

# *SIMPLIFICATION*

Energy Commission Staff are working with CALBO representatives to simplify the Plan Check and Inspection process for Title 24 Energy Standards

# *NEW ORGANIZATION OF CF-1R*

Energy Inspection Checklist located on  
first and second page of CF-1R

All computer printouts will be  
organized the same

Jones/Smith Residence: Existing + Addition

Existing+Addition+Alteration

8/3/07

Project Title

Building Type

Date

1950 Magellan Drive, Oakland, CA

Zone 3

3,275 sq.ft.

1,427 sq.ft.

3

Project Address

CA Climate Zone

Total Cond. Floor Area

Addition Floor Area

Number of Stories

**FIELD INSPECTION CHECKLIST**

This is an inspection checklist listing energy features. The building department has the option of creating its own checklist.

Yes  No  CF-4R's received for all required HERS Measures

**INSULATION**

Type	Cavity	Rigid	% of Tot. Area	Status
Roof Wood Framed Rafter	R-38		30%	New
Roof Wood Framed Attic	R-27.5		15%	Upgrade
Wall Wood Framed	R-13		25%	New
Wall Metal Framed	R-19		65%	Upgrade
Wall Hollow Unit Masonry	None	R-5.0	10%	Upgrade
Floor Wood Framed w/Crawlspace	R-19		100%	Upgrade
Slab Unheated Slab-on-Grade Floor	None	R-0	100% perim	New

**FENESTRATION**

Orientation	Area[sf]	U-Factor	SHGC	Overhang	Sidefins	Exterior Shades	Status
Front (N)	54	0.35	0.35	None	None	None	New
Front (N)	105	0.55	0.67	None	None	Woven Sunscreen	Upgrade
Left (E)	32	0.35	0.35	None	Left	None	New
Left (E)	67	0.55	0.67	None	Left/Right	None	Upgrade
Left (E)	24	0.35	0.35	None	None	None	New
Rear (S)	10	0.35	0.35	6.0'	None	None	New
Rear (S)	12	0.55	0.67	None	None	None	New
Rear (S)	86	0.55	0.67	12.0'	None	None	New
Right (W)	35	0.35	0.35	None	None	None	New
Right (W)	51	0.55	0.67	None	None	None	New
Right (W)	62	0.35	0.35	None	None	None	New
Skylights (W)	12	0.40	0.30	None	None	None	New

**HVAC SYSTEMS**

Heating	Min. Eff.	Cooling	Min. Eff.	Thermostat	Status
Central Furnace	80% AFUE	None	n/a	Setback	Existing
Heat Pump	8.8 HSPF	Split Air Conditioner	13.0 SEER	Setback	New

**HVAC DISTRIBUTION**

Location	Heating	Cooling	Duct Location	Duct R-Val.	Status
1st Floor	Radiant Floor	Ducted	Crawlspace	R-4.2	New
2nd Floor	Baseboard	Ducted	Attic	R-6.0	Upgraded

**WATER HEATERS**

Type	Gallons	# in System	Min. Eff.	Distribution	Status
Instantaneous Gas	n/a	1	0.80 EF	No pipe insulation	New
Small Gas	50	1	0.62 EF	Kitchen Pipes Insulated	Upgrade



# Checklist and Guide

The checklist explains what to check and at what point in the process.

The Guide gives the information that is needed including why it is important to check. Do not need to go to Manuals, Standards, ACM's etc. All in one place.

# Checklists

Four checklists for Res. and Nonres. Plan Check

- Newly Constructed Buildings
- Alterations/Additions

Four checklists for Res. And Nonres. Inspection

- Newly Constructed Buildings
- Alterations/Additions

## 2008 Residential Energy Plan Review Checklist For Newly Constructed Buildings

Was the correct compliance software used?	Yes	No	N/A
CalRes version 2008			
Energy Pro version 5.0			
Micropas version 8.0			
Is the CF-1R Form signed and dated by both the:			
Designer and/or Owner			
Documentation Author			
Does the building "Comply" according to the CF-1R Form?			
Is the correct Climate Zone listed on the CF-1R Form?			
Is the MF-1R Form attached or incorporated onto plans?			
<b>DOES THE CF-1R FORM MATCH THE PLANS?</b>			
Conditioned Floor Area for all floor types (i.e. slab on grade, raised floor, etc.)			
Front Orientation of the building			
Envelope			
Insulation for walls, ceilings, and floors ( <i>from Reference Joint Appendix JA4</i> )			
Number of windows, window area, and their orientation			
U-factor and SHGC values for fenestration ( <i>a window schedule required upon Plan Checker's request</i> )			
Exterior shading (i.e. overhangs, fins, exterior shades)			
HVAC			
Efficiencies of HVAC equipment			
Duct Insulation			
Ventilation and Indoor Air Quality ( <i>Mandatory Measure</i> )			
Water Heating			
Efficiency and Type of Water Heating/Boiler equipment (i.e. storage, instantaneous, etc.)			
Distribution Type (i.e. recirculating, standard, pipe insulation credit, etc.)			
Pipe Insulation Values ( <i>Mandatory Measures</i> )			
Lighting			
All lighting is high efficacy lighting (i.e. fluorescent, LED ) or meets applicable alternatives ( <i>Mandatory Measures</i> )			
ALL <b>Special Features</b> are verified on the plans and highlighted for the inspector? (i.e. Thermal Mass, Radiant Barrier, Cool Roof)			
ALL <b>HERS Measures</b> are verified on the plans and highlighted for the inspector? [i.e. Duct Leakage, Refrigerant Charge, Airflow (Fan Flow) and Watt Draw]			
<b>Completed By:</b>			<b>Date:</b>

# Guides

- Guides will be developed that will explain each of the checklists
- Guides will include information on the most important energy features to verify
- Information in the Guides will be taken from the Manual, Standards, and ACM's to help the plan check/inspection process

**CLIMATE ZONE - Is the correct Climate Zone listed on the CF-1R Form?** The building must be modeled with the correct Climate Zone because there are different energy efficiency requirements for each specific Climate Zone. The Climate Zone description can be found at: [www.energy.ca.gov/maps/building\\_climate\\_zones.html](http://www.energy.ca.gov/maps/building_climate_zones.html).

**MF-1R – Is the MF-1R (Mandatory Measures) form attached or incorporated onto the plans?** The MF-1R lists all the mandatory measures that must be installed. This form is very important and must be called out for the builder and inspector. It is preferred that the different parts of the form be included on the plans in the appropriate sections dealing with that measure. A blank copy of the MF-1R can be found in Appendix A of the Residential Compliance Manual. The MF-1R is expected to be listed after the CF-1R on the plans.

**DOES THE CF-1R FORM MATCH THE PLANS?** The plans need to have all the energy features listed on the CF-1R incorporated into the plans.

# CALBO and the Energy Commission

Hope that all building departments will use the new Checklists and Guides.

When each Checklist and Guide are finalized we will send out e-mails and post on our web sites.

# 2008 HVAC Changeouts

- Duct Testing required in Climate Zones 2 and 9-16. No alternative to install higher efficient equipment.
- Refrigerant Charge Testing required in Climate Zones 2 and 8 to 15. No alternative to install TXV.

# Refrigerant Charge

- Before testing of refrigerant charge minimum air flow of 300 cfm must be verified. The mfg minimum flow is 400 cfm.
- Some ducts might need to be increased in diameter. Usually increasing the return duct diameter and grill size would increase air flow to the minimum 300 cfm.
- Reduced airflow makes proper testing of the refrigerant charge impossible, decreases the efficiency of the equipment and reduces the installed tonnage of the equipment.

# Title 24 Energy Standards Information

- Energy Hotline 24 Questions
  - General Number 1-800-772-3300
  - Building Department 1-800-752-6245
  - Monday – Friday 8:00-12:00 and 1:00-4:30
  - [title24@energy.state.ca.us](mailto:title24@energy.state.ca.us)
- Stay Informed with the Blueprint
  - [www.energy.ca.gov/title24](http://www.energy.ca.gov/title24)