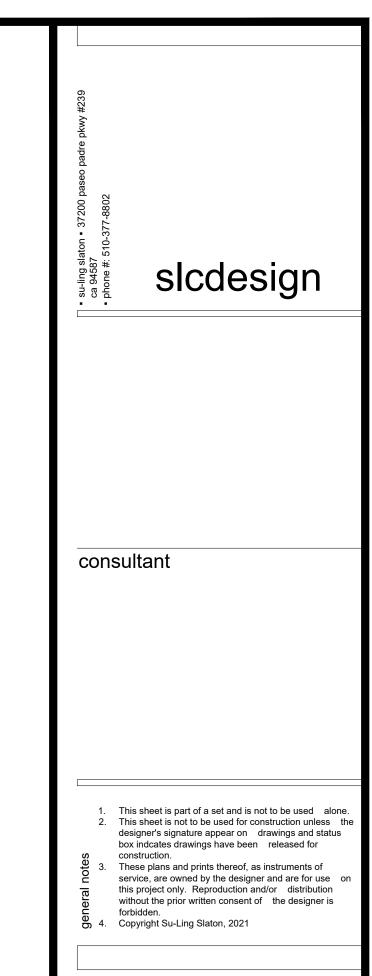


	NEW MAIN FLOOR		
1	26'-2 3/8" X 11'-4 3/8"	297.74	SQ. FT.
2	7'-5 " X 10'-10 1/8"	80.43	SQ. FT.
3	15'-3 7/8" X 26'-2 3/4"	402	SQ. FT.
4	34'-7" X 28'-9 7/8"	996.57	SQ. FT.
5	21'-9 5/8" X 15'-5"	335.98	SQ. FT.
6	7'-0" X 7'-5"	51.88	SQ. FT.
	TOTAL MAIN FLOOR	2,164.60	SQ. FT.

	EXISTING GARAGE		
7	15'-3 7/8" X 2'-7"	39.65	SQ. FT.
8	21'-1 1/4" X 21'-4 3/8"	450.85	SQ. FT.
	TOTAL GARAGE	490.5	SQ. FT.



Terence Chan & Lisa HoTran's Residence

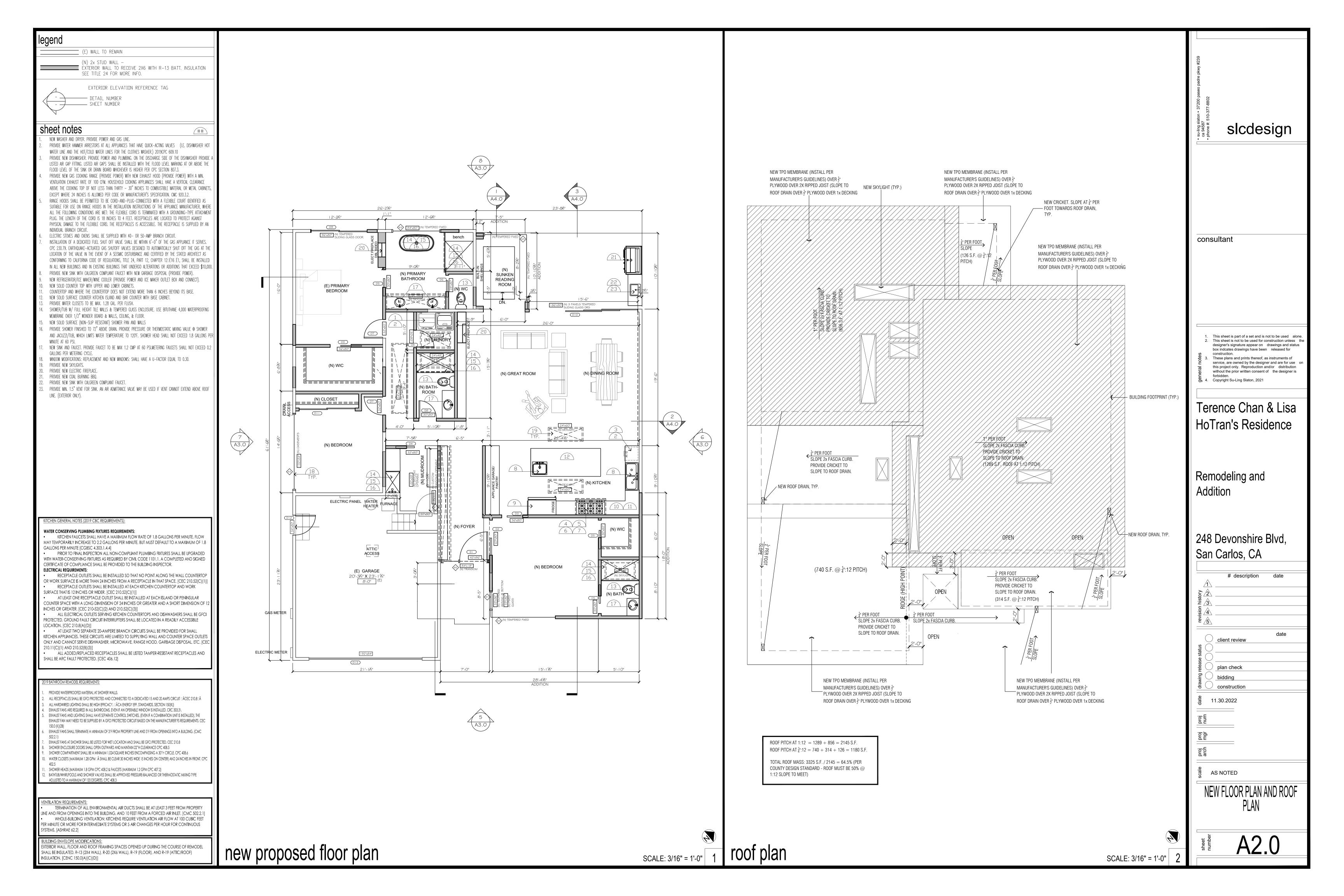
Remodeling and Addition

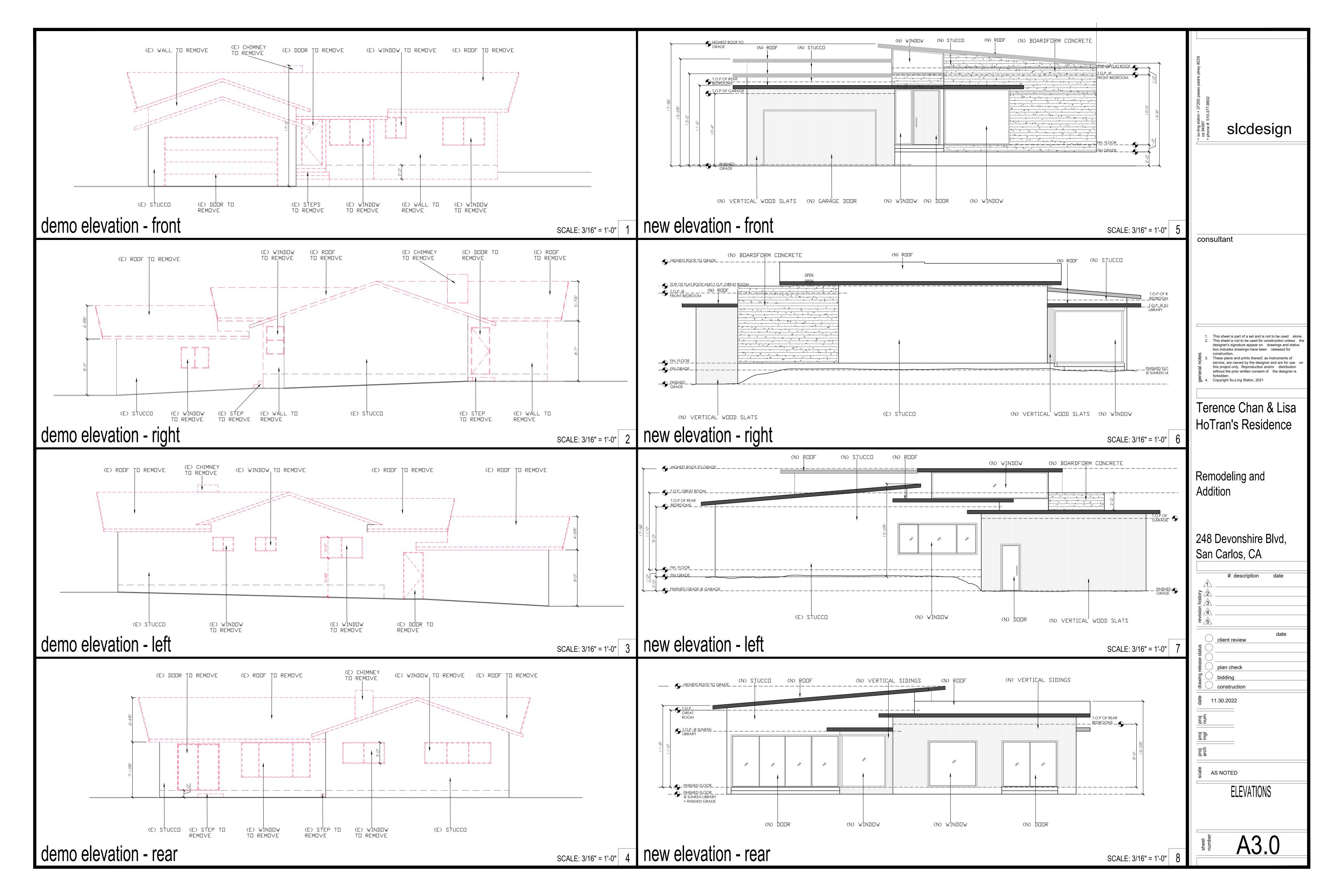
248 Devonshire Blvd, San Carlos, CA

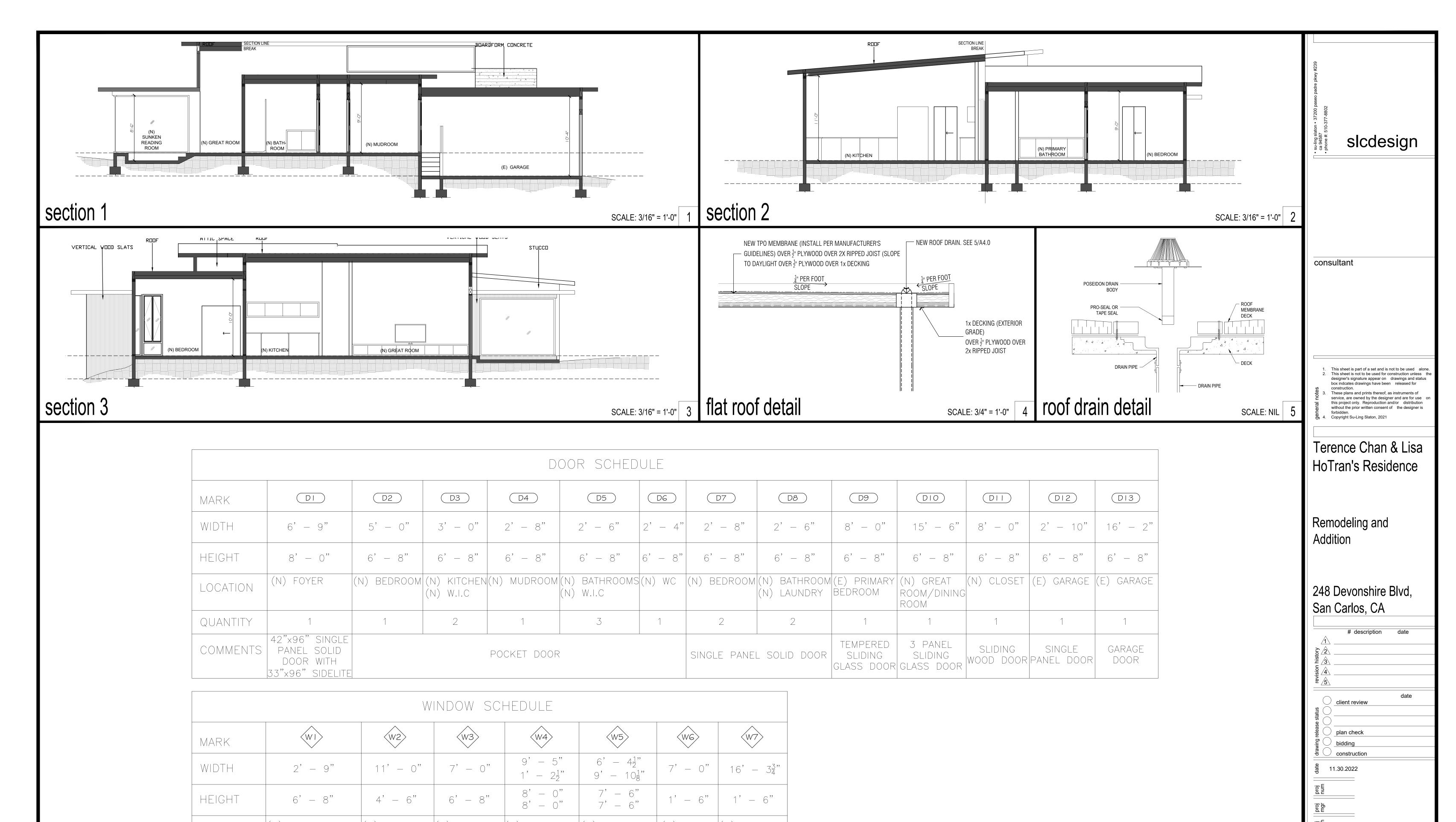
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(N) BEDROOM (N) PRIMARY (N) BEDROOM (N) SUNKEN (N) FOYER (N) FOYER (N) BEDROOM LOCATION BATHROOM READING ROOM QUANTITY 33"x36' TRANSOM COMMENTS TEMPERED AWNING TRANSOM CASEMENT TEMPERED TEMPERED FIXED CORNER OPERABLE FIXED WINDOW WINDOW WINDOW WITH 33"X46" WINDOW WINDOW FIXED WINDOW door and window schedule

SCALE: NIL 6

sheet sheet A4.0

AS NOTED

SECTIONS, DETAIL AND DOOR

AND WINDOW SCHEDULE



ENGINEERED WOOD EXTERIOR SIDING (NATURAL OAK COLOR)
POSSIBLE BRAND: https://thermoryusa.com/

<u>front door</u>: oak, natural stain <u>WINDOWS (TYP):</u> BLACK FRAME su-ling slaton • 37200 ca 94587 shone #: 510-377-880

consultant

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Terence Chan & Lisa HoTran's Residence

Remodeling and Addition

248 Devonshire Blvd, San Carlos, CA

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3D VIEW W/ FINISH MATERIALS

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2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

RESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

DISCLAIMER: THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE 2016 CALIFORNIA GREEN BUILDING VERIFICATION WITH THE FULL CODE.

Y N/A RESPON. PARTY	CHAPTER 3 GREEN BUILDING SECTION 301 GENERAL		A RESPON. PARTY	
	301.1 SCOPE. Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included in the design and construction of structures covered by this code, but are not required unless adopted by a city, county, or city and county as specified in Section 101.7. 301.1.1 Additions and alterations. [HCD] The mandatory provisions of Chapter 4 shall be applied to			 4.106.4.2.1.1 Electric Vehicle Charging Stations (EVCS) When EV chargers are installed, EV spaces required by Section 4.106.2.2, Item 3, shall comply with at least one of the following options: 1. The EV space shall be located adjacent to an accessible parking space meeting the requirements of the California Building Code, Chapter 11A, to allow use of the EV charger from the accessible parking space. 2. The EV space shall be located on an accessible route, as defined in the California Building
	additions or alterations of existing residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. The requirements shall apply only to and/or within the specific area of the addition or alteration.			Code, Chapter 2, to the building. Exception: Electric vehicle charging stations designed and constructed in compliance with the California Building Code, Chapter 11B, are not required to comply with Section 4.106.4.2.1.1 and
	Note: On and after January 1, 2014, residential buildings undergoing permitted alterations, additions, or improvements shall replace noncompliant plumbing fixtures with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and			Section 4.106.4.2.2, Item 3. Note: Electric Vehicle charging stations serving public housing are required to comply with the California Building Code, Chapter 11B.
	other important enactment dates. 301.2 LOW-RISE AND HIGH-RISE RESIDENTIAL BUILDINGS. [HCD] The provisions of			4.106.4.2.2 Electric vehicle charging space (EV space) dimensions. The EV space shall be designed to comply with the following:1. The minimum length of each EV space shall be 18 feet (5486 mm).
	individual sections of CALGreen may apply to either low-rise residential buildings high-rise residential buildings, or both. Individual sections will be designated by banners to indicate where the section applies specifically to low-rise only (LR) or high-rise only (HR). When the section applies to both low-rise and high-rise buildings, no banner will be used.			2. The minimum width of each EV space shall be 9 feet (2743 mm). 3. One in every 25 EV spaces, but not less than one EV space, shall have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet (3658 mm). a. Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units
	SECTION 302 MIXED OCCUPANCY BUILDINGS 302.1 MIXED OCCUPANCY BUILDINGS. In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy.		3	horizontal (2.083 percent slope) in any direction. 4.106.4.2.3 Single EV space required. Install a listed raceway capable of accommodating a 208/240-
	ABBREVIATION DEFINITIONS: HCD Department of Housing and Community Development BSC California Building Standards Commission DSA-SS Division of the State Architect, Structural Safety OSHPD Office of Statewide Health Planning and Development			volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the proposed location of the EV space. Construction documents shall identify the raceway termination point. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.
	LR Low Rise HR High Rise AA Additions and Alterations N New		3	4.106.4.2.4 Multiple EV spaces required. Construction documents shall indicate the raceway termination point and proposed location of future EV spaces and EV chargers. Construction documents shall also provide information on amperage of future EVSE, raceway method(s), wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system,
	CHAPTER 4			including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at the full rated amperage of the EVSE. Plan design shall be based upon a 40-ampere minimum branch circuit. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the
	RESIDENTIAL MANDATORY MEASURES DIVISION 4.1 PLANNING AND DESIGN		3	time of original construction. 4.106.4.2.5 Identification. The service panel or subpanel circuit directory shall identify the overcurrent
	SECTION 4.102 DEFINITIONS 4.102.1 DEFINITIONS The following terms are defined in Chapter 2 (and are included here for reference)			protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code.
	FRENCH DRAIN. A trench, hole or other depressed area loosely filled with rock, gravel, fragments of brick or similar pervious material used to collect or channel drainage or runoff water.			4.106.4.3 New hotels and motels. All newly constructed hotels and motels shall provide EV spaces capable of supporting future installation of EVSE. The construction documents shall identify the location of the EV spaces.
	WATTLES. Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials such as hay, straw or similar material shaped in the form of tubes and placed on a downflow slope. Wattles are also used for perimeter and inlet controls.			Notes: 1. Construction documents are intended to demonstrate the project's capability and capacity or facilitating future EV charging.
	 4.106 SITE DEVELOPMENT 4.106.1 GENERAL. Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section. 			There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use. 4.106.4.3.1 Number of required EV spaces. The number of required EV spaces shall be based on the total number of parking spaces provided for all types of parking facilities in accordance with
□ CONTRACTOR	4.106.2 STORM WATER DRAINAGE AND RETENTION DURING CONSTRUCTION. Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction. In order to manage storm water drainage during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site.			Table 4.106.4.3.1. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number. TABLE 4.106.4.3.1
	 Retention basins of sufficient size shall be utilized to retain storm water on the site. Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle or other method approved by the enforcing agency. Compliance with a lawfully enacted storm water management ordinance. 			TOTAL NUMBER OF PARKING SPACES 0-9 0
	Note: Refer to the State Water Resources Control Board for projects which disturb one acre or more of soil, or are part of a larger common plan of development which in total disturbs one acre or more of soil. (Website: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html)			10-25 1 26-50 2
□ CONTRACTOR	4.106.3 GRADING AND PAVING. Construction plans shall indicate how the site grading or drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following:			51-75 4 76-100 5 101-150 7
	 Swales Water collection and disposal systems French drains Water retention gardens 			151-200 10 201 and over 6 percent of total
	 Other water measures which keep surface water away from buildings and aid in groundwater recharge. Exception: Additions and alterations not altering the drainage path. 			4.106.4.3.2 Electric vehicle charging space (EV space) dimensions. The EV spaces shall be designed to comply with the following:
	4.106.4 Electric vehicle (EV) charging for new construction. New construction shall comply with Sections 4.106.4.1, 4.106.4.2, or 4.106.4.3 to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the <i>California Electrical Code</i> , Article 625.			The minimum length of each EV space shall be 18 feet (5486mm). The minimum width of each EV space shall be 9 feet (2743mm) 4.106.4.3.3 Single EV space required. When a single EV space is required, the EV space shall be designed
	 Exceptions: 1. On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions: 			in accordance with Section 4.106.4.2.3. 4.106.4.3.4 Multiple EV spaces required. When multiple EV spaces are required, the EV spaces shall be designed in accordance with Section 4.106.4.2.4.
	 1.1 Where there is no commercial power supply. 1.2 Where there is evidence substantiating that meeting the requirements will alter the local utility infrastructure design requirements on the utility side of the meter so as to increase the utility side cost to the homeowner or the developer by more than \$400.00 per dwelling unit. 			 4.106.4.3.5 Identification. The service panels or sub-panels shall be identified in accordance with Section 4.106.4.2.5. 4.106.4.3.6 Accessible EV spaces. In addition to the requirements in Section 4.106.4.3, EV spaces for
	 Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities. 			hotels/motels and all EVSE, when installed, shall comply with the accessibility provisions for the EV charging stations in the <i>California Building Code</i> , Chapter 11B.
	4.106.4.1 New one- and two-family dwellings and townhouses with attached private garages. For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.			DIVISION 4.2 ENERGY EFFICIENCY 4.201 GENERAL 4.201.1 SCOPE. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory standards.
	4.106.4.1.1 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE".			
	4.106.4.2 New multifamily dwellings. If residential parking is available, ten (10) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number. Notes:			
	 Notes: 1. Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging. 2. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use. 			
	4.106.4.2.1 Electric vehicle charging space (EV space) locations. Construction documents shall indicate the location of proposed EV spaces. Where common use parking is provided at least one EV space			

shall be located in the common use parking area and shall be available for use by all residents.

4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE DIVISION 4.3 WATER EFFICIENCY AND CONSERVATION mortar, concrete masonry or a similar method acceptable to the enforcing 4.303 INDOOR WATER USE 4.303.1 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the sections 4.303.1.1, 4.303.1.2, 4.303.1.3, Note: All noncompliant plumbing fixtures in any residential real property shall be replaced with water-conserving stringent local construction and demolition waste plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy, or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates. Excavated soil and land-clearing debris. **4.303.1.1 Water Closets.** The effective flush volume of all water closets shall not exceed 1.28 gallons per agencies if diversion or flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-type Toilets. Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume this section when isolated of two reduced flushes and one full flush. haul boundaries of the diversion facility. **4.303.1.2 Urinals.** The effective flush volume of wall mounted urinals shall not exceed 0.125 gallons per flush. The effective flush volume of all other urinals shall not exceed 0.5 gallons per flush. **4.303.1.3.1 Single Showerhead.** Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA diverted from disposal by recycling, WaterSense Specification for Showerheads. for future use or sale. 4.303.1.3.2 Multiple showerheads serving one shower. When a shower is served by more than one on-site (source separated) or showerhead, the combined flow rate of all the showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to only waste material collected will be allow one shower outlet to be in operation at a time. construction and demolition waste Note: A hand-held shower shall be considered a showerhead materials diverted shall be calculated 4.303.1.4 Faucets. **4.303.1.4.1 Residential Lavatory Faucets.** The maximum flow rate of residential lavatory faucets shall not exceed 1.2 gallons per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons per minute at 20 psi. landfill complies with Section 4.408.1. 4.303.1.4.2 Lavatory Faucets in Common and Public Use Areas. The maximum flow rate of lavatory faucets installed in common and public use areas (outside of dwellings or sleeping units) in residential buildings shall not exceed 0.5 gallons per minute at 60 psi. **4.303.1.4.3 Metering Faucets.** Metering faucets when installed in residential buildings shall not deliver more than 0.2 gallons per cycle. **4.303.1.4.4 Kitchen Faucets.** The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per Note: Where complying faucets are unavailable, aerators or other means may be used to achieve 4.303.2 STANDARDS FOR PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures and fittings shall be installed requirement in Section 4.408.1 in accordance with the California Plumbing Code, and shall meet the applicable standards referenced in Table 1701.1 of the California Plumbing Code. 4.408.3 or Section 4.408.4.. THIS TABLE COMPILES THE DATA IN SECTION 4.303.1, AND IS INCLUDED AS A CONVENIENCE FOR THE USER. TABLE - MAXIMUM FIXTURE WATER USE www.hcd.ca.gov/CALGreen.html may be used to assist in documenting compliance with this section. **FIXTURE TYPE** be located at the California 1.8 GMP @ 80 PSI and Recovery (CalRecycle). (RESIDENTIAL) 4.410 BUILDING MAINTENANCE AND OPERATION LAVATORY FAUCETS MAX, 1,2 GPM @ 60 PSI (RESIDENTIAL) MIN. 0.8 GPM @ 20 PSI LAVATORY FAUCETS IN COMMON & PUBLIC USE 0.5 GPM @ 60 PSI KITCHEN FAUCETS 1.8 GPM @ 60 PSI METERING FAUCETS 0.2 GAL/CYCLE WATER CLOSET 1,28 GAL/FLUSH chargers, water-heating systems and other major URINALS 0.125 GAL/FLUSH Roof and yard drainage, including gutters and downspouts. Landscape irrigation systems. __ 4.304 OUTDOOR WATER USE Water reuse systems. <mark>크|contractor|</mark> 4.304.1 DUTDDDR PDTABLE WATER USE IN LANDSCAPE AREAS. Residential developments shall comply with a local water efficient landscape ordinance or methods to further reduce the current California Department of Water Resources' Model Water Efficient programs and locations. Landscape Ordinance (MWELD), whichever is more stringent. humidity between 30-60 percent use to maintain the relative humidity level in that range. 1. The Model Water Efficient Landscape Ordinance (MWELO) is located in the California Code Regulations, Title 23, Chapter 2.7, Division 2. | MWELD and supporting documents, including water budget calculator, are controllers which conserve water. available at: https://www.water.ca.gov/ foundation. enforcing agency or this code.

= NOT APPLICABLE RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER,

4.406.1 RODENT PROOFING. Annular spaces around pipes, electric cables, conduits or other openings in sole/bottom plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement

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

Alternate waste reduction methods developed by working with local recycle facilities capable of compliance with this item do not exist or are not located reasonably

The enforcing agency may make exceptions to the requirements of jobsites are located in areas beyond the

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

Identify the construction and demolition waste materials to be reuse on the project or salvage Specify if construction and demolition waste materials will be sorted bulk mixed (single stream). 3. Identify diversion facilities where the construction and demolition 4. Identify construction methods employed to reduce the amount of

5. Specify that the amount of construction and demolition waste by weight or volume, but not by

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

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

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

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

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

Sample forms found in "A Guide to the California Green Building (Residential)" located at

2. Mixed construction and demolition debris (C & D) processors can Department of Resources Recycling

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

1. Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure. 2. Operation and maintenance instructions for the following: a. Equipment and appliances, including water-saving devices and systems, HVAC systems, photovoltaic systems, electric vehicle

Space conditioning systems, including condensers and air filters.

3. Information from local utility, water and waste recovery providers on resource consumption, including recycle

Public transportation and/or carpool options available in the area. 5. Educational material on the positive impacts of an interior relative and what methods an occupant may 6. Information about water-conserving landscape and irrigation design and

7. Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the 8. Information on required routine maintenance measures, including, but

not limited to, caulking, painting, grading around the building, etc. 9. Information about state solar energy and incentive programs available. 10. A copy of all special inspections verifications required by the

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

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

DIVISION 4.5 ENVIRONMENTAL QUALITY

SECTION 4.501 GENERAL

The provisions of this chapter shall outline means of reducing the quality of air contaminants that are odorous, irritating and/or harmful to the comfort and well being of a building's installers, occupants and neighbors.

SECTION 4.502 DEFINITIONS 5.102.1 DEFINITIONS

The following terms are defined in Chapter 2 (and are included here for reference)

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

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

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

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Terence Chan & Lisa HoTran's Residence

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2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

RESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

Y N/A RESPON. PARTY MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "Base Reactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundredths of a gram (g O³/g ROC). Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 MOISTURE CONTENT. The weight of the water in wood expressed in percentage of the weight of the oven-dry wood. **PRODUCT-WEIGHTED MIR (PWMIR).** The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging). Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521 (a). REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to **VOC.** A volatile organic compound (VOC) broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a). 4.503.1 GENERAL. Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances. 4.504 POLLUTANT CONTROL
4.504.1 COVERING OF DUCT OPENINGS & PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION. At the time of rough installation, during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of water, dust or debris which may enter the system. 4.504.2 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with this section. 4.504.2.1 Adhesives, Sealants and Caulks. Adhesives, sealant and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply: 1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable or SCAQMD Rule 1168 VOC limits, as shown in Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and tricloroethylene), except for aerosol products, as specified in Subsection 2 below. 2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than 1 pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, 4.504.2.2 Paints and Coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in 4.504.2.3 Aerosol Paints and Coatings. Aerosol paints and coatings shall meet the Product-weighted MIR Limits for ROC in Section 94522(a)(2) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(e)(1) and (f)(1) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation **4.504.2.4 Verification.** Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following: Manufacturer's product specification 2. Field verification of on-site product containers. TABLE 4.504.1 - ADHESIVE VOC LIMIT_{1,2} (Less Water and Less Exempt Compounds in Grams per ARCHITECTURAL APPLICATIONS VOC LIMIT INDOOR CARPET ADHESIVES CARPET PAD ADHESIVES 150 | DUTDOOR CARPET ADHESIVES WOOD FLOORING ADHESIVES RUBBER FLOOR ADHESIVES SUBFLOOR ADHESIVES ICERAMIC TILE ADHESIVES VCT & ASPHALT TILE ADHESIVES DRYWALL & PANEL ADHESIVES COVE BASE ADHESIVES MULTIPURPOSE CONSTRUCTION STRUCTURAL GLAZING ADHESIVES SINGLE-PLY ROOF MEMBRANE |ADHESIVES OTHER ADHESIVES NOT LISTED **SPECIALTY APPLICATIONS**

> PVC WELDING CPVC WELDING

ABS WELDING

'ADHESIVE

WOOD

PLASTIC CEMENT WELDING

SPECIAL PURPOSE CONTACT

STRUCTURAL WOOD MEMBER

SUBSTRATE SPECIFIC APPLICATIONS

POROUS MATERIAL (EXCEPT WOOD)

1. IF AN ADHESIVE IS USED TO BOND DISSIMILAR SUBSTRATES

TOGETHER, THE ADHESIVE WITH THE HIGHEST VOC CONTENT

2. FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THIS TABLE, SEE

|TOP & TRIM ADHESIVE

METAL TO METAL

SHALL BE ALLOWED.

PLASTIC FOAMS

FIBERGLASS

CONTACT ADHESIVE

!ADHESI∨E PRIMER FOR PLASTIC

490

TABLE 4.504.2 - SEALANT VOC LIMIT (Less Water and Less Exempt Compounds in Grams per SEALANTS NONMEMBRANE ROOF ROADWAY SINGLE-PLY ROOF MEMBRANE SEALANT PRIMERS | ARCHITECTURAL NON-POROUS |MODIFIED BITUMINOUS MARINE DECK TABLE 4.504.3 - VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS 2,3 GRAMS OF VOC PER LITER OF COATING, LESS WATER &

COATING CATEGORY	- VOC LIMIT
FLAT COATINGS	50
NON-FLAT COATINGS	100
NONFLAT-HIGH GLOSS COATINGS	150
SPECIALTY COATINGS	
ALUMINUM ROOF COATINGS	400
BASEMENT SPECIALTY COATINGS	400
BITUMINOUS ROOF COATINGS	50
BITUMINOUS ROOF PRIMERS	350
BOND BREAKERS	350
CONCRETE CURING COMPOUNDS	350
CONCRETE/MASONRY SEALERS	100
DRIVEWAY SEALERS	
DRY FOG COATINGS	- —— - —— - —— 150
FAUX FINISHING COATINGS	350
FIRE RESISTIVE COATINGS	- —— - —— - —— 350
FLOOR COATINGS	
FORM-RELEASE COMPOUNDS	- ——
GRAPHIC ARTS COATINGS (SIGN	500
PAINTS)	
HIGH TEMPERATURE COATINGS	420
INDUSTRIAL MAINTENANCE COATINGS	_ <u>250</u>
LOW_SOLIDS COATINGS1	120
MAGNESITE CEMENT COATINGS	450
MASTIC TEXTURE COATINGS	100
METALLIC PIGMENTED COATINGS	_ <u>500</u>
MULTICOLOR COATINGS	_ <u>250</u>
PRETREATMENT WASH PRIMERS	<u>420</u>
PRIMERS, SEALERS, & UNDERCOATERS	100
REACTIVE PENETRATING SEALERS	350
RECYCLED COATINGS	250
ROOF COATINGS	50
RUST PREVENTATIVE COATINGS	250
SHELLACS	
CLEAR	730
DPAQUE	550
SPECIALTY PRIMERS, SEALERS & UNDERCOATERS	100
STAINS	250
STONE CONSOLIDANTS	450
SWIMMING POOL COATINGS	340
TRAFFIC MARKING COATINGS	100
TUB & TILE REFINISH COATINGS	-
WATERPROOFING MEMBRANES	
WOOD COATINGS	 275
WOOD PRESERVATIVES	 350
ZINC-RICH PRIMERS	340
1. GRAMS OF VOC PER LITER OF COATI WATER & EXEMPT COMPOUNDS	NG, INCLUDING
2. THE SPECIFIED LIMITS REMAIN IN E REVISED LIMITS ARE LISTED IN SUBSEQ	

SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD,

ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE,

FEB. 1, 2008. MORE INFORMATION IS AVAILABLE FROM THE

TABLE 4.504.5 - FORMALDEHYDE LIMITS: |MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER **CURRENT LIMIT** HARDWOOD PLYWOOD VENEER CORE 0.05 HARDWOOD PLYWOOD COMPOSITE 0.05 PARTICLE BOARD 0.09 MEDIUM DENSITY FIBERBOARD 0.11 THIN MEDIUM DENSITY FIBERBOARD2 0.13 . VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIF. AIR RESOURCES BOARD, AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD AS TESTED IN ACCORDANCE WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIF. CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16" (8 MM).

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

4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the

 Carpet and Rug Institute's Green Label Plus Program.
 California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers" Version 1.1,

 February 2010 (also known as Specification Chemical Chambers)

1. February 2010 (also known as Specification Chemical Chambers) .
3. NSF/ANSI 140 at the Gold level.
4. Scientific Certifications Systems Indoor Advantageтм Gold.

4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 4.504.1. 4.504.4 RESILIENT FLOORING SYSTEMS. Where resilient flooring is installed, at least 80% of floor area receiving resilient flooring shall comply with one

requirements of the Carpet

Products compliant with the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers,"

Version 1.1, February 2010 (also known as Specification 01350), certified as a CHPS Low-Emitting Material in the Collaborative for High Performance Schools (CHPS) High Performance Products Database.

Products certified under UL GREENGUARD Gold (formerly the Greenguard Children & Schools program).

Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.

Meet the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers", Version 1.1,

February 2010 (also known as Specification

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

4.504.5.1 Documentation. Verification of compliance with this section shall be provided as requested Documentation shall include at least one of the following: Chain of custody certifications. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17,

Section 93120, et seq.).
4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Association, the Australian AS/NZS 2269, European 636 3S standards, and Canadian CSA Other methods acceptable to the enforcing agency.

4.504.3 CARPET SYSTEMS. All carpet installed in the building interior shall meet the testing and product equirements of at least one of the following:

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

Scientific Certifications Systems Indoor AdvantageTM Gold. 4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label program

4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 4.504.1 4.504.4 RESILIENT FLOORING SYSTEMS. Where resilient flooring is installed, at least 80% of floor area receiving resilient flooring shall comply with one or more of the following:

Products compliant with the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1, February 2010 (also known as Specification 01350), certified as a CHPS Low-Emitting Material in the Collaborative for High Performance Schools (CHPS) High Performance Products Database.

Products certified under UL GREENGUARD Gold (formerly the Greenguard Children & Schools program).

Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.

Meet the California Department of Public Health, "Standard Method for the Testing and Evaluation of Veletile Organia Chemical Emissions from Indoor Scurege Union Environmental Chambers." Version 1.1 Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers", Version 1.1, February 2010 (also known as Specification 01350).

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

by the enforcing agency. Documentation shall include at least one of the following:

4.504.5.1 Documentation. Verification of compliance with this section shall be provided as requested

Chain of custody certifications.

Product labeled and invoiced as meeting the Composite Wood Products regulation (see

CCR, Title 17, Section 93120, et seq.).

4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269, European 636 3S standards, and Canadian CSA 0121, CSA 0151, CSA 0153 and CSA 0325 standards. Other methods acceptable to the enforcing agency

4.505 INTERIOR MOISTURE CONTROL

4.505.1 General. Buildings shall meet or exceed the provisions of the California Building Standards Code.

4.505.2 CONCRETE SLAB FOUNDATIONS. Concrete slab foundations required to have a vapor retarder by California Building Code, Chapter 19, or concrete slab-on-ground floors required to have a vapor retarder by the California Residential Code, Chapter 5, shall also comply with this section. 4.505.2.1 Capillary break. A capillary break shall be installed in compliance with at least one of the following:

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

4.505.3 MOISTURE CONTENT OF BUILDING MATERIALS. Building materials with visible signs of water damage shall not be installed. Wall and floor

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

Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure. 4.506 INDOOR AIR QUALITY AND EXHAUST 4.506.1 Bathroom exhaust fans. Each bathroom shall be mechanically ventilated and shall comply with the following:

Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building. 2. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control.

a. Humidity controls shall be capable of adjustment between a relative humidity range less than or equal to 50% to a maximum of 80%. A b. A humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e., built-in)

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

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

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

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

CHAPTER 7

INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS

702 QUALIFICATIONS

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

RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER DWNER, CONTRACTOR, INSPECTOR ETC.)

State certified apprenticeship programs.

3. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations. 4. Programs sponsored by manufacturing organizations.

5. Other programs acceptable to the enforcing agency.

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

considered by the enforcing agency when evaluating the qualifications of a special inspector: . Certification by a national or regional green building program or standard publisher. 2. Certification by a statewide energy consulting or verification organization, such as HERS raters, building

performance contractors, and home energy auditors. Successful completion of a third party apprentice training program in the appropriate trade. 4. Other programs acceptable to the enforcing agency.

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

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

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

703 VERIFICATIONS

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

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Terence Chan & Lisa HoTran's Residence

Remodeling and

248 Devonshire Blvd. San Carlos, CA

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