

CITY OF SACRAMENTO

1231 I Street, Sacramento, CA 95814

Permit No: 0501907

Insp Area: 4

Thos Bros: 257H6

Site Address: 742 IRVING AV SAC

Parcel No: 226-0122-045

Expanded North DRD

Sub-Type: NSFR

Housing (Y/N): N

CONTRACTOR
OWNER BUILDER
742 IRVING AV
SACRAMENTO

OWNER
GENNADIY VERBITSKIY
SACRAMENTO CA
00000

ARCHITECT
NIKOLAY LESHCHIK

Nature of Work: NEW SINGLE FAMILY RESIDENCE

CONSTRUCTION LENDING AGENCY : I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C).

Lender's Name _____ Lender's Address _____

LICENSED CONTRACTORS DECLARATION: I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.

License Class _____ License Number C000005935 Date _____ Contractor Signature _____

OWNER-BUILDER DECLARATION: I hereby affirm under penalty of perjury that I am exempt from the contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code; any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 (commencing with Section 7000) of Division 8 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars (\$500.00);

GV I, as a owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professional Code. The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his/her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he/she did not build or improve for the purpose of sale.)

I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).

I am exempt under Sec. _____ B & PC for this reason: _____

Date: 10/20/05 Owner Signature _____

IN ISSUING THIS BUILDING PERMIT, the applicant represents, and the city relies on the representation of the applicant, that the applicant verified all measurements and locations shown on the application or accompanying drawings and that the improvement to be constructed does not violate any law or private agreement relating to permissible or prohibited locations for such improvements. This building permit does not authorize any illegal location of any improvement or the violation of any private agreement relating to location of improvements.

I certify that I have read this application and state that all information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction and hereby authorize representative(s) of this city to enter upon the _____ property for inspection purposes.

Date: 10/20/05 Applicant/Agent Signature _____ OCT 20 2005

WORKER'S COMPENSATION DECLARATION: I hereby affirm under penalty of perjury one of the following declarations:

GO I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Section 3700 of the Labor Code, for the performance of work for which the permit is issued.

I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier _____ Policy Number _____ Exp Date _____

(This section need not be completed if the permit is for \$100 or less) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date: 10/20/05 Applicant Signature _____

WARNING: FAILURE TO SECURE WORKER'S COMPENSATION COVERAGE IS UNLAWFUL AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS (\$100,000) IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST AND ATTORNEY'S FEE.

THIS PERMIT SHALL EXPIRE BY LIMITATION IF WORK IS NOT COMMENCED WITHIN 180 DAYS.

TITLE 24 REPORT

Title 24 Report for:

Irving Ave
Sacramento, CA 95838

Project Designer:

Leshchik Nikolay

Report Prepared By:

Feitser E.
Feitser Construction
1220 Melody Lane Suite 110
Roseville, CA 95678
(916) 784-3006



Job Number:

JOB COPY
Date 1/19/2005 # 0501907

1/21/05

CITY OF SACRAMENTO
PERMIT ASSISTANCE

FEB 10 2005

RECEIVED

The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 2001 Building Energy Efficiency Standards.
This program developed by EnergySoft, LLC (415) 883-5900.

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Certificate of Compliance: Residential

(Part 1 of 2) **CF-1R**

1/19/2005

Project Title
Irving Ave Sacramento
 Project Address
Feitser Construction (916) 784-3006
 Documentation Author Telephone
Computer Performance 12
 Compliance Method (Package or Computer) Climate Zone

Date

Building Permit #
Plan Check / Date
Field Check / Date
Enforcement Agency Use Only

GENERAL INFORMATION

Total Conditioned Floor Area: 2,121 ft² Average Ceiling Height: 9.0 ft
 Total Conditioned Slab Area: 0 ft²

Building Type:
 (check one or more)

- | | |
|--|---|
| <input checked="" type="checkbox"/> Single Family Detached | <input type="checkbox"/> Addition |
| <input type="checkbox"/> Single Family Attached | <input type="checkbox"/> Existing Building |
| <input type="checkbox"/> Multi-Family | <input type="checkbox"/> Existing Plus Addition |

Front Orientation: (North) 0 deg Floor Construction Type: Slab Floor
 Number of Dwelling Units: 1.00
 Number of Stories: 1 Raised Floor

BUILDING SHELL INSULATION

Component Type	Frame Type	Const. Assembly U-Value	Location/Comments (attic, garage, typical, etc.)
R-19 Floor (F.19.2x8.16)	Wood	0.038	Exterior Floor / Over Crawlspace (w/R-6 Credit)
R-13 Wall (W.13.2x4.16)	Wood	0.088	Exterior Wall
Solid Wood Door	None	0.387	Exterior Door
R-38 Roof (R.38.2x4.24)	Wood	0.024	Exterior Roof

FENESTRATION

Shading Devices

Type	Orientation	Area (SF)	U-Factor	Fenestration SHGC	Exterior Shading	Overhang Yes / No	Side Fins Yes / No
Front	(North)	39.0	0.40	0.65	Bug Screen	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>
Left	(East)	119.0	0.40	0.65	Bug Screen	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>
Rear	(South)	26.0	0.40	0.65	Bug Screen	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>
Right	(West)	80.0	0.40	0.65	Bug Screen	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

Run Initiation Time: 01/19/05 19:34:29 Run Code: 1106192069

Certificate of Compliance: Residential

(Part 2 of 2) **CF-1R**

1/19/2005

Date

Project Title

HVAC SYSTEMS Note: Input Hydronic or Combined Hydronic data under Water Heating Systems, except Design Heating Load.

Heating Equipment Type (furnace, heat pump, etc.)	Minimum Efficiency (AFUE/HSPF)	Distribution Type and Location (ducts, attic, etc.)	Duct or Piping R-Value	Thermostat Type	Location / Comments
Central Furnace	94% AFUE	Ducts in Attic	4.2	Setback	HVAC System

Cooling Equipment Type (air conditioner, heat pump, evap. cooling)	Minimum Efficiency (SEER)	Duct Location (attic, etc.)	Duct R-Value	Thermostat Type	Location / Comments
Split Air Conditioner	10.5 SEER	Ducts in Attic	4.2	Setback	HVAC System

Water Heater System Name	Water Heater Type	Distribution Type	# in Syst.	Rated Input Btu/hr ¹	Tank Cap. (gal)	Energy Fact. ¹ or Recovery Efficiency	Standby Loss (%) ¹	External Tank Insul. R-Value
Standard Gas 50 gal or Less	Small Gas	Standard	1	40,000	50	0.52	n/a	12

¹ For small gas storage (rated inputs of less than or equal to 75,000 Btu/hr), electric resistance and heat pump water heaters, list energy factor. For large gas storage water heaters (rated input of greater than 75,000 Btu/hr), list Rated Input, Recovery Efficiency and Standby Loss. For instantaneous gas water heaters, list Rated Input and Recovery Efficiency.

REMARKS

COMPLIANCE STATEMENT

This certificate of compliance lists the building features and performance specifications needed to comply with Title 24, Parts 1 and 6 of the California Code of Regulations, and the administrative regulations to implement them. This certificate has been signed by the individual with overall design responsibility. The undersigned recognize that compliance using duct sealing and TXVs requires installer testing and certification and field verification by an approved HERS rater.

Designer or Owner (per Business & Professions Code)

Name: _____
 Title/Firm: Leshchik Nikolay
 Address: _____
 Telephone: _____
 Lic. #: _____

Documentation Author

Name: Feitser E.
 Title/Firm: Feitser Construction
 Address: 1220 Melody Lane Suite 110
Roseville, CA 95678
 Telephone: (916) 784-3006

(signature)

(date)

(signature)

(date)

Enforcement Agency

Name: _____
 Title/Firm: _____
 Address: _____
 Telephone: _____

(signature/stamp)

(date)

Certificate of Compliance: Residential

(Addendum) **CF-1R**

1/19/2005

Date

Project Title

Special Features and Modeling Assumptions

The local 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 local 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 "Standard Gas 50 gal or Less" Energy Factor = 0.525. An EF below 0.58 requires an R-12 External Blanket.

	Plan	Field

HERS Required Verification

These features must be confirmed and/or tested by a certified HERS rater under the supervision of a CEC approved HERS provider. The HERS rater must document the field verification and diagnostic testing of these measures on a form CF-6R.

	Plan	Field

Run Initiation Time: 01/19/05 19:34:29

Run Code: 1106192069

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Mandatory Measures Checklist: Residential

NOTE: Lowrise residential buildings subject to the Standards must contain these measures regardless of the compliance approach used. Items marked with an asterisk (*) may be superseded by more stringent compliance requirements listed on the Certificate of Compliance. When this checklist is incorporated into the permit documents, the features noted shall be considered by all parties as minimum component performance specifications for the mandatory measures whether they are shown elsewhere in the documents or on this checklist only.

DESCRIPTION	DESIGNER	ENFORCEMENT
Building Envelope Measures		
<input checked="" type="checkbox"/> *§150(a): Minimum R-19 ceiling insulation.		
<input checked="" type="checkbox"/> §150(b): Loose fill insulation manufacturer's labeled R-Value.		
<input checked="" type="checkbox"/> *§150(c): Minimum R-13 wall insulation in wood framed walls or equivalent U-value in metal frame walls (does not apply to exterior mass walls).		
<input checked="" type="checkbox"/> *§150(d): Minimum R-13 raised floor insulation in framed floors or equivalent.		
<input checked="" type="checkbox"/> §150(i): Slab edge insulation - water absorption rate no greater than 0.3%, water vapor transmission rate no greater than 2.0 perm/inch.		
<input checked="" type="checkbox"/> §118: Insulation specified or installed meets insulation quality standards. Indicate type and form.		
<input checked="" type="checkbox"/> §116-17: Fenestration Products, Exterior Doors and Infiltration/Exfiltration Controls <ol style="list-style-type: none"> 1. Doors and windows between conditioned and unconditioned spaces designed to limit air leakage. 2. Fenestration products (except field fabricated) have label with certified U-Factor, certified Solar Heat Gain Coefficient (SHGC), and infiltration certification. 3. Exterior doors and windows weatherstripped; all joints and penetrations caulked and sealed. 		
<input type="checkbox"/> §150(g): Vapor barriers mandatory in Climate Zones 14 and 16 only.		
<input type="checkbox"/> §150(f): Special infiltration barrier installed to comply with Section 151 meets Commission quality standards.		
<input checked="" type="checkbox"/> §150(e): Installation of Fireplaces, Decorative Gas Appliances and Gas Logs. <ol style="list-style-type: none"> 1. Masonry and factory-built fireplaces have: <ol style="list-style-type: none"> a. Closeable metal or glass door b. Outside air intake with damper and control c. Flue damper and control 2. No continuous burning gas pilots allowed. 		
Space Conditioning, Water Heating and Plumbing System Measures		
<input checked="" type="checkbox"/> §110-13: HVAC equipment, water heaters, showerheads and faucets certified by the Commission.		
<input checked="" type="checkbox"/> §150(h): Heating and/or cooling loads calculated in accordance with ASHRAE, SMACNA or ACCA.		
<input checked="" type="checkbox"/> §150(i): Setback thermostat on all applicable heating and/or cooling systems.		
<input checked="" type="checkbox"/> §150(j): Pipe and Tank Insulation <ol style="list-style-type: none"> 1. Storage gas water heaters rated with an Energy Factor less than 0.58 must be externally wrapped with insulation having an installed thermal resistance of R-12 or greater. 2. First 5 feet of pipes closest to water heater tank, non-recirculating systems, insulated (R-4 or greater) 3. Back-up tanks for solar system, unfired storage tanks, or other indirect hot water tanks have R-12 external insulation or R-16 combined internal/external insulation. 4. All buried or exposed piping insulated in recirculating sections of hot water systems. 5. Cooling system piping below 55 degrees F. insulated. 6. Piping insulating between heating source and indirect hot water tank. 		

Mandatory Measures Checklist: Residential

(Page 2 of 2)

MF-1R

NOTE: Lowrise residential buildings subject to the Standards must contain these measures regardless of the compliance approach used. Items marked with an asterisk (*) may be superseded by more stringent compliance requirements listed on the Certificate of Compliance. When this checklist is incorporated into the permit documents, the features noted shall be considered by all parties as minimum component performance specifications for the mandatory measures whether they are shown elsewhere in the documents or on this checklist only.

DESCRIPTION <small>Instructions: Check or Initial applicable boxes or enter N/A if not applicable.</small>	DESIGNER	ENFORCEMENT
Space Conditioning, Water Heating and Plumbing System Measures: (continued)		
<input type="checkbox"/> *§150(m): Ducts and Fans 1. All ducts and plenums installed, sealed and insulated to meet the requirements of the 1998 CMC Sections 601, 603, 604 and Standard 6-3; ducts insulated to a minimum installed level of R-4.2 or enclosed entirely in conditioned space. Openings shall be sealed with mastic, tape, aerosol sealant, or other duct-closure system that meets the applicable requirements of UL181, UL181A, or UL181B. 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. Building cavities shall not be used for conveying conditioned air. 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 drawbands. 2. 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. 3. Joints and seams of duct systems and their components shall not be sealed with cloth back rubber adhesive duct tapes unless such a tape is used in combination with mastic and drawbands. 4. Exhaust fan systems have back draft or automatic dampers. 5. Gravity ventilation systems serving conditioned space have either automatic or readily accessible, manually operated dampers. 6. Protection of Insulation. Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind but not limited to the following: Insulation exposed to weather shall be suitable for outdoor service e.g., protected by aluminum, sheet metal, painted canvas, or plastic cover. 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.		
<input type="checkbox"/> §114: Pool and Spa Heating Systems and Equipment 1. Certified with 78% thermal efficiency, on-off switch, weatherproof operating instructions, no electric resistance heating, and no pilot. 2. System is installed with at least 36" of pipe between filter and heater for future solar, cover for outdoor pools or spas. a. At least 36" of pipe between filter and heater for future solar heating. b. Cover for outdoor pools or outdoor spas. 3. Pool system has directional inlets and a circulation pump time switch.		
<input checked="" type="checkbox"/> §115: Gas fired central furnaces, pool heaters, spa heaters or household cooking appliances have no continuously burning pilot light. (Exception: Non-electrical cooking appliances with pilot < 150 Btu/hr)		
<input type="checkbox"/> §118 (f): Cool Roof material meet specified criteria		
Lighting Measures		
<input checked="" type="checkbox"/> §150(k)1: Luminaires for general lighting in kitchens shall have lamps with an efficacy 40 lumens/watt or greater for general lighting in kitchens. This general lighting shall be controlled by a switch on a readily accessible lighting control panel at an entrance to the kitchen.		
<input checked="" type="checkbox"/> §150(k)2: Rooms with a shower or bathtub must have either at least one luminaire with lamps with an efficacy of 40 lumens/watt or greater switched at the entrance to the room or one of the alternative to this requirement allowed in Section 150(k)2.; and recessed ceiling fixtures are IC (Insulation cover) approved.		

Computer Method Summary

(Part 1 of 3) **C-2R**

1/19/2005

Project Title
 Irving Ave Sacramento
 Project Address
 Feitser Construction
 Documentation Author

(916) 784-3006
 Telephone

12
 Climate Zone

Date
 Building Permit #
 Plan Check/Date
 Field Check/Date

Computer Performance

Source Energy Use (kBtu/sf-yr)	Standard Design	Proposed Design	Compliance Margin
Space Heating	14.51	5.71	8.81
Space Cooling	9.56	12.18	-2.62
Domestic Hot Water	12.57	12.56	0.00
Totals	36.65	30.45	16.9%

Percent better than Standard:

BUILDING COMPLIES

Floor Construction Type: Raised Floor Slab Floor

Total Conditioned Floor Area: 2,121 ft²
 Building Type: Single Fam Detached
 Building Front Orientation: (North) 0 deg
 Number of Dwelling Units: 1.00
 Number of Stories: 1

Total Fenestration Area: 12.4%
 Total Conditioned Volume: 19,089 ft³
 Total Conditioned Slab Area: 0 ft²

BUILDING ZONE INFORMATION

Zone Name	Floor Area	Volume	# of Units	Zone Type	Thermostat Type	Hgt.	Vent Area
HVAC System	2,121	19,089	1.00	Conditioned	Setback	2	n/a

OPAQUE SURFACES

Type	Area	U-Fac.	Act. Azm.	Tilt	Solar Gains Y/N
FloorCS	2,121	0.038	0	180	X
Wall	324	0.088	0	90	X
Door	24	0.387	0	90	X
Wall	503	0.088	90	90	X
Door	20	0.387	90	90	X
Wall	361	0.088	180	90	X
Wall	544	0.088	270	90	X
Door	18	0.387	270	90	X
Roof	2,121	0.024	0	0	X

Form 3 Reference

R-19 Floor (F.19.2x8.16)	1st Floor
R-13 Wall (W.13.2x4.16)	1st Floor
Solid Wood Door	1st Floor
R-13 Wall (W.13.2x4.16)	1st Floor
Solid Wood Door	1st Floor
R-13 Wall (W.13.2x4.16)	1st Floor
R-13 Wall (W.13.2x4.16)	1st Floor
Solid Wood Door	1st Floor
R-38 Roof (R.38.2x4.24)	1st Floor

Location / Comments

1st Floor
 1st Floor
 1st Floor
 1st Floor
 1st Floor
 1st Floor
 1st Floor
 1st Floor

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Run Code: 1106192069

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EnergyPro 3.1 By EnergySoft

User Number: 5913

Job Number:

Computer Method Summary

(Part 2 of 3)

C-2R

1/19/2005

Date

Project Title

FENESTRATION SURFACES

#	Type	Area	U-Factor	SHGC	Act. Azm.	Tilt	Glazing Type	Location/Comments	
								1st Floor	1st Floor
1	Window Front (North)	39.0	0.400	0.65	0	90	Double Vinyl Window		1st Floor
2	Window Left (East)	119.0	0.400	0.65	90	90	Double Vinyl Window		1st Floor
3	Window Rear (South)	26.0	0.400	0.65	180	90	Double Vinyl Window		1st Floor
4	Window Right (West)	80.0	0.400	0.65	270	90	Double Vinyl Window		1st Floor

INTERIOR AND EXTERIOR SHADING

#	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												

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Run Code: 1106192069

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EnergyPro 3.1 By EnergySoft

User Number: 5913

Job Number:

Computer Method Summary

(Part 3 of 3)

C-2R

1/19/2005

Date

Project Title

THERMAL MASS FOR HIGH MASS DESIGN

Type	Area (sf)	Thick. (in.)	Heat Cap.	Cond.	Form 3 Reference	Inside R-Val.	Location Comments
Frame Wall, Gyp. Board	324	0.00	13	0.09	R-13 Wall (W.13.2x4.16)	2	1st Floor / Exterior Mass
Frame Wall, Gyp. Board	503	0.00	13	0.09	R-13 Wall (W.13.2x4.16)	2	1st Floor / Exterior Mass
Frame Wall, Gyp. Board	361	0.00	13	0.09	R-13 Wall (W.13.2x4.16)	2	1st Floor / Exterior Mass
Frame Wall, Gyp. Board	544	0.00	13	0.09	R-13 Wall (W.13.2x4.16)	2	1st Floor / Exterior Mass

PERIMETER LOSSES

Type	Length	F2 Factor	Insulation R-Val.	Depth	Location / Comments

HVAC SYSTEMS

Heating Equipment Type (furnace, heat pump, etc.)	Minimum Efficiency (AFUE/HSPF)	Distribution Type and Location (ducts/attic, etc.)	Duct R-Value	Thermostat Type	Location / Comments
Central Furnace	94% AFUE	Ducts in Attic	4.2	Setback	HVAC System

Hydronic Piping System Name	Pipe Length	Pipe Diameter	Insul. Thick.

Cooling Equipment Type (air conditioner, heat pump, evap. cooling)	Minimum Efficiency (SEER)	Duct Location (attic, etc.)	Duct R-Value	Thermostat Type	Location / Comments
Split Air Conditioner	10.5 SEER	Ducts in Attic	4.2	Setback	HVAC System

WATER HEATING SYSTEMS

Water Heater System Name	Water Heater Type	Distribution Type	# in Syst.	Rated ¹ Input (Btu/hr)	Tank Cap. (gal)	Energy Fact ¹ or Recovery Efficiency	Standby ¹ Loss (%)	Tank Insul. R-Value Ext.
Standard Gas 50 gal or Less	Small Gas	Standard	1	40,000	50	0.52	n/a	12

¹ For small gas storage (rated input <= 75000 Btu/hr), electric resistance and heat pump water heaters, list energy factor. For large gas storage water heaters (rated input > 75000 Btu/hr), list Rated Input, Recovery Efficiency and Standby Loss. For instantaneous gas water heaters, list Rated Input, and Recovery Efficiency.

REMARKS

Run Initiation Time: 01/19/05 19:34:29

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EnergyPro 3.1 By EnergySoft

User Number: 5913

Job Number:

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

PROJECT NAME: _____ DATE: 1/19/2005
 SYSTEM NAME: HVAC System FLOOR AREA: 2,121

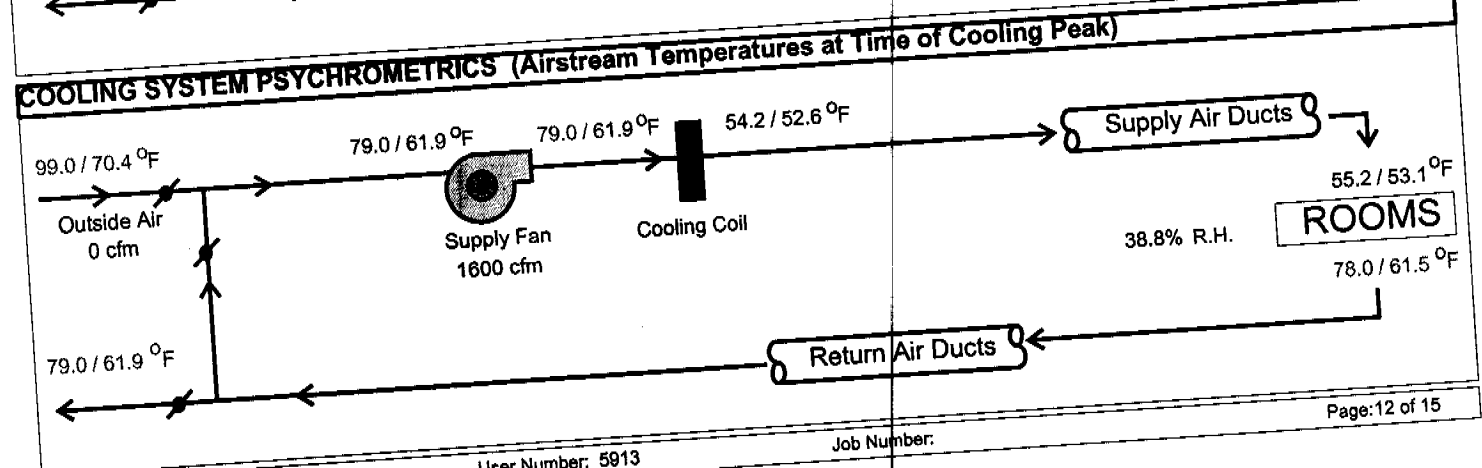
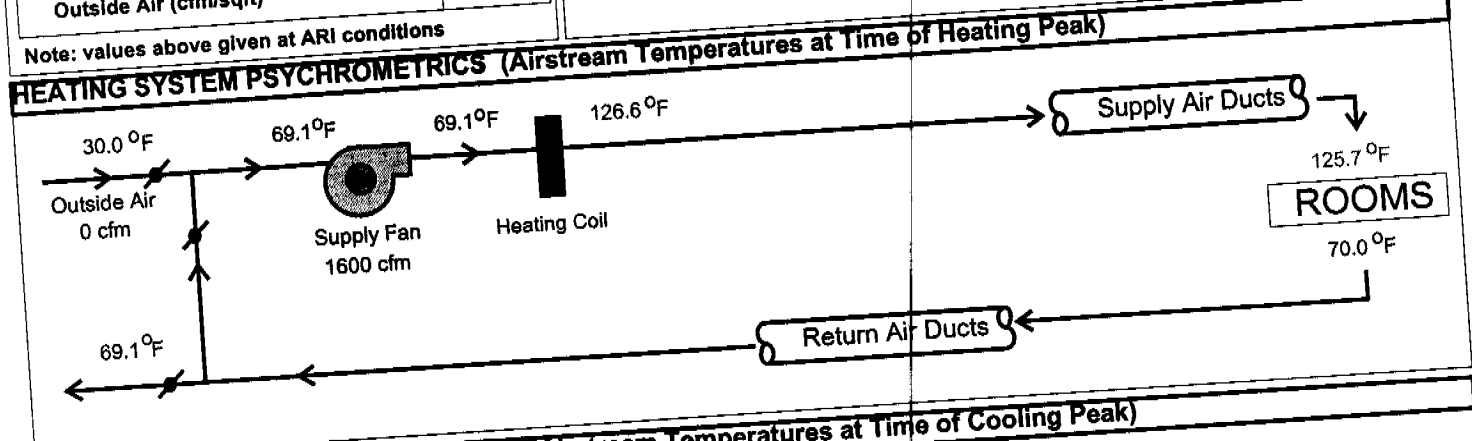
ENGINEERING CHECKS	
Number of Systems	1
Heating System	
Output per System	99,000
Total Output (Btuh)	99,000
Output (Btuh/sqft)	46.7
Cooling System	
Output per System	51,500
Total Output (Btuh)	51,500
Total Output (Tons)	4.3
Total Output (Btuh/sqft)	24.3
Total Output (sqft/Ton)	494.2

	COIL COOLING PEAK			COIL HTG. PEAK	
	CFM	Sensible	Latent	CFM	Sensible
Total Room Loads	1,415	34,684	-353	521	31,221
Return Vented Lighting		0			1,561
Return Air Ducts		1,734			0
Return Fan		0			0
Ventilation	0	0	0	0	0
Supply Fan		0			1,561
Supply Air Ducts		1,734			
TOTAL SYSTEM LOAD		38,152	-353		34,343

Air System	
CFM per System	1,600
Airflow (cfm)	1,600
Airflow (cfm/sqft)	0.75
Airflow (cfm/Ton)	372.8
Outside Air (%)	0.0
Outside Air (cfm/sqft)	0.00

HVAC EQUIPMENT SELECTION			
Day&Night 398baz060100	42,689	3,815	99,000
Total Adjusted System Output (Adjusted for Peak Design Conditions)	42,689	3,815	99,000
TIME OF SYSTEM PEAK	Aug 2 pm	Jan 12 am	

Note: values above given at ARI conditions



RESIDENTIAL ROOM COOLING LOAD SUMMARY

1/19/2005

Project Title

Date

Room Name

1st Floor

Design Indoor Dry Bulb Temperature:
Design Outdoor Dry Bulb Temperature:
Design Temperature Difference:

78°F
100°F
22°F

Conduction	Area	U-Value	DETD ¹	Btu/hr
R-19 Floor (F.19.2x8.16)	2,121.0 X	0.0491 X	11.0 =	1,145
R-13 Wall (W.13.2x4.16)	1,732.0 X	0.0885 X	19.6 =	3,004
Double Vinyl Window	264.0 X	0.4000 X	22.0 =	2,323
Solid Wood Door	62.0 X	0.3872 X	19.6 =	471
R-38 Roof (R.38.2x4.24)	2,121.0 X	0.0241 X	40.0 =	2,040
	X	X	=	
	X	X	=	
	X	X	=	
	X	X	=	

1. Design Equivalent Temperature Difference (DETD)

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Items shown with an asterisk (*) denote conduction through an interior surface to another room.

Solar Gain	Orientation	Shaded		Unshaded		SC	Btu/hr
		Area	SGF	Area	SGF		
Window	(North)	0.0 X	15 +	39.0 X	15	0.724 =	423
Window	(East)	0.0 X	15 +	119.0 X	73	0.724 =	6,286
Window	(South)	0.0 X	15 +	26.0 X	32	0.724 =	602
Window	(West)	0.0 X	15 +	80.0 X	73	0.724 =	4,226
		X	+	X	X	=	
		X	+	X	X	=	
		X	+	X	X	=	
		X	+	X	X	=	
		X	+	X	X	=	
		X	+	X	X	=	

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Internal Gain	Sched. Frac.	Area	Heat Gain	Btu/hr
Lights	1.00 X	2,121 X	0.200 Watts/sqft x 3,413 Btuh/Watt =	1,448
Occupants	1.00 X	2,121 X	245 Btuh/occ. / 333 sqft/occ. =	1,560
Receptacle	1.00 X	2,121 X	0.500 Watts/sqft x 3,413 Btuh/Watt =	3,619
Process	1.00 X	2,121 X	0.000 Watts/sqft x 3,413 Btuh/Watt =	0

Infiltration: $\frac{1.00}{\text{Schedule Fraction}} \times \frac{1.077}{\text{Air Sensible}} \times \frac{2,121}{\text{Area}} \times \frac{9.00}{\text{Ceiling Height}} \times \frac{1.00}{\text{ACH}} / 60 \times 22 = 7,536$

TOTAL HOURLY SENSIBLE HEAT GAIN FOR ROOM 34,684

Latent Gain	Sched. Frac.	Area	Heat Gain	Btu/hr
Occupants	1.00 X	2,121 X	155 Btuh/occ. / 333 sqft/occ. =	987
Receptacle	1.00 X	2,121 X	0.000 Watts/sqft x 3,413 Btuh/Watt =	0
Process	1.00 X	2,121 X	0.000 Watts/sqft x 3,413 Btuh/Watt =	0

Infiltration: $\frac{1.00}{\text{Schedule Fraction}} \times \frac{4,827}{\text{Air Latent}} \times \frac{2,121}{\text{Area}} \times \frac{9.00}{\text{Ceiling Height}} \times \frac{1.00}{\text{ACH}} / 60 \times -0.00087 = -1,340$

TOTAL HOURLY LATENT HEAT GAIN FOR ROOM -353