

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

Project Name: **Honorio Garcia** Building Type: Single Family Addition Alone Date: **8/30/2012**

Project Address: **2737 Homestead Dr. San Marcos** California Energy Climate Zone: **CA Climate Zone 10** Total Cond. Floor Area: **1,794** Addition: **192** # 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.

Construction Type	Cavity	Area (ft ²)	Special Features (see Part 2 of 5)	Status
Wall Wood Framed	R-13	491		New
Roof Wood Framed Attic	R-30	192		New
Slab Unheated Slab-on-Grade	None	192	Perim = 53'	New
Wall Wood Framed	None	1,186		Existing
Door Opaque Door	None	13		New
Door Opaque Door	None	20		Existing
Roof Wood Framed Attic	R-11	1,602		Existing
Slab Unheated Slab-on-Grade	None	1,602	Perim = 137'	Existing

Orientation	Area (ft ²)	U-Factor	SHGC	Overhang	Exterior Sidelights	Shades	Status
Front (N)	25.9	0.510	0.61	none	none	Bag Screen	New
Left (N)	48.0	0.510	0.61	none	none	Bag Screen	New
Right (S)	80.0	1.040	0.76	none	none	Bag Screen	Existing
Rear (E)	48.0	1.040	0.76	none	none	Bag Screen	Existing
Left (N)	36.0	1.040	0.76	none	none	Bag Screen	Existing
Right (S)	48.0	1.040	0.76	none	none	Bag Screen	Removed
Left (N)	48.0	1.040	0.76	none	none	Bag Screen	Removed

HVAC SYSTEMS	Qty.	Heating	Min. Eff.	Cooling	Min. Eff.	Thermostat	Status
Central Furnace	1		93% AFUE	Split Air Conditioner	13.0 SEER	Setback	New

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

WATER HEATING	Qty.	Type	Gallons	Min. Eff.	Distribution	Status

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PERFORMANCE CERTIFICATE: Residential (Part 2 of 5) **CF-1R**

Project Name: **Honorio Garcia** Building Type: Single Family Addition Alone Date: **8/30/2012**

SPECIAL FEATURES INSPECTION CHECKLIST

The enforcement agency should pay special attention to the items specified in this checklist. These items require special written justification and documentation, and special verification to be used with the performance approach. The enforcement agency determines the adequacy of the justification, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation submitted.

HERS REQUIRED VERIFICATION

Items in this section require field testing and/or verification by a certified HERS Rater. The inspector must receive a completed CF-4R form for each of the measures listed below for final to be given.

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

Project Name: **Honorio Garcia** Building Type: Single Family Addition Alone Date: **8/30/2012**

ANNUAL ENERGY USE SUMMARY

TDV (kBtu/ft ² -yr)	Standard	Proposed	Margin
Space Heating	49.29	33.82	15.48
Space Cooling	57.65	63.90	-6.26
Fans	15.01	18.59	-3.58
Domestic Hot Water	25.08	25.08	0.00
Pumps	0.00	0.00	0.00
Totals	147.02	141.39	5.64

Percent Better Than Standard: **3.8%**

BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED

Building Front Orientation:	(W) 270 deg	Ext. Walls/Roof	Wall Area	Fenestration Area
Number of Dwelling Units:	1.00	(W)	393	26
Fuel Available at Site:	Propane	(E)	382	84
Raised Floor Area:	0	(S)	392	48
Slab on Grade Area:	1,794	(S)	581	80
Average Ceiling Height:	10.3	Roof	1,794	0
Fenestration Average U-Factor:	0.88	TOTAL:		238
Average SHGC:	0.71	Fenestration/CFA Ratio:		13.3%

STATEMENT OF COMPLIANCE

This certificate of compliance lists the building features and specifications needed to comply with Title 24, Part 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: **NRG Compliance, Inc.** Name: **Mario Betancos** Date: **8/30/2012**

Address: **P.O. Box 3777** Phone: **707-237-6957**

City/State/Zip: **Santa Rosa, CA 95402**

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: **MARCO A. LAUREANO (MAR-Co. HOU)** Name: **MARCO A. LAUREANO (MAR-Co. HC)** License #: Date:

Address: **560 Lynette Cr.** Phone: **760-805-2358**

City/State/Zip: **Vista, CA 92081**

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

Project Name: **Honorio Garcia** Building Type: Single Family Addition Alone Date: **8/30/2012**

OPAQUE SURFACE DETAILS

Surface Type	Area	U-Factor	SHGC	Insulation	Exterior	Interior	Frame	Arm	Tilt	Status	Joint Appendix	Location/Comments
Wall	111	0.102	R-13					270	90	New	4.3.1-A3	First Floor
Wall	90	0.102	R-13					180	90	New	4.3.1-A3	First Floor
Wall	57	0.102	R-13					90	90	New	4.3.1-A3	First Floor
Wall	238	0.102	R-13					90	90	New	4.3.1-A3	First Floor
Roof	192	0.031	R-30					270	18	New	4.2.1-A20	First Floor
Slab	192	0.730	None					0	180	New	4.4.7-A1	First Floor
Wall	242	0.356	None					270	90	Existing	4.3.1-A1	First Floor
Door	13	0.500	None					270	90	New	4.5.1-A4	First Floor
Wall	391	0.356	None					180	90	Existing	4.3.1-A1	First Floor
Door	20	0.500	None					180	90	Existing	4.3.1-A4	First Floor
Wall	260	0.356	None					90	90	Existing	4.3.1-A1	First Floor
Wall	63	0.356	None					270	90	Removed	4.3.1-A1	First Floor
Wall	90	0.356	None					180	90	Removed	4.3.1-A1	First Floor
Wall	246	0.356	None					0	90	Removed	4.3.1-A1	First Floor
Door	18	0.500	None					0	90	Removed	4.5.1-A4	First Floor

FENESTRATION SURFACE DETAILS

ID	Type	Area	U-Factor	SHGC	Window	Overhang	Left Fin	Right Fin
1	Window	3.0	0.510	NFRFC	0.61	NFRFC	270	New
2	Window	48.0	0.510	NFRFC	0.61	NFRFC	0	New
3	Window	22.9	0.510	NFRFC	0.61	NFRFC	270	New
4	Window	80.0	1.040	Default	0.76	Default	180	Existing
5	Window	48.0	1.040	Default	0.76	Default	90	Existing
6	Window	36.0	1.040	Default	0.76	Default	0	Existing
7	Window	40.0	1.040	Default	0.76	Default	180	Removed
8	Window	40.0	1.040	Default	0.76	Default	0	Removed

EXTERIOR SHADING DETAILS

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

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

Project Name: **Honorio Garcia** Building Type: Single Family Addition Alone Date: **8/30/2012**

OPAQUE SURFACE DETAILS

Surface Type	Area	U-Factor	SHGC	Insulation	Exterior	Interior	Frame	Arm	Tilt	Status	Joint Appendix	Location/Comments
Roof	1,602	0.079	R-11					270	18	Existing	4.2.1-A2	First Floor
Slab	1,602	0.730	None					0	180	Existing	4.4.7-A1	First Floor

FENESTRATION SURFACE DETAILS

ID	Type	Area	U-Factor	SHGC	Window	Overhang	Left Fin	Right Fin

EXTERIOR SHADING DETAILS

ID	Exterior Shade Type	SHGC	Window Hgt	Window Wd	Overhang Len	Overhang Hgt	Left Fin Len	Left Fin Hgt	Right Fin Len	Right Fin Hgt

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

Project Name: **Honorio Garcia** Building Type: Single Family Addition Alone Date: **8/30/2012**

BUILDING ZONE INFORMATION

System Name	Zone Name	New	Existing	Altered	Removed	Volume	Year Built
HVAC System	First Floor (Addition)	192				1,978	
	First Floor		1,602			16,801	1946
Totals		192	0	1,602	0		

HVAC SYSTEMS

System Name	Qty.	Heating Type	Min. Eff.	Cooling Type	Min. Eff.	Thermostat	Status
HVAC System	1	Central Furnace	93% AFUE	Split Air Conditioner	13.0 SEER	Setback	New

HVAC DISTRIBUTION

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

WATER HEATING SYSTEMS

System Name	Qty.	Type	Distribution	Rated Input (Btu/h)	Tank Cap. (gal)	Energy Factor or RE	Standby Loss or Pilot	Ext. Tank Insul. R-Value	Status
Standard Gas 50 gal or Less	1	Small Gas	No Pipe Insulation	40,000	50	0.58	n/a	n/a	Existing

MULTI-FAMILY WATER HEATING DETAILS

Hot Water Piping Length (ft)	System Name	Pipe Length	Pipe Diameter	Insul. Thick.
	Control			

HYDRONIC HEATING SYSTEM PIPING

System Name	Pipe Length	Pipe Diameter	Insul. Thick.

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

Project Name: **Honorio Garcia** Date: **8/30/2012**

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 where 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:

*118(a): Doors and windows between conditioned and unconditioned spaces are manufactured to limit air leakage.

*118(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(b): 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 vapor 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(i): 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(a)(1A): Masonry or factory-built fireplaces have a double metal or glass door covering the entire opening of the firebox.

*150(a)(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 readily accessible, operable, and tight-fitting damper and/or a combustion-air control device.

*150(a)(2): Continuous burning pilot lights and the use of indoor air for cooling in 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, showstoppers, faucets and all other regulated appliances are certified by the Energy Commission.

*113(a)(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)(A): Storage gas water heaters rated with an Energy Factor no greater than the federal minimum standard are externally wrapped with insulation having an installed thermal resistance of R-12 or greater.

*150(j)(B): Unlined 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 five 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 retarder 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.

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MANDATORY MEASURES SUMMARY: Residential (Page 2 of 3) **MF-1R**

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*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 Sections 601, 611, 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)(2): 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 venting 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(n): 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 in-line-voltage lamp holder. OR shall be tested 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 sq ft or 100 watts for dwelling units larger than 2,500 sq ft 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.

EnergyPro 5.1 by EnergySoft User Number: