

# ALLEY ADU UNDER SEPARATE **PERMIT** – (E) 6' HIGH (E) 6' HIGH -BLOCK WALL **BLOCK WALL** ADDITION TO EXISTING SFD Total: 428.0 SQFT (E)CLOSET BEDROOM#2 (E) LIVING ROOM (E)KITCHEN (E)CONCRETE Building shall have address numbers **DRIVEWAY** placed in a position that is plainly legible 420.0 SQFT and visible from the street or road fronting the property. Numbers shall ↓ (E)VEGETATED AREA contrast with background, be Arabic or Alphabetical letters and be a minimum of 4" high with a minimum stroke of 1/2 inch. (R319.1 CRC)

### **Water-Conserving Plumbing Fixtures Certificate of Compliance Building Division**

Community Development Department

Project Address: 311 W 223 Rd ST CARSON 90745

Permit No:

I certif, under penalty of prejury, as owner of this property, that noncompliant plumbing fixtures have been replaced with water-conserving plumbing fixtures in acco with Civil Code Section 1101.1 through 1101.8, the current California Plumbing Code and California Green Building Standard Code, and manufacturer's installation requirements, and that the water-conserving plumbing fixtures comply the requirements as listed below.

Owner's Name: PEREZ LEIDA

Date: 08/04/2022

Owner's Signature:\_

Single-Family Residential		Multi-Family Residential		
Water Closet	1.28 gals/flush	Water Closet	1.28 gals/flush	
Showerhead	2.00 gals/min	Urinal	0.50 gals/flush	
Multiple Showerheads	2.00 gals/min combined	Showerhead	2.00 gals/min	
Lavatory Faucet	1.50 gals/min	Multiple Showerheads	2.00 gals/min combined	
Kitchen Faucet	1.80 gals/min	Lavatory Faucet (within units)	1.50 gals/min	
		Lavatory Faucet (common areas)	0.50 gals/min	
		Kitchen Faucet	1.80 gals/min	

#### **Best Management Practices for Construction Activities**

Storm Water Pollution Control Requirements for Construction Activities Minimum Water Quality Protection Requirements for All Development Construction Projects/Certification Statement

The following is intended as minimum notes or as an attachment for building and grading plans and represent the minimum standards of good housekeeping that must be implemented on all construction sites regardless of size. (Applies to all permits)

- Eroded sediments and other pollutants must be retained on site and may not be transported from the site via sheetflow, swales, area drains, natural drainage course or wind.
- Stockpiles of earth and other construction related materials must be protected from being transported from the site by the forced of wind or water. Fuels, oils, solvents and other toxic materials must be stored in accordance with their listing and are not to
- contaminate the soil and surface waters. All approved storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into washed into the drainage system.
- Non-stormwater runoff from equipment and vehicle washing and any other activity shall be contained at the project
- Excess or waste concrete may not be washed into the public way or any other drainage system. Provisions shall be made to retain concrete wastes on site until they can be disposed of as solid waste.
- Trash and construction related solid wastes must be disposed into a covered receptacle to prevent contamination of rainwater and dispersal of wind. Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance
- roadway must be swept up immediately and may not be washed down by rain or other means. Any slopes with disturbed soils or denuded of vegetation must be stabilized so as to inhibit erosion by wind and
- Other

As the project owner or authorized agent of the owner, I have rear and understand the requirements listed above, necessary to control storm water pollution from sediments, erosion, and construction materials, and I certify that I will comply with these requirements

Print Name\_

(Owner or authorized agent of the owner)

Signature

(Owner or authorized agent of the owner)

Date

# (E)SITE PLAN

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

1.The construction shall not restrict a five-foot clear and unobstructed access to any water or power distribution facilities (Power poles, pull-boxes, transformers, vaults, pumps, valves, meters, appurtenances, etc.) or to the location of the hook-up. The construction shall not be within ten feet of any power lines-whether or not the lines are located on the property. Failure to comply may cause construction delays and/or additional expenses.

2. An approved Seismic Gas Shut Off Valve or Excess Flow Shut Off Valve will be installed on the fuel gas line on the down-stream side of the utility meter and be rigidly connected to the exterior of the building or structure containing the fuel gas piping. (Per Ordinance 170,158 and 180,670) Separate plumbing permit is **required**.

- 3. Provide ultra-flush water closets for all new construction. Existing shower heads and toilets must be adapted for low water consumption.
- 4. Provide (70) (72) inch high non-absorbent wall adjacent to shower and approved shatter-resistant materials for shower enclosure. (1210.2.3, 2406.4.5, R307.2, R308.4) 5. Water heater must be strapped to wall. (507.3 & LAPC)

8. Carbon monoxide alarm is required per (420.6, R315)

- 6. Sprinkler system must be approved by the Mechanical Division prior to installation.
- 7. A fire alarm (visual and audible) system is required. The alarm system must be approved by the Fire Department and Electrical Plan Check prior to installation. (LAMC 57.122)

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

#### **SMOKE DETECTORS:**

AN APPROVED SMOKE ALARM SHALL BE INSTALLED FOR NEW CONSTRUCTION AND ALTERATION, REPAIR OR ADDITIONS REQUIRING PERMIT EXCEEDING \$1,000. (CRC R314.1, R314.6.2.a.1)

BATTERY OPERATED SMOKE ALARMS PERMITTED IN EXISTING BUILDINGS WHERE NO CONSTRUCTION IS TAKING PLACE OR IN BUILDING UNDERGOING ALTERATION OR REPAIR THAT DO NOT RESULT IN THE REMOVAL OD INTERIOR WALLS OR CEILING FINISHES, UNLESS THERE IS AN ATTIC, CRAWL SPACE OR BASEMENT WHICH COULD PROVIDE ACCESS FOR WIRING. (CRC R314.4)

W 223 RD ST

SMOKE DETECTOR SHALL BE INTERCONNECTED SUCH THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL ALARMS IN THE INDIVIDUAL

CARBON MONOXIDE DETECTOR SHALL BE INTERCONNECTED SUCH THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL ALARMS IN THE

SMOKE DETECTORS SHALL BE "HARD WIRED" AND SHALL BE EQUIPPED WITH BATTERY BACKUP. (CRC R314.6)

#### **CARBON MONOXIDE ALARMS:**

WALL OR CEILING FINISHES. (CRC R315.2.4 EXCEPTION 2)

AN APPROVED CARBON MONOXIDE ALARM SHALL BE INSTALLED FOR NEW CONSTRUCTION AND ALTERATION, REPAIR OR ADDITIONS REQUIRING PERMIT EXCEEDING \$1,000. (CRC R315.1, R315.2.2)

CO ALARMS SHALL BE "HARD WIRED" AND SHALL BE EQUIPPED WITH BATTERY BACKUP. (CRC R315.1.2)

CO ALARMS SHALL BE LISTED FOR COMPLIANCE WITH UL2034, UL2075, AND MAINTAIN PER NFPA 720. (CRC R315.1, R315.1.1) CO ALARMS SHALL BE INSTALLED OUTSIDE OF EACH SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS AND ON EVERY LEVEL OF A DWELLING UNIT INCLUDING BASEMENT. (CRC R315.2.6)

CO ALARMS SHALL BE INTERCONNECTED SUCH THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL ALARMS IN THE INDIVIDUAL DWELLING UNIT. IN EXISTING DWELLING UNIT A CO ALARM IS PERMITTED TO BE BATTERY OPERATED WHERE REPAIR OR ALTERATION DO NOT RESULT IN REMOVAL OF

#### **GENERAL NOTES:**

SHOWER FLOORS AND WALLS ABOVE BATHTUBS WITH INSTALLED SHOWER HEAD SHALL BE FINISHED WITH A NONABSORBENT SURFACE TO A HEIGHT NOT LESS THEN 6 FT ABOVE THE FLOOR. (CRC R307.2)

THE NFRC TEMPORARY LABEL DISPLAYED ON WINDOWS AND SKYLIGHTS (INCL. TUBULAR) MUST REMAIN ON THE UNIT UNTIL FINAL INSPECTION HAS BEEN PASSED

#### WINDOW AND DOOR DETAIL NOTE:

FOR DOOR AND WINDOW JAM/SILL DETAILS REFER TO SHEET A-4.0 DETAILS D01, D02, D03

#### **RODENT PROOFING:**

ANNULAR SPACES AROUND PIPES, ELECTRIC CABLES, CONDUITS, OR OTHER OPENINGS IN PLATES A 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.

A MINIMUM 4" MOISTURE EXHAUST DUCT MUST BE PROVIDED [CMC 504.3.1] A FLEXIBLE DUCT CANNOT EXTEND MORE THAN 6FT. AND CANNOT BE CONBCEALED [CMC 504.3.1.1] DRYER EXHAUST CANNOT EXCEED 14' WITH A MAX. OF TWO 90° ELBOWS [CMC 504.3.1.2]

THE DRAWINGS AND SPECIFICATIONS AND IDEAS, DESIGN REPRESENTED THERBY ARE AND SHALL REMAIN THE PROPERTY OF MAT CAD As Built INC AND CANNOT BE COPIED DUPLICATED OR EXPLOITED IN WHOLE OR IN PART, WITHOUT WRITTEN PERMISSION OF THE DESIGNER.

Digitizing and preparing AutoCAD layouts from paper drawings and maps Laser measurements and preparing AutoCAD (2D 3D) floor plans

MatCAD As Built INC Floor Plans and Drawings

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Tel. (818) 331-5259 Fax (818) 000- 0000 E-Mail: matcad2015@gmail.com matcad2015@hotmail.com

www.Matfloorcad.com

#### Owner:

LEIDA PEREZ Tell#:+1(657)464-0846

#### **Project Name:**

ADDITION OF MASTER BEDROOM AND LAUNDRY ROOM TO EXISTING SFD (TOTAL ADDITION ~428.0 SQFT)

Project Address: 311 W 223Rd St. CARSON CA 90745

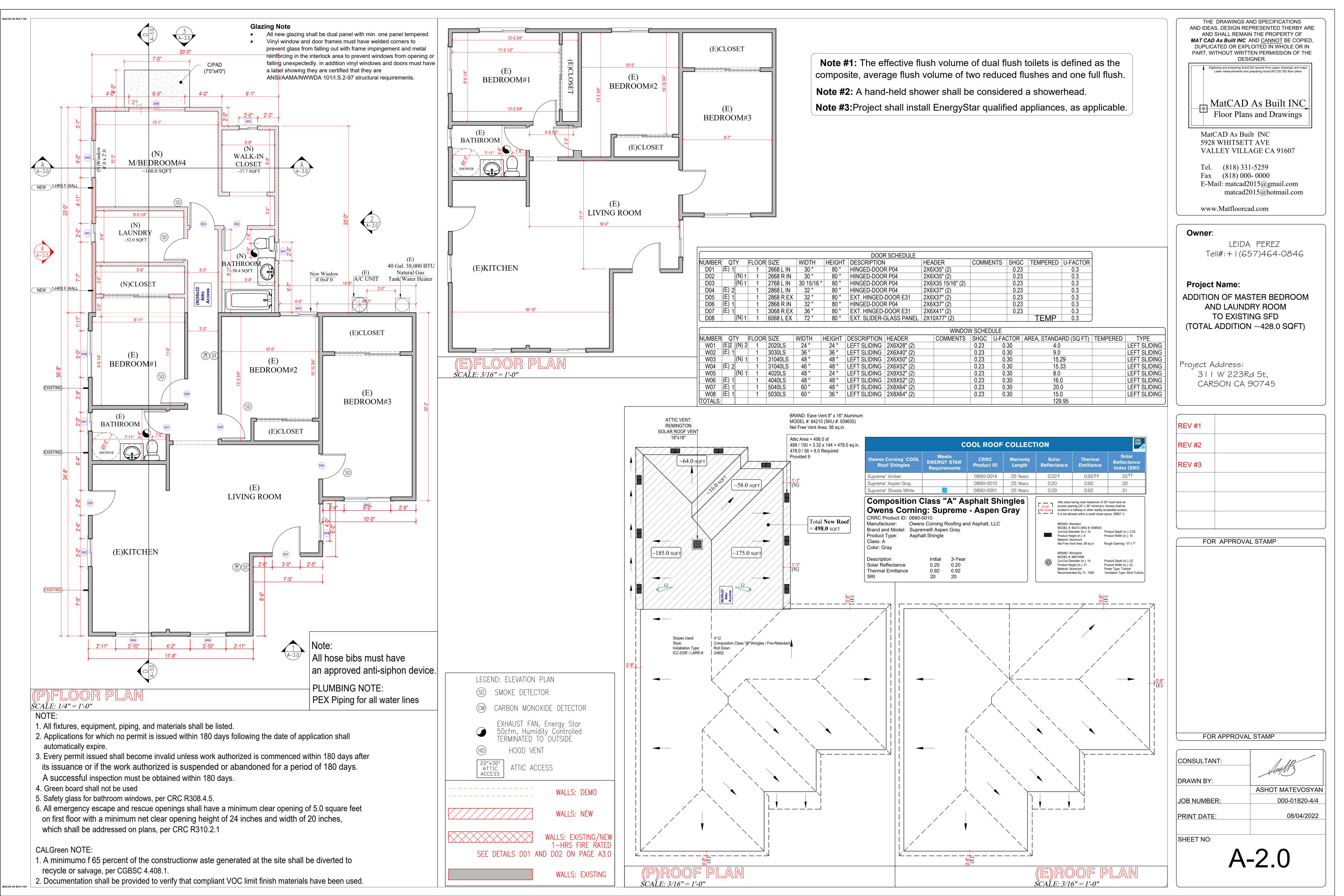
REV #1	
REV #2	
REV #3	

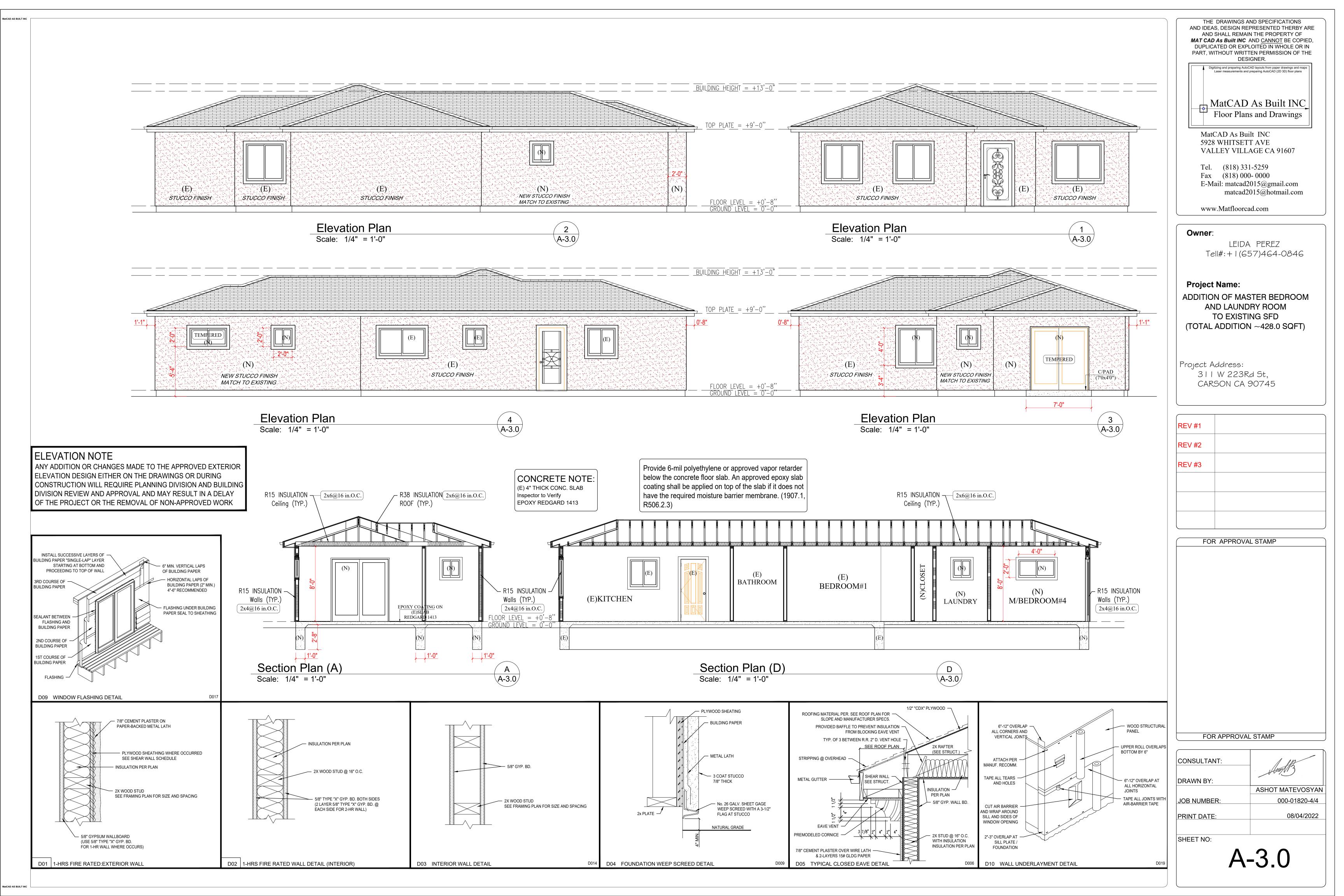
FOR APPROVAL STAMP

FOR APPROVAL STAMP

	CONSULTANT:	froll3
	DRAWN BY:	
_		ASHOT MATEVOSYA
•	JOB NUMBER:	000-01820-4/4
E	PRINT DATE:	08/04/2022

SHEET NO:





STORM WATER POLLUTION CONTROL

(2020 Los Angeles Green Building Code)

**FORM** GRN 1

Storm Water Pollution Control Requirements for Construction Activities Minimum Water Quality Protection Requirements for All Construction Projects

#### The following notes shall be incorporated in the approved set of construction/grading plans and represents the minimum standards of good housekeeping which must be implemented on all construction

Construction means constructing, clearing, grading or excavation that result in soil disturbance. Construction includes structure teardown (demolition). It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility; emergency construction activities required to immediately protect public health and safety; interior remodeling with no outside exposure of construction material or construction waste to storm water; mechanical permit work; or sign permit work. (Order No. 01-182, NPDES Permit No. CAS004001 – Part 5: Definitions)

- 1. Eroded sediments and pollutants shall be retained on site and shall not be transported from the site via sheet flow, swales, area drains, natural drainage or wind.
- 2. Stockpiles of earth and other construction-related materials shall be covered and/or protected from being transported from the site by wind or water.
- 3. Fuels, oils, solvents and other toxic materials must be stored in accordance with their listing and shall not contaminate the soil nor the surface waters. All approved toxic storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of properly and shall not be washed into the drainage system.
- 4. Non-storm water runoff from equipment and vehicle washing and any other activity shall be contained on the project site.
- 5. Excess or waste concrete may not be washed into the public way or any drainage system. Provisions shall be made to retain concrete waste on-site until it can be appropriately disposed of or recycled.
- 6. Trash and construction -related solid wastes must be deposited into a covered receptacle to prevent contamination of storm water and dispersal by wind.
- 7. Sediments and other materials shall not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the street/public ways. Accidental depositions must be swept up immediately and may not be washed down by rain or by any other means.
- 8. Retention basins of sufficient size shall be provided to retain storm water runoff on-site and shall be properly located to collect all tributary site runoff.
- 9. Where retention of storm water runoff on-site is not feasible due to site constraints, runoff may be conveyed to the street and the storm drain system provided that an approved filtering system is installed and maintained on-site during the construction duration.

provide reasonable accommodation to ensure equal access to its programs, services and activities (Rev. 01/01/20) Page 1 of 1 www.ladbs.org

ELA DBS
DEPARTMENT OF BUILDING AND SAFETY

**FORM** GRN 9 2020 Los Angeles Green Building Code

MANDATORY REQUIREMENTS CHECKLIST

ADDITIONS AND ALTERATIONS TO RESIDENTIAL BUILDINGS (COMPLETE AND INCORPORATE THIS FORM INTO THE PLANS)

Permi	t #		Date:	08-04-2022
ITEM #	CODE SECTION	REQUIREMENT	REFERENCE SHEET (Sheet # or N/A)	COMMENTS  (e.g. note #, detail # or reason for N/A)
		PLANNING AND DESIGN		
1	4.106.2	Storm water drainage and retention during construction		
2	4.106.3	Grading and paving	A-1.0	Site Plan
3	4.106.5	Cool roof (additions $\geq 500$ sq. ft. or $\geq 50\%$ )	A-2.0	Roof Plan
		ENERGY EFFICIENCY		
4	4.211.4	Solar ready (additions $\geq 2,000$ sq. ft.)	N/A	Not Applicable
		WATER EFFICIENCY & CONSERVATION		
5	4.303.1	Water conserving plumbing fixtures and fittings	GRN-1.0	GRN 14 #5 GRN 16
6	4.303.1.3.2	Multiple showerheads serving one shower		
7	4.303.4	Water use reduction	GRN-1.0	GRN 14 #6
8	4.304.1	Outdoor water use in landscape areas	A-1.0	Site Plan
9	4.304.2	Irrigation controllers	A-1.0	Site Plan
10	4.304.3	Metering outdoor water use	N/A	Not Applicable
11	4.304.4	Exterior faucets	N/A	Not Applicable
12	4.304.5	Swimming pool covers	N/A	Not Applicable
13	4.305.1	Graywater ready	N/A	Not Applicable
14	4.305.2	Recycled water supply to fixtures	N/A	Not Applicable
15	4.305.3.1	Cooling towers (buildings $\leq 25$ stories)	N/A	Not Applicable
16	4.305.3.2	Cooling towers (buildings > 25 stories)	N/A	Not Applicable
		MATERIAL CONSERVATION & RESOUR		
17	4.406.1	Rodent proofing	GRN-1.0	GRN 14 #9
18	4.407.3	Flashing details	D-1.0/D-2.0	Details
19	4.407.4	Material protection	GRN-1.0	GRN 14 #10
20	4.408.1	Construction waste reduction	GRN-1.0	GRN 14 #11
21	4.410.1	Operation and maintenance manual	GRN-1.0	GRN 14 #12
		ENVIRONMENTAL QUALITY		
22	4.503.1	Fireplaces and woodstoves	N/A	Not Applicable

is a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and, upon request, will

(Rev. 02/12/2020) Page 1 of 2 www.ladbs.org

DBS DEPARTMENT OF BUILDING AND SAFETY GRN 9 2020 Los Angeles Green Building Code REFERENCE COMMENTS CODE ITM # SECTION SHEET REQUIREMENT Sheet # e.g. note #, detail # or N/A or reason for N/A Covering of duct openings and protection of GRN-1.0 GRN 14 #13 23 4.504.1 mechanical equipment during construction 24 4.504.2 Finish material pollutant control 25 4.504.2.1 Adhesives, sealants, caulks GRN 14 #14 & 15 GRN-1.0 26 4.504.2.2 Paints and coatings 27 4.504.2.3 Aerosol paints and coatings GRN-1.0 GRN 14 #16 28 4.504.2.4 Verification GRN-1.0 GRN 14 #17 29 4.504.3 Carpet systems 30 4.504.3.1 Carpet cushion GRN-1.0 GRN 14 #17 31 4.504.4 Resilient flooring systems GRN-1.0 GRN 14 #18 GRN-1.0 GRN 14 #19 32 4.504.5 **Composite wood products** Not Applicable 33 | 4.504.6 | Filters Foundation Plan / Deta 34 4.505.2.1 Capillary break 35 4.505.3 Moisture content of building materials GRN-1.0 GRN 14 #26 A-2.0 Floor Plan / Legend 36 4.506.1 Bathroom exhaust fans

37 4.507.2 Heating and air-conditioning system design GRN-1.0 GRN 14 #26

**FORM** 

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# 2020 Los Angeles Green Building Code

MANDATORY REQUIREMENTS CHECKLIST NEWLY CONSTRUCTED RESIDENTIAL BUILDINGS (COMPLETE AND INCORPORATE THIS FORM INTO THE PLANS)

ITEM	CODE		REFERENCE SHEET	COMMENTS
#	SECTION	REQUIREMENTS	Sheet #	e.g. note #, detail # or reason for N/A
		PLANNING AND DESIGN		
1	4.106.2	Storm water drainage and retention during construction	GRN-1.0	GRN 1
2	4.106.3	Grading and paving	A-1.0	Site Plan
3	4.106.4	Electric vehicle (EV) charging	A-1.0	Site Plan
4	4.106.5	Cool roof for reduction of heat island effe	ct	
5	4.106.7	Reduction of heat island effect for non-roareas	of A-1.0	Site Plan
		ENERGY EFFICIENCY		
6	4.211.4	Solar ready buildings	N/A	Not Applicable
		WATER EFFICIENCY & CONSERVATION		
7	4.303.1	Water conserving plumbing fixtures and fittings	GRN-1.0	GRN 14 #5 GRN 16
8	4.303.1.3.2		r GRN-1 0	GRN 14 #6
9	4.303.3	Water submeters	GILLATIO	GILLITIO
	4.303.4	Water use reduction	GRN-1.0	GRN 14 #6
	4.304.1	Outdoor water use in landscape areas	N/A	No New Landscaping
	4.304.2	Irrigation controllers	N/A	No New Landscaping
	4.304.3	Metering outdoor water use	N/A	No New Landscaping
	4.304.4	Exterior faucets	N/A	No New Landscaping
15	4.304.5	Swimming pool covers	N/A	No New Pool
16	4.305.1	Graywater ready	N/A	No New Landscaping
17	4.305.2	Recycled water supply to fixtures	N/A	S.F.D.
18	4.305.3.1	Cooling towers (buildings ≤ 25 stories)	N/A	Not Applicable
19	4.305.3.2	Cooling towers (buildings > 25 stories)	N/A	Not Applicable
20	4.305.4	Groundwater discharge	N/A	Not Applicable
		<b>MATERIAL CONSERVATION &amp; RESOURC</b>	E EFFICIENC	<u> </u>
21	4.406.1	Rodent proofing	GRN-1.0	GRN 14 #9
22	4.407.3	Flashing details	D-1.0/D-2.0	Details

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provide reasonable accommodation to ensure equal access to its programs, services and activities

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**FORM** 

**GRN 16** 

**FORM** GRN 4

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**FORM** 

GRN 4

ITEM	CODE		REFERENCE SHEET	COMMENTS
#	SECTION	REQUIREMENTS	(Sheet #	e.g. note #, detail #
			or N/A)	or reason for N/A
23	4.407.4	Material protection	GRN-1.0	GRN 14 #10
24	4.408.1	Construction waste reduction	GRN-1.0	GRN 14 #11
25	4.410.1	Operation and maintenance manual	GRN-1.0	GRN 14 #12
		ENVIRONMENTAL QUALITY		
26	4.503.1	Fireplaces and woodstoves	N/A	Not Applicable
27	4.504.1	Covering of duct openings and protection of mechanical equipment during construction	GRN-1.0	GRN 14 #13
28	4.504.2	Finish material pollutant control	GRN-1.0	GRN 14 #14 & 15
29	4.504.2.1	□ Adhesives, sealants, caulks		
30	4.504.2.2	□ Paints and coatings		
31	4.504.2.3	□ Aerosol paints and coatings		
32	4.504.2.4	□ Verification	GRN-1.0	GRN 14 #16
33	4.504.3	Carpet systems	GRN-1.0	GRN 14 #17
34	4.504.3.1	Carpet cushion	GRN-1.0	GRN 14 #17
35	4.504.4	Resilient flooring systems	GRN-1.0	GRN 14 #18
36	4.504.5	Composite wood products	GRN-1.0	GRN 14 #19
37	4.504.6	Filters	N/A	Not Applicable
38	4.505.2.1	Capillary break	S-1.0	Foundation Plan / Detai
39	4.505.3	Moisture content of building materials	GRN-1.0	GRN 14 #26
40	4.506.1	Bathroom exhaust fans	A-2.0	Floor Plan / Legend
41 4	4.507.2	Heating and air-conditioning system design	GRN-1.0	GRN 14 #26

#### **VOC AND FORMALDEHYDE LIMITS FORM** 2020 Los Angeles Green Building Code **GRN 11** (Incorporate this form into the plans)

2020 Los Angeles Green Building Code Tables 4.504.1, 4.504.2, 4.504.3, 4.504.5, 5.504.4.1, 5.504.4.2, 5.504.4.3, 5.504.4.5 FORMALDEHYDE LIMITS1 **VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS 2.3** ormaldehyde Emissions in Parts per Million.

CURRENT LIMIT Grams of VOC per Liter of Coating, minum roof coatings I. Values in this tables are derived from those specified by the California Air Resources Board, Air rouics Control Measure for Composite Wood as tested in accordance with ASTME 1333. For additional information, see California Code of Regulations, Title 17, Sections 93120 through sement specialty coatings ninous roof primers Concrete curing compounds
Concrete curing compounds, Roadways Dry tog coatings Faux finishing coati Clear Top Coat SEALANT PRIMERS **Decorative Coatings** Nonporous 250 Japan 350 Trowel Applied Coatings e resistive coatings Graphic arts coatings (sign paints igh temperature coatings ADHESIVE VOC LIMIT 1,2 ndustrial maintenance coatings Less Water and Less Exempt Compounds in Grams per Liter
ARCHITECTURAL APPLICATIONS CURRENT VOC LIMIT Low solids coatings1 Indoor carpet adhes Carpet pad adhesive lastic texture coatings Illic pigmented coatings od flooring adhesive ners, sealers, and undercoate active penetrating sealers Ceramic tile adhesives cled coatings/ rywall and panel adhesive oof coatings, aluminum ove base adhesives Rust preventative coatings ctural glazing adhesive SPECIALTY APPLICATIONS Specialty primers, sealers and undercoaters affic marking coatings
b and tile refinish coating Special purpose contact adhesive /aterproofing membranes SUBSTRATE SPECIFIC APPLICATIONS Zinc-rich primers 100
Grams of VOC per liter of coating, including water and including exempt compounds. orous material (except wood) Some values in this table are derived from those specified by the California Air Resources Board Architectural Coatings Suggested Control Measure, February 5, 2016. More information is available from the Air Resources Board.

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(Rev. 01/01/20)

IDERGIASS

If an adhesive is used to bond dissimilar substrates together, the adhesive with the highest

1. If an additional is used to Survey the VOC content shall be allowed.
2. For additional information regarding methods to measure the VOC content specified in this table, see South Coast Life (Quality Management District Rule 1168, http://www.arb.ca.gov/DRDB/SC/CURHTML/R1168.PDF.

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#### 2020 Los Angeles Green Building Code GREEN BUILDING CODE PLAN CHECK NOTES RESIDENTIAL BUILDINGS

I. For each new dwelling and townhouse, provide a listed raceway that can 13. All new gas fireplaces must be direct-vent, sealed combustion type. Wood accommodate a dedicated 208/240 volt branch circuit. The raceway shall not be burning fireplaces are prohibited per AQMD Rule 445. less than trade size 1 (nominal 1-inch inside diameter), shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. The panel or subpanel shall provide capacity to install a 40-ampere minimum with tape, plastic, or sheet metal until the final startup of the heating, cooling with tape, plastic, or sheet metal until the final startup of the heating, cooling dedicated branch circuit and space(s) reserved to permit installation of a branch and ventilating equipment. circuit overcurrent protective device. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for 15. Paints and coatings, adhesives, caulks and sealants shall comply with the Volatile Organic Compound (VOC) limits listed in Tables 4.504.1-4.504.3.

shall be permanently and visibly marked as "EV CAPABLE". (4.106.4.1) 2. For common parking area serving R-occupancies, the electrical system shall have sufficient capacity to simultaneously charge all designated EV spaces at the full rated amperage of the Electric Vehicle Supply Equipment (EVSE). Design shall be based upon a 40-ampere minimum branch circuit. The racewa shall not be less than trade size 1 (nominal 1-inch inside diameter), shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces c. NSF/ANSI 140 at the Gold level shall be installed at the time of original construction. The service panel or space(s) reserved for future EV charging purposes as "EV CAPABLE" in 18. 80% of the total area receiving resilient flooring shall comply with one or more

3. Roofs with slopes < 2:12 shall have a 3-year aged SRI value of at least 75 or both a 3-year aged solar reflectance of at least 0.63 and a thermal emittance of at least 0.75. Roofs with slopes ≥2:12 shall have an aged SRI value of at least 16 or both a 3-year solar reflectance of at least 0.20 and a thermal emittance of (4.106.5)

4. The required hardscape used to reduce heat island effects shall have a solar 19. New hardwood plywood, particle board, and medium density fiberboard reflectance value of at least 0.30 as determined per ASTM E1918 or ASTM 5. The flow rates for all plumbing fixtures shall comply with the maximum flow 20. The Formaldehyde Emissions Verification Checklist, Form GRN 3, shall be

6. When a shower is served by more than one showerhead, the combined flow 21. Mechanically ventilated buildings shall provide regularly occupied areas of the rate of all the showerheads controlled by a single valve shall not exceed 2.0 gallons per minute at 80psi, or the shower shall be designed to only allow one (4.303.1.3.2) showerhead to be in operation at a time. 7. Installed automatic irrigation system controllers shall be weather- or soil-base

8. For projects that include landscape work, the Landscape Certification, Form GRN 12, shall be completed prior to final inspection approval.
(State Assembly Bill No. 1881) 9. Annular spaces around pipes, electric cables, conduits, or other openings in the building's envelope at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry, or 24. Newly installed bathroom exhaust fans shall be ENERGY STAR compliant ar metal plates. Piping prone to corrosion shall be protected in accordance with Section 313.0 of the Los Angeles Plumbing Code. (4.406.1) be ducted to terminate to the outside of the building. Fans must be controlled

10. Materials delivered to the construction site shall be protected from rain or other 11. Only a City of Los Angeles permitted hauler will be used for hauling of

(4.410.1)

the building at the time of final inspection.

(Rev. 01/01/20)

of the same value shall be included in the operation and maintenance manual (MWELO, § 492.7) 22. A 4-inch thick base of ½ inch or larger clean aggregate shall be provided for contact with concrete for proposed slab on grade construction(4.505.2.1) 23. Building materials with visible signs of water damage shall not be installed Wall and floor framing shall not be enclosed until it is inspected and found to

building with a MERV 13 filter for outside and return air. Filters shall be

installed prior to occupancy and recommendations for maintenance with filters

verified prior to final inspection approval. The manufacturer's specification

showing VOC content for all applicable products shall be readily available at

the job site and be provided to the field inspector for verification 4.504.2.4)

a. VOC emission limits defined in the CHPS High Performance Products

d. Meet the California Department of Public Health's Specification 01350

composite wood products used in the building shall meet the formaldehyde

c. Certification under the Resilient Floor Covering Institute (RFCI)

the testing and product requirements of one of the following (4.504.3):

b. California Department of Public Health's Specification 01350

a. Carpet and Rug Institute's Green Label Plus Program

b. Certified under UL GREENGUARD Gold

completed prior to final inspection approval.

limits listed in Table 4.504.5.

d. Scientific Certifications Systems Indoor Advantage™ Gold

**FORM** 

**GRN 14** 

cut sheet for verification. (4.407.4) 25. A copy of the construction documents or a comparable document indicating the nformation from Energy Code Sections 110.10(b) through 110.10(c) shall be provided to the occupant." (Energy Code §110.10(d)) 26. The heating and air-conditioning systems shall be sized and designed using 12. For all new equipment, an Operation and Maintenance Manual including, at a ANSI/ACCA Manual J-2004, ANSI/ACCA 29-D-2009 or ASHRAE

minimum, the items listed in Section 4.410.1, shall be completed and placed in handbooks and have their equipment selected in accordance with ANSI/ACCA 36-S Manual S-2004. As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and, upon reques

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# **PLUMBING FIXTURE FLOW RATES** 2020 Los Angeles Green Building Code

(Incorporate this form into the plans)

**SECTION 4.303.1** WATER REDUCTION FIXTURE FLOW RATES

FIXTURE TYPE	MAXIMUM ALLOWABLE FLOW RATE
Showerheads	1.8 gpm @ 80 psi
Lavatory faucets, residential	1.2 gpm @ 60 psi <sup>1,3</sup>
Lavatory faucets, nonresidential	0.4 gpm @ 60 psi1,3
Kitchen faucets	1.5 gpm @ 60 psi2,4
Metering Faucets	0.2 gallons/cycle
Gravity tank type water closets	1.28 gallons/flush <sup>5</sup>
Flushometer tank water closets	1.28 gallons/flush <sup>5</sup>
Flushometer valve water closets	1.28 gallons/flush <sup>5</sup>
Urinals	0.125 gallons/flush
Clothes Washers	ENERGY-STAR certified
Dishwashers ENERGY-STAR certified	

<sup>1</sup>Lavatory Faucets shall not have a flow rate less than 0.8 gpm at 20 psi. 2 Kitchen faucets may temporarily increase flow above the maximum rate, but not above 2.2gpm @ 60psi and must default to a maximum flow rate of 1.8 gpm @ 60psi. 3 Where complying faucets are unavailable, aerators or other means may be used to achieve reduction. 4 Kitchen faucets with a maximum 1.8 gpm flow rate may be installed in buildings that have water closets with a maximum flush rate of 1.06 gallons/flush installed throughout.

<sup>5</sup> Includes single and dual flush water closets with an effective flush of 1.28 gallons or less. Single Flush Toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A112.19.233.2.

Dual Flush Toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A112.19.2 and ASME A112.19.14.

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#### **FORM GRN 18R** 2020 Los Angeles Green Building Code

#### RESIDENTIAL BUILDINGS

1. Multi-family dwellings not exceeding three stories and containing 50 units or less shall install a separate meter or submeter within common areas and within each individual dwelling unit.

2. Water use reduction shall be met by complying with one of A. Provide a 20% reduction in the overall potable water use within the building. The reduction shall be based on the maximum allowable water use for plumbing fixtures and fittings as required by the Los Angeles Plumbing Code. Calculations demonstrating a 20% reduction in the building "water use baseline", as established in Table 4.303.4.1, shall be provided; or B. New fixtures and fittings shall comply with the maximum flow rates shown in Table 4.303.4.2, or C. Plumbing fixtures shall use recycled water.

**PLUMBING SYSTEM** 

3. New building on a site with 500 square feet or more of cumulative landscape area shall have separate meters or submeters for outdoor water use. 4. Additions and alterations on a site with 500 square feet or more of cumulative landscape area and where the entire

potable water system is replaced, shall have separate meters

Exception: Fixture replacements

or submeters for outdoor water use.

5. In other than single family dwellings, locks shall be installed on all publicly accessible exterior faucets and hose 6. Provide a cover having a manual or power-operated reel

system in any permanently installed outdoor in-ground

swimming pool or spa in one- and two-family dwellings. For irregular-shaped pools where it is infeasible to cover 100% of the pool due to its irregular shape, a minimum of 80% of the pool shall be covered. 7. Except as provided in this section, for sites with over 500

square feet of landscape area, alternate waste piping shall be installed to permit discharge from the clothes washer, bathtub, showers, and bathroom/restrooms wash basins to be used for a future graywater irrigation system(4.305.1) 8. Except as provided in this section, where City-recycled

water is available within 200 feet of the property line, water closets, urinals, floor drains, and process cooling and heating in the building shall be supplied from recycled water and shall be installed in accordance with the Los Angeles Plumbing Code.

WATER CONSERVATION NOTES - ORDINANCE #184248

A. Shall have a minimum of 6 cycles of concentration (blowdown); or B. A minimum of 50% of the makeup water supply to the cooling towers shall come from non-potable water sources, including treated backwash. (4.305.3.1)

10. In new buildings over 25 stories, the cooling towers shall

9. In new buildings of 25 stories or less, the cooling towers

shall comply with one of the following:

comply with all of the following: A. Shall have a minimum of 6 cycles of concentration (blowdown); and B. 100% of the makeup water supply to the cooling towers shall come from non-potable water sources including treated backwash.

11. Where groundwater is being extracted and discharged, develop and construct a system for onsite reuse of the groundwater. Alternatively, the groundwater may be discharged to the sewer. 12. Provide a hot water system complying with one of the

following (Los Angeles Plumbing Code Section 610.4.1):

A. The hot water system shall not allow more than 0.6 gallons of water to be delivered to any fixture before hot water arrives. B. Where a hot water recirculation or electric resistance heat trace wire system is installed, the branch from the recirculating loop or electric resistance heat trace wire to the fixture shall contain a maximum of 0.6 gallons.

have a compact hot water system that meets all of the a. The hot water supply piping from the water heater to the fixtures shall take the most direct path. b. The total developed length of pipe from the water heater to farthest fixture shall not exceed the distances specified in Table 3.6.5 of the California Energy Code Residential Appendix.

C. Residential units having individual water heaters shall

#### the California Energy Code Residential Appendix. **IRRIGATION SYSTEM**

c. The hot water supply piping shall be installed and

insulated in accordance with Section RA3.6.2 of

12. A water budget for landscape irrigation use that conforms to the California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO) is required for new landscape areas of 500 sq. ft. or more. The following methods to reduce potable water use in landscape areas include, but are not limited to, use of captured rainwater recycled water, graywater, or water treated for irrigation purposes and conveyed by a water district or public entity.

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Digitizing and preparing AutoCAD layouts from paper drawings and maps Laser measurements and preparing AutoCAD (2D 3D) floor plans

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www.Matfloorcad.com

Owner:

LEIDA PEREZ Tell#:+1(657)464-0846

**Project Name:** 

ADDITION OF MASTER BEDROOM AND LAUNDRY ROOM TO EXISTING SFD (TOTAL ADDITION ~428.0 SQFT)

Project Address: 311 W 223Rd St. CARSON CA 90745

REV #1	
REV #2	
REV #3	

FOR APPROVAL STAMP

FOR APPROVAL STAMP

CONSULTANT:	Sun 13
DRAWN BY:	
	ASHOT MATEVOSYA
JOB NUMBER:	000-01820-4/4
PRINT DATE:	08/04/2022

SHEET NO:

#### **GENERAL NOTES:**

- 1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CBC 2019 EDITION, AND ALL OTHER APPLICABLE REQUIRMENTS ORDERES, ORDINANCES AND REGULATIONS.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE. WRITTEN DIMENSIONS (NOT SCALED DIMENSIONS) SHALL BE USED. DO NOT SCALE DRAWINGS, UNLESS SHOWN OR NOTED OTHERWISE. TYPICAL DETAILS AND GENERAL NOTES
- SHALL BE USED WHENEVER APPLICABLE 3. UNLESS SHOWN OR NOTED OTHERWISE, TYPICAL DETAILS AND GENERAL NOTES SHALL BE USED WHENEVER APPLICABLE.
- 4. UNLESS SPECIFCALLY DETAILED ON THESE DRAWINGS, CONTRACOT SHALL FURNISH ADEQUATE SHORING, BRACING, ETC. AS REQUIRED TO SAFETLY EXECUTE ALL WORK, AND SHALL BE FULLY RESPONSIBLE FOR SAME.
- 5. COPIES OF ALL INSPECTION REPORTS, TEST RESULTS, ETC. SHALL BE SENT TO THE STRUCTURAL ENGINEER.
- 6. ANY CONFLICT BETWEEN ARCHITECTURAL AND STRUCTURAL DRAWINGS MUST BE VERIFIED
- WITH ENGINEER BEFORE CONSTRUCTION CAN PROCEED, 7. NOTIFY STRUCTURAL ENGINEER BEFORE START OF EXCAVATION FOR FOUNDATIONS.
- 8. NOTIFY THE ENGINEER IMMEDIATELY OF ANY CONFLICT BETWEEN STRUCTURAL DRAWINGS AND EXISTING BUILDING CONDITIONS. ANY CONFLICT SHALL BE RESOLVED WITH THE ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION.
- 9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTING FABRICATION PROCESSES AND TECHNIQUES IN CONSTRUCTION AND PERFORMING WORK IN A SAFE AND SATISFACTORY MANNER. CONSTRUCTION MATERIAL SHALL BE SPREAD OUT WHEN PLACED ON FRAMED FLOOR OR ROOF
- 10.PROVIDE ADEQUATE SHORING AND/ OR BRACING WHERE STRUCTURE HAS NOT ATTAINED DESIGN STRENGHT LIVE LOADS. ROOF= 20PSL LIVE LOAD

### **FOUNDATION:**

- SOIL REPORT PREPARED BY
- 2. CONTRACOT IS RESPONSIBLE TO REVIEW AND COMPLY WITH ALL RECOMMENDATIONS FOUND IN SOIL REPORT FOR THIS PROJECT.
- 3. IF ADVERSE SOIL CONDITIONS ARE ENCOUNTERED, A SOILS INVESTIGATION REPORT MAY BE REQUIRED UNLESS ALREADY PREPARED FOR THIS PROJECT.
- 4. SOIL TYPE: PER SOILS REPORT, IF SOIL REPORT IS NOT AVAILABLE, ASSUME EXPANSIVE
- MAXIMUM VERTICAL BEARING CAPACITY (NET): 1500PSF
- 6. MAXIMUM LATERAL BEARING CAPACITY: 100PSF/FT BELOW NATURAL GRADE.
- 7. COEFFICIENT OF FRICTION: 0.30
- 8. MINIMUM FOOTING DEPTH INTO NATURAL GRADE SHALL BE 24" FOR ALL PAD AND
- CONTINOUS FOUNDATIONS UNLESS NOTED OTHERWISE ON PLAN. 9. CONTRACTOR IS RESPONSIBLE TO OBTAIN MINIMUM 95% COMPACTION UNLESS NOTED
- OTHERSIE IN SOILS REPORT.

### **CONCRETE:**

- 1. ALL CONCRETE SHALL BE OF STONE TYPE "HARDROCK" (U.N.O.) MADE WITH AGGREGATES CONFORMING TO ASTM C33 AND PRODUCING A UNIT WEIGHT OF 150PCF. UNLESS SPECIFICALLY NOTED OTHERWISE.
- 2. ALL CONCRETE SHALL HAVE AN ULTIMATE COMPRESSIVE STRENGHT AT 28 DAYS AS FOLLOWS, BASED UPON AN APPROVED LABORATORY DESIGN MIX:
  - A. SLAB ON GRADE, FOOTINGS, STAIRS ON GRADE: 2500PSI
  - B. GRADE BEAMS, CONCRETE COLUMNS, CAISSONS & CONCRETE WALLS: 4000PSI C. STRUCTURAL SLAB AND ITS SUPPORTING BEAMS:
- 3. CONTINOUS INSPECTION BY A REGISTERRED DEPUTY BUILDING INSPECTOR IS REQUIRED
- FOR ALL CONCRETE GREATER THAN 2500PSI.
- 4. PORTLAND CEMENT SHALL CONFORM TO ASTM C-150. DRYPACK GROUT SHALL BE 1: 2.5 CEMENT-SAND MIX.
- 6. LOCATION OF ALL CONSTRUCTION JOINTS MUST BE APPROVED BY THE ARCHITECT IF NOT SHOWN ON DRAWINGS.
- 7. NO PIPES OR DUCTS SHALL BE PLACED IN STRUCTURAL CONCRETE UNLESS SPECIFICALLY DETAILED, SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR SLEEVE LOCATIONS.
- 8. ALL MISCELLANEOUS IRON APPURTENANCES, ANCHOR BOLTS, INSERTS, ETC. SHALL BE SECURELY WIRED OR OTHERWISE ANCHORED IN PLACE PRIOR TO POURING. SEE ARCHITECTURAL SHEETS FOR NOTCHES, GROOVES, CHAMFERS, ETC.
- 9. EXPOSED CONCRETE TO HAVE  $\frac{3}{4}$ " CHAMFER AT CORNERS, SEE ARCHITECTURAL.
- 10. ONLY ONE GRADE OF CONCRETE TO BE ON THE SITE AT ONE TIME.
- 11. POWDER DRIVEN FASTNERS SHALL NOT BE DRIVEN INTO CONCRETE UNTIL IT HAS REACHED ITS 28 DAY DESIGN STRENGHT.
- 12. THE MINIMUM CONCRETE COVER FOR REINFORCING STEET IN CAST-IN PLACE CONCRETE (NON-PRESTRESSED OR POST TENSIONED) SHALL BE AS FOLLOWS:
  - A. CAST AGAINST EARTH: B. EXPOSED TO EARTH OR WEATHER: -#5 BARS & SMALLER:
  - -#6 BARS & LARGER: C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND. SLAB, WALLS, JOINTS:
  - 1.5" -BARS #14 OR #18 -BARS #11 AND SMALLER .75" COLUMNS, BEAMS:
- -PRIMARY REINFORCEMENT: -TIES, STIRRUPS, SPIRALS: 1.5" 13. ALL GROUT FOR COLUMN BASEPLATE, BEARING PLATES AT SILL OR BEAM POCKETS OR
- OTHER LOCATIONS SHALL BE A HIGH STRENGHT (f'c=5000psi AT 28 DAY MINIMUM) NON-SHRINK, FLOWABLE GROUT REVIEWED AND ACCEPTED BY THE STRUCTURAL ENGINEER AND THE GOVERNING AGENCRY PRIOR TO USE. MIXING AND PLACEMENT SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS, DRYPACK SHALL NOT BE USED AS STRUCTURAL MATERIAL UNLESS SPECIFICALLY INDICATED AND APPROVED BY THE STRUCTURAL ENGINEER.
- 14. EXISTING CONCRETE AGAINST WHICH NEW CONCRETE IS TO BE PLACED SHALL BE ROUGHENED AS SURFACE OF ALL HORIZONTAL CONSTRUCTION JOINTS SHALL BE CLEANED AND ROUGHENED BY REMOVING THE ENTIRE SURFACE AND EXPOSING CLEAN AGGREGATE SOLIDLY EMBEDDED IN MORTAT MATRIX.
- 15. THESE DESIGN DRAWINGS GENERALLY SHOW THE FORM OF THE COMPLETED STRUCTURE WITHOUT SPECIFIC INDICATIONS OF COLD JOINT LOCATIONS. CONSTRUCTION JOINTS IN STRUCTURAL CONCRETE SHALL BE PERMITTED ONLY AS SPECIFICALLY SHOWN IN THESE DRAWINGS OR APPROVED IN WRTIING BY THE STRUCTURAL ENGINEER.
- 16. PRIOR TO START OF CONCRETE WORK THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A PLAN FOR THE CONCRETE WORK INDICATING ALL PROPOSED COLD JOINT LOCATIONS AND DETAILS. THIS PLAN SHALL BE APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO OF CONRETE WORK, ADDITIONAL REINFORCMENT MAY BE REQUIRED DEPENDING ON JOINT LOCATIONS AND DETAILS.
- 17. UNAPPROVED CONSTRUCTION JOINTS SHALL BE SUFFICENT CAUSE FOR REJECTION OF THE WORK.

### **REINFORCING STEEL:**

D. CONCRETE SLAB:

- 1. ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A-615 GRADE
- 2. REINFORCING BARS SHALL HAVE THE FOLLOWING MINIMUM COVER:
- A. CONCRETE POURED AGAINST EARTH: B. CONCRETE AGAINST EARTH, BUT FORMED: C. CONCRETE EXPOSED TO WEATHER: 1.5"
- E. REINFORCING REQUIRING WELDING SHALL CONFORM TO ASTM A 706M. . PROVIDE SPACER BARS, CHAIRS, SPREADERS, ETC. AS REQUIRED TO HOLD STEEL
- SECURELY IN POSITION. 4. REINFORCEMENT MARKED CONTINOUS MAY BE SPLICED BY LAPPING 40 BAR DIAMETER (FOR #6 AND SMALLER BARS) AND 50 BAR DIAMETER (FOR #7 TO #11) UNLESS NOTED OTHERWISE
- ON PLANS. STAGGER SPLICES IN ADJACENET BARS 4'-0" MINIMUM. . DOWELS SHALL MATCH TIE BEAM, GRADE BEAM, WALL, AND SLAB REINFORCING IN SIZE AND NUMBER REQUIRED, UNLESS NOTED OTHERWISE.
- 6. SPECIAL DUCTILITY REQUIREMENTS: FOR STRUCTURAL ELEMENTS SUBJECTED TO YIELDING UNDER THE SEISMIC LOAD IN ADDITION TO ALL REUIRMENTS OF APPLICATBLE ASTM STANDARDS, REINFORCING STEEL FOR STRUCTRURAL USE SHALL HAVE ACTUAL TENSILE YIELD STRENGHT NO MORE THAN 18,000PSI IN EXCESS OF THAT SPECIFIED AND ACTUAL ULTIMATE TENSILE STRENGHT NO LESS THAN 1.25 ACTUAL TENSILE YIELD STRENGHT.
- WELDING OF REINFOCRING STEEL SHALL BE DONE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE STRUCTURAL WELDING CODE OF THE AMERICAN WELDING SOCIETY AWS D1.4 AND LABC 2020 EDITION.
- A. SHALL BE ELECTRIC ARC PROCCESS. B. SHALL UTILIZE LOW HYDROGEN ELECTRODES
- C. SHALL BE DONE UNDER THE CONTINOUS INSPECTION OF A CERTIED DEPUTY INSPECTOR.
- D. SHALL ONLY BE DONE ON STEEL CONFORMING TO ASTM A 706M 8. NO REBENDING OF REBARS WILL BE PERMITTED.

#### **WELDING:**

- . ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE STRUCTURAL WELDING CODE OF THE AMERICAN WELDING SOCIETY: AWS01.1
- ALL WELDING SHALL BE PERFORMED BY WELDERS CERTIFIED BY GOVERNING AGENCY. 3. SPECIAL INSPECTION SHALL BE PROVIDED FOR ALL STRUCTURAL WELDS, SHOP OR FIELD AND ACCEPTED BY A DEPUTY INSPECTOR CERTIFIED BY THE GOVERNING AGENCY PER SECTION 1704.3 OF THE CODE. CONTIUNOUS SPECIAL INSPECTIOIN SHALL BE PROVIDED FOR MULTIPLE PASS WELDS. CJP WELDS, PJP WELDS AND SINGLE PASS FILLET WELDS >  $\frac{5}{16}$
- 4. ALL PARTIAL AND COMPLETE JOINT PENEETRATION WELDS SHALL BE ULTRASONICALLY INSPECTED IN ACCORDANCE WITH AWS 01.1 AND DEFECTS REPAIRED.
- 5. WELDING FILLER MATERIAL SHALL HAVE A V-NOTCH TOUGHNESS OF 20 FT-LB AT ZERO DEGREES. E70T-4 SHALL BE SPECCIALLY PROHIBITED.
- CONTINOUS SPECIAL INSPECTION BY A REGISTERED DEPUTY INSPECTOR IS REQUIRED FOR FIELD WELDING, CONCRETE STRENGHT f'c>2500psi, HIGH STRENGHT BOLTING, SPRAYED-ON FIREPROOFING, ENGINEERING MASORNY, HIGH -LIFT GROUTING PRE-STRESSED CONCRETE, HIGH LOAD DIAPHRAGMS AND SPECIAL MOMENT RESISTING CONCRETE FRAMES.
- 7. FIELD WELDING TO BE DONE BY WELDERS CERTIFIED BY THE LADBS FOR ( STRUCTURAL STEEL) (REINFORCING STEEL) (LIGHT GAUGE STEEL), CONTINOUS SPECIAL INSPECTION BY A DEPUTY INSPECTOR IS REQUIRED.
- 8. SHOP WELDS MUST BE PERFORMED IN A LADBS LICENSED FABRICATION SHOP. 9. LADBS LICENSED FABRICATOR IS REQUIRED FOR STRUCTURAL STEEL.

- ALL LUMBER-DOUGLAS FIR, EXCEPT AS NOTED.
- BEAMS AND POSTS-#1 GRADE, EXCEPT AS NOTED.
- 3. JOISTS AND RAFTERS-#2 GRADE, EXCEPT AS NOTED.
- 4. STUDS-#2 EXCEPT AS NOTED.
- 5. PLYWOOD DOUGLAS FIR-PS 1-07.
- ALL PLYWOOD USED ON WALLS, ROOFS, AND FLOORS INCLUDING UNDERLAYMENT SHALL BE BONDED WITH EXTERIOR GLUE, UNLESS NOTED OTHERWISE.
- 7. SILL PLATES-PRESSUE TREATED DOUGLAS FIR OR FOUNDATION GRADED REDWOOD.
- 8. SILL PLATE BOLTS- \( \frac{3}{8} \) \( \Omega \) X10" \( \omega \) 4'-0" O.C. AND NOT OVER 9" FROM END OF EACH PIECE.
- 9. HOLES FOR BOLTS- SAME SIZE AS BOLT OR  $\frac{1}{4}$ " LARGER.
- 10. SCREWS AND LAG BOLTS SHALL NOT BE HAMMERED INTO PLACE. 11. DOUBLE JOISTS UNDER ALL PARALLEL WALLS EXCEPT AS NOTED.
- 12. 2" AND 3" CROSS BRIDGINT AT 10' FOR ROOF JOISTS 8'-0" FOR FLOOR JOISTS. APPROVED
- METAL BRIDGING MAY BE USED IN LIEU OF WOOD BRIDGING.
- 13. 2" SOLID BLOCK AT EACH SUPPORT.
- 14. 1X4 DIAG LET-IN BRACE AT EACH SUPPORT. 15. 2" SOLID FIRE BLOCKING IN STUD WALL @ 8'-0"
- 16. FOR NAILING SCHJEDULE SEE SHEET S1.1
- 17. VERTICAL LAMINATED BEAMS- 10" OR LESS IN DEPTH-SPIKE WITH 16d @ 12" O.C. STAGGERED: GREATER THAN 10"-1/2" Ø BOLTS @ 2'-0" O.C. STAGGERED. PLACE FASTNERINGS  $\frac{1}{4}$  OF BEAM DEPTH FROM TOP AND BOTTOM
- 18. ALL ROOF SHEATING SHALL BE INSPECTED BEFORE APPLYING ROOFING TO INSURE SOUND BOARDS AND NAILING. 19. MICROLAM "LVL" & PARALLAM "PSL" JOISTS AND BEAMS SHALL BE PREFABRICATED LUMBER
- WITH Fb=2600psi AND 2900 PSI RESPECTIVELY. LA RR#25202. 20. CUTTING OR NOTCHING OF BEARING WALLS ARE NOT PERMITTED WITHOUT ANALYSIS AND
- LIMITATIONS BY ENGINEER OF RECORD. 21. ALL STEEL CONNECTORS TO BE MANUFACTURED BY SIMPSON, OR APPROVED EQUAL.
- 22. HOLDOWN CONNECTOR BOLTS INTO WOOD FRAMING REQUIRE APPROVED PLATE WASHERS. 23. HOLDOWNS SHALL BE TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.
- 24. PROVIDE LEAD HOLE 40%-70% OF THREADED SHANK Ø. FOR SMOOTH SHANK PORTION. 25. MATERIAL MANUFACTURE AND QUALITY CONTROL SHALL BE IN CONFORMANCE WITH
- ANSI/AITC. 26. ALL GLU-LAM SHALL BE DOUGLAS FIR-LARCH
- 27. ALL STRUCTURAL GLUED LAMINATED TIMBER SHALL BE CONTINOUSLY INSPECTED DURING FABRICATION BY A GLUE FABRICATION INSPECTOR SPECIALLY APPROVED FOR THAT PURPOSE BY THE GOVERNING AGENCY.
- 28. MACHINE DRIVEN NAIL HEADS WHICH PENETRATE THE SURFACE OF THE WOOD MORE THAN WOULD BE NORMAL FOR HAND HAMMERING SHALL NOT BE PERMITTED, PERSISTANCE OF THIS FAULT SHALL BE SUFFICEINT CAUSE FOR REJECTION OF A MACHINE NAILING SYSTEM. 29. GLUE-LAM BEAMS MUST BE FABRICATED IN A LADBS LICENSED SHOP. IDENTIFY GRADE
- SYMBOL AND LAMINATION SPECIES PER T50A 2018 NDS SUPPL. 30. FOUNDATION SILL BOLTS REQUIRE STEEL PLATE WASHERS OF SIZE AND THICKNESS AS
- SPECIFIED BY TABLE 2305.11. 31. ALL DIAPHRAGM AND SHEAR WALL NAILING SHALL UTILTIZE COMMON NAILS OR GALVANZIED BOX NAILS.
- 32. SOLID BLOCKING SHALL BE PROVIDED AT ALL HORIZONTAL JOINTS OCCURING IN BRACED WALL PANELS.

# STRUCTURAL STEEL:

STRUCTURAL STEEL USED IN THE PROJECT SHALL CONFORM TO THE FOLLOWING SCHDEULE UNLESS NOTED OTHERWISE ON PLANS OR DETIALS.

## STRUCTURAL STEEL SCHEDULE

STRUCTURAL ELEMENT	ASTM DESIGNATION	(Fy) MIN YIELD STRESS
W SHAPE	A 992	50 ksi
C, MC, L, WT	A 36	36 ksi
STR. PIPE	A 53, GR "B"	35 ksi
ROUND HSS	A 500, GR "B"	42 ksi
RECTANGULAR HSS	A 500, GR "B"	46 ksi
PLATE & BARS	A 36	36 ksi
BASE PLATES	A 572. GR 50	50 ksi
BOLTS USED IN BOLTED STEEL CONNECTIONS	A 325-X	105 ksi
COMMON BOLTS	A 307, GR.A	50 ksi
ALL THREADED ANCHOR RODS. (IN CONC. AND MASONRY)	F1554, GR.36	50 ksi
SHEAR STUD BOLTS	A 108	Fu=65ksi
WEI BING GUALL BE BONE BY THE		C DV OULLIEFED AND

- WELDING SHALL BE DONE BY THE SHIELDED ELECTRIC ARC PROCESS BY QUALIFIED AND APPROVED WELDERS. USE E-70 SERIES ELECTRODES
- . WELDS SHALL BE UNIFORM IN SIZE AND APPEARANCE AND FREE OF PINHOLES, POROSITY, AND OTHER DEFECTS.
- . ALL WELDING IS DESIGNED FOR FULL STRESSES, SHOP WELDING SHALL BE PERFORMED IN A SHOF APPROVED BY THE CITY OF LOS ANGLES BUILDING DEPARTMENT. FILED WELDING SHALL BE DONE UNDER CONTINOUS SPECIAL INSPECTION OF AN LA CITY REGISTERED DEPUTY INSPECTOR.
- SUBMIT SHOP DRAWINGS FOR REVIEW BY ENGINEER PRIOR TO FABRICATION. 5. THE REVIEW OF THE SHOP DRAWINGS SHALL NOT RELIVE THE CONTRACTOR FROM THI COMPLIANCE WITH THE REQUIREMENTS OF THE STRCUTRAL DRAWINGS AND SPECIFICAITONS. THE OMISSION FROM THE SHOP DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF THE

RESPONSIBILITY FOR FURNISHING AND INSTALLING SUCH MATERIALS EVEN THOUGH SUCH SHOP

BOLT HOLES IN STEEL SHALL BE  $\frac{1}{16}$ " LARGER DIAMETER THAN NOMINAL SIZE OF BOLT USED, EXCEPT AS NOTED.

### MANUFACTURED LUMBER

- PARALLAM STANDS FOR PARALLEL STRAND LUMBER-PSL
- ALL SPECIFIED ENGINEERING WOOD PRODUCTS SHALL BE MANUFACTURED AND LABELED AS TRUS JOIST PRODUCTS BY WEYERHAEUSER. ICC-ES CODE EVAULATION REPORTSS SHALL BE THE FOLLOWING.
- ESR-1153 FOR TJI JOISTS
- ESR-1387 TO TIMBERSTRAND LSL, MICROLLAM LVL & PARALLAM PSL.

DRAWINGS MAY HAVE BEEN RETURNED WITH NNO EXCEPTIONS OBSERVED.

- MODIFICATIONS/ALTERNATIVES: THE SPECIFICATION IS BASED ON TRUS JOIST ENGINEERED WOOD PRODUCTS. NO ALTERNATIVES, MODIFICATIONS OR SUBSTITIONS ARE ALLOWED UNLESS THE GENERRAL CONTRACTOR AND SUB-CONTRACTORS SUBMITS IN WRITING FOR SUCH REQUESTS TO THE PROJECT ENGINEER FOR APPROVAL, NO LATER THAN TWO WEEKS PRIOR TO BID. ALTERNATE PRODUCTS MUST AHVE A CURRENT ICC-ES CODE EVAULATION REPORT WITH LISTED DESIGN PROPOERTIES EQUIVALENT OR GREATER THAN SPECIFIED PRODUCTS. SUBSTAINING CALCULATION SHALL BE SUBMITTED. ALL HOLES, TAPERED CUTS AND NOTCHING SHALL BE JUSTIFIED FOR ALTERANTE. CONTRACT SHALL REFLECT ANY PRICE CHANGES. THE ENGINEER OF RECORD SHALL BE REIMBURDES FOR ANY REVIEW TIME.
- ALL I JOISTS SHALL BE MANUFACTURED WITH LVL FLANGE MATERIAL. WEB MATERIAL SHALL
- BE EQUIVALENT TO PERFORMANCE PLUS OSB. DIAPHRAGM CAPACITY AND NAILING LIMIATIONS OR ALTERNATIVE SHALL BE SUBSTAINED AS
- EQUIVALENT IN AN ICC-ES CODE EVALUATION REPORT. WHEN APPLICABLE, FLOOR PERFORMANCE OF ALTERNAT SHALL BE SUBSTAINED AS EQUIVALENT TO TJI-PRO RATING OF
- ALL TIMBERSTAND LSL RIM BOARD/BLOCKING SUBSTITUTIONS SHALL BE ICC-ES REPORT EVAULATED FOR USE AS TIM BOARD/ BLOCKING AND/OR CROSS-PLY LAMINATED. ALL EQUIVALENT FIRE AND SOUND RATINGS FOR FLOOR/CEILING ASSEMBLIES SHALL BE SUBSTANTIATED IN AN ICC-ES CODE EVALUATION REPORT OR SIMIALR THIRD PARTY
- EVALUATION AS EQUIVALENT TO TJI JOIST ASSEMBLIES. ALL TJI JOIST FIELD REPAIRS SHALL BE CERTIFIED BY TRUS JOIST ENGINEERING DEPARTMENT. 10. FOR TRUS JOIST PRODUCTS AVAILABLITY, CONTACT SALES REPRESENTTIVE (SEE AREA MAP)

# STRUCTURAL OBSERVATION:

STRUCTURAL DESIGN OR ONE DESIGNATED THEREBY.

OR CALL 1-888-8358

- STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATON OF THE ELEMENTS AND CONNECTIONS OF THE STRUCTURAL SYSTEM AT SIGNIFICANT CONSTRCUTION STAGES AND COMPLETED STRUCTURE FOR GENERAL CONFROMANCE TO THE APPROVED PLANS AND SPECIFICAITONS. STRUCTURAL OVSERVATION DOES NOT WAIVE THE RESPONSIBITY FOR THE INSPECTIONS REQUIRED OF THE BUILDING INSPECTOR OR THE DEPUTY INSPECTOR. THE OWNER SHALL EMPLOY A CIVIL OR STRUCTURAL ENGINEER TO PERFORM THE STRUCTURAL OBSERVATIONS. THE ENGINEER SHALL BE THE ENGINEER RESPONSIBLE FOR THE
- THE STRUCTURAL OBSERVER SHALL PREPARE A REPORT FOR EACH SIGNIFICANT STATE OF CONSTRUCTON OBSERVED. THE ORIGINAL OF THE OBSERVATION SHALL BE SENT TO THE BUILDING INSPECTOR'S OFFICE AND SHALL BE SIGNED AND SEALED BY THE RESPONSIBLE STRUCTURAL OBSERVER. ONE COPY OF THE OBSERVATION REPORT SHALL BE ATTATCHED TO THE APPROVED PLANS. THE COPY ATTATCHED TO THE PLANS NEED TO BE SEALED BUT SHALL BE SIGNED BY THE RESPONSIBLE STRUCTURAL OBSEREVER OR THEIR DESIGNEE.
- COPIES OF THE REPORT SHALL ALSO BE GIVEN TO THE OWNER, AND CONTRACTOR. 4. A FINAL OBSERVATION REPORT MUST BE SUBMITTED WHICH SHOWS THAT ALL OBSERVED DEFIENCIES WERE RESOLVED AND THE STRUCTRURAL SYSTEM GENERALLY CONFORM WITH THE APPROVED PLANS AND SPECIFICAITONS. THE DEPARTMENT OF BUILDING AND SAFETY WILL NOT ACCEPT THE STRUCTURAL WORK WITHOUT THIS FINAL OBSERVATION REPORT AND THE CORRECTION OF SPECIAL DEFICIENCIES NOTED DURING NORMAL BUILDING AND DEPUTY INSPECTION.

## STRUCTURAL SHEET INDEX

S-0 STRUCTURAL NOTES S-1 STRUCTURAL SCHEDULES S-2 TYPICAL DETAILS S-3 FOUNDATION PLAN S-4 ROOF FRAMING PLAN S-5 FOUNDATION DETAILS

S-6 ROOF FRAMING DETAILS

## PROJECT DIRECTORY

CIVIL ENGINEER SG DESIGN STUDIO INC. 4419 VAN NUYS BLVD. #410 SHERMAN OAKS, CA 91403

## **PROJECT ADDRESS**

331 W. 232RD ST. CARSON, CA 900745

ENGINEER OF RECORD: SOUREN GRIGORYAN M.S. P.E.

#### **SCOPE OF WORK** ADDITION TO (E) S.F.D.

## STRUCTURAL DESIGN DATA

**ROOF LIVE LOAD: 20PSF ROOF DEAD LOAD: 15PSF** ATTIC LIVE LOAD: 20PSF ATTIC DEAD LOAD: 10PSF FLOOR LIVE LOAD: 40PSF

LOAD DESIGN DATA

FLOOR DEAD LOAD: 20PSF **INTERIOR DEAD LOAD: 12PSF EXTERIOR DEAD LOAD: 17PSF** 

#### LATERAL LOAD DESIGN DATA SEISMIC IMPORTANCE FACTOR I=1.0

OCCUPANCY CATEGORY = II SDC= D  $T_1 = 8$  seconds  $S_1 = 0.627$ 

 $S_s = 1.733$ S<sub>DS</sub>=1.386  $S_{D1}=1$ 

R = 6.5 $\rho = 1.3$ SITE CLASS=D

ROUGHNESS=B

EXPOSURE=B

V<sub>BASE</sub>=11.9KIPS  $C_{S}$ =.213 EFFECTIVE SEISMIC WEIGHT=55.8KIPS WIND SPEED= 95mph

DBS

TOPO FACTOR K<sub>7T</sub>=1

#### **Code Program** Committee I-3: Structural Observation

**Los Angeles Regional Uniform** 

STRUCTURAL OBSERVATION PROGRAM

AND DESIGNATION OF THE STRUCTURAL OBSERVER

PROJECT ADDRESS: 331 W. 232RD ST. CARSON. CA 900745

Description of Work: ADDITION TO (E) S.F.D.

Engineer: SOUREN GRIGORYAN Architect: STRUCTURAL OBSERVATION

☐ Masonry Wall Frame

SHEARWALLS | 🛛 Others: FRAMING

**LARUCP** 

PERMIT APPL. NO.:

☐ Others:

Firm or Individual to be responsible for the Structural Observation: Calif. Registration: C93320 Name: SG DESIGN STUDIO INC. Phone: (818)967 3139 **FRAME** DIAPHRAGM **FOUNDATION** ☐ Concrete Steel Moment Frame ☐ Concrete ☐ Mat Foundation ☐ Steel Deck ☐ Masonry Steel Braced Frame ☐ Caisson, Piles, Grade Beams ☑ Wood ☐ Concrete Moment Frame 

# ☐ Others: ANCHOR BOLTS, HOLDOWNS

☐ Stepp' g/Retain' g Foundation,

Hillside Special Anchors

**DECLARATION BY OWNER** I, the Owner of the project, declare that the above listed firm or individual is hired **by me** to be the

Others:

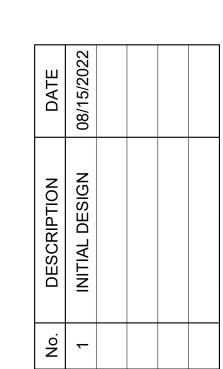
NAILING

**DECLARATION BY ARCHITECT OR ENGINEER OF RECORD** (required if the Structural Observer is

different from the Architect or Engineer of Record)

I, the Architect or Engineer of record for the project, declare that the above listed firm or individual is designated by me to be responsible for the Structural Observation.

Signature License No.



PROJECT No.22-262 **DESIGNED BY: OH** 

CHECKED BY: SG

SS: ST, 074 що DRE 23RI CA Z 2 D B A W S 331 331

Ш O Z 2 STRU

S





**S-0** 

		ROOF	
	ELEMENT/CONNECTION	FASTENER	LOCATION
1	Blocking between ceiling joists,	3-8d common (2 1/2" x 0.131")	Toenail each end
	rafters or trusses to top plate or		
	other framing below	3-10d common (3" x 0.128")	
	Blocking between rafter to truss	2-8d common (2 1/2" x 0.131"	Toenail each end
	not at the wall top plate, to rafter		
	or truss	2-16d common (3 1/2" x 0.162")	End Nail
	Flat blocking to truss and web	16d common (3 1/2" x 0.162") @ 6" o.c.	Face Nail
	filler		
2	Ceiling joist to top plate	3-8d common	Toenail each joist
3	Ceiling joist not attached to	3-16d common	Face Nail
	parallel rafter, laps over partition		
	(No thrust) (Table and		
4	Ceiling joist attached to parallel	table 2308.7.3.1	Face Nail
	rafter(heel joint)		
	(Table and section 2308.7.3.1)		
5	Collar tie to rafter	3-10d common	Face nail
6	Rafter to roof truss to top plate	3-10d common	Toenail
	(Table and section 2308.7.5)		
7	Roof rafter to ridge valley or hip	2-16d common	End nail
	rafters, or roof rafters to 2" ridge		
	beam	3-10d common	Toenail
8	Stud to stud (not at braced panel)	16d common	24" o.c. Face Nail
9	Stud to stud and abutting studs at	16d common	16" o.c. Face Nail
	intersecting wall corner(at braced		
	wall panels)		
10	Build-up header	16d common	16" o.c. each edge, Fa
11	Continuous header to stud	4-8d common	Toenail
12	Top plate to top plate	16d common	16" o.c. Face Nail
13	Top plate to top plate, at end	8-16d common	each side of end joint, t
	joint		nail(Min. 24" lap splic
14	Bottom plate to joist, band joist	16d common	16" o.c. Face Nail
	or blocking (not at braced wall		
	panels)		
15	Bottom plate to joist, rim joist,	2-16d common	16" o.c. Face Nail
	band joist or blocking at braced		
	wall panels		
16	Stud to top or bottom plate	4-8d common	Toenail
		2-16d common	End Nail
17	Top or bottom plate to stud	2-16d common	End Nail
18	Top plates, laps at corners and	2-16d common	Face Nail
	intersections		
19	1" brace to each stud and plate	2-8d common	Face Nail
20	1"x6" sheathing to each bearing	2-8d common	Face Nail

		FLOOR	
	ELEMENT/CONNECTION	FASTENER	LOCATION
22	Joist to sill, top plate or girder	3-8d common	Toenail
23	Rim joist, band joist, or blocking	8d common	6" o.c., Toenail
	to top plate, sill or other framing		
	below		
24	1"x6" subfloor or less to each	2-8d common	Face Nail
25	2" sub floor to joist or girder	2-16d common	Face Nail
26	2" plank	2-16d common	each bearing face nail
27	Build-up girders and beams, 2"	2d common	32" o.c. Face Nail at top
	lumber layers		and bottom staggered on
			opposite sides
		<u>And</u>	Ends at each splice, Face
		2-20d common	Nail
28	Ledger strip supporting joists or	3-16d common	Each joist or rafter, Face
	rafters		Nail
29	Joist to band joist or rim joist	3-16d common	End Nail
30	Bridging or blocking to joist,	2-8d common	Each eand, Toenail
	rafter or truss		

	OTHER EXTERIOR WALL SHEATHING					
	ELEMENT/CONNECTION	FASTENER	LOCATION			
34	1/2" fiberboard sheathing	1 1/2" galvanized roof nail	6" edge			
		1 1/4" 16 gage staples with 7/16" or 1" crown	12" intermediate support			
35	25/32" fiberboard sheathing	13/4" galvanized roof nail	6" edge			
		1 1/2" 16 gage staples with 7/16" or 1" crown	12" intermediate support			

	PANEL SIDING TO FRAMING					
	ELEMENT/CONNECTION	FASTENER	LOCATION			
39	1/2" or less	6d corrosion-resistant siding	6" edge			
		6d corrosion-resistant casing	12" intermediate support			
40	5/8"	8d corrosion-resistant siding	6" edge			
		8d corrosion-resistant casing	12" intermediate support			

	INTERIOR PANELING				
	ELEMENT/CONNECTION	FASTENER	LOCATION		
41	1/4"	4d casing	6" edge		
		4d finish	12" intermediate support		
42	3/8"	6d casing	6" edge		
		6d finish	12" intermediate support		

a. Nails spaced at 6" at intermediate supports where spans are 48" or more. For nailing of wood structural panel and particleboard diaphragms and shear walls, refer to Section 2305. Nails for wall sheathing are permitted to be common, box or casing

b. Spacing shall be 6" on center on the edges and 12" on center at intermediate supports for nonstructural applications. Panel supports at 16" (20" If strength axis in the long direction of the panel, unless otherwise c. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule and the ceiling joist is fastened to the top plate in accordance with this schedule, the number of toenails in the rafters shall be

When discrepancies occur between nailing specified on plans and this schedule, larger nailing shall govers.

Engineer shall be notified of such discrepancies prior to installation.

permitted to be reduced by one nail.

STRAP TABLE (SIMPSON CATALOG)					
			CS/CMST		
MODEL NO	TOTALI	<u> </u>	DF	/SP	NAUC DED FOOT
MODEL NO.	TOTALL	Ga	FASTENERS	END LENGTH(in)	NAILS PER FOOT
CMST12	40'	12	(86)10d	39	27
CMST14	52-1/2'	14	(66)10d	30	27
CMSTC16	54'	16	(50)16d Sinker	20	30
CS14	100'	14	(30)8d	16	23
CS16	150'	16	(22)8d	13	21
CS18	200'	18	(18)8d	11	20
CS20	250'	20	(14)8d	9	19
CS22	300'	22	(12)8d	7	21
			MS		
MODELNO			FAST	ENERS	NAUC BED FOOT
MODEL NO.	Ga		NAILS	LENGTH(in)	NAILS PER FOOT
MST27	12		(30)16d	27	14
MST37	12		(42)16d	37 1/2	14
MST48	12		(50)16d	48	13
MST60	10		(68)16d	60	14
MST72	10		(68)16d	72	12

#### 2. STRAP SCHEDULE

FOOTING SIZE	REBAR QTY. & SIZE
X≤18" SQ	(3) #4 EA. WAY
18" <x≤24" sq<="" td=""><td>(4) #4 EA. WAY</td></x≤24">	(4) #4 EA. WAY
24" <x≤30" sq<="" td=""><td>(5) #4 EA. WAY</td></x≤30">	(5) #4 EA. WAY
30" <x≤36" sq<="" td=""><td>(6) #4 EA. WAY</td></x≤36">	(6) #4 EA. WAY
36" <x≤48" sq<="" td=""><td>(7) #4 EA. WAY</td></x≤48">	(7) #4 EA. WAY
48" <x≤54" sq<="" td=""><td>(8) #4 EA. WAY</td></x≤54">	(8) #4 EA. WAY
54" <x≤60" sq<="" td=""><td>(9) #4 EA. WAY</td></x≤60">	(9) #4 EA. WAY

- FOOTING SHALL BE AT LEAST 24" DEEP.
- MINIMUM 3" CLEAR COVER WHEN CAST AGAINST SOIL.
- FOR RECTANGULAR FOOTINGS, USE #4 REBAR @ 6" O.C. EACH WAY.

#### 3. PAD FOOTING REINFORCEMENT SCHEDULE

ESR & LARR			
DESCRIPTION	ESR	LARR	
Simpson Strongwall Shear Panels	2652	25730	
Simpson ABA, ABU, ABW	1622	_	
Simpson CBSQ, PB, CB/LCB, PPBZ, MPBZ	3050	25985	
Simpson SD Wood Screws	3096	25910	
Simpson LU, U, HU, LUS, MUS, HUS, HHUS, SUR\L, HSUR\L, HTU, LUCZ	2549, 2523	25807	
Simpson Top Flange Hangers for Engineered Wood			
Products and Glulam Beams (GLT, HGLT, GLS, HGLS, EG/MEG/LEG, MSC, ITS/MIT/HIT, LBV/B/HB/BA, EGQ)	2615	25803	
Simpson Hangers for composite lumber and prefabricated wood I-			
joists.( IUS, U, HU/HUC, HUS/HUSC, HHUS, SUR/L, HSUR/L, MIU, HGUS,	2552	25801	
LGU,MGU,HGU, HHGU, HUCQ )			
Simpson SET-XP Epoxy Adhesive Anchors for Cracked and	2500	25744	
Uncracked Concrete	2508	25744	
Simpson Column Caps for wood construction- (1. CC, ECC, CCQ and ECCQ	2004	25714	
Column Caps) (2. AC, EAC, LPC, PC, EPC, BC, BCS, EPCZ, AND PCZ Post	2604	23/17	
Simpson Straps- FHA, HST, LSTA, LSTI, MST, MSTA, MSTC, MSTI, and ST			
Series Straight Tie Straps; CMST and CS Series Coiled Tie Straps; CMSTC16	2105	25713	
Coiled Tie Strap; CTS218 Compression/Tension Straps MSTCB3 Series	2105		
Straps.			
Simpson Hold-Down Connectors- HDU, HDQ8, HHDQ, DTT2, and HDC10	2330	25720	
Clips and Plates for Wood Framing- A Series, A34, A35, FC, GA, H2A,			
H2.5T, H8, H10A-2, H10S, H14, HH, L, LCE4, LS, LP4, LTP5, LS, RBC,	3096	25814	
RBCP, and TJC37 Angles, Z Clips, and FWANZ			
Hardy Frame Panels HFX and HFX/S Series Panels and Brace Frames, HFX	2089	25759	
Series Bearing Plate, HFP Series Post, and Hardy Frame® Saddle	2069	25759	
SIMPSON PDPW-300 SHOT PINS	2138	-	
SIMPSON Embedded Column Bases in Concrete: CBSQ-SDS2, EPB, PB,	3050	25005	
PBS, EPS, CB/LCB, PPBZ and MPBZ.	3050	25985	
Structural Composite Lumber: TimberStrand® Laminated Strand			
Lumber(LSL), Parallam® Parallel Strand Lumber (PSL), and Microllam®	1207	25202	
Laminated Veneer Lumber(LVL); TimberStrand® LSL Rim Board,	1387	25202	
Microllam LVL Rim Board; and TJ® Rim Board.			

### ESR AND LARR TABLE

	f	' <sub>c</sub> = 2.5 KS	SI .	f	' <sub>c</sub> = 3.0 KS	i .	f	' <sub>c</sub> = 4.0 KS	il
Bar	Straight		Class B	Straight	Hooked	Class B	Straight		Class B
	L <sub>d</sub> (in)	Hooked	Splice	L <sub>d</sub> (in)	L <sub>d</sub> (in)	Splice	L <sub>d</sub> (in)	Hooked	Splice
#3	18	9	23.5	16.5	8.5	21.5	14.5	7.5	18.5
#4	24	12	31.5	22	11	28.5	19	9.5	25
#5	30	15	39	27.5	14	36	24	12	31
#6	36	18	47	33	16.5	43	28.5	14.5	37
#7	52.5	21	68.5	48	19.5	62.5	42	17	54
#8	60	24	78	55	22	71.5	47.5	19	62
#9	67.5	27	88	62	25	80.5	53.5	21.5	69.5
#10	75	30	97.5	68.5	27.5	89.5	59.5	24	77.5
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Note: Clear cover and spacing of reinforcement shall satisfy ACI 318-14 25.4.2.2

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N. STRUCTURAL, CAST-MAPLAGE CONCRETE  J. REND-FORD STEEL MATERIALS AND PLACEMENT  PERIOD  J. REND-FORD STEEL MATERIALS AND PLACEMENT  J. REND-FORD STEEL MATERIALS AND PLACEMENT  J. WERRY USE OF PEQUIPER DIAL PRIOR TO AND DURING CONCRETE PLACEMENT  OCONTRUM.  J. WERRY USE OF PEQUIPER OWN DESIGN  PERIOD  J. WERRY USE OF PEQUIPER OWN DESIGN  J. WERRY USE OF PEQUIPER OWN DESIGN  MAINTENANCE OF SPECIFIED CURRING TEMPERATURE AND TECHNIQUES  MAINTENANCE OF SPECIFIED COURSE.  MAINTENANCE OF SPECIFIED CURRING TEMPERATURE AND TECHNIQUES  MAINTENANCE OF SPECIFIED COURSE.  MAINTENANCE OF SPECIFIED COURSE.  MAINTENANCE OF SPECIFIED CURRING TEMPERATURE AND TECHNIQUES  MAINTENANCE OF SPECIFIED COURSE.  MAINTENANCE OF MAINTENANCE OF SPECIFIED COURSE.  MAINTENAN		CONTINUC
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7. FORMACRK FOR SHAPE, LOCATION, AND DIMENSIONS  NESPECTION OF POST INSTALLED ANCHORS AND DOWELS  1. ADNESSIVE ANCHORS AND REINFORCEMENT DOWELS:  2. HOLE DEPTH AND CLEANING PROCEDURE  2. HOLE DEPTH AND CLEANING PROCEDURE  3. PRODUCT DESCRIPTION INCLUDING NAME, ROD TYPE, DIAMETER, AND LENGTH  CONTINU.  3. PRODUCT DESCRIPTION INCLUDING NAME, ROD TYPE, DIAMETER, AND LENGTH  CONTINU.  5. PROPER INSTALLATION TECHNIQUE FOR ADHESIVE ANCHORS  ONTINU.  5. PROPER INSTALLATION TECHNIQUE FOR ADHESIVE ANCHORS  ONTINU.  5. PROPER INSTALLATION TECHNIQUE FOR ADHESIVE ANCHORS  ONTINU.  6. WERLEY DRILL BIT TYPE AND SIZE  CONTINU.  7. PROPER INSTALLATION TECHNIQUE FOR MECHANICAL ANCHORS AND TIGHTENING TORQUE  ONTINU.  8. PROPER INSTALLATION TECHNIQUE FOR MECHANICAL ANCHORS AND TIGHTENING TORQUE  2. HOLE DEPTH AND CLEANING PROCEDURE  3. PRODUCT DESCRIPTION INCLUDING NAME, ANCHOR TYPE, DIAMETER, AND LENGTH  CONTINU.  7. VERIFY DRILL BIT TYPE AND SIZE  2. HOLE DEPTH AND CLEANING PROCEDURE  3. PRODUCT DISCRIPTION INCLUDING NAME, ANCHOR TYPE, DIAMETER, AND LENGTH  CONTINU.  7. VERIFY DRILL BIT TYPE AND SIZE  2. HOLE DEPTH AND CLEANING PROCEDURE  3. PRODUCT DISCRIPTION INCLUDING NAME, ANCHOR TYPE, DIAMETER, AND LENGTH  CONTINU.  6. PROPER INSTALLATION TECHNIQUE FOR UNDERCUT ANCHORS AND TIGHTENING TORQUE  CONTINU.  7. VERIFY DRILL BIT TYPE AND SIZE  CONTINU.  8. PROPER DESCRIPTION INCLUDING NAME, ANCHOR TYPE, DIAMETER, AND LENGTH  CONTINU.  8. PROPER DESCRIPTION INCLUDING NAME, ANCHOR TYPE, DIAMETER, AND LENGTH  CONTINU.  8. PROPER DESCRIPTION INCLUDING NAME, ANCHOR TYPE, DIAMETER, AND LENGTH  CONTINU.  8. PROPER DESCRIPTION INCLUDING NAME, ANCHOR TYPE, DIAMETER, AND LENGTH  CONTINU.  8. PROPER DESCRIPTION INCLUDING NAME, ANCHOR TYPE, DIAMETER, AND LENGTH  CONTINU.  8. PROPER DESCRIPTION INCLUDING NAME, ANCHOR TYPE, DIAMETER, AND LENGTH  CONTINU.  9. PROPER DESCRIPTION INCLUDING NAME, ANCHOR TYPE, DIAMETER, AND LENGTH  CONTINU.  9. PROPER DESCRIPTION TO THE CONTINUE OF THE		CONTINUC
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11. OBSERVE PREPARATION OF REQUIRED GROUT SPECIMENS, MORTAR SPECIMENT, AND/OR PRISMS  12. VERIFY COMPLIANCE WITH THE REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND INSPECTION OF WOOD CONSTRUCTION (2019 CBC SEC 1705.5)  SHOP FABRICATED STRUCTURAL ELEMENTS:  A. MAINTENANCE AND ADHERENCE TO FABRICATION AND QUALITY CONTROL PROCEDURES.  B. FABRICATION TOLERANCE  B. FABRICATION WOOD CONSTRUCTION:  A. WOOD STRUCTURAL PANEL SHEATHING (HIGH-LOAD DIAPHRAGMS)  B. NOMINAL SIZE, GRADE, AND TYPE OF FRAMING MEMBERS  C. FASTENER DIAMETER, LENGTH, QUALITY, LOCATION, EDGE DISTANCE AND SPACING.  C. CONNECTOR TYPE, MANUFACTURE, AND FASTENERS  D. PERIOL INSPECTION OF SOILS (2019 CBC SEC 1705.6)  1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.  2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.  PERIOL OF COMPACTED FILL.  4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTINUE OF COMPACTED FILL.		PERIODI
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**GENERAL NOTES** 

- 1. Notes provided on structural plans shall take precedence over these general
- notes and specifications.

  2. Dimensions: Written dimensions shall have precedence over scale dimensions.

  Contractor shall check all dimensions against architectural plans prior to
- construction.

  3. Codes and specifications: All work and construction shall comply with IBC2018, CBC2019 and LABC2020 building codes, specifications, regulations and safety
- 4. Safety: During the construction period the contractor shall be responsible for the safety of the building. The contractor shall provide adequate shoring, bracing
- and guys in accordance with all national, state and local safety ordinances.

  5. Erection: All erection procedures shall conform to OSHA standards. Any deviation
- must be approved by OSHA prior to erection.

  6. Earth work: The contractor shall be solely responsible for all excavation procedures including lagging, shoring and protection of adjacent property, structures, streets and utilities in accordance with all national, state and local safety ordinance.
- 7. Other trades: The contractor shall be responsible for coordinating the work of all trades and shall check all dimensions and conditions of the job. All discrepancies shall be called to the attention of the architect or engineer and be resolved before proceeding with work.
- 8. Shop drawings: Shop drawings required by the specifications shall be submitted to the architect or engineer for review prior to fabrication.
- 9. Details: Drawings indicate general and typical details and notes of instruction, where conditions are not specifically indicated but are of similar character to details shown, similar details of construction shall be used subject to review by the architect or engineer.
- 10. Openings: See architectural drawings for size and location of all floor and wall openings, floor finishes, etc.
- 11. Other trades: See mechanical, plumbing and electrical drawings for size and location of all openings required for ducts, pipes and all pipe sleeves, electrical conduits and other items to be embedded in concrete or otherwise incorporated in structural work.
- 12. Special details: Provide openings and supports, as required per special details for heaters, mechanical equipment, vents, ducts, piping, etc. All suspended mechanical equipment to be stayed or laterally braced.
- 13. Modifications: All information shown on the drawings, relative to existing conditions is given as the best present knowledge, but without guarantee of accuracy, where actual conditions conflict with the drawings they shall be reported to the architect or engineer so that proper revisions may be made. Modification of details of construction shall not be made without written approval of the architect and engineer.
- 14. Other plans: Architectural and mechanical plans are considered as part of the structural design drawings and are to be used to define detail configurations including, but not limited to relative location of members, elevations, location of all openings, etc.
- 15. Other items: Skylight, storefront stair fabricator, etc. shall submit structural design calculations and drawings for all framing members and connections (including connections to structural members) to structural engineer and building department for their approval prior to fabrication. Calculations and drawings shall comply with all requirements of latest applicable building code. These drawings shall be designed and signed by a registered engineer.
- 16. Mechanical: Mechanical equipment must be firmly attached to the structure, isolators, fasteners, and any other elements providing stability for mechanical equipment must be approved by an engineer or equivalent to at least 0.3 x operating weight of equipment.
- 17. Stairs: All stairs are to be steel stairs per architectural drawings except where concrete or wooden stairs are specifically shown. Structural calculations and drawings signed by a licensed civil engineer in the state are to be submitted to the engineer. drawings are to include connections to the structure. Engineer will approve the drawings as to their compliance with the intent of the structural drawings and specifications.
- 18. Shoring: It shall be the contractor's sole responsibility to design and provide adequate shoring. bracing and formwork, etc., as required for the protection of life and property during the construction of this building. Post-tensioned or reinforced concrete slabs may carry shoring loads equivalent to their design superimposed loads include live load, partition load, and any other load not in place at time of shoring.
- 19. Backfill: Backfill around the exterior perimeter of walls shall not be placed until after the walls are supported by the completion of interior floor system. Do not proceed with backfill until 7 days (minimum) after the completion of interior floor systems unless walls are adequately braced. Backfill shall not be placed until after the completion and inspection of damp proofing.
- 20. Bracing: Do all temporary bracing as required to hold the various elements in
- place until final support is securely anchored.

  21. The drawings and specifications represent the finished structure and do not indicate the method of construction. The contractor shall supervise and direct the work and shall be solely responsible for construction means, methods, techniques, sequences and procedures, including, but not limited to bracing and shoring. Observation visits to the site by the engineer shall not include inspections of the protective measures or the construction procedures. Any support services performed by the engineer during the construction shall be distinguished from continuous and detailed inspection services. These support services performed by the engineer, whether of material of work, and whether performed prior to, during or after completion of construction, are performed solely for the purpose of assisting in quality control and in achieving conformance with contract documents, but do not guarantee contractor's performance and shall not be construed as supervision of construction.
- 22. Where construction materials are temporarily stored on roof or floor framing, they shall be distributed so that the load does not exceed design live load. Adequate shoring and/or bracing shall be provided where structural members have not attained design strength.
- 23. ASTM designations and all standards refer to the latest amendments.

DATE	08/15/2022		
DESCRIPTION	INITIAL DESIGN		
No.	_		

PROJECT No.22-262

DESIGNED BY: OH

CHECKED BY: SG

JOB ADDRESS: 331 W 223RD ST, CARSON, CA 90745

> STRUCTURAL SCHEDULES

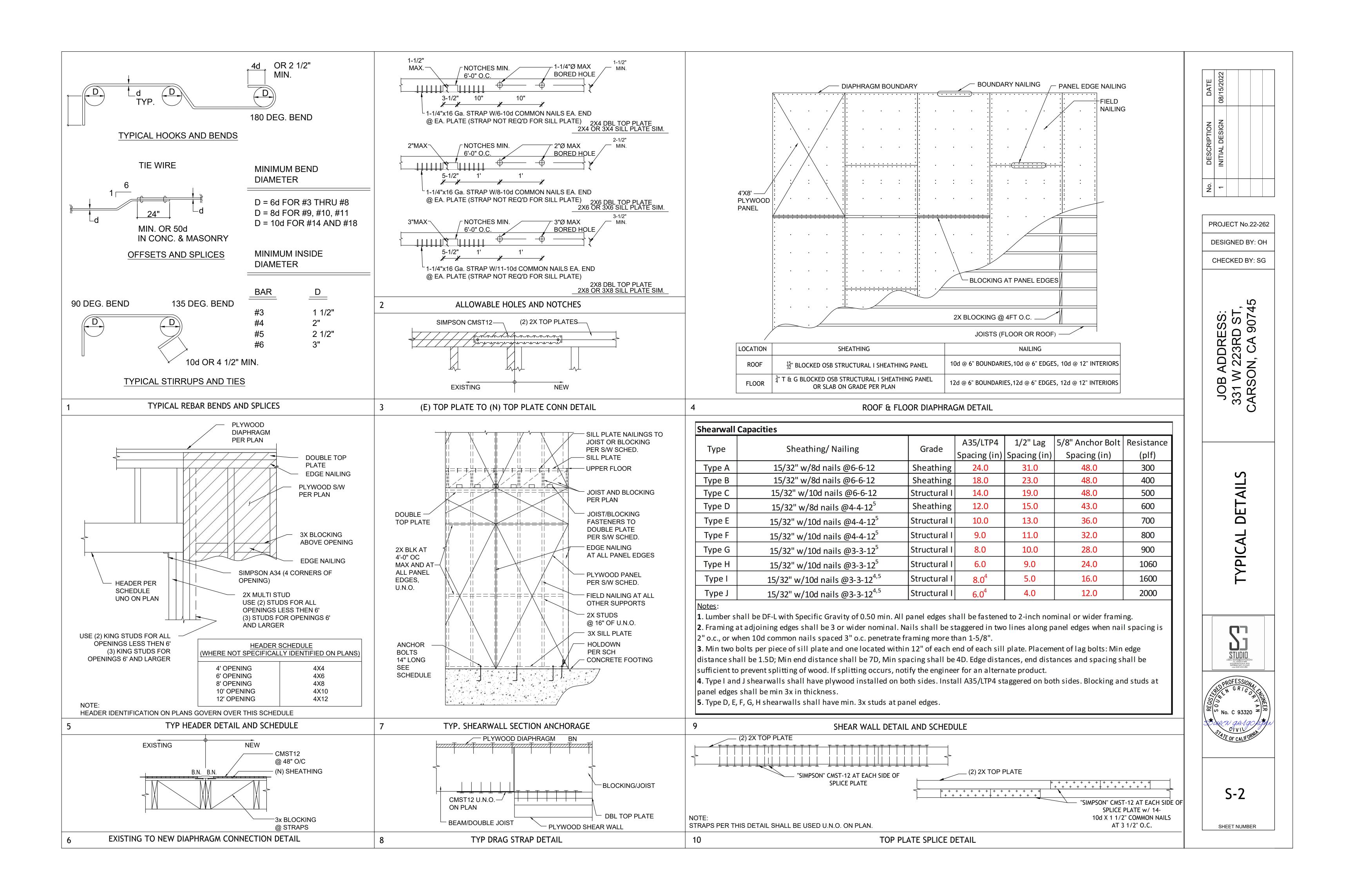


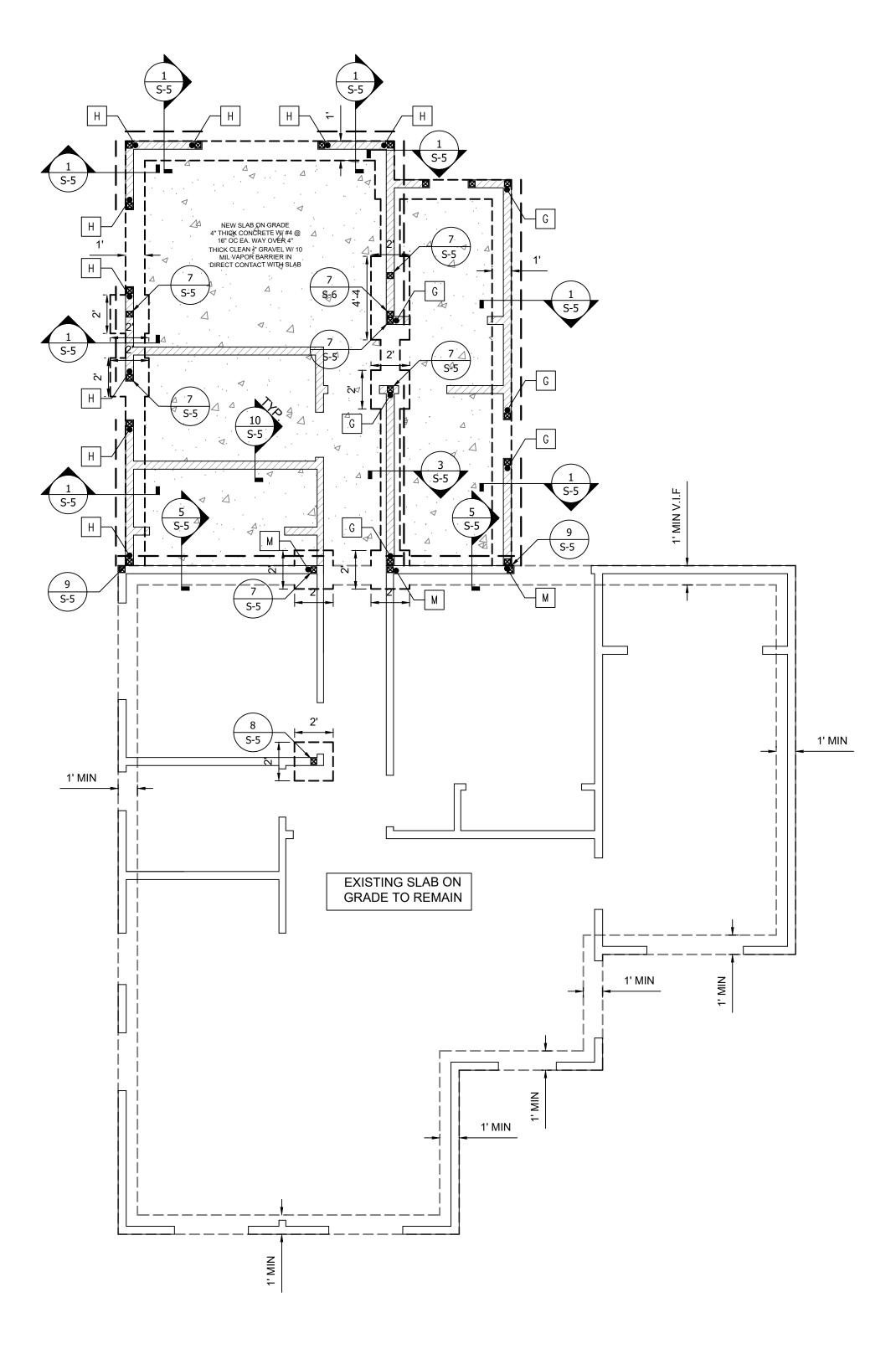


**S-1** 

SHEET NUMBER

FASTENING SCHEDULE - CBC TABLE 2304.10.1 5. SPLICE SCHEDULE 6. INSPECTION SCHEDULE 7.







FOUNDATION PLAN

Scale: 1/4'' = 1'

DATE	08/15/2022		
DESCRIPTION	INITIAL DESIGN		
No.	_		

DESIGNED BY: OH

CHECKED BY: SG

FOUNDATION

NOTE:

- FOR SHEATHING INFORMATION SEE SHEET S-2.
   ALL PLUMBING WALLS SHALL BE CONSTRUCTED USING 2X6 DF-L NO.2
- STUDS 16 IN O.C.
  3. IF ANY DISCREPANCIES IN MEMBER SIZES OCCUR, LARGER SIZE SHALL
- ALL UNLABELED HDRS SHALL CONFORM TO HDR SCHEDULE ON S-2.
   CONTRACTOR TO VERIFY EXISTING CONDITIONS AND NOTIFY ENGINEER

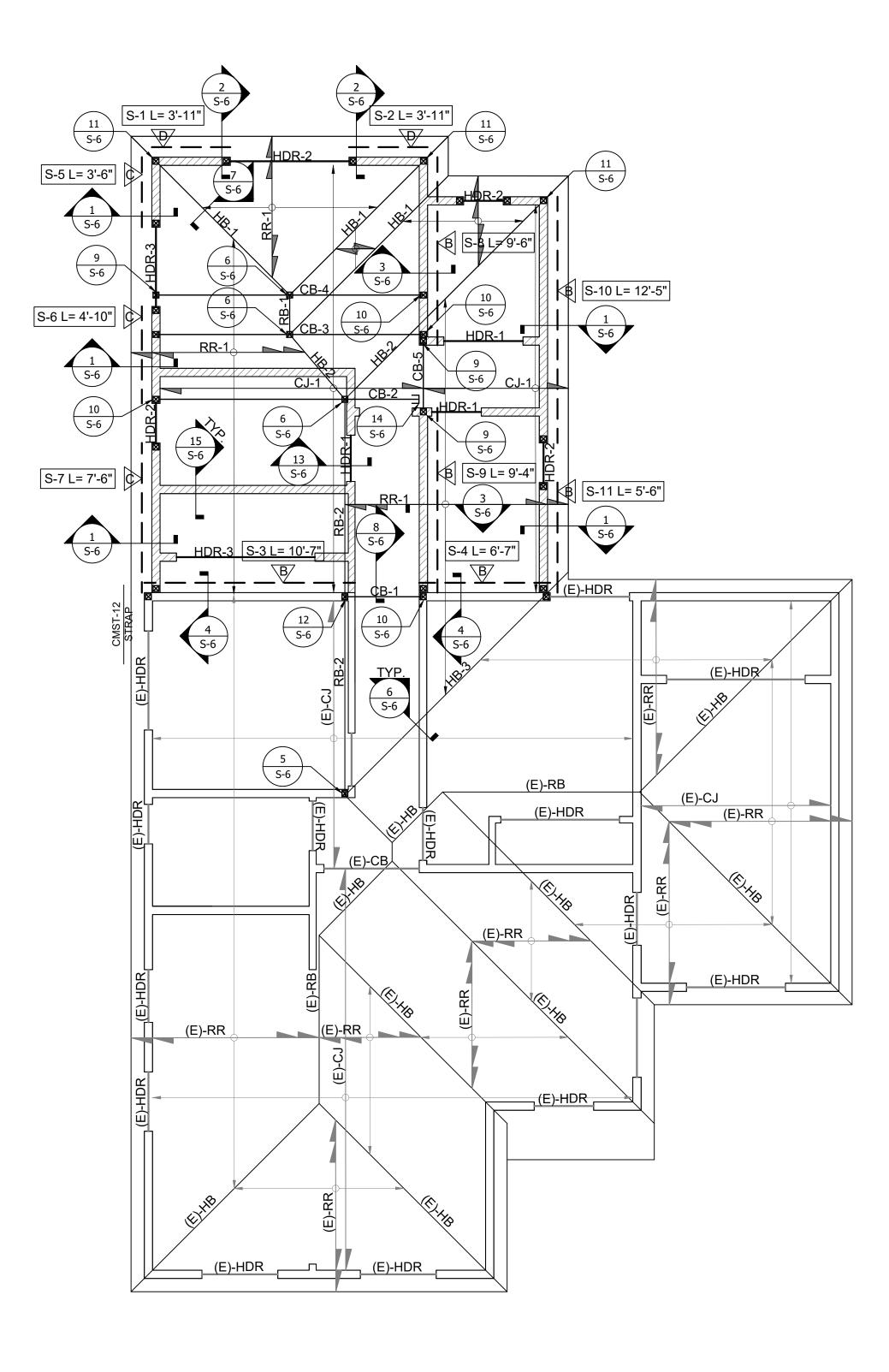
OF RECORD IF ANY DIS	OF RECORD IF ANY DISCREPENSIES TO PLAN ARE PRESENT.					
	LEGEND					
	EXISITNG STUD WALL TO REMAIN					
	NEW STUD WALL. SEE STUD WALL SCHEDULE					
	4X4 POST DF-L No.2 (C-1)					
	EXISITING FOUNDATION TO REMAIN					
	NEW FOUNDATION F/C= 2500 PSI					
	SHEAR WALL PER SCHED.					
-	-HOLDOWN INTO (N) EXT. FOUNDATION. SEE 2/S-5 FOR H.D.'S G,H,I,J,KHOLDOWN INTO (N) INT. FOUNDATION. SEE 4/S-5 FOR H.D.'S G,H,I,J,KHOLDOWN INTO (E) EXT. FOUNDATION. SEE 6/S-5 FOR H.D.'S M,N,O,MS,NS,OS.					

STUD WALL SCHEDULE				
	CTUD WALL CRECIFICATIONS			
WALL TYPE	STUD WALL SPECIFICATIONS			
EXTERIOR 1ST FLOOR WALLS	2X4 DF-L No.2 STUDS @ 16" O.C.			
INTERIOR 1ST FLOOR WALLS	2X4 DF-L No.2 STUDS @ 16" O.C.			
ALL PLUMBING WALLS	2X6 DF-L No.2 STUDS @ 16" O.C.			





**S-3** 



ROOF FRAMING PLAN В

Scale: 1/4'' = 1'

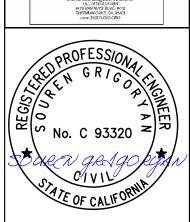
DATE	08/15/2022		
DESCRIPTION	INITIAL DESIGN		
No.	_		

PROJECT No.22-262 DESIGNED BY: OH

CHECKED BY: SG

JOB ADDRESS: 331 W 223RD ST, CARSON, CA 90745

PLA **FRAMING** ROOF



**S-4** SHEET NUMBER

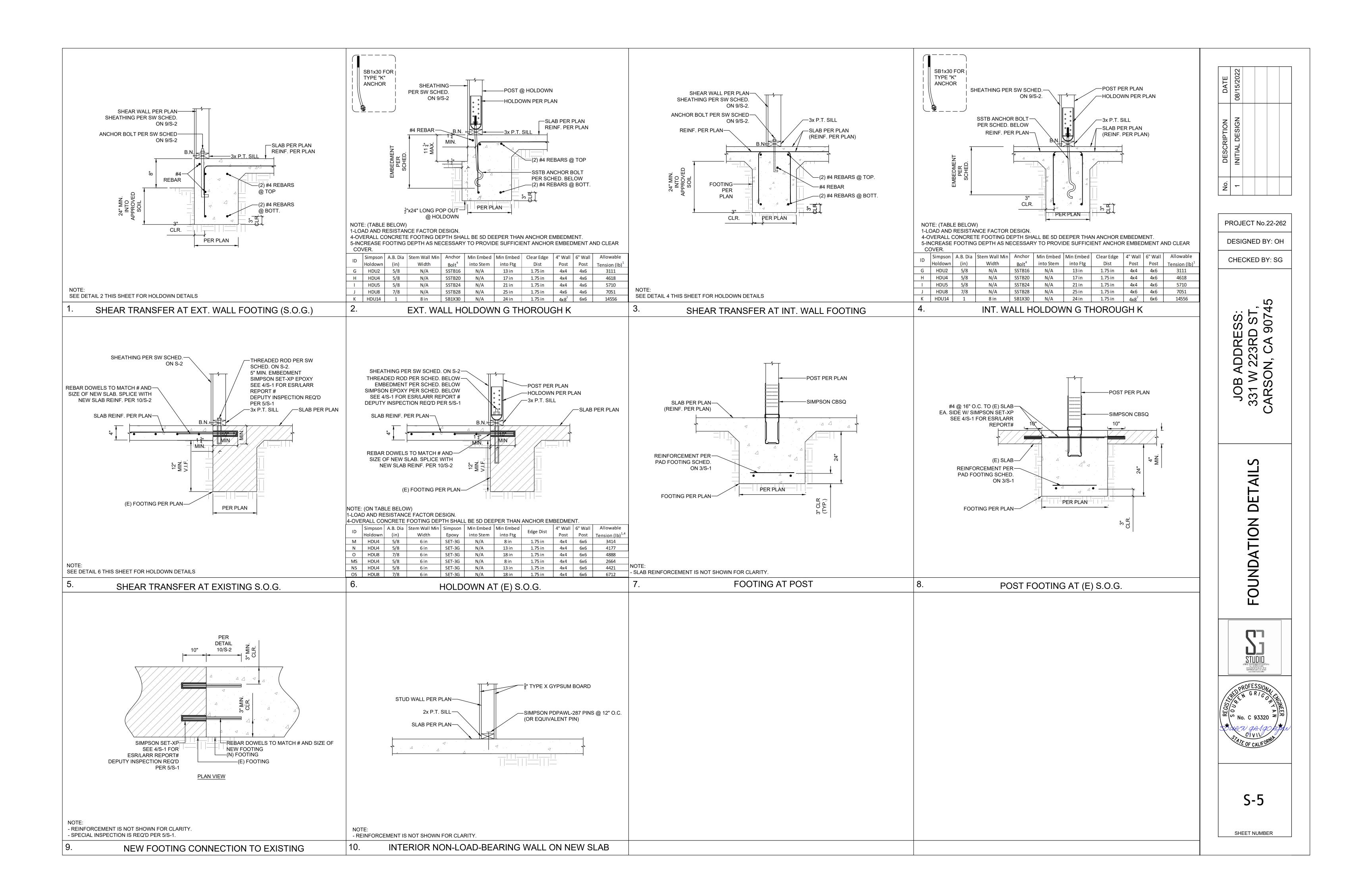
- 1. FOR SHEATHING INFORMATION SEE SHEET DETAIL 4/S-2.
- 2. ALL PLUMBING WALLS SHALL BE CONSTRUCTED USING 2X6 DF-L NO.2 STUDS 16 IN O.C.
- 3. IF ANY DISCREPANCIES IN MEMBER SIZES OCCUR, LARGER SIZE SHALL
- ALL UNLABELED HDRS SHALL CONFORM TO HDR SCHEDULE ON S-2. CONTRACTOR TO VERIFY EXISTING CONDITIONS AND NOTIFY ENGINEER
- OF RECORD IF ANY DISCREPANCIES TO PLAN ARE PRESENT.

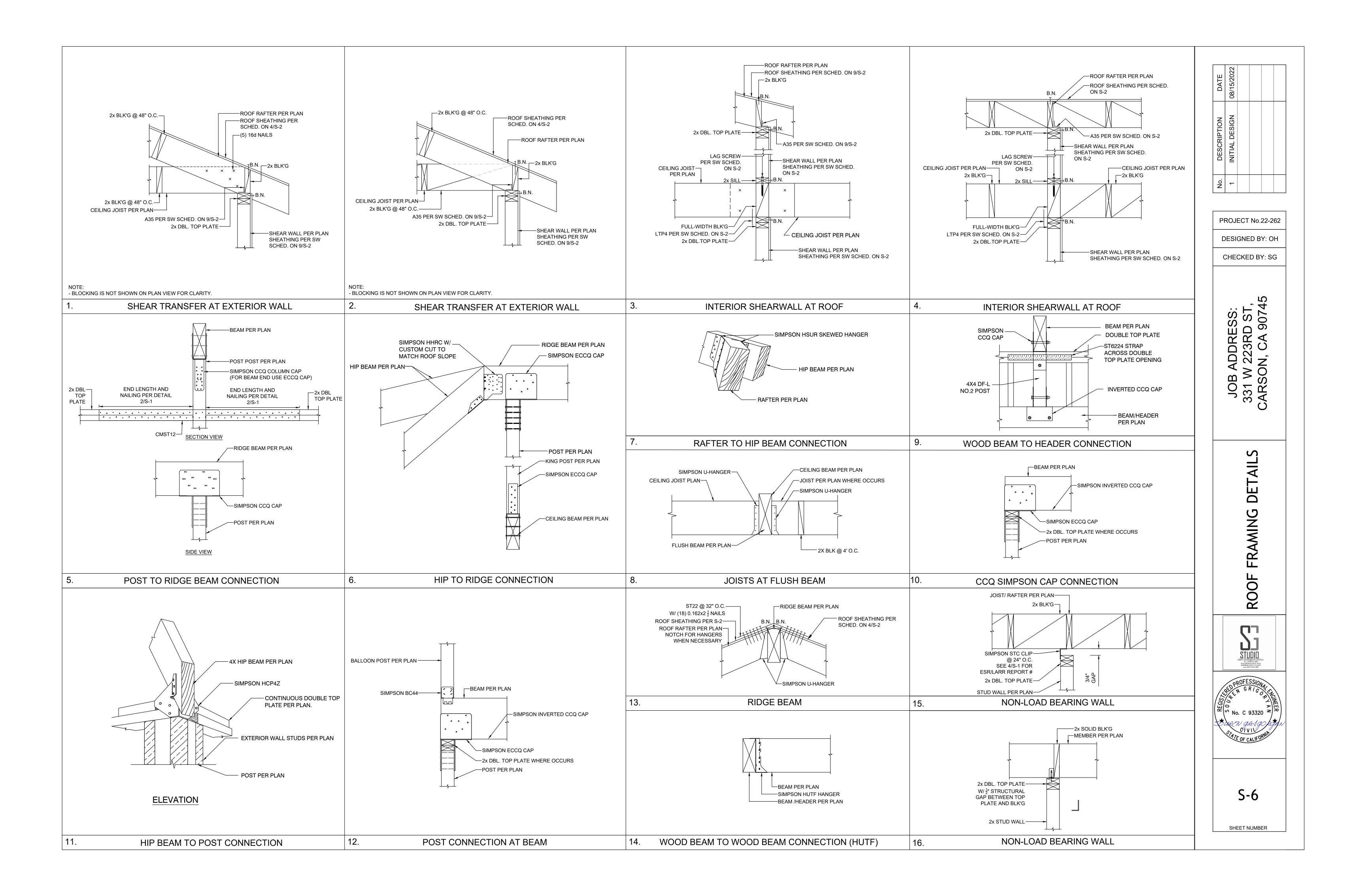
  6. ALL GIVEN DIMENSIONS SHALL GOVERN OVER SCALED DIMENSIONS.

**LEGEND** NEW STUD WALL. SEE STUD WALL SCHEDULE. EXISITING STUD WALL TO REMAIN 4X4 POST DF-L No.2 (C-1) SHEAR WALL PER SCHED. S-O L= 00'-0" SHEAR WALL SPECIFICATIONS SHEARWALL LENGTH SHEARWALL NUMBER SHEARWALL TYPE PER DETAIL 9/S-2 ROOF RAFTER SEE MEMBERS SCHED. CEILING JOIST SEE MEMBERS SCHED. MEMBER SCHEDULE

MEMBER	SIZE	GRADE
RR-1	2X6 @ 16" O.C.	DF-L No.1
CJ-1	2X8 @ 16" O.C.	DF-L No.1
RB-1	4X8	DF-L No.1
RB-2	4X10	DF-L No.1
HB-1	4X8	DF-L No.1
HB-2	4X8	DF-L No.1
HB-3	4X10	DF-L No.1
CB-1	4X10	DF-L No.1
CB-2	4X12	DF-L No.1
CB-3	4X10	DF-L No.1
CB-4	4X10	DF-L No.1
CB-5	4X12	DF-L No.1
HDR-1	4X4	DF-L No.2
HDR-2	4X6	DF-L No.1
HDR-3	4X8	DF-L No.1
	STUD WALL SCHEDUL	E

0.05 17/12 001125022					
WALL TYPE	STUD WALL SPECIFICATIONS				
EXTERIOR 1ST FLOOR WALLS	2X4 DF-L No.2 STUDS @ 16" O.C.				
INTERIOR 1ST FLOOR WALLS	2X4 DF-L No.2 STUDS @ 16" O.C.				
ALL PLUMBING WALLS	2X6 DF-L No.2 STUDS @ 16" O.C.				





REVISIONS

CERTIFICATE OF COMPLIANCE CF1R-PRF-01E Project Name: 311 W. 223 Rd. Calculation Date/Time: 2022-08-05T16:27:30-07:00 (Page 1 of 9) Calculation Description: Title 24 Analysis Input File Name: 311 W. 223 Rd. St..ribd19x

01	Project Name	311 W. 223 Rd.					
02	Run Title	Title 24 Analysis					
03	Project Location	311 W. 223 Rd.					
04	City	Carson	05	Standards Version	2019		
06	Zip code	90745	07	Software Version	EnergyPro 8.3		
08	Climate Zone	8	09	Front Orientation (deg/ Cardinal)	180		
10	Building Type	Single family	11	Number of Dwelling Units	1		
12	Project Scope	AdditionAlteration	13	Number of Bedrooms	3		
14	Addition Cond. Floor Area (ft <sup>2</sup> )	428	15	Number of Stories	1		
16	Existing Cond. Floor Area (ft <sup>2</sup> )	1012	17	Fenestration Average U-factor	0.3		
18	Total Cond. Floor Area (ft <sup>2</sup> )	1440	19	Glazing Percentage (%)	11.86%		
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a		
22	Is Natural Gas Available?	Yes		The	<del>1.</del>		

OMPLIANCE	RESULTS HERS PROVIDER
01	Building Complies with Computer Performance
02	Building does not require field testing or HERS verification
03	This building incorporates one or more Special Features shown below

ENERGY USE SUMMARY						
Energy Use (kTDV/ft <sup>2</sup> -yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement		
Space Heating	4.59	5.33	-0.74	-16.1		
Space Cooling	54.8	50.99	3.81	7		
IAQ Ventilation	0	0	0			
Water Heating	21.6	21.6	0	0		
Self Utilization/Flexibility Credit	n/a	0	0	n/a		
Compliance Energy Total	80.99	77.92	3.07	3.8		

Registration Number: 222-P010155366A-000-000-0000-0000	Registration Date/Time: 2022-08-05 16:58:34	HERS Provider: CalCERTS inc.
CA Building Energy Efficiency Standards - 2019 Residential Compliance	Report Version: 2019.2.000 Schema Version: rev 20200901	Report Generated: 2022-08-05 16:27:02

CF1R-PRF-01E CERTIFICATE OF COMPLIANCE Calculation Date/Time: 2022-08-05T16:27:30-07:00 Project Name: 311 W. 223 Rd. (Page 2 of 9) Calculation Description: Title 24 Analysis Input File Name: 311 W. 223 Rd. St..ribd19x

REC	QUIRED SPECIAL FEATURES
The	e following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.
	New ductwork added is less than 46 ft, in length

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 detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry	computer analysis. Additional

Building-level Verifications:
None
Cooling System Verifications:
None
Heating System Verifications:
None
HVAC Distribution System Verification:
None
Domestic Hot Water System Verification

None		636	EDTO	100		
BUILDING - FEATURES INFO	RMATION	tait				
01	02	H 193 B C	04	/1 -05 E B	06	07
Project Name	Conditioned Floor Area (ft <sup>2</sup> )	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
311 W. 223 Rd.	1440	1.	3	2	0	1.

01	02	03	04	05	06	07 Water Heating System 2
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft <sup>2</sup> )	Avg. Ceiling Height	Water Heating System 1	
Existing	Conditioned	AC1	1012	8	DHW Sys 1	N/A
Addition	Conditioned	AC1	4 <b>2</b> 8	8	DHW Sys 1	N/A

Addition	Conditioned	AC1	428	8	DHW Sys 1	N/A

Registration Number:	Registration Date/Time:	HERS Provider:
222-P010155366A-000-00000000-0000	2022-08-05 16:58:34	CalCERTS inc.
CA Building Energy Efficiency Standards - 2019 Residential Compliance	Report Version: 2019.2.000 Schema Version: rev 20200901	Report Generated: 2022-08-05 16:27:02

CERTIFICATE OF COMPLIANCE	
Project Name: 311 W. 223 Rd.	
Calculation Description: Title 24 Analysis	

**OPAQUE SURFACES** 

Attic Existing

#### CF1R-PRF-01E Calculation Date/Time: 2022-08-05T16:27:30-07:00 (Page 3 of 9) Input File Name: 311 W. 223 Rd. St..ribd19x

Tilt (deg)

Wall Exceptions

Cool Roof Status

No Existing

Window and

03 04 05 06 07

Roof Rise Roof Roof Radiant (x in 12) Reflectance Emittance Barrier

0.1 0.85 No

Ĭ	
11 Verified Existing Condition	Roben Mardirosian, P.E. 10540 Jardine Ave. Sunland, CA 91040
No	Tel: (818) 484-0495
No	Email: roben@armenengineers.com
No	
No	
n/a	
n/a	
n/a	

**Verified Existing** 

Condition

No

East Wall	Existing	R-11	90	Right	278	16	90	none	Existing	No
South Wall	Existing	R-11	180	Front	280	70.8	90	none	Existing	No
West Wall	Existing	R-11	270	Left	278	46	90	none	Existing	No
North Wall 2	Addition	R-15 Wall	0	Back	160	44	90	Extension	New	n/a
East Wall 2	Addition	R-15 Wall	90	Right	176	4	90	Extension	New	n/a
West Wall 2	Addition	R-15 Wall	270	Left	176	12	90	Extension	New	n/a
Interior Surface	Addition>>Existi ng	R-0	n/a	n/a	160	0	n/a		New	n/a
Attic Roof	Existing	(E) R-11 Attic	n/a	n/a	1012	n/a	n/a		Existing	No
Roof	Addition	R-30 Attic	n/a	n/a	428	n/a	n/a		New	n/a

Orientation Gross Area (ft<sup>2</sup>) Door Area (ft2)

120

Azimuth

Construction

Construction

Attic RoofExisting

Attic Addition		Attic Roc	fAddition		Ventilat	ed	4	0	.1	0.85	No	No	Nes	v	n/a
NESTRATION / GL	AZING														
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Туре	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft²)	U-factor	U-factor Source	SHGC	SHG C Source	Exterior Shading	Status	Verified Existing Condition
Window 3	Window	North Wall	Back	0			1	16	0.3	NFRC	0.23	NFRC	Bug Screen	Altered	No
(E) Window 6	Window	East Wall	Right	90			1	16	0.55	NFRC	0.67	NFRC	Bug Screen	Existing	No
(E) Window 7	Window	South Wall	Front	180			1	20	0.55	NFRC	0.67	NFRC	Bug Screen	Existing	No

Registration Number:	Registration Date/Time:	HERS Provider:
222-P010155366A-000-00000000-0000	2022-08-05 16:58:34	CalCERTS inc.
CA Building Energy Efficiency Standards - 2019 Residential Compliance	Report Version: 2019.2.000 Schema Version: rev 20200901	Report Generated: 2022-08-05 16:27:02

Project Name: 311	W. 223 Rd.						Calcul	ation I	Date/Time	:: 2022-08	-05T16:27	7:30-07:00			(Page 4 d
alculation Descrip	otion: Title 24	4 Analysis					Input File Name: 311 W. 223 Rd. Stribd19x								
ENESTRATION / GL	AZING														
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Туре	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft <sup>2</sup> )	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading	Status	Verifie Existir Conditi
(E) Window 4	Window	South Wall	Front	180			1	15.4	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
(E) Window 42	Window	South Wall	Front	180			1	15.4	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
(E) Window 2	Window	West Wall	Left	270			1	9	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
(E) Window 1	Window	West Wall	Left	270			1	4	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
(E) Window 8	Window	West Wall	Left	270	ymposition		1	15	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Window 1	Window	North Wall 2	Back	0	N	Fire Symmetry	1	4	0.3	NFRC	0.23	NFRC	Bug Screen	New	n/a
Sliding Door 8	Window	North Wall 2	Back	0	N I (		1	40	0.3	NFRC	0.23	NFRC	Bug Screen	Altered	No
Window 12	Window	East Wall 2	Right	90		e L	1	4	0.3	NFRC	0.23	NFRC	Bug Screen	New	n/a
Window 5	Window	West Wall 2	Left	270	RS	; P	R	(8)	0.3	NFRC	0.23	NFRC	Bug Screen	New	n/a
Window 13	Window	West Wall 2	Left	270		)	1	4	0.3	NFRC	0.23	NFRC	Bug Screen	New	n/a

QUE DOORS					
01	02	03	04	05	06
Name	Side of Building	Area (ft²)	U-factor	Status	Verified Existing Condition
Door 7	South Wall	20	0.5	Existing	No
(E) Door 5	West Wall	18	0.5	Existing	No

Registration Date/Time:	HERS Provider:
2022-08-05 16:58:34	CalCERTS inc.
Report Version: 2019.2.000	Report Generated: 2022-08-05 16:27:02
	2022-08-05 16:58:34

CERTIFICATE OF COMPLIANCE Project Name: 311 W. 223 Rd. Calculation Description: Title 24 Analysis

CF1R-PRF-01E Calculation Date/Time: 2022-08-05T16:27:30-07:00 (Page 5 of 9) Input File Name: 311 W. 223 Rd. St..ribd19x

01	02	03	04	05	06	07	08	09	10
Name	Zone	Area (ft <sup>2</sup> )	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated	Status	Verified Existing Condition
Slab-on-Grade	Existing	1012	0.1	none	0	80%	No	Existing	No
Slab-on-Grade 2	Addition	428	0.1	none	0	80%	No	New	n/a

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-11	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-11	None / None	0.11	Inside Finish: Gypsum Board Cavity / Frame: R-11 / 2x4 Exterior Finish: 3 Coat Stucco
R-15 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.095	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Exterior Finish: 3 Coat Stucco
R-O	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-0	None / None	0.277	Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x4 Other Side Finish: Gypsum Board
Attic RoofExisting	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingle Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
Attic RoofAddition	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingle Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4

Registration Number:	Registration Date/Time:	HERS Provider:
222-P010155366A-000-000-0000000-0000	2022-08-05 16:58:34	CalCERTS inc.
CA Building Energy Efficiency Standards - 2019 Residential Compliance	Report Version: 2019.2.000 Schema Version: rev 20200901	Report Generated: 2022-08-05 16:27:02

CERTIFICATE OF COMPLI	ANCE						CF1R-PRF-01
Project Name: 311 W. 22	3 Rd.		Calcul	ation Date/Tir	me: 2022-08-05T1	5:27:30-07:00	(Page 6 of 9
Calculation Description:	Title 24 Analysis		Input	File Name: 31	1 W. 223 Rd. Strib	od 19x	
OPAQUE SURFACE CONSTR	UCTIONS						
01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
(E) R-11 Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O. C.	R-11	None / None	0.083	Over Ceiling Joists: R-1.9 insul. Cavity / Frame: R-9.1 / 2x4 Inside Finish: Gypsum Board
R-30 Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O. C.	R-30	None / None	0.032	Over Ceiling Joists: R-20.9 insul Cavity / Frame: R-9.1 / 2x4 Inside Finish: Gypsum Board

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

01	02	03	04	05	06	07	08	09	10
Name	System Type	Distribution Type	Water Heater Name (#)	Solar Heating System	Compact Distribution	HERS Verification	Status	Verified Existing Condition	Existing Water Heating System
DHW Sys 1	Domestic Hot Water (DHW)	Standard Distribution System	DHW Heater 1 (1)	n/a	None	n/a	Existing	No	

Registration Number:	Registration Date/Time:	HERS Provider:
222-P010155366A-000-000-0000000	2022-08-05 16:58:34	CalCERTS inc.
CA Building Energy Efficiency Standards - 2019 Residential Compliance	Report Version: 2019.2.000	Report Generated: 2022-08-05 16:27:02
	Schema Version: rev 20200901	

8/08/22

TITLE-24 REPORT

311 W. 223 RD. ST. CARSON, CA 90745

Roben Mardirosian, P.E.

10540 Jardine Ave.

Sunland, CA 91040

Tel: (818) 484-0495

Email: roben@armenengineers.com

CF1R-PRF-01E

CERTIFICATE OF COMPLIANCE CF1R-PRF-01E Project Name: 311 W. 223 Rd. Calculation Date/Time: 2022-08-05T16:27:30-07:00 (Page 7 of 9)

Input File Name: 311 W. 223 Rd. St..ribd19x

WATER HEATERS Insulation Name Element Units Vol. Factor or Loss or Rating or or Ambient Status Existing R-value Brand or Model (gal) Efficiency Type Recovery Eff Flow Rate Condition Condition (Int/Ext) <= 75 kBtu/hr 0.6-EF Existing Gas Small Storage 80 n/a n/a No Heater 1

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

SPACE CONDITIONING SYSTEMS 02 Heating Unit | Cooling Unit Distribution System Type Fan Name Thermostat Status Existing Equipment Equipment Name Name Type Condition Count Count Heating Heating and cooling system Component HVAC Fan 1 AC1 Component Distribution n/a Existing System 1

HVAC - HEATING UNIT TYPES 03 System Type Number of Units Heating Efficiency Name Heating Component 1 Central gas furnace

Registration Number: 222-P010155366A-000-000-0000000-0000

CA Building Energy Efficiency Standards - 2019 Residential Compliance

Calculation Description: Title 24 Analysis

Registration Date/Time: 2022-08-05 16:58:34 Report Version: 2019.2.000 Schema Version: rev 20200901

HERS Provider:

CalCERTS inc. Report Generated: 2022-08-05 16:27:02

CERTIFICATE OF COMPLIANCE Project Name: 311 W. 223 Rd.

Calculation Description: Title 24 Analysis

Calculation Date/Time: 2022-08-05T16:27:30-07:00

Input File Name: 311 W. 223 Rd. St..ribd19x

HVAC - COOLING UNIT TYPES 03 Mulit-speed Efficiency EER/CEER Zonally Controlled HERS Verification System Type Number of Units Efficiency SEER 13 Cooling Component 1 Central split AC Not Zonal Single Speed 1-hers-cool

**HVAC - DISTRIBUTION SYSTEMS** 03 04 05 06 07 08 09 10 11 12 13 14 15 16 02 Duct Ins. R-value Duct Location Existing New Ducts Supply Return Supply Return Bypass Duct HERS Duct Leakage Verification Name Status Existing Distribution 40 ft Condition system No Existing Distributi on System Louct Specified)

No Existing Distributi on System 1-hers-dist Distributi Unconditioned Attic Attic n/a n/a Verified + New System 1

HVAC - FAN SYSTEMS 02 03 04 Type Fan Power (Watts/CFM) Name Name HVAC Fan 1 HVAC Fan 0.45 HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION Name Verified Fan Watt Draw Required Fan Efficacy (Watts/CFM) HVAC Fan 1-hers-fan Not Required

Registration Number: 222-P010155366A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance Registration Date/Time: 2022-08-05 16:58:34 Report Version: 2019.2.000 Schema Version: rev 20200901

HERS Provider: CalCERTS inc. Report Generated: 2022-08-05 16:27:02

CF1R-PRF-01E

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CERTIFICATE OF COMPLIANCE

5928 Whitsett Ave

Valley Village, CA 91607

Project Name: 311 W. 223 Rd. Calculation Date/Time: 2022-08-05T16:27:30-07:00 (Page 9 of 9) Input File Name: 311 W. 223 Rd. St..ribd19x Calculation Description: Title 24 Analysis DOCUMENTATION AUTHOR'S DECLARATION STATEMENT 1. I certify that this Certificate of Compliance documentation is accurate and complete. ocumentation Author Signature: Roben Mardirosian Roben Mardirosian Signature Date: 2022-08-05 16:57:49 Armen Engineers CEA/ HERS Certification Identification (If applicable): 10540 Jardine Ave 818-484-0495 Sunland, CA 91040 RESPONSIBLE PERSON'S DECLARATION STATEMENT 1. I am eligible under Division 3 of the Busin<mark>es</mark>s and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations. 3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application. Responsible Designer Signature:

Ashot Matevosyan Responsible Designer Name: Ashot Matevosyan Date Signed: 2022-08-05 16:58:34 MatCad As Built INC

818-331-5259

Digitally signed by CalCERTS. This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information.

222-P010155366A-000-000-0000000-0000 CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-08-05 16:58:34 HERS Provider: Report Version: 2019.2.000 Schema Version: rev 20200901

CalCERTS inc. Report Generated: 2022-08-05 16:27:02

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Project Name 311 W. 223	Rd.		Buil	ding Type	☑ Single Fa □ Multi Far		Addition Alone Existing+ Additio	n/Alteration	Date 8/5/2022
Project Address					ergy Climate Zor		l Cond. Floor Area	Addition	# of Units
	Rd. Carson		C	A Clim	ate Zone 08		1,440	428	1
INSULATI Construct	ION tion Type		Cav	/ity	Area (f <del>t²</del> )	Speci	ial Features		Status
Wall Wo	ood Framed		R 11		104				Existing
Wall Wo	ood Framed		R 11		262				Existing
Wall Wo	ood Framed		R 11		209				Existing
Door Op	aque Door		- no in	sulation	20				Existing
Wall Wo	ood Framed		R 11		232				Existing
Door Op	aque Door	33.931.76.13.93.76.33.90.11.76.33.93.76.33.93.76.33.93.76.3	- no in	sulation	18	maavaanaan ah maa	0.00 ENGLANDOCOCK 3 3 1 777 CLAND SERVICIAN COCK 3 3 1 777 CLAND CERCIAN COCK 3 3	170700 EMBERGROUNDEDOORS 3 170700 EEBBEGGROUNDEDOORS 3 1 1	Existing
Slab Uni	heated Slab-on-Grade	1	- no in	sulation	1,012 Per	im = 0'			Existing
	ood Framed Attic	9	R 11		1,012		T		Existing
FENESTR		Total Area:	17:		Percentage:		New/Altered Aver		0.30
<u>Orientation</u>	on Area(ft²)	U-Fac	SHGC	Over	hang Sid	efins	Exterior Sh	ades	Status
Rear (N)	16.0	0.300	0.23	none	none		N/A		Altered
Right (E)	16.0	0.550	0.67	none	none	9	N/A		Existing
Front (S)	20.0	0.550	0.67	none	none	į.	N/A		Existing
Front (S)	30.8	0.550	0.67	none	none		N/A		Existing
Left (W)	28.0	0.550	0.67	none	none	16 33	N/A	32,532,533,533,533,533,533,533,533,533,5	Existing
Rear (N)	4.0	0.300	0.23	none	none	r S	N/A		New
Rear (N)	40.0	0.300	0.23	none	none	9	N/A		Altered
Right (E)	4.0	0.300	0.23	none	none		N/A		New
Left (W)	12.0	0.300	0.23	none	none	9	N/A		New
				NO. NO. NO. NO. NO. NO.					
HVAC SYS	1904/07	Min. Ef		oling lit Air Con	7,344.3	lin. Ef		rmostat	Status Existing
Qty. Hea	ating ral Furnace  STRIBUTION	00 000000 000000 00	Sp.	See - 0.00 ( ) - 0.00 (	7,344.3	3.0 SEER	R Setback		
Qty. Hea	ating	00 000000 000000 00		See - 0.00 ( ) - 0.00 (	7,344.3				

KLOIL	DENTIAL MEA						RMS-1
Project Na <b>311 W</b>			Building Type	☑ Single Fam □ Multi Family	ily □ Addition Alo  ☑ Existing+ Addition	one ddition/Alteration	Date 8/5/2022
Project Add	dress 223 Rd. Carson			ergy Climate Zone ate Zone 08	Total Cond. Floor <i>i</i>	Area Addition 428	# of Units
INSUL			OA OIIIII	Area	1,440	720	1
	ruction Type		Cavity		pecial Featui	res	Status
Wall	Wood Framed		R 15	116			New
Wall	Wood Framed		R 15	172			New
Wall	Wood Framed		R 15	164			New
Slab	Unheated Slab-on-Grad	de	- no insulation	428 Perim	= 0'		New
Roof	Wood Framed Attic		R 30	428			New
Demising	Wood Framed		- no insulation	160	HYMELE MEUR ON HENNELE MEUR HENNELE MEUR		New
\$1 - <del>1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -</del>	STRATION ation Area(ft <sup>2</sup> )	Total Area: U-Fac SI	171 Glazing HGC OverI		1.9% New/Altered		0.30 Status
						976376316316316316316316316316316316316316316	
	SYSTEMS Heating	Min. Eff	Cooling	Min	ı. Eff	Thermostat	Status
		Min. Eff	Cooling	Min	ı. Eff	Thermostat	Status
Qty. I	Heating	Min. Eff	Cooling	Min	i. Eff		Status
Qty. I	Heating  DISTRIBUTION					Duct	
Qty. I	Heating  DISTRIBUTION	Min. Eff	Cooling	Min			Status
Qty. I	Heating  DISTRIBUTION					Duct	
Qty. I	Heating  DISTRIBUTION on Ho					Duct	
Qty. I	Heating  DISTRIBUTION on He		Cooling	Duct Loca		Duct	
Qty. I	Heating  DISTRIBUTION on He	eating	Cooling	Duct Loca	ation	Duct	Status
Qty. I	Heating  DISTRIBUTION on He	eating	Cooling	Duct Loca	ation	Duct	Status
Qty. I	Heating  DISTRIBUTION on He	eating	Cooling	Duct Loca	ation	Duct	Status
HVAC Location	DISTRIBUTION on Ho	eating	Cooling	Duct Loca	ation	Duct	Status

#### 2019 Low-Rise Residential Mandatory Measures Summary

NOTE: Low-rise residential buildings subject to the Energy Standards must comply with all applicable mandatory measures, regardless of the compliance approach

(01/2020) Building Envelop	e Measures:
§ 110.6(a)1:	Air Leakage. Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283 or AAMA/WDMA/CSA 101/LS.2/A440-2011.*
§ 110.6(a)5:	Labeling. Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).
§ 110.6(b):	Field fabricated exterior doors and fenestration products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped.*
§ 110.7:	Air Leakage. All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	Insulation Certification by Manufacturers. Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	Insulation Requirements for Heated Slab Floors. Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(i):	Roofing Products Solar Reflectance and Thermal Emittance. The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CF1R.
§ 110.8(j):	Radiant Barrier. When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs
§ 150.0(a):	Ceiling and Rafter Roof Insulation. Minimum R-22 insulation in wood-frame ceiling, or the weighted average U-factor must not exceed 0.043. Minimum R-19 or weighted average U-factor of 0.054 or less in a rafter roof alteration. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a continuous roof or ceiling which is sealed to limit infiltration and exfiltration as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling.*
§ 150.0(b):	Loose-fill Insulation. Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c):	<b>Wall Insulation.</b> Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150.1-A or B.*
§ 150.0(d):	Raised-floor Insulation. Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor.*
§ 150.0(f):	Slab Edge Insulation. Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have a water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration, and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	Vapor Retarder. In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to § 150.0(d).
§ 150.0(g)2:	Vapor Retarder. In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(q):	Fenestration Products. Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.58; or the weighted average U-factor of all fenestration must not exceed 0.58.*
Fireplaces, Deco	rative Gas Appliances, and Gas Log Measures:
§ 110.5(e)	Pilot Light. Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1:	Closable Doors. Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(e)2:	Combustion Intake. Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device.*
§ 150.0(e)3:	Flue Damper. Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.*
Space Condition	ng, Water Heating, and Plumbing System Measures:
§ 110.0-§ 110.3	<b>Certification</b> . Heating, ventilation and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission.*
§ 110.2(a):	HVAC Efficiency. Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-K.*
§ 110.2(b):	Controls for Heat Pumps with Supplementary Electric Resistance Heaters. Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone; and in which the cut-on temperature for compression heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating.*
§ 110.2(c):	<b>Thermostats.</b> All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.*
§ 110.3(c)4:	Water Heating Recirculation Loops Serving Multiple Dwelling Units. Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(c)4.
§ 110.3(c)6:	<b>Isolation Valves.</b> Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.
§ 110.5:	Pilot Lights. Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (except appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu per hour); and pool and spa heaters.*
§ 150.0(h)1:	Building Cooling and Heating Loads. Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)2.



# 2019 Low-Rise Residential Mandatory Measures Summary

Requirements f	or Ventilation and Indoor Air Quality:
	Requirements for Ventilation and Indoor Air Quality. All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation
§ 150.0(o)1:	and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(o)1.
§ 150.0(o)1°C:	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 Provided (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 b 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	ystems 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.
×	Pool Systems and Equipment Installation. Residential pool systems or equipment must meet the specified requirements for pump sizing, flor
& 150 O(n):	
§ 150.0(p):	rate, piping, filters, and valves.*
§ 150.0(p): Lighting Measu	rate, piping, filters, and valves.*  res:
	rate, piping, filters, and valves.*
Lighting Measu	rate, piping, filters, and valves.*  res:  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements.
Lighting Measu § 110.9:	rate, piping, filters, and valves.*  res:  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*  Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.  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
Eighting Measu § 110.9: § 150.0(k)1A:	rate, piping, filters, and valves.*  res:  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*  Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.  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
§ 110.9: § 150.0(k)1A: § 150.0(k)1B: § 150.0(k)1C:	rate, piping, filters, and valves.*  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*  Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.  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
\$ 110.9: § 150.0(k)1A: § 150.0(k)1B: § 150.0(k)1C: § 150.0(k)1D:	rate, piping, filters, and valves.*  res:  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*  Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.  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
Eighting Measu § 110.9: § 150.0(k)1A: § 150.0(k)1B: § 150.0(k)1C: § 150.0(k)1D: § 150.0(k)1E:	rate, piping, filters, and valves.*  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*  Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.  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)
Eighting Measu § 110.9: § 150.0(k)1A: § 150.0(k)1B: § 150.0(k)1C: § 150.0(k)1D: § 150.0(k)1E:	rate, piping, filters, and valves.*  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*  Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.  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).*
Eighting Measu § 110.9: § 150.0(k)1A: § 150.0(k)1B: § 150.0(k)1C: § 150.0(k)1D: § 150.0(k)1E:	rate, piping, filters, and valves.*  res:  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*  Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.  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.*
Eighting Measu § 110.9: § 150.0(k)1A: § 150.0(k)1B: § 150.0(k)1C: § 150.0(k)1D: § 150.0(k)1E: § 150.0(k)1F: § 150.0(k)1G:	rate, piping, filters, and valves.*  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*  Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.  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).*
\$ 110.9: § 150.0(k)1A: § 150.0(k)1B: § 150.0(k)1C: § 150.0(k)1D: § 150.0(k)1E: § 150.0(k)1F: § 150.0(k)1F: § 150.0(k)1F:	rate, piping, filters, and valves.*  res:  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*  Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.  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 Cellings. 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 JAB.*  Light Sources in Enclosed or Recessed Luminaires. Lamps and other separable light sources that are not compliant with the JAB 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 tha
Eighting Measu § 110.9: § 150.0(k)1A: § 150.0(k)1B: § 150.0(k)1C: § 150.0(k)1D: § 150.0(k)1E: § 150.0(k)1F: § 150.0(k)1F: § 150.0(k)1H:	rate, piping, filters, and valves.*  res:  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*  Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.  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 Cellings. 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 JAB.*  Light Sources in Enclosed or Recessed Luminaires. Lamps and other separable light sources that are not compliant with the JAB 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 tha
\$ 110.9: § 150.0(k)1A: § 150.0(k)1B: § 150.0(k)1C: § 150.0(k)1C: § 150.0(k)1E: § 150.0(k)1F: § 150.0(k)1F: § 150.0(k)1F: § 150.0(k)1H: § 150.0(k)2A:	rate, piping, filters, and valves.*  res:  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*  Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.  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 t
\$ 110.9: § 150.0(k)1A: § 150.0(k)1B: § 150.0(k)1C: § 150.0(k)1C: § 150.0(k)1E: § 150.0(k)1F: § 150.0(k)1F: § 150.0(k)1F: § 150.0(k)1H: § 150.0(k)2A: § 150.0(k)2B:	rate, piping, filters, and valves.*  res:  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*  Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.  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 Cellings. Luminaires necessed 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)10.  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 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 nore than 150 lumens, and are equipped with controls that automatically turn th
Eighting Measu § 110.9: § 150.0(k)1A: § 150.0(k)1B: § 150.0(k)1C: § 150.0(k)1D: § 150.0(k)1E: § 150.0(k)1F: § 150.0(k)1F: § 150.0(k)1B: § 150.0(k)2A: § 150.0(k)2B: § 150.0(k)2C:	rate, piping, filters, and valves.*  res:  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*  Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.  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 Cellings. 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 must contain lamps that comply with Reference Joint Appendix Ja8.*  Light Sources in Drawers, Cabinets, and Linen Closets. Light sources internal to drawers, cabinety 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 in more than 150 lumens, and are equipped with controls that automatical
Eighting Measu § 110.9: § 150.0(k)1A: § 150.0(k)1B:	rate, piping, filters, and valves.*  res:  Lighting Controls and Components. All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*  Luminaire Efficacy. All installed luminaires must meet the requirements in Table 150.0-A.  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) tabeling, 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 entire one into 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, cabinetery linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided t





# 2019 Low-Rise Residential Mandatory Measures Summary

§ 150.0(k)2G:	Interior Switches and Controls. An energy management control system (EMCS) may be used to comply with control requirements if it: provides functionality of the specified control according to § 110.9; meets the Installation Certificate requirements of § 130.4; meets the
3 100.0(N)20.	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)2l:	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 othe 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 lot 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 a 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.
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§ 110.10(a)1:	Single Family Residences. Single family residences located in subdivisions with 10 or more single family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which
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EV 14 58	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).  Low-rise Multifamily Buildings. Low-rise multi-family buildings that do not have a photovoltaic system installed must comply with the
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