

B

Type

X

Plans

BLD11-2200

Permit Number

20002

Street Number

COLEMAN VALLEY RD

Street Name

BBY

Community Code

101-090-009

APN

Statement of Special Inspections

CNI-033

Lee
Name of Owner

20010 Coleman Valley Rd
Address

Permit for old construction occupied
Job Description

This Statement of and Schedule of Special Inspections is submitted to outline the requirements of CBC Chapter 17.

Included are:

- Schedule of Special Inspections and tests applicable to this project:
 - Special Inspections per Sections 1704 and 1705
 - Special Inspections for Seismic Resistance
 - Structural Observations per Section 1709
- List of the Testing Agencies and other special inspectors that will be retained to conduct the tests and inspections.
- Contractor's Statement of Responsibility, per CBC Section 1706.

Special Inspections and Testing will be performed in accordance with the approved plans and specifications, this statement, and CBC sections 1704, 1705, 1707, and 1708.

The Schedule of Special Inspections summarizes the Special Inspections and tests required. Special Inspectors will refer to the approved plans and specifications for detailed special inspection requirements. Any additional tests and inspections required by the approved plans and specifications will also be performed.

Interim reports will be submitted to the Building Official and the Registered Design Professional in Responsible Charge in accordance with CBC Section 1704.1.2

A Final Report of Special Inspections documenting required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy (Section 1704.1.2). The Final Report will document:

- Required special inspections.
- Final results of required structural testing.
- Correction of discrepancies noted in inspections.

The Owner recognizes his or her obligation to ensure that the construction complies with the approved permit documents and to implement this program of special inspections. In partial fulfillment of these obligations, the Owner will retain and directly pay for the Special Inspections as required in CBC Section 1704.1.

This plan has been developed with the understanding that the Building Official will:

- Review and approve the qualifications of the Special Inspectors who will perform the inspections.
- Review submitted inspection reports.
- Perform inspections as required by the local building code.

Prepared by:

Scott Hunter
Registered Design Professional in Responsible Charge

C 48066
License Number

3/29/11
Date

Owner's Authorization:

Building Official's Acceptance:

Owner
Signature Date

Building Official
Signature Date

Sonoma County Permit and Resource Management Department

2550 Ventura Avenue ♦ Santa Rosa, CA ♦ 95403-2829 ♦ (707) 565-1900 ♦ Fax (707) 565-1103

Schedule of Inspection, Testing Agencies, and Inspectors

The following are the testing agencies and special inspectors that will be retained to conduct tests and inspection on this project.

Responsibility	Firm	Address, Telephone, e-mail
1. Special Inspection (except for geotechnical)	Eng of Record	Scott Hunter 1540 Bay Flat Rd Berkeley Bay 707 536 7477 Scott@scotthunter-engr.com
2. Material Testing		
3. Geotechnical Inspections		
4.		

Seismic Requirements (Section 1705.3.1)

Description of seismic-force-resisting system and designated seismic systems subject to special inspections as per Section 1705.3:

Interior shear wall line 3, shearing gable Truss, Hold downs

The extent of the seismic-force-resisting system is defined in more detail in the construction documents.

Summary of Required Special Inspections, Structural Testing, Structural Observations:

Brief description of required special inspections and structural observations for this project. Full schedule of requirements are those that are ✓'d on the following pages:

Sp. Insp for epoxy anchors
Eng Obs. For Roof Truss shear

March 29, 2011

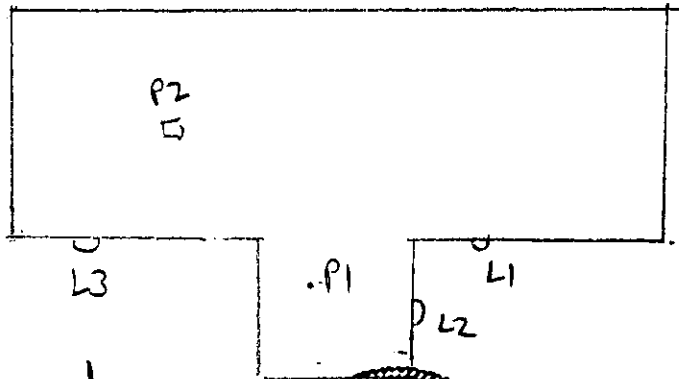
Building Inspection
County of Sonoma PRMD

Re Pachometer test and Foundation verification,
20010 Coleman Valley Rd., Occidental CA

Dear Plans Examiner,

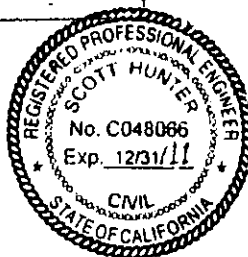
On 3/23/11, I used a Fisher M-101 to detect rebar in the foundation, stem walls and CMU walls (plan with test locations below and sketches attached). Pachometer response was consistent with #4 bar size.

LOCATION	Reinforcement	remarks
L1 footing	Top and Bottom bar, adequate thickness and cover	6 inch stem wall. sound uncracked concrete
L2 footing	Top and Bottom bar, adequate thickness and cover	sound uncracked concrete
L3 footing	Top and Bottom bar, adequate thickness and cover	Substantial footing for one story. sound uncracked concrete
P1		Pier block, shallow foundation pad
P2		Pier block, shallow foundation pad



Regards,

Scott Hunter, Ph.D. P.E



Calculations for Addition
20010 Coleman Valley Rd
Occidental CA

March 2011

Addition built some years ago without permit. Foundations verified. Headers and floor framing checked. Shear wall retrofit and new holdowns called out.

Roof trusses have no paperwork. Span 24 ft, trusses examined. I found no sign of distress, warping, splitting or failure at nail plates, excellent lumber with minimal small knots, standard nail plate sizes. Given the modest span and excellent condition, I have peace of mind that the trusses are satisfactory

Engineer of Record: SH
Design engineer: SH

THESE ATTACHMENTS ARE PART
OF THE APPROVED PLANS.

* DO NOT REMOVE THEM *

- Plan Checklist.
- Energy Conservation Forms.
- Engineered ~~Details~~ calc's for 01011-2201
- Extracts from Soils Report.
- Fire Marshall Requirements.
- Special Inspection Form.
- DALOMETER REPORT
- TRUSS LETTER FOR 01011-2201
- CONCEALED CONSTRUCTION

PERFORMANCE CERTIFICATE: Residential (Part 1 of 5) **CF-1R**

Project Name <i>Residence, Renate Lee - Owner</i>	Building Type <input checked="" type="checkbox"/> Single Family <input type="checkbox"/> Addition Alone <input type="checkbox"/> Multi Family <input checked="" type="checkbox"/> Existing+ Addition/Alteration	Date <i>5/18/2011</i>
Project Address <i>20002 Coleman Valley Rd Occidental</i>	California Energy Climate Zone <i>CA Climate Zone 01</i>	Total Cond. Floor Area <i>1,822</i>
	Addition <i>486</i>	# of Stories <i>1</i>

FIELD INSPECTION ENERGY CHECKLIST

Yes No HERS Measures -- If Yes, A CF-4R must be provided per Part 2 of 5 of this form.
 Yes No Special Features -- If Yes, see Part 2 of 5 of this form for details.

INSULATION		Area	Special	Status
Construction	Type	Cavity	Features (see Part 2 of 5)	
Floor	Wood Framed w/Crawl Space	R-19	1,336	Altered
Wall	Wood Framed	None	868	Existing
Door	Opaque Door	None	80	Existing
Roof	Wood Framed Attic	R-38	1,950	Altered
Wall	Wood Framed	R-13	152	Existing
Wall	Wood Framed	R-13	294	New
Door	Opaque Door	None	20	New
Floor	Wood Framed w/Crawl Space	R-19	486	New

FENESTRATION		U-	SHGC		Overhang	Sidelines	Exterior	Status
Orientation	Area(ft ²)	Factor	SHGC	Overhang	Sidelines	Shades		
Front (E)	40.0	0.710	0.73	none	none	Bug Screen	Existing	
Right (N)	40.0	0.710	0.73	none	none	Bug Screen	Existing	
Rear (W)	60.0	0.710	0.73	none	none	Bug Screen	Existing	
Left (S)	80.0	0.710	0.73	none	none	Bug Screen	Existing	
Front (E)	80.0	0.710	0.73	none	none	Bug Screen	New	
Right (N)	30.0	0.710	0.73	none	none	Bug Screen	New	

HVAC SYSTEMS							
Qty.	Heating	Min. Eff	Cooling	Min. Eff	Thermostat	Status	
1	Central Furnace	78% AFUE	Split Air Conditioner	13.0 SEER	Setback	Existing	

HVAC DISTRIBUTION				Duct	Status
Location	Heating	Cooling	Duct Location	R-Value	
HVAC System	Ducted	Ducted	Attic, Ceiling Ins, vented	8.0	New

WATER HEATING					
Qty.	Type	Gallons	Min. Eff	Distribution	Status

PERFORMANCE CERTIFICATE: Residential (Part 1 of 5) **CF-1R**

Project Name <i>Residence, Renate Lee - Owner</i>	Building Type <input checked="" type="checkbox"/> Single Family <input type="checkbox"/> Addition Alone <input type="checkbox"/> Multi Family <input checked="" type="checkbox"/> Existing+ Addition/Alteration	Date 5/18/2011
Project Address <i>20002 Coleman Valley Rd Occidental</i>	California Energy Climate Zone <i>CA Climate Zone 01</i>	Total Cond. Floor Area 1,822
	Addition 486	# of Stories 1

FIELD INSPECTION ENERGY CHECKLIST

Yes No HERS Measures -- If Yes, A CF-4R must be provided per Part 2 of 5 of this form.
 Yes No Special Features -- If Yes, see Part 2 of 5 of this form for details.

INSULATION

Construction Type	Cavity	Area (ft ²)	Special Features (see Part 2 of 5)	Status
<i>Roof Wood Framed Attic</i>	<i>R-38</i>	<i>486</i>		<i>New</i>

FENESTRATION

Orientation	Area(ft ²)	U-Factor	SHGC	Overhang	Sidefins	Exterior Shades	Status

HVAC SYSTEMS

Qty.	Heating	Min. Eff	Cooling	Min. Eff	Thermostat	Status

HVAC DISTRIBUTION

Location	Heating	Cooling	Duct Location	Duct R-Value	Status

WATER HEATING

Qty.	Type	Gallons	Min. Eff	Distribution	Status

PERFORMANCE CERTIFICATE: Residential (Part 3 of 5) **CF-1R**

Project Name: *Residence, Renate Lee - Owner* Building Type: Single Family Addition Alone Multi Family Existing+ Addition/Alteration Date: *5/18/2011*

ANNUAL ENERGY USE SUMMARY			
TDV (kBtu/ft ² -yr)	Standard	Proposed	Margin
Space Heating	115.44	103.31	12.13
Space Cooling	2.41	1.87	0.54
Fans	10.72	9.58	1.14
Domestic Hot Water	26.43	26.43	0.00
Pumps	0.00	0.00	0.00
Totals	155.00	141.19	13.81
Percent Better Than Standard:			8.9 %

BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED

	(E) 90 deg	Ext. Walls/Roof	Wall Area	Fenestration Area
Building Front Orientation:	1.00	(E)	744	120
Number of Dwelling Units:	Propane	(S)	320	80
Fuel Available at Site:	1,822	(W)	360	60
Raised Floor Area:	0	(N)	320	70
Slab on Grade Area:	8.0	Roof	2,436	0
Average Ceiling Height:	0.71		TOTAL:	330
Fenestration Average U-Factor:	0.73		Fenestration/CFA Ratio:	18.1 %
Average SHGC:				

REMARKS

STATEMENT OF COMPLIANCE
 This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.

The documentation author hereby certifies that the documentation is accurate and complete.

Documentation Author
 Company: *Scott Hunter Ph.D. P.E. Cons. Engr.*
 Address: *po box 153* Name: *Scott Hunter*
 City/State/Zip: *Bodega Bay, CA 94923* Phone: *707 875-8949* Signed: *Scott Hunter* Date: *5/18/2011*

The individual with overall design responsibility hereby certifies that the proposed building design represented in this set of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.

Designer or Owner (per Business & Professions Code)
 Company: *Buckhorn Construction*
 Address: *20000 Coleman Valley Rd* Name: *Lorne Edwards*
 City/State/Zip: *Occidental, CA* Phone: *707 875-8494* Signed: *[Signature]* License #: *918070* Date: *5/18/11*

CERTIFICATE OF COMPLIANCE: Residential (Part 4 of 5) **CF-1R**

Project Name: *Residence, Renate Lee - Owner* Building Type: Single Family Addition Alone Multi Family Existing+ Addition/Alteration Date: *5/18/2011*

OPAQUE SURFACE DETAILS

Surface Type	Area	U-Factor	Insulation				Azm	Tilt	Status	Joint Appendix 4	Location/Comments
			Cavity	Exterior	Frame	Interior					
Floor	1,336	0.037	R-19				0	180	Altered	4.4.1-A4 (E=4.4.1-A1)	Zone 1
Wall	300	0.356	None				90	90	Existing	4.3.1-A1	Zone 1
Door	20	0.500	None				90	90	Existing	4.5.1-A4	Zone 1
Wall	68	0.356	None				0	90	Existing	4.3.1-A1	Zone 1
Door	20	0.500	None				0	90	Existing	4.5.1-A4	Zone 1
Wall	280	0.356	None				270	90	Existing	4.3.1-A1	Zone 1
Door	20	0.500	None				270	90	Existing	4.5.1-A4	Zone 1
Wall	220	0.356	None				180	90	Existing	4.3.1-A1	Zone 1
Door	20	0.500	None				180	90	Existing	4.5.1-A4	Zone 1
Roof	1,950	0.025	R-38				180	0	Altered	4.2.1-A21 (E=4.2.1-A2)	Zone 1
Wall	152	0.356	None				0	90	Removed	4.3.1-A1	Zone 1
Door	20	0.500	None				0	90	Removed	4.5.1-A4	Zone 1
Wall	152	0.102	R-13				90	90	Existing	4.3.1-A3	Zone 1
Wall	162	0.102	R-13				0	90	New	4.3.1-A3	Zone 1
Wall	132	0.102	R-13				90	90	New	4.3.1-A3	Zone 1
Door	20	0.500	None				90	90	New	4.5.1-A4	Zone 1

FENESTRATION SURFACE DETAILS

ID	Type	Area	U-Factor ¹	SHGC ²	Azm	Status	Glazing Type	Location/Comments		
1	Window	40.0	0.710	Default	0.73	Default	90	Existing	Double Metal Clear	Zone 1
2	Window	40.0	0.710	Default	0.73	Default	0	Existing	Double Metal Clear	Zone 1
3	Window	60.0	0.710	Default	0.73	Default	270	Existing	Double Metal Clear	Zone 1
4	Window	80.0	0.710	Default	0.73	Default	180	Existing	Double Metal Clear	Zone 1
5	Window	40.0	0.710	Default	0.73	Default	0	Removed	Double Metal Clear	Zone 1
6	Window	40.0	0.710	Default	0.73	Default	90	New	Double Metal Clear	Zone 1
7	Window	30.0	0.710	Default	0.73	Default	0	New	Double Metal Clear	Zone 1
8	Window	40.0	0.710	Default	0.73	Default	90	New	Double Metal Clear	Zone 1

(1) U-Factor Type: 116-A = Default Table from Standards, NFRC = Labeled Value
 (2) SHGC Type: 116-B = Default Table from Standards, NFRC = Labeled Value

EXTERIOR SHADING DETAILS

ID	Exterior Shade Type	SHGC	Window		Overhang				Left Fin			Right Fin		
			Hgt	Wd	Len	Hgt	LExt	RExt	Dist	Len	Hgt	Dist	Len	Hgt
1	Bug Screen	0.76												
2	Bug Screen	0.76												
3	Bug Screen	0.76												
4	Bug Screen	0.76												
5	Bug Screen	0.76												
6	Bug Screen	0.76												
7	Bug Screen	0.76												
8	Bug Screen	0.76												

CERTIFICATE OF COMPLIANCE: Residential (Part 5 of 5) **CF-1R**

Project Name: *Residence, Renate Lee - Owner* Building Type: Single Family Addition Alone Multi Family Existing+ Addition/Alteration Date: *5/18/2011*

BUILDING ZONE INFORMATION

System Name	Zone Name	Floor Area (ft ²)				Volume	Year Built
		New	Existing	Altered	Removed		
HVAC System	Existing		1,336			10,688	1976
	Addition	486				3,888	
Totals		486	1,336	0	0		

HVAC SYSTEMS

System Name	Qty.	Heating Type	Min. Eff.	Cooling Type	Min. Eff.	Thermostat Type	Status
HVAC System	1	Central Furnace	78% AFUE	Split Air Conditioner	13.0 SEER	Setback	Existing

HVAC DISTRIBUTION

System Name	Heating	Cooling	Duct Location	Duct R-Value	Ducts Tested?	Status
HVAC System	Ducted	Ducted	Attic, Ceiling Ins, vented	8.0	<input type="checkbox"/>	New
					<input type="checkbox"/>	
					<input type="checkbox"/>	
					<input type="checkbox"/>	

WATER HEATING SYSTEMS

System Name	Qty.	Type	Distribution	Rated Input (Btuh)	Tank Cap. (gal)	Energy Factor or RE	Standby Loss or Pilot	Ext. Tank Insul. R-Value	Status
Standard Gas 50 gal or Le	1	Small Gas	Kitchen Pipe Ins	40,000	50	0.58	n/a	n/a	Existing

MULTI-FAMILY WATER HEATING DETAILS **HYDRONIC HEATING SYSTEM PIPING**

Control	Qty.	HP	Hot Water Piping Length (ft)			Add 1/2" Insulation	System Name	Pipe Length	Pipe Diameter	Insul. Thick.
			Plenum	Outside	Buried					
						<input type="checkbox"/>				
						<input type="checkbox"/>				
						<input type="checkbox"/>				
						<input type="checkbox"/>				

MANDATORY MEASURES SUMMARY: Residential

(Page 1 of 3)

MF-1R

Project Name

Residence, Renate Lee - Owner

Date

5/18/2011

NOTE: Low-rise residential buildings subject to the Standards must comply with all applicable mandatory measures listed, regardless of the compliance approach used. More stringent energy measures listed on the Certificate of Compliance (CF-1R, CF-1R-ADD, or CF-1R-ALT Form) shall supersede the items marked with an asterisk (*) below. This Mandatory Measures Summary shall be incorporated into the permit documents, and the applicable features shall be considered by all parties as minimum component performance specifications whether they are shown elsewhere in the documents or in this summary. Submit all applicable sections of the MF-1R Form with plans.

Building Envelope Measures:

§116(a)1: Doors and windows between conditioned and unconditioned spaces are manufactured to limit air leakage.

§116(a)4: Fenestration products (except field-fabricated windows) have a label listing the certified U-Factor, certified Solar Heat Gain Coefficient (SHGC), and infiltration that meets the requirements of §10-111(a).

§117: Exterior doors and windows are weather-stripped; all joints and penetrations are caulked and sealed.

§118(a): Insulation specified or installed meets Standards for Insulating Material. Indicate type and include on CF-6R Form.

§118(i): The thermal emittance and solar reflectance values of the cool roofing material meets the requirements of §118(i) when the installation of a Cool Roof is specified on the CF-1R Form.

*§150(a): Minimum R-19 insulation in wood-frame ceiling or equivalent U-factor.

§150(b): Loose fill insulation shall conform with manufacturer's installed design labeled R-Value.

*§150(c): Minimum R-13 insulation in wood-frame wall or equivalent U-factor.

*§150(d): Minimum R-13 insulation in raised wood-frame floor or equivalent U-factor.

§150(f): Air retarding wrap is tested, labeled, and installed according to ASTM E1677-95(2000) when specified on the CF-1R Form.

§150(g): Mandatory Vapor barrier installed in Climate Zones 14 or 16.

§150(l): Water absorption rate for slab edge insulation material alone without facings is no greater than 0.3%; water vapor permeance rate is no greater than 2.0 perm/inch and shall be protected from physical damage and UV light deterioration.

Fireplaces, Decorative Gas Appliances and Gas Log Measures:

§150(e)1A: Masonry or factory-built fireplaces have a closable metal or glass door covering the entire opening of the firebox.

§150(e)1B: Masonry or factory-built fireplaces have a combustion outside air intake, which is at least six square inches in area and is equipped with a with a readily accessible, operable, and tight-fitting damper and or a combustion-air control device.

§150(e)2: Continuous burning pilot lights and the use of indoor air for cooling a firebox jacket, when that indoor air is vented to the outside of the building, are prohibited.

Space Conditioning, Water Heating and Plumbing System Measures:

§110-§113: HVAC equipment, water heaters, showerheads, faucets and all other regulated appliances are certified by the Energy Commission.

§113(c)5: Water heating recirculation loops serving multiple dwelling units and High-Rise residential occupancies meet the air release valve, backflow prevention, pump isolation valve, and recirculation loop connection requirements of §113(c)5.

§115: Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces, household cooking appliances (appliances with an electrical supply voltage connection with pilot lights that consume less than 150 Btu/hr are exempt), and pool and spa heaters.

§150(h): Heating and/or cooling loads are calculated in accordance with ASHRAE, SMACNA or ACCA.

§150(i): Heating systems are equipped with thermostats that meet the setback requirements of Section 112(c).

§150(j)1A: Storage gas water heaters rated with an Energy Factor no greater than the federal minimal standard are externally wrapped with insulation having an installed thermal resistance of R-12 or greater.

§150(j)1B: Unfired storage tanks, such as storage tanks or backup tanks for solar water-heating system, or other indirect hot water tanks have R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.

§150(j)2: First 5 feet of hot and cold water pipes closest to water heater tank, non-recirculating systems, and entire length of recirculating sections of hot water pipes are insulated per Standards Table 150-B.

§150(j)2: Cooling system piping (suction, chilled water, or brine lines), and piping insulated between heating source and indirect hot water tank shall be insulated to Table 150-B and Equation 150-A.

§150(j)2: Pipe insulation for steam hydronic heating systems or hot water systems >15 psi, meets the requirements of Standards Table 123-A.

§150(j)3A: Insulation is protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind.

§150(j)3A: Insulation for chilled water piping and refrigerant suction lines includes a vapor retardant or is enclosed entirely in conditioned space.

§150(j)4: Solar water-heating systems and/or collectors are certified by the Solar Rating and Certification Corporation.

Project Name

Residence, Renate Lee - Owner

Date

5/18/2011

§150(m)1: All air-distribution system ducts and plenums installed, are sealed and insulated to meet the requirements of CMC Sections 601, 602, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to a minimum installed level of R-4.2 or enclosed entirely in conditioned space. Openings shall be sealed with mastic, tape or other duct-closure system that meets the applicable requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than 1/4 inch, the combination of mastic and either mesh or tape shall be used

§150(m)1: Building cavities, support platforms for air handlers, and plenums defined or constructed with materials other than sealed sheet metal, duct board or flexible duct shall not be used for conveying conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms shall not be compressed to cause reductions in the cross-sectional area of the ducts.

§150(m)2D: Joints and seams of duct systems and their components shall not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.

§150(m)7: Exhaust fan systems have back draft or automatic dampers.

§150(m)8: Gravity ventilating systems serving conditioned space have either automatic or readily accessible, manually operated dampers.

§150(m)9: Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Cellular foam insulation shall be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation that can cause degradation of the material.

§150(m)10: Flexible ducts cannot have porous inner cores.

§150(o): All dwelling units shall meet the requirements of ANSI/ASHRAE Standard 62.2-2007 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings. Window operation is not a permissible method of providing the Whole Building Ventilation required in Section 4 of that Standard.

Pool and Spa Heating Systems and Equipment Measures:

§114(a): Any pool or spa heating system shall be certified to have: a thermal efficiency that complies with the Appliance Efficiency Regulations; an on-off switch mounted outside of the heater; a permanent weatherproof plate or card with operating instructions; and shall not use electric resistance heating or a pilot light.

§114(b)1: Any pool or spa heating equipment shall be installed with at least 36" of pipe between filter and heater, or dedicated suction and return lines, or built-up connections for future solar heating.

§114(b)2: Outdoor pools or spas that have a heat pump or gas heater shall have a cover.

§114(b)3: Pools shall 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.

§150(p): Residential pool systems or equipment meet the pump sizing, flow rate, piping, filters, and valve requirements of §150(p).

Residential Lighting Measures:

§150(k)1: High efficacy luminaires or LED Light Engine with Integral Heat Sink has an efficacy that is no lower than the efficacies contained in Table 150-C and is not a low efficacy luminaire as specified by §150(k)2.

§150(k)3: The wattage of permanently installed luminaires shall be determined as specified by §130(d).

§150(k)4: Ballasts for fluorescent lamps rated 13 Watts or greater shall be electronic and shall have an output frequency no less than 20 kHz.

§150(k)5: Permanently installed night lights and night lights integral to a permanently installed luminaire or exhaust fan shall contain only high efficacy lamps meeting the minimum efficacies contained in Table 150-C and shall not contain a line-voltage socket or line-voltage lamp holder; OR shall be rated to consume no more than five watts of power as determined by §130(d), and shall not contain a medium screw-base socket.

§150(k)6: Lighting integral to exhaust fans, in rooms other than kitchens, shall meet the applicable requirements of §150(k).

§150(k)7: All switching devices and controls shall meet the requirements of §150(k)7.

§150(k)8: A minimum of 50 percent of the total rated wattage of permanently installed lighting in kitchens shall be high efficacy. EXCEPTION: Up to 50 watts for dwelling units less than or equal to 2,500 ft² or 100 watts for dwelling units larger than 2,500 ft² may be exempt from the 50% high efficacy requirement when: all low efficacy luminaires in the kitchen are controlled by a manual on occupant sensor, dimmer, energy management system (EMCS), or a multi-scene programmable control system; and all permanently installed luminaires in garages, laundry rooms, closets greater than 70 square feet, and utility rooms are high efficacy and controlled by a manual-on occupant sensor.

§150(k)9: Permanently installed lighting that is internal to cabinets shall use no more than 20 watts of power per linear foot of illuminated cabinet.

MANDATORY MEASURES SUMMARY: Residential (Page 3 of 3) **MF-1R**

Project Name: *Residence, Renate Lee - Owner* Date: *5/18/2011*

- §150(k)10: Permanently installed luminaires in bathrooms, attached and detached garages, laundry rooms, closets and utility rooms shall be high efficacy.
EXCEPTION 1: Permanently installed low efficacy luminaires shall be allowed provided that they are controlled by a manual-on occupant sensor certified to comply with the applicable requirements of §119.
EXCEPTION 2: Permanently installed low efficacy luminaires in closets less than 70 square feet are not required to be controlled by a manual-on occupancy sensor.
- §150(k)11: Permanently installed luminaires located in rooms or areas other than in kitchens, bathrooms, garages, laundry rooms, closets, and utility rooms shall be high efficacy luminaires. EXCEPTION 1: Permanently installed low efficacy luminaires shall be allowed provided they are controlled by either a dimmer switch that complies with the applicable requirements of §119, or by a manual-on occupant sensor that complies with the applicable requirements of §119. EXCEPTION 2: Lighting in detached storage building less than 1000 square feet located on a residential site is not required to comply with §150(k)11.
- §150(k)12: Luminaires recessed into insulated ceilings shall be listed for zero clearance insulation contact (IC) by Underwriters Laboratories or other nationally recognized testing/rating laboratory; and have a label that certifies the luminaire is airtight with air leakage less than 2.0 CFM at 75 Pascals when tested in accordance with ASTM E283; and be sealed with a gasket or caulk between the luminaire housing and ceiling.
- §150(k)13: Luminaires providing outdoor lighting, including lighting for private patios in low-rise residential buildings with four or more dwelling units, entrances, balconies, and porches, which are permanently mounted to a residential building or to other buildings on the same lot shall be high efficacy. EXCEPTION 1: Permanently installed outdoor low efficacy luminaires shall be allowed provided that they are controlled by a manual on/off switch, a motion sensor not having an override or bypass switch that disables the motion sensor, and one of the following controls: a photocontrol not having an override or bypass switch that disables the photocontrol; OR an astronomical time clock not having an override or bypass switch that disables the astronomical time clock; OR an energy management control system (EMCS) not having an override or bypass switch that allows the luminaire to be always on EXCEPTION 2: Outdoor luminaires used to comply with Exception 1 to §150(k)13 may be controlled by a temporary override switch which bypasses the motion sensing function provided that the motion sensor is automatically reactivated within six hours. EXCEPTION 3: Permanently installed luminaires in or around swimming pool, water features, or other location subject to Article 680 of the California Electric Code need not be high efficacy luminaires.
- §150(k)14: Internally illuminated address signs shall comply with Section 148; OR not contain a screw-base socket, and consume no more than five watts of power as determined according to §130(d).
- §150(k)15: Lighting for parking lots and carports with a total of for 8 or more vehicles per site shall comply with the applicable requirements in Sections 130, 132, 134, and 147. Lighting for parking garages for 8 or more vehicles shall comply with the applicable requirements of Sections 130, 131, 134, and 146.
- §150(k)16: Permanently installed lighting in the enclosed, non-dwelling spaces of low-rise residential buildings with four or more dwelling units shall be high efficacy luminaires. EXCEPTION: Permanently installed low efficacy luminaires shall be allowed provided that they are controlled by an occupant sensor(s) certified to comply with the applicable requirements of §119.