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

Project Name	Building Type		Date
Hansel Residence	☑ Single Family ☐ Multi Family	☐ Addition Alone ☐ Existing+ Addition/Alteration	4/28/2010

Project Address	California Energy Climate Zone	Total Cond. Floor Area	Addition	# of Stories
473 Cahill Lane Santa Rosa	CA Climate Zone 02	8,180	n/a	2

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
Wall	Wood Framed	R-21	7,712		New
Roof	Wood Framed Attic	R-30	2,597	Radiant Barrier	New
Slab	Heated Slab-on-Grade	R-5	6,740	Perim = 390'	New
Roof	Wood Framed Rafter	Filled	2,338		New
Roof	Wood Framed Rafter	Filled	7,973		New
Roof	Wood Framed Attic	R-30	1,440	Radiant Barrier	New

FENESTRATION Orientation	Area(ft^2)	U-Factor	SHGC	Overhang	Sidefins	Exterior Shades	Status
Left (E)	105.0	0.390	0.26	25.0	none	Bug Screen	New
Left (E)	323.0	0.390	0.26	none	none	Bug Screen	New
Left (E)	51.0	0.390	0.26	10.0	none	Bug Screen	New
Front (N)	234.0	0.390	0.26	none	none	Bug Screen	New
Front (N)	176.0	0.390	0.26	8.0	none	Bug Screen	New
Front (N)	51.0	0.390	0.26	8.0	none	Bug Screen	New
Rear (S)	618.0	0.390	0.26	none	none	Bug Screen	New
Right (W)	338.5	0.390	0.26	10.0	none	Bug Screen	New
Right (W)	40.0	0.390	0.26	9.0	none	Bug Screen	New
Right (W)	36.0	0.390	0.26	24.0	none	Bug Screen	New
Right (W)	130.5	0.390	0.26	none	none	Bug Screen	New

HVAC SYSTEMS Qty.	Heating	Min. Eff	Cooling	Min. Eff	Thermostat	Status
1	Boiler		Split Air Conditioner	13.0 SEER	Setback	New

HVAC DISTRIBUTION Location	Heating	Cooling	Duct Location	Duct R-Value	Status
Residential HVAC Unit	Radiant Floor	Ducted	Attic, Ceiling Ins, vented	6.0	New

WATER HEATING Qty.	Type	Gallons	Min. Eff	Distribution	Status
1	Large Gas	60	0.92	No Pipe Insulation	New

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

Project Name	Building Type		Date
Hansel Residence	☑ Single Family ☐ Multi Family	☐ Addition Alone ☐ Existing+ Addition/Alteration	4/28/2010

Project Address	California Energy Climate Zone	Total Cond. Floor Area	Addition	# of Stories
473 Cahill Lane Santa Rosa	CA Climate Zone 02	8,180	n/a	2

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

FENESTRATION Orientation	Area(ft^2)	U-Factor	SHGC	Overhang	Sidefins	Exterior Shades	Status
Skylight	9.0	0.550	0.29	none	none	None	New
Front (NE)	136.5	0.390	0.26	none	none	Bug Screen	New
Rear (SW)	106.0	0.390	0.26	none	none	Bug Screen	New
Right (NW)	73.5	0.390	0.26	none	none	Bug Screen	New
Skylight	19.8	0.550	0.29	none	none	None	New
Skylight	27.0	0.550	0.29	none	none	None	New
Left (E)	101.6	0.390	0.26	9.0	none	Bug Screen	New

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 2 of 5) CF-1R

Project Name	Building Type		Date
Hansel Residence	☑ Single Family ☐ Multi Family	☐ Addition Alone ☐ Existing+ Addition/Alteration	4/28/2010

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.

The DHW System Radiant floor is a non-NAECA large storage gas water heater. Verify DHW details.

The HVAC System Residential HVAC Unit is a Hydronic System that uses a Dedicated Boiler for Space Heating. System details are on Part 5 of the CF-1R.

The Roof R-30 Roof Attic includes credit for a Radiant Barrier that is Continuous meeting eligibility and installaion criteria as specified in Residential Appendix RA4.2.2.

The Roof R-30 Roof Attic includes credit for a Radiant Barrier that is Continuous meeting eligibility and installaion criteria as specified in Residential Appendix RA4.2.2.

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.

The HVAC System Residential HVAC Unit incorporates HERS verified Duct Leakage. HERS field verification and diagnostic testing is required to verify that duct leakage meets the specified criteria.

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

Project Name	Building Type		Date
Hansel Residence	☑ Single Family ☐ Multi Family	☐ Addition Alone ☐ Existing+ Addition/Alteration	4/28/2010

ANNUAL ENERGY USE SUMMARY

TDV (kBtu/ft^2-yr)	Standard	Proposed	Margin
Space Heating	30.17	25.24	4.93
Space Cooling	28.27	26.22	2.05
Fans	10.29	6.70	3.59
Domestic Hot Water	4.90	3.15	1.75
Pumps	0.00	0.00	0.00
Totals	73.63	61.31	12.32
Percent Better Than Standard:			16.7 %

BUILDING COMPLIES - HERS VERIFICATION REQUIRED

Building Front Orientation:	(N) 0 deg	Ext. Walls/Roof	Wall Area	Fenestration Area
Number of Dwelling Units:	1.00	(N)	2,856	598
Fuel Available at Site:	Natural Gas	(E)	1,686	581
Raised Floor Area:	0	(S)	3,780	724
Slab on Grade Area:	6,740	(W)	1,911	619
Average Ceiling Height:	12.0	Roof	14,404	56
Fenestration Average U-Factor:	0.39		TOTAL:	2,576
Average SHGC:	0.26		Fenestration/CFA Ratio:	31.5 %

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	SOLDATA Energy Consulting			4/28/2010
Address	401-C College Avenue	Name	Ann Wolfe	
City/State/Zip	Santa Rosa, CA 95401	Phone	707 545-4440	Signed / Date

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	Wade Design Architects			
Address	155 Frustuck Avenue	Name		
City/State/Zip	Fairfax, CA 94930	Phone	415 785 4213	Signed / License # / Date

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

Project Name	Building Type		Date
Hansel Residence	☑ Single Family ☐ Multi Family	☐ Addition Alone ☐ Existing+ Addition/Alteration	4/28/2010

OPAQUE SURFACE DETAILS

Surface Type	Area	U-Factor	Insulation Cavity	Exterior	Frame	Interior	Frame	Azm	Tilt	Status	Joint Appendix 4	Location/Comments
Wall	718	0.069	R-21					90	90	New	4.3.1-A6	living Area First Floor
Wall	1,311	0.069	R-21					0	90	New	4.3.1-A6	living Area First Floor
Wall	1,146	0.069	R-21					180	90	New	4.3.1-A6	living Area First Floor
Wall	681	0.069	R-21					270	90	New	4.3.1-A6	living Area First Floor
Roof	2,597	0.031	R-30					0	0	New	4.2.1-A20	living Area First Floor
Slab	6,740	1.060	R-5					0	180	New	4.4.8-B16	living Area First Floor
Wall	356	0.069	R-21					45	90	New	4.3.1-A6	living Area First Floor
Wall	102	0.069	R-21					90	90	New	4.3.1-A6	living Area First Floor
Wall	386	0.069	R-21					225	90	New	4.3.1-A6	living Area First Floor
Wall	254	0.069	R-21					315	90	New	4.3.1-A6	living Area First Floor
Roof	2,338	0.041	Filled					0	0	New	4.2.2-A22	living Area First Floor
Roof	7,973	0.033	Filled					0	0	New	4.2.2-A23	living Area First Floor
Wall	285	0.069	R-21					90	90	New	4.3.1-A6	2nd Floor
Wall	593	0.069	R-21					0	90	New	4.3.1-A6	2nd Floor
Wall	1,524	0.069	R-21					180	90	New	4.3.1-A6	2nd Floor
Wall	359	0.069	R-21					270	90	New	4.3.1-A6	2nd Floor

FENESTRATION SURFACE DETAILS

ID	Type	Area	U-Factor[1]	SHGC[2]	Azm	Status	Glazing Type	Location/Comments
1	Window	105.0	0.390 NFRC	0.26 NFRC	90	New	Low E Glass.39-26	living Area First Floor
2	Window	47.0	0.390 NFRC	0.26 NFRC	90	New	Low E Glass.39-26	living Area First Floor
3	Window	70.0	0.390 NFRC	0.26 NFRC	90	New	Low E Glass.39-26	living Area First Floor
4	Window	51.0	0.390 NFRC	0.26 NFRC	90	New	Low E Glass.39-26	living Area First Floor
5	Window	46.0	0.390 NFRC	0.26 NFRC	90	New	Low E Glass.39-26	living Area First Floor
6	Window	51.0	0.390 NFRC	0.26 NFRC	90	New	Low E Glass.39-26	living Area First Floor
7	Window	36.0	0.390 NFRC	0.26 NFRC	90	New	Low E Glass.39-26	living Area First Floor
8	Window	4.0	0.390 NFRC	0.26 NFRC	90	New	Low E Glass.39-26	living Area First Floor
9	Window	17.0	0.390 NFRC	0.26 NFRC	0	New	Low E Glass.39-26	living Area First Floor
10	Window	51.0	0.390 NFRC	0.26 NFRC	0	New	Low E Glass.39-26	living Area First Floor
11	Window	81.0	0.390 NFRC	0.26 NFRC	0	New	Low E Glass.39-26	living Area First Floor
12	Window	44.0	0.390 NFRC	0.26 NFRC	0	New	Low E Glass.39-26	living Area First Floor
13	Window	70.0	0.390 NFRC	0.26 NFRC	0	New	Low E Glass.39-26	living Area First Floor
14	Window	51.0	0.390 NFRC	0.26 NFRC	0	New	Low E Glass.39-26	living Area First Floor
15	Window	22.5	0.390 NFRC	0.26 NFRC	0	New	Low E Glass.39-26	living Area First Floor
16	Window	6.0	0.390 NFRC	0.26 NFRC	0	New	Low E Glass.39-26	living Area First Floor

(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 Hgt	Wd	Overhang Len	Hgt	LExt	RExt	Left Fin Dist	Len	Hgt	Right Fin Dist	Len	Hgt
1	Bug Screen	0.76	10.5	10.0	25.0	2.0	0.0	0.0						
2	Bug Screen	0.76												
3	Bug Screen	0.76												
4	Bug Screen	0.76	8.5	6.0	10.0	2.0	0.0	0.0						
5	Bug Screen	0.76												
6	Bug Screen	0.76												
7	Bug Screen	0.76												
8	Bug Screen	0.76												
9	Bug Screen	0.76												
10	Bug Screen	0.76												
11	Bug Screen	0.76	7.9	5.2	8.0	2.0	0.0	0.0						
12	Bug Screen	0.76	7.9	2.9	8.0	2.0	0.0	0.0						
13	Bug Screen	0.76												
14	Bug Screen	0.76	8.5	6.0	8.0	2.0	0.0	0.0						
15	Bug Screen	0.76												
16	Bug Screen	0.76												

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

Project Name	Building Type		Date
Hansel Residence	☑ Single Family ☐ Multi Family	☐ Addition Alone ☐ Existing+ Addition/Alteration	4/28/2010

OPAQUE SURFACE DETAILS

Surface Type	Area	U-Factor	Insulation Cavity	Exterior	Frame	Interior	Frame	Azm	Tilt	Status	Joint Appendix 4	Location/Comments
Roof	1,440	0.032	R-30					0	0	New	4.2.1-A8	2nd Floor

FENESTRATION SURFACE DETAILS

ID	Type	Area	U-Factor[1]	SHGC[2]	Azm	Status	Glazing Type	Location/Comments
17	Window	51.0	0.390 NFRC	0.26 NFRC	0	New	Low E Glass.39-26	living Area First Floor
18	Window	27.0	0.390 NFRC	0.26 NFRC	180	New	Low E Glass.39-26	living Area First Floor
19	Window	6.0	0.390 NFRC	0.26 NFRC	180	New	Low E Glass.39-26	living Area First Floor
20	Window	24.5	0.390 NFRC	0.26 NFRC	180	New	Low E Glass.39-26	living Area First Floor
21	Window	22.5	0.390 NFRC	0.26 NFRC	180	New	Low E Glass.39-26	living Area First Floor
22	Window	52.0	0.390 NFRC	0.26 NFRC	180	New	Low E Glass.39-26	living Area First Floor
23	Window	42.0	0.390 NFRC	0.26 NFRC	180	New	Low E Glass.39-26	living Area First Floor
24	Window	15.0	0.390 NFRC	0.26 NFRC	180	New	Low E Glass.39-26	living Area First Floor
25	Window	27.0	0.390 NFRC	0.26 NFRC	180	New	Low E Glass.39-26	living Area First Floor
26	Window	32.0	0.390 NFRC	0.26 NFRC	180	New	Low E Glass.39-26	living Area First Floor
27	Window	126.0	0.390 NFRC	0.26 NFRC	180	New	Low E Glass.39-26	living Area First Floor
28	Window	40.0	0.390 NFRC	0.26 NFRC	180	New	Low E Glass.39-26	living Area First Floor
29	Window	48.0	0.390 NFRC	0.26 NFRC	180	New	Low E Glass.39-26	living Area First Floor
30	Window	36.0	0.390 NFRC	0.26 NFRC	180	New	Low E Glass.39-26	living Area First Floor
31	Window	22.5	0.390 NFRC	0.26 NFRC	270	New	Low E Glass.39-26	living Area First Floor
32	Window	40.0	0.390 NFRC	0.26 NFRC	270	New	Low E Glass.39-26	living Area First Floor

(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 Hgt	Wd	Overhang Len	Hgt	LExt	RExt	Left Fin Dist	Len	Hgt	Right Fin Dist	Len	Hgt
17	Bug Screen	0.76	8.5	6.0	8.0	2.0	0.0	0.0						
18	Bug Screen	0.76												
19	Bug Screen	0.76												
20	Bug Screen	0.76												
21	Bug Screen	0.76												
22	Bug Screen	0.76												
23	Bug Screen	0.76												
24	Bug Screen	0.76												
25	Bug Screen	0.76												
26	Bug Screen	0.76												
27	Bug Screen	0.76												
28	Bug Screen	0.76												
29	Bug Screen	0.76												
30	Bug Screen	0.76												
31	Bug Screen	0.76	3.0	2.5	10.0	2.0	0.0	0.0						
32	Bug Screen	0.76	10.5	3.9	9.0	2.0	0.0	0.0						

These documents are the property of Wade Design. Any unauthorized use without written consent is prohibited by law. Wade Design disclaims responsibility for the documents if used in whole or in part on any other location.

WADE DESIGN ARCHITECTS
155 Frustuck Ave. Fairfax, CA 94930
Phone: 415.785.4213 Fax: 415.785.4214
info@wade-design.com

HANSEL RESIDENCE
473 Cahill Lane, Santa Rosa, California 95401

NOT FOR CONSTRUCTION

Drawn By	WD
Checked By	WD
Project No.	09013

Date	Issue
03.01.10	PRELIM PRICING SET
04.22.10	PROGRESS SET
05.01.10	PERMIT SET

ENERGY CALCULATIONS

SCALE : N/A

T24.0