus of Elas	ticity	
Load Combination JBC 2018	Fb -	2,900.0 psi	Ebend- xx	2,000.0ksi	
	Fc - Prll	2,900.0 psi	Eminbend - xx	1,016.54 ksi	
Wood Species : iLevel Truss Joist	Fc - Perp	750.0 psi			
Wood Grade : Parallam PSL 2.0E	Fv	290.0 psi			
	Ft	2,025.0 psi	Density	45.070 pcf	

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling



## **Applied Loads**

Service loads entered. Load Factors will be applied for calculations.

Decign OK

Uniform Load : D = 0.020, Lr = 0.020 ksf, Tributary Width = 13.50 ft, (Roof) Point Load : D = 0.0150, L = 0.040 k @ 0.0 ft, (Floor) Point Load : D = 0.250 k @ 1.50 ft, (Grid 2 Beam) Uniform Load : D = 0.1280 k/ft, Extent = 1.50 -->> 3.50 ft, Tributary Width = 1.0 ft, (Wall Above)

### DESIGN SUMMARY

DESIGN SUMMARY					Design UK
Maximum Bending Stress Ratio Section used for this span	=	0.072 1 3.5x9.5	Maximum Shear Stress Ratio Section used for this span	Ξ	0.092:1 3.5x9.5
	=	260.22psi		=	33.39 psi
	=	3,625.00psi		=	362.50 psi
Load Combination Location of maximum on span	=	+D+Lr 1.648ft	Load Combination Location of maximum on span	=	+D+Lr 0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection Max Downward Transient Deflect		0.002 in Ra			
Max Upward Transient Deflection Max Downward Total Deflection	1	0.000 in Ra 0.005 in Ra			
Max Upward Total Deflection		0.000 in Ra			

Load Combination		Max Stres	s Ratios								Moment Values				Shear Va	lues
Segment Length	Span #	М	V	Сd	C <sub>F/V</sub>	Ci	Cr	Cm	C t	CL	М	fb	F'b	V	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 3.50 ft	1	0.064	0.083	0.90	1.000	1.00	1.00	1.00	1.00	1.00	0.73	166.49	2610.00	0.48	21.57	261.00
+D+L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 3.50 ft	1	0.057	0.074	1.00	1.000	1.00	1.00	1.00	1.00	1.00	0.73	166.49	2900.00	0.48	21.57	290.00
+D+Lr					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 3.50 ft	1	0.072	0.092	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.14	260.22	3625.00	0.74	33.39	362.50
+D+0.750Lr+0.750L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 3.50 ft	1	0.065	0.084	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.04	236.74	3625.00	0.67	30.44	362.50
+D+0.750L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 3.50 ft	1	0.050	0.065	1.15	1.000	1.00	1.00	1.00	1.00	1.00	0.73	166.49	3335.00	0.48	21.57	333.50
+0.60D					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00



# Wood Beam Lic. # : KW-06012912

DESCRIPTION: Beam #2 - Stair Headout Bm (3-1/2" x 9-1/2" Parallam)

Load Combination		Max Stres	s Ratios								Mom	ent Values			Shear Va	lues
Segment Length	Span #	М	V	Cd	C <sub>F/V</sub>	C i	Cr	Сm	C t	CL	М	fb	F'b	V	fv	F'v
Length = 3.50 ft	1	0.022	0.028	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.44	99.89	4640.00	0.29	12.94	464.00

### **Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl l	ocation in Span	Load Combination	Max. "+" Defl	Location in Spa
+D+Lr	1	0.0050	1.750		0.0000	0.000
Vertical Reactions			Suppo	rt notation : Far left is #1	Values in KIPS	
Load Combination		Support '	Support 2			
Overall MAXimum		1.17	5 1.235		and a second	
Overall MINimum		0.04	0.473			
D Only		0.70	4 0.763			
+D+L		0.74	4 0.763			
+D+Lr		1.17	5 1.235			
+D+0.750Lr+0.750L		1.08	3 1.117			
+D+0.750L		0.73	4 0.763			
+0.60D		0.42	2 0.458			
Lr Only		0.47	3 0.473			
L Only		0.04	)			



File: 20-3991.ec6

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Andresen Architecture, Inc.

Lic. # : KW-06012912

DESCRIPTION: Beam #3 - Stair Headout Support (3-1/2" x 9-1/2" Parallam)

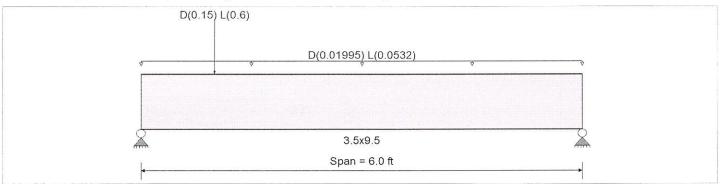
#### CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16 Load Combination Set : IBC 2018

#### **Material Properties**

Analysis Method : Allowable Stress Design	Fb +	2,900.0 psi	E : Modulus of Elas	ticity
Load Combination JBC 2018	Fb -	2,900.0 psi	Ebend- xx	2,000.0ksi
	Fc - Prll	2,900.0 psi	Eminbend - xx	1,016.54 ksi
Wood Species : iLevel Truss Joist	Fc - Perp	750.0 psj		
Wood Grade : Parallam PSL 2.0E	Fv	290.0 psi		
	Ft	2,025.0 psi	Density	45.070 pcf
	Tana tana Ukuwa Libuwa	· · · · · · · · · · · · · · · · · · ·	= =	P

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling



#### **Applied Loads**

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 1.330 ft, (Floor) Point Load : D = 0.150, L = 0.60 k @ 1.0 ft, (Headout Beam)

# DESIGN SUMMARY

DESIGN SUMMARY	<b>U</b> ,				Design OK
Maximum Bending Stress Ratio Section used for this span	= = =	<b>0.064</b> ; 1 <b>3.5x9.5</b> 184.85psi 2,900.00psi	Maximum Shear Stress Ratio Section used for this span	=	<b>0.122</b> : 1 <b>3.5x9.5</b> 35.49 psi 290.00 psi
Load Combination Location of maximum on span Span # where maximum occurs	= =	+D+L 1.292ft Span # 1	Load Combination Location of maximum on span Span # where maximum occurs	=	+D+L 0.000 ft Span # 1
Maximum Deflection Max Downward Transient Defle Max Upward Transient Deflection Max Downward Total Deflection Max Upward Total Deflection	on	0.008 in Ra 0.000 in Ra 0.010 in Ra 0.000 in Ra	tio = 0 <360 tio = 7189 >=180		

### **Maximum Forces & Stresses for Load Combinations**

Load Combination		Max Stres	s Ratios								Mom	nent Values			Shear Va	lues
Segment Length	Span #	М	V	Cd	C <sub>F/V</sub>	Ci	Cr	Сm	C t	CL	М	fb	F'b	٧	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.016	0.029	0.90	1.000	1.00	1.00	1.00	1.00	1.00	0.18	41.13	2610.00	0.17	7.63	261.00
+D+L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.064	0.122	1.00	1.000	1.00	1.00	1.00	1.00	1.00	0.81	184.85	2900.00	0.79	35.49	290.00
+D+0.750L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.041	0.079	1.25	1.000	1.00	1.00	1.00	1.00	1.00	0.65	148.81	3625.00	0.63	28.53	362.50
+0.60D					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.005	0.010	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.11	24.68	4640.00	0.10	4.58	464.00
Overall Maxir	num De	eflectio	ns													
Load Combination		S	pan	Max. "-'	' Defl	Location	n in Span		Load Co	mbination			Max. "+"	Defl	Location in	Span
+D+L			1	0.0	0100		2.781						0.0	000	0.	000

0.0100 2.781 1



File: 20-3991.ec6

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#### Lic. # : KW-06012912

DESCRIPTION: Beam #3 - Stair Headout Support (3-1/2" x 9-1/2" Parallam)

Vertical Reactions		Support notation : Far le	ft is #1 Values in KIPS
Load Combination	Support 1	Support 2	
Overall MAXimum	0.844	0.344	
Overall MINimum	0.660	0.260	
D Only	0.185	0.085	
D Only +D+L	0.844	0.344	
+D+0.750L	0.680	0.280	
+0.60D	0.111	0.051	
L Only	0.660	0.260	



c. # : KW-06012912 DESCRIPTION: Beam #4 - Grid G Joist Bm (5-1/4" x 14" Parallam) CODE REFERENCES alculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16	C, INC. 1983-2020, Build:12.20.5.31 Andresen Architecture, I
Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16	
Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16 Load Combination Set : IBC 2018	
Material Properties	
Analysis Method : Allowable Stress DesignFb +2,900.0 psiE : Modulus ofLoad Combination IBC 2018Fb -2,900.0 psiEbend- xxFc - Pril2,900.0 psiEminbendFc - Pril2,900.0 psiEminbend	k 2,000.0ksi
Wood Species       : iLevel Truss Joist       Fc - Perp       750.0 psi         Wood Grade       : Parallam PSL 2.0E       Fv       290.0 psi         Beam Bracing       : Beam is Fully Braced against lateral-torsional buckling       Ft       2,025.0 psi	45.070pcf
E(5,056) E(-5,056) D(0.1125) L(0.3)	
	\$
Ý         Ý         Ý	
5.25x14.0	
Span = 20.0 ft	31) 
4	

# Applied Loads

Service loads entered. Load Factors will be applied for calculations.

29)

Uniform Load : D = 0.1280 , Tributary Width = 1.0 ft, (Wall) Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 7.50 ft, (Floor) Point Load : E = 5.056 k @ 2.0 ft, (Seismic) Point Load : E = -5.056 k @ 6.50 ft, (Seismic)

# DESIGN SUMMARY

DESIGN SUMMARY					Design OK
Maximum Bending Stress Ratio Section used for this span	=	0.663 1 5.25x14.0	Maximum Shear Stress Ratio Section used for this span	=	0.339:1 5.25x14.0
	=	1,890.96psi		=	98.23 psi
	=	2,850.80psi		=	290.00 psi
Load Combination Location of maximum on span Span # where maximum occurs	= =	+D+L 10.000ft Span # 1	Load Combination Location of maximum on span Span # where maximum occurs	=	+D+L 0.000 ft Span # 1
Maximum Deflection Max Downward Transient Defle Max Upward Transient Deflection Max Downward Total Deflection Max Upward Total Deflection	on	0.452 in Ratio -0.332 in Ratio 0.815 in Ratio -0.020 in Ratio	= 722>=360 = 294>=180		

Load Combination		Max Stres	s Ratios								Moi	ment Values			Shear Va	lues
Segment Length	Span #	М	V	Cd	C <sub>F/V</sub>	Ci	Cr	C <sub>m</sub>	C t	CL	М	fb	F'b	V	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 20.0 ft	1	0.328	0.167	0.90	0.983	1.00	1.00	1.00	1.00	1.00	12.03	841.40	2565.72	2.14	43.71	261.00
+D+L					0.983	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 20.0 ft	1	0.663	0.339	1.00	0.983	1.00	1.00	1.00	1.00	1.00	27.03	1.890.96	2850.80	4.81	98.23	290.00
+D+0.750L					0.983	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 20.0 ft	1	0.457	0.233	1.25	0.983	1.00	1.00	1.00	1.00	1.00	23.28	1,628.57	3563.50	4.15	84.60	362.50
+D+0.70E					0.983	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 20.0 ft	1	0.090	0.129	1.60	0.983	1.00	1.00	1.00	1.00	1.00	5.89	411.82	4561.28	2.94	59.96	464.00
+D+0.750L+0.5250E					0.983	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 20.0 ft	1	0.271	0.209	1.60	0.983	1.00	1.00	1.00	1.00	1.00	17.69	1.237.47	4561.28	4.74	96.79	464.00
+0.60D					0.983	1.00	1.00	1.00	1.00	1.00		823	0.00	0.00	0.00	0.00

# Wood Beam Lic. # : KW-06012912

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(25)05

DESCRIPTION: Beam #4 - Grid G Joist Bm (5-1/4" x 14" Parallam)

Load Combination		Max Stress	s Ratios								Mom	nent Values			Shear Va	lues
Segment Length	Span #	М	V	Сd	C <sub>F/V</sub>	Ci	Cr	Cm	C t	CL	М	fb	F'b	V	fv	F'v
Length = 20.0 ft +0.60D+0.70E	1	0.111	0.057	1.60	0.983	1.00 1.00	1.00 1.00	1.00 1.00	1.00	1.00 1.00	7.22	504.84	4561.28 0.00	1.29 0.00	26.22 0.00	464.00 0.00
Length = 20.0 ft	1	0.068	0.098	1.60	0.983	1.00	1.00	1.00	1.00	1.00	4.41	308.64	4561.28	2.24	45.66	464.00

#### **Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in	Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.8151	10.0	73		0.0000	0.000
Vertical Reactions				Support	notation : Far left is #1	Values in KIPS	
Load Combination		Suppo	ort 1 Suppo	rt 2		Mathing	ing taken refering to
Overall MAXimum		5.	.405 5.4	405			
Overall MINimum		1.	.138 -1.1	138			
D Only		2.	.405 2.4	405			
+D+L		5.	.405 5.4	105			
+D+0.750L		4.	.655 4.6	655			
+D+0.70E		3.	.201 1.6	609			
+D+0.750L+0.5250E		5.	.252 4.0	)58			
+0.60D		1.	.443 1.4	143			
+0.60D+0.70E		2.	.239 0.6	647			
L Only		3.	.000 3.0	000			
E Only		1.	.138 -1.1	138			

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#### Lic. # : KW-06012912

DESCRIPTION: Beam #5 - Porch Bms (4 x 6 DF #2)

### CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16 Load Combination Set : IBC 2018

#### **Material Properties**

Analysis Methor Load Combinati	d : Allowable Stress Design on IBC 2018	Fb + Fb -	875 psi 875 psi	E : Modulus of Elastic Ebend- xx	ty 1300ksi
		Fc - Prll	600 psi	Eminbend - xx	470ksi
Wood Species Wood Grade	: Douglas Fir-Larch : No.2	Fc - Perp Fv	625 psi 170 psi		
WOOD OTable	. 110.2	Ft	425 psi	Density	31.21 pcf
Beam Bracing	: Beam is Fully Braced against lateral-t	orsional buckling		,	

	\$ D(0.08) Lr(0.08)	¢	
2	4x6		5
ħ			(++
	Span = 6.0 ft		

Applied Loads	Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.020,	Lr = 0.020 ksf,	Tributary Width = 4.0 ft, (Roof)
---------------------------	-----------------	----------------------------------

DESIGN SUMMARY					Design OK
Maximum Bending Stress Ratio Section used for this span	=	0.344 1 4x6	Maximum Shear Stress Ratio Section used for this span	=	0.150:1 4x6
	=	489.63psi		=	31.94 psi
	=	1,421.88psi		=	212.50 psi
Load Combination Location of maximum on span Span # where maximum occurs	=	+D+Lr 3.000ft Span # 1	Load Combination Location of maximum on span Span # where maximum occurs		+D+Lr 0.000 ft Span # 1
Maximum Deflection Max Downward Transient Deflect Max Upward Transient Deflection Max Downward Total Deflection Max Upward Total Deflection	n	0.037 in Ratic 0.000 in Ratic 0.074 in Ratic 0.000 in Ratic	0 = 0 <360 0 = 967 >=180		

Load Combination		Max Stres	s Ratios								Mom	ent Values			Shear Va	lues
Segment Length	Span #	М	V	Cd	C <sub>F/V</sub>	Ci	Cr	Cm	C t	CL	М	fb	F'b	V	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.239	0.104	0.90	1.300	1.00	1.00	1.00	1.00	1.00	0.36	244.82	1023.75	0.20	15.97	153.00
+D+Lr					1.300	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.344	0.150	1.25	1.300	1.00	1.00	1.00	1.00	1.00	0.72	489.63	1421.88	0.41	31.94	212.50
+D+0.750Lr					1.300	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.301	0.132	1.25	1.300	1.00	1.00	1.00	1.00	1.00	0.63	428.43	1421.88	0.36	27.95	212.50
+0.60D					1.300	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.081	0.035	1.60	1.300	1.00	1.00	1.00	1.00	1.00	0.22	146.89	1820.00	0.12	9.58	272.00
Overall Maxir	num De	eflectio	ns													
Load Combination		S	Span	Max. "-"	' Defl	Location	n in Span		Load Co	mbination	1		Max. "+"	Defl I	_ocation in	Span
+D+Lr			1	0.0	)744		3.022						0.0	000	0.	000



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#### Lic. # : KW-06012912

DESCRIPTION: Beam #5 - Porch Bms (4 x 6 DF #2)

Vertical Reactions		Support notation : Far left is	#1 Values in KIPS
Load Combination	Support 1	Support 2	
Overall MAXimum	0.480	0.480	
Overall MINimum	0.240	0.240	
D Only	0.240	0.240	
D Only +D+Lr	0.480	0.480	
+D+0.750Lr	0.420	0.420	
+0.60D	0.144	0.144	
Lr Only	0.240	0.240	



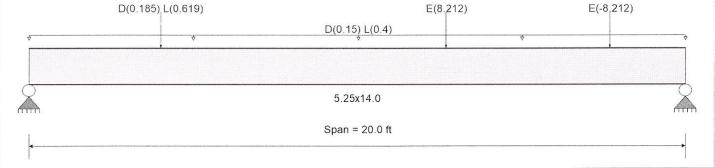
# Lic. # : KW-06012912 DESCRIPTION: Beam #6 - Main Gar. Bm. (5-1/4" x 14" Parallam) CODE REFERENCES Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16 Load Combination Set : IBC 2018

#### **Material Properties**

Wood Beam

Analysis Method	: Allowable Stress Design	Fb +	2,900.0 psi	E : Modulus of Elasi	ticity
Load Combinatio		Fb - Fc - Prll	2,900.0 psi 2,900.0 psi	Ebend- xx Eminbend - xx	2,000.0ksi 1,016.54ksi
Wood Species Wood Grade	: iLevel Truss Joist : Parallam PSL 2.0E	Fc - Perp Fv Ft	750.0 psi 290.0 psi 2,025.0 psi	Density	45.070 pcf
Beam Bracing	: Beam is Fully Braced against lateral	-torsional buckling	, F	Donony	



# **Applied Loads**

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 10.0 ft, (Floor) Point Load : D = 0.1850, L = 0.6190 k @ 4.0 ft, (Beam #3) Point Load : E = 8.212 k @ 12.670 ft, (Seismic) Point Load : E = -8.212 k @ 17.670 ft, (Seismic)

# DESIGN SUMMARY

DESIGN SUMMART					Design OK
Maximum Bending Stress Ratio	=	0.715 1	Maximum Shear Stress Ratio	=	<b>0.390</b> : 1
Section used for this span		5.25x14.0	Section used for this span		5.25x14.0
	=	2,038.36psi		=	113.08 psi
	=	2,850.80psi		=	290.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	9.708 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflect	tion	0.646 in Rat	io = 371 >=360		
Max Upward Transient Deflection	ı	0.000 in Rat	io = 0 <360		
Max Downward Total Deflection		1.014 in Rat	io = 236 >=180		
Max Upward Total Deflection		0.000 in Rat	io = 0 <180		

# **Maximum Forces & Stresses for Load Combinations**

Load Combination Max Stress Ratios			s Ratios								Mor	ment Values			Shear Values		
Segment Length	Span #	М	V	Cd	C <sub>F/V</sub>	Сi	Cr	C <sub>m</sub>	C t	CL	М	fb	F'b	V	fv	F'v	
D Only													0.00	0.00	0.00	0.00	
Length = 20.0 ft	1	0.215	0.116	0.90	0.983	1.00	1.00	1.00	1.00	1.00	7.87	550.99	2565.72	1.48	30.28	261.00	
+D+L					0.983	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 20.0 ft	1	0.715	0.390	1.00	0.983	1.00	1.00	1.00	1.00	1.00	29.13	2,038.36	2850.80	5.54	113.08	290.00	
+D+0.750L					0.983	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 20.0 ft	1	0.468	0.255	1.25	0.983	1.00	1.00	1.00	1.00	1.00	23.82	1,666.51	3563.50	4.53	92.38	362.50	
+D+0.70E					0.983	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 20.0 ft	1	0.390	0.242	1.60	0.983	1.00	1.00	1.00	1.00	1.00	25.40	1,777.41	4561.28	5.50	112.20	464.00	
+D+0.750L+0.5250E					0.983	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 20.0 ft	1	0.546	0.300	1.60	0.983	1.00	1.00	1.00	1.00	1.00	35.58	2,489.23	4561.28	6.81	139.03	464.00	
+0.60D					0.983	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	



File: 20-3991.ec6

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Design OK

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Lic. # : KW-06012912

## DESCRIPTION: Beam #6 - Main Gar. Bm. (5-1/4" x 14" Parallam)

Load Combination		Max Stres	s Ratios								Mor	ment Values			Shear Va	lues
Segment Length	Span #	М	V	Cd	C <sub>F/V</sub>	Сi	Cr	C <sub>m</sub>	C t	CL	М	fb	F'b	V	fv	F'v
Length = 20.0 ft +0.60D+0.70E	1	0.072	0.039	1.60	0.983	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	4.72	330.59	4561.28 0.00	0.89 0.00	18.17 0.00	464.00 0.00
Length = 20.0 ft	1	0.345	0.221	1.60	0.983	1.00	1.00	1.00	1.00	1.00	22.50	1,574.36	4561.28	5.02	102.52	464.00

#### **Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in 3	Span I	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.5250E	1	1.0141	10.07	3		0.0000	0.000
Vertical Reactions				Support not	ation : Far left is #1	Values in KIPS	
Load Combination		Suppo	ort 1 Suppor	t 2			
Overall MAXimum		6.	.143 5.6	61			
Overall MINimum		2.	.053 -2.0	53			
D Only		1.	.648 1.5	37			
+D+L		6.	.143 5.6	61			
+D+0.750L		5.	.019 4.6	30			
+D+0.70E		3.	.085 0.1	00			
+D+0.750L+0.5250E		6.	.097 3.5	52			
+0.60D		0.	.989 0.9	22			
+0.60D+0.70E		2.	.426 -0.5	15			
L Only		4.	.495 4.1	24			
E Only		2.	.053 -2.0	53			



oug.andresen@aaifirm.com				File: 20-3991.e
Nood Beam		Software	copyright ENERCALC, INC. 19	83-2020, Build:12.20.5
.ic. # : KW-06012912 DESCRIPTION: Beam #7 - Gar Dr Hdr (4 x 12 DF #1)			Andr	esen Architecture
CODE REFERENCES				
Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE .oad Combination Set : IBC 2018	7-16			
Material Properties				
Analysis Method : Allowable Stress Design Load Combination JBC 2018	Fb + Fb - Fc - Prll	1,350.0 psi 1,350.0 psi 925.0 psi	E : Modulus of Elasti Ebend- xx Eminbend - xx	city 1,600.0ksi 580.0ksi
Wood Species : Douglas Fir-Larch Wood Grade : No.1	Fc - Perp Fv Ft	625.0 psi 170.0 psi 675.0 psi	Density	31.210pcf
Beam Bracing : Beam is Fully Braced against lateral-tors		01 010 poi	Density	01.210.00
	D(0.04) Lr(0.04)		¢	7
	4x12			$\geq$
	Span = 16.0 ft			

Applied Loads	Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.020, Lr = 0.020 ksf, Tributary Width = 2.0 ft, (Roof)

DESIGN SUMMARY					Design OK
Maximum Bending Stress Ratio Section used for this span	=	0.224: 1 4x12	Maximum Shear Stress Ratio Section used for this span	=	0.101:1 4x12
	=	416.10psi		=	21.53 psi
	=	1,856.25psi		=	212.50 psi
Load Combination Location of maximum on span Span # where maximum occurs	=	+D+Lr 8.000ft Span # 1	Load Combination Location of maximum on span Span # where maximum occurs	= =	+D+Lr 15.066 ft Span # 1
Maximum Deflection Max Downward Transient Deflect Max Upward Transient Deflection Max Downward Total Deflection Max Upward Total Deflection	'n	0.089 in Rati 0.000 in Rati 0.179 in Rati 0.000 in Rati	io = 0 <360 io = 1075 >=180		

Load Combination		Max Stres	s Ratios								Morr	nent Values			Shear Va	lues
Segment Length	Span #	М	V	Cd	C <sub>F/V</sub>	Ci	Cr	Cm	C t	CL	М	fb	F'b	٧	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 16.0 ft	1	0.156	0.070	0.90	1.100	1.00	1.00	1.00	1.00	1.00	1.28	208.05	1336.50	0.28	10.77	153.00
+D+Lr					1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 16.0 ft	1	0.224	0.101	1.25	1.100	1.00	1.00	1.00	1.00	1.00	2.56	416.10	1856.25	0.57	21.53	212.50
+D+0.750Lr					1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 16.0 ft	1	0.196	0.089	1.25	1.100	1.00	1.00	1.00	1.00	1.00	2.24	364.09	1856.25	0.49	18.84	212.50
+0.60D					1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 16.0 ft	1	0.053	0.024	1.60	1.100	1.00	1.00	1.00	1.00	1.00	0.77	124.83	2376.00	0.17	6.46	272.00
<b>Overall Maxin</b>	num De	flectio	ns													
Load Combination		S	pan	Max. "-"	Defl	Location	n in Span		Load Co	mbinatior	ı		Max. "+"	Defl I	Location in	Span
+D+Lr			1	0.1	786		8.058						0.0	000	0.	000



Lic. # : KW-06012912

File: 20-3991.ec6 Software copyright ENERCALC, INC. 1983-2020, Build:12.20.5.31 Andresen Architecture, Inc.

# DESCRIPTION: Beam #7 - Gar Dr Hdr (4 x 12 DF #1)

Vertical Reactions		Support no	otation : Far left is #1	Values in KIPS	
Load Combination	Support 1	Support 2			
Overall MAXimum	0.640	0.640			
Overall MINimum	0.320	0.320			
D Only	0.320	0.320			
D Only +D+Lr	0.640	0.640			
+D+0.750Lr	0.560	0.560			
+0.60D	0.192	0.192			
Lr Only	0.320	0.320			



## General Footing Lic. # : KW-06012912

File: 20-3991.ec6 Software copyright ENERCALC, INC. 1983-2020, Build:12.20.5.31 Andresen Architecture, Inc.

32)

# DESCRIPTION: Ftg. #1 - Bm6 Each End (2'-3" Sq x 18" Dp. W/(5) #4 Bars Each Way)

#### Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16 Load Combinations Used : IBC 2018

# **General Information**

	No	length or width is greater than	=	ksf ft
2.250 ft 2.250 ft 18.0 in in in 3.0 in	x .52	Ζ	X	
5		Z 2:3"	е Ц	
5 # 4 # 4 n/a n/a	5 - #4 Bars		a reas	
	2.250 ft 18.0 in in in 3.0 in # 4 # 4 # 4 # 4 # 4 # 4	2.250 ft 18.0 in in in in 3.0 in $\frac{x}{2}$ x	2.250 ft 18.0 in in in in 3.0 in $\frac{x}{2}$ $\frac{x}{2}$	2.250 ft 18.0 in in in in 3.0 in

#### **Applied Loads**

		D	Lr	L	S	W	E	Н
P : Column Load OB : Overburden	= =	1.648	4.495	0.0			2.053	k ksf
M-xx M-zz	=							k-ft k-ft
V-x V-z	=							k k
								-

# **General Footing**

# Lic. # : KW-06012912

# File: 20-3991.ec6 Software copyright ENERCALC, INC. 1983-2020, Build:12.20.5.31 Andresen Architecture, Inc.

# DESCRIPTION: Ftg. #1 - Bm6 Each End (2'-3" Sq x 18" Dp. W/(5) #4 Bars Each Way)

## DESIGN SUMMARY

DESIGN	SUMMARY				Design OK
	Min. Ratio	ltem	Applied	Capacity	Governing Load Combination
PAS	<b>S</b> 0.9540	Soil Bearing	1.431 ksf	1.50 ksf	+D+Lr about Z-Z axis
PAS	s n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PAS	s n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PAS	s n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PAS	s n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	s n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	<b>S</b> 0.03959	Z Flexure (+X)	1.146 k-ft/ft	28.954 k-ft/ft	+1.20D+1.60Lr
PAS	<b>S</b> 0.03959	Z Flexure (-X)	1.146 k-ft/ft	28.954 k-ft/ft	+1.20D+1.60Lr
PASS	<b>S</b> 0.03959	X Flexure (+Z)	1.146 k-ft/ft	28.954 k-ft/ft	+1.20D+1.60Lr
PASS	<b>S</b> 0.03959	X Flexure (-Z)	1.146 k-ft/ft	28.954 k-ft/ft	+1.20D+1.60Lr
PASS	s n/a	1-way Shear (+X)	0.0 psi	75.0 psi	n/a
PASS	<b>S</b> 0.0	1-way Shear (-X)	0.0 psi	0.0 psi	n/a
PASS	S n/a	1-way Shear (+Z)	0.0 psi	75.0 psi	n/a
PASS	s n/a	1-way Shear (-Z)	0.0 psi	75.0 psi	n/a
PASS	s n/a	2-way Punching	6.993 psi	75.0 psi	+1.20D+1.60Lr
Detailed	Results				

#### Soil Bearing

Soil Bearing								
Rotation Axis &	~	Xecc	Zecc	Ac	tual Soil Bearin	ng Stress @ Loo	ation	Actual / Allow
Load Combination	Gross Allowabl	е	(in)	Bottom, -2	Z Top, +Z	Left, -X	Right, +X	Ratio
X-X, D Only	1.50	n/a	0.0	0.5430		n/a	n/a	0.362
X-X, +D+Lr	1.50	n/a	0.0	1.43	1.431	n/a	n/a	0.954
X-X, +D+0.750Lr	1.50	n/a	0.0	1.209	1.209	n/a	n/a	0.806
X-X, +D+0.70E	1.50	n/a	0.0	0.8269		n/a	n/a	0.551
X-X, +D+0.5250E	1.50	n/a	0.0	0.7559		n/a	n/a	0.504
X-X, +0.60D	1.50	n/a		0.3258		n/a	n/a	0.217
X-X, +0.60D+0.70E	1.50	n/a		0.6097	0.6097	n/a	n/a	0.407
Z-Z, D Only	1.50	0.0		n/a		0.5430	0.5430	0.362
Z-Z, +D+Lr	1.50	0.0		n/a		1.431	1.431	0.954
Z-Z, +D+0.750Lr	1.50	0.0		n/a		1.209	1.209	0.806
Z-Z, +D+0.70E	1.50	0.0		n/a		0.8269	0.8269	0.551
Z-Z, +D+0.70E Z-Z, +D+0.5250E	1.50	0.0		n/a		0.7559	0.7559	0.504
Z-Z, +D+0.3230E Z-Z, +0.60D						0.3258	0.3258	0.504
	1.50	0.0		n/a				
Z-Z, +0.60D+0.70E	1.50	0.0	n/a	n/a	n n/a	0.6097	0.6097	0.407
Overturning Stability								
Rotation Axis &			272					
Load Combination		Overturni	ng Moment		Resisting Mo	oment St	ability Ratio	Status
Footing Has NO Overturning								
Sliding Stability							/	All units k
Force Application Axis Load Combination		Slidin	g Force		Resisting F	orce St	ability Ratio	Status
Footing Has NO Sliding Footing Flexure								
Flexure Axis & Load Combination	Mu k-ft		ension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X. +1.40D	0.2884	+Z B	ottom	0.3888	Min Temp %	0.4444	28.954	ОК
X-X, +1,40D	0.2884		ottom		Min Temp %	0.4444	28.954	OK
X-X, +1.20D+0.50Lr	0.5281	+7 B	ottom	0.3888	Min Temp %	0.4444	28.954	OK
X-X, +1.20D+0.50Lr	0.5281		ottom		Min Temp %	0.4444	28.954	ŌK
X-X, +1.20D	0.2472		ottom		Min Temp %	0.4444	28.954	ÖK
X-X. +1.20D X-X. +1.20D	0.2472		ottom		Min Temp %	0.4444	28.954	ÖK
X-X, +1.20D+1.60Lr	1.146		ottom		Min Temp %	0.4444	28.954	OK
	1.146					0.4444	28.954	OK
X-X. +1.20D+1.60Lr			ottom	0.3000	Min Temp %		20.904	
X-X. +1.20D+E	0.5038		ottom		Min Temp %	0.4444	28.954	OK
X-X. +1.20D+E	0.5038	-Z B	ottom	0.3888	Min Temp %	0.4444	28.954	OK



## **General Footing** Lic. # : KW-06012912

File: 20-3991.ec6

Software copyright ENERCALC, INC. 1983-2020, Build:12.20.5.31 Andresen Architecture, Inc.

DESCRIPTION: Ftg. #1 - Bm6 Each End (2'-3" Sq x 18" Dp. W/(5) #4 Bars Each Way)

#### **Footing Flexure**

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual in^2		*Mn -ft	Status
X-X, +0.90D	0.1854	+Z	Bottom	0.3888	Min Temp %	0.444	4 2	28.954	ОК
X-X. +0.90D	0.1854	-Z	Bottom	0.3888	Min Temp %	0.444	4 2	28.954	OK
X-X. +0.90D+E	0.4420	+Z	Bottom	0.3888	Min Temp %		4 2	28.954	OK
X-X, +0.90D+E	0.4420	-Z	Bottom	0.3888	Min Temp %	0.444	4 2	28.954	OK
Z-Z. +1.40D	0.2884	-X	Bottom	0.3888	Min Temp %			28.954	OK
Z-Z, +1.40D	0.2884	+X	Bottom	0.3888	Min Temp %	0.444	4 2	28.954	OK
Z-Z, +1.20D+0.50Lr	0.5281	-X	Bottom	0.3888	Min Temp %	0.444	4 2	28.954	OK
Z-Z. +1.20D+0.50Lr	0.5281	+X	Bottom	0.3888	Min Temp %		4 2	28.954	OK
Z-Z, +1.20D	0.2472	-X	Bottom	0.3888	Min Temp %			28.954	OK
Z-Z. +1.20D	0.2472	+X	Bottom	0.3888	Min Temp %			28.954	OK
Z-Z, +1.20D+1.60Lr	1.146	-X	Bottom	0.3888	Min Temp %			28.954	OK
Z-Z, +1.20D+1.60Lr	1.146	+X	Bottom	0.3888	Min Temp %			28.954	OK
Z-Z, +1.20D+E	0.5038	-X	Bottom	0.3888	Min Temp %			28.954	OK
Z-Z, +1.20D+E	0.5038	+X	Bottom	0.3888	Min Temp %			28.954	OK
Z-Z, +0.90D	0.1854	-X	Bottom	0.3888	Min Temp %		4 2	28.954	OK
Z-Z, +0.90D	0.1854	+X	Bottom	0.3888	Min Temp %		4 2	28.954	OK
Z-Z, +0.90D+E	0.4420	-X	Bottom	0.3888	Min Temp %			28.954	OK
Z-Z, +0.90D+E One Way Shear	0.4420	+Χ	Bottom	0.3888	Min Temp %	0.444	4 2	28.954	OK
Load Combination	Vu @ -X	Vu@	+X Vι	ι@-Ζ Vι	u @ +Z	Vu:Max	Phi Vn 🕔	/u / Phi*Vn	Status
+1.40D	0.00 ps	i	0.00 psi	0.00 psi	0.00 psi	0.00 psi	75.00 psi	0.00	OK
+1.20D+0.50Lr	ad 00.0	i	0.00 psi	0.00 psi	0.00 psi	0.00 psi	75.00 psi	0.00	OK
+1.20D	0.00 ps	i	0.00 psi	0.00 psi	0.00 psi	0.00 psi	75.00 psi	0.00	OK
+1.20D+1.60Lr	0.00 ps		0.00 psi	0.00 psi	0.00 psi	0.00 psi	75.00 psi	0.00	OK
+1.20D+E	0.00 ps		0.00 psi	0.00 psi	0.00 psi	0.00 psi	75.00 psi		OK
+0.90D	0.00 ps		0.00 psi	0.00 psi	0.00 psi	0.00 psi	75.00 psi	0.00	OK
+0.90D+E	0.00 ps		0.00 psi	0.00 psi	0.00 psi	0.00 psi	75.00 psi	0.00	OK
Two-Way "Punching" Shear	0.00 20		0.00 001	0.00 001	0.00 001	0.00 001		All units	
Load Combination		Vu		Phi*Vn		Vu / Phi*Vn			Status
+1.40D +1.20D+0.50Lr +1.20D +1.20D+1.60Lr +1.20D+E +0.90D +0.90D+E		3.2 1.5 6.9 3.0 1.1	6 psi 2 psi 1 psi 9 psi 7 psi 3 psi 0 psi	150.00 150.00 150.00 150.00 150.00 150.00 150.00 150.00	) psi ) psi ) psi ) psi ) psi	0.01173 0.02148 0.01006 0.04662 0.02049 0.007541 0.01798			OK OK OK OK OK

Combined Footing								Projec	t File: 20-	3991.ec6
LIC# : KW-06017922, Build:20.22.3.3				en Architec		) /// / // #5 Dama 7		• •	RCALC INC	C 1983-2022
DESCRIPTION: Ftg. #2	- Gria G Gr	ade B	eam (36° W	X 18" L	0. X 78" L	. VV/ (4) #5 Bars	I OP & E	sot.)		
Code References										
Calculations per ACI 318-14, Load Combinations Used : IE		CBC 20	19, ASCE 7-	16						
General Information										
Material Properties						sign Settings			N	
f'c : Concrete 28 day strength fy : Rebar Yield			2.50 ksi 60.0 ksi			poting weight as dead Pedestal weight as de		,	Yes No	
Ec : Concrete Elastic Modulus	s	3,1	122.0 ksi			6 Bending Reinf (bas			110	
Concrete Density			145.0 pcf			6 Temp Reinf (based	on thick)	)	0.00	
() · · · · · · · · · · · · · · · · · · ·	lexure : Shear :		0.90 ).750			Irning Safety Factor Safety Factor				1.0: 1 1.0: 1
Soil Information					-					
Allowable Soil Bearing	1.211 a		1.50 ksf		earing Inci ng base de	rease opth below soil surfac	е		2.0 f	t
Increase Bearing By Footing We	light	-	No No	Incre	ases based	d on footing Depth			100.00	->
Soil Passive Sliding Resistance (Uses entry for "Footing	hase denth h		250.0 pcf il surface" for fi			ressure increase per of footing is below	foot		0.30 k 1.0 f	
Coefficient of Soil/Concrete Frict			0.30	Incre	ases based	d on footing Width			1.01	<b>.</b>
Coefficient of Soli/Concrete Filte	1011		0.30	A	Allowable p	ressure increase per num length or width is	foot	tha	0.30 k 1.0 ft	
						ed Bearing Pressure	sgreater	uia	10.0 k	
				(	A value of	zero implies no limit)				
						ble Soil Bearing Soil Bearing adjusted	for footin	na weiah	3.450 k	st
					lepth & wid	Ith increases as spec	ified by u	iser.)	c unu	
Dimensions & Reinforcing	3									
Distance Left of Column #1	= 2.:	250 ft	Pedestal dime	nsions		Bars left of Col #1	Count	Size #	As Provided	As Req'd
Between Columns Distance Right of Column #2		2.0 ft 250 ft		Col #1	Col #2	Bottom Bars	4.0	5	1.240	1.166 in^2
Total Footing Length	The second se	5.50 ft	Sq. Dim. =	12.0	12.0 in	Top Bars	4.0	5	1.240	0.0 in^2
Footing Width	=	3.0 ft	Height =		in	Bars Btwn Cols Bottom Bars	4.0	5	1.240	1.166 in^2
Footing Thickness	= 1	8.0 in				Top Bars	4.0	5	1.240	1.166 in^2
Rebar Center to Concrete Edg	је @ Тор	=	= 3.0 ir	li i		Bars Right of Col # Bottom Bars	<b>≠2</b> 4.0	5	1.240	1.166 in^2
Rebar Center to Concrete Edg	e @ Bottom	=	= 3.0 ir			Top Bars	4.0	5	1.240	1.166 in^2
Applied Loads										
Applied @ Left Column Axial Load Downward	D	1.0	Lr 1.0	L	S	W	E 9.602	)	H k	
Moment (+CW)	=	1.0	1.0						k-1	ft
Shear (+X)	=						1.365	5	k	
Applied @ Right Column Axial Load Downward	=	1.0	1.0				-9.602	,	k	
Moment (+CW)	=		1.0						k-1	ft
Shear (+X)	=						1.365	5	k	
Overburden	=		2'-3"							
	. 2-0		2-2	1,						
						Constant Sector				
							-			
4.#5	4-#8		4-#5	30-	1.0					
<b>9</b>	4#5									1'-6
4#8			- 4.#5							ال
						2'-3"	2'-0"	2'-3"		
							6'-6"			
	6'-6"									



Andresen Architecture, Inc.

## **Combined Footing**

LIC# : KW-06017922, Build:20.22.3.31

Project File: 20-3991.ec6

(c) ENERCALC INC 1983-2022

DESCRIPTION: Ftg. #2 - Grid G Grade Beam (36" W. x 18" D. x 78" L. W/ (4) #5 Bars Top & Bot.)

Fact	or of Safety	/ Item	Applied	Capacity	Governing Load Combination
PASS	1.056	Overturning	28.566 k-ft	30.160 k-ft	+0.60D+0.70E
PASS	1.324	Sliding	1.911 k	2.530 k	+0.60D+0.70E
PASS	1.557	Uplift	6.721 k	10.466 k	+0.60D+0.70E
Utiliz	zation Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.5630	Soil Bearing	1.942 ksf	3.450 ksf	+0.60D+0.70E
PASS	0.1677	1-way Shear - Col #1	12.581 psi	75.0 psi	+0.90D+E
PASS	0.1677	1-way Shear - Col #2	12.580 psi	75.0 psi	+0.90D+E
PASS	0.04538	2-way Punching - Col #1	6.806 psi	150.0 psi	+0.90D+E
PASS	0.04933	2-way Punching - Col #2	7.399 psi	150.0 psi	+1.20D+E
PASS	No Bendinc	Flexure - Left of Col #1 - Top	0.0 k-ft	0.0 k-ft	N/A
	0.07078	Flexure - Left of Col #1 - Bottom	5.732 k-ft	80.987 k-ft	+0.90D+E
PASS	0.009004	Flexure - Between Cols - Top	-0.7292 k-ft	80.987 k-ft	+1.20D+E
PASS	0.08390	Flexure - Between Cols - Bottom	6.795 k-ft	80.987 k-ft	+0.90D+E
PASS	0.01462	Flexure - Right of Col #2 - Top	-1.184 k-ft	80.987 k-ft	+1.20D+E
PASS	0.01608	Flexure - Right of Col #2 - Bottom	1.302 k-ft	80.987 k-ft	+1.20D+1.60Lr

#### **Soil Bearing**

		Eccentricity	Actual Soil Bea	aring Stress	A	ctual / Allow
Load Combination	Total Bearing	from Ftg CL	@ Left Edge	@ Right Edge	Allowable	Ratio
D Only	6.24 k	0.000 ft	0.32 ksf	0.32 ksf	3.45 ksf	0.093
+D+Lr	8.24 k	0.000 ft	0.42 ksf	0.42 ksf	3.45 ksf	0.123
+D+0.750Lr	7.74 k	0.000 ft	0.40 ksf	0.40 ksf	3.45 ksf	0.115
+D+0.70E	6.24 k	-1.695 ft	0.89 ksf	0.00 ksf	3.45 ksf	0.258
+D+0.5250E	6.24 k	-1.271 ft	0.70 ksf	0.00 ksf	3.45 ksf	0.203
+0.60D	3.74 k	0.000 ft	0.19 ksf	0.19 ksf	3.45 ksf	0.056
+0.60D+0.70E	3.74 k	-2.824 ft	1.94 ksf	0.00 ksf	3.45 ksf	0.563

#### **Overturning Stability**

+D+0.5250E

+0.60D

	Vion	nents about Left Edg	ge k-ft	lome	ents about Right Edg	k-ft
Load Combination	Overturning	Resisting	Ratio	Overturning	Resisting	Ratio
D Only	0.00	0.00	999.000	0.00	0.00	999.000
+D+Lr	0.00	0.00	999.000	0.00	0.00	999.000
+D+0.750Lr	0.00	0.00	999.000	0.00	0.00	999.000
+D+0.70E	28.57	38.27	1.340	17.99	48.85	2.715
+D+0.5250E	21.42	33.78	1.577	13.49	41.71	3.091
+0.60D	0.00	0.00	999.000	0.00	0.00	999.000
+0.60D+0.70E	28.57	30.16	1.056	17.99	40.74	2.264
liding Stability						
Load Combination		Sliding Force	Resistin	g Force	Sliding SafetyRatio	
D Only		0.00 k		3.28 k	999	
+D+Lr		0.00 k	:	3.88 k	999	
+D+0.750Lr		0.00 k		3.73 k	999	
+D+0.70E		1.91 k		3.28 k	1.716	

1.43 k

0.00 k

+0.60D+0.70E 1.91 k Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination	Mu	Distance from left	Tension Side	As Reg'd	Governed by	Actual As	Phi*Mn	Mu / PhiMr
	(ft-k)	(ft)	Jue	(in^2)	Jy	(in^2)	(ft-k)	
+0.60D+0.70E	0.000	0.000	0	0.000	0	0.000	0.000	0.000
+0.60D+0.70E	0.000	0.016	0	0.000	0	0.000	0.000	0.000
+0.60D+0.70E	0.000	0.033	0	0.000	0	0.000	0.000	0.000
+0.60D+0.70E	0.000	0.049	0	0.000	0	0.000	0.000	0.000
+0.90D+E	0.013	0.065	Bottom	1.166	Min Temp %	1.240	80.987	0.000
+0.90D+E	0.020	0.081	Bottom	1.166	Min Temp %	1.240	80.987	0.000

3.28 k

2.53 k

2.53 k

2.288

999

1.324



# **Combined Footing**

Project File: 20-3991.ec6

LIC# : KW-06017922, Build:20.22.3.31

Andresen Architecture, Inc.

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DESCRIPTION: Ftg. #2 - Grid G Grade Beam (36" W. x 18" D. x 78" L. W/ (4) #5 Bars Top & Bot.)

## Z-Axis Footing Flexure - Maximum Values for Load Combination

		Distance	Tension						
Load Combination	Mu	from left	Side	As Req'd	by	Actual As	Phi*Mn	Mu / PhiM	
	(ft-k)	(ft)		(in^2)		(in^2)	(ft-k)		
+1.20D+1.60Lr	0.029	6.240	Bottom	1.166	Min Temp %	1.240	80.987	0.00	
+1.20D+1.60Lr	0.026	6.256	Bottom	1.166	Min Temp %	1.240	80.987	0.00	
+1.20D+1.60Lr	0.022	6.272	Bottom	1.166	Min Temp %	1.240	80.987		
+1.20D+1.60Lr	0.019	6.289	Bottom	1.166	Min Temp %	1.240	80.987	0.00	
+1.20D+1.60Lr	0.016	6.305	Bottom	1.166	Min Temp %	1.240	80.987	0.00	
+1.20D+1.60Lr	0.014	6.321	Bottom	1.166	Min Temp %	1.240	80.987	0.00	
+1.20D+1.60Lr	0.011	6.337	Bottom	1.166	Min Temp %	1.240	80.987	0.00	
+1.20D+1.60Lr	0.000	6.354	0	0.000	0	0.000	0.000		
+1.20D+1.60Lr	0.000	6.370	0	0.000	0	0.000	0.000	0.00	
+1.20D+1.60Lr	0.000	6.386	0	0.000	0	0.000	0.000		
+1.20D+1.60Lr	0.000	6.402	0	0.000	0	0.000	0.000		
+1.20D+1.60Lr	0.000	6.419	0	0.000	0	0.000	0.000		
+1.20D+1.60Lr	0.000	6.435	0	0.000	0	0.000	0.000		
+1.20D+1.60Lr	0.000	6.451	0	0.000	0	0.000	0.000		
+1.20D+1.60Lr	0.000	6.467	0	0.000	0	0.000	0.000		
+1.20D+1.60Lr	0.000	6.484	0	0.000	0	0.000	0.000		
+1.20D+1.60Lr	0.000	6.500	0	0.000	0	0.000	0.000	0.00	
ne Way Shear					Punching S	Shear			
Load Combination	Phi Vn	vu @ Col #1		vu @ Col #2	Phi Vn	vu @ Col	#1 vu	vu @ Col #2	
+1.40D	75.00 psi	0.41 psi		0.41 psi	150.00 ps	i 0.41 ps	si	0.41 psi	
+1.20D+0.50Lr	75.00 psi			0.49 psi	150.00 ps	i 0.50 ps	si	0.50 psi	
+1.20D	75.00 psi	0.35 psi		0.35 psi	150.00 ps	i 0.35 ps	si	0.35 psi	
+1.20D+1.60Lr	75.00 psi			0.81 psi	150.00 ps	o		0.82 psi	
+1.20D+E	75.00 psi			11.05 psi	150.00 ps			7.40 psi	
+0.90D	75.00 psi			0.26 psi	150.00 ps			0.26 psi	
+0.90D+E	75.00 psi			12.58 psi	150.00 ps	a same ana anti-		7.09 psi	

