

Re: **MICROPAS7 for the 2005 Standards**

Dear **MICROPAS7 Inquiry**:

Enercomp is the author of the market leading software, MICROPAS. Our current version, MICROPAS7, was approved by the California Energy Commission in 2005.

Why should you be using MICROPAS7? There are many reasons. Are you no longer able to do calculations by hand? Tired of using poorly supported, poorly documented and/or incomplete software? Whatever you are currently using, does it:

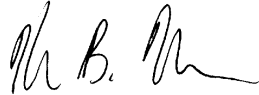
- Include the **computer performance** method and **HVAC sizing** calculations all in one package?
- Include **toll free support** with questions answered by the authors of the software and documentation at any time during regular business hours?
- Focus on doing one thing -- giving your **residential** buildings the best possible compliance results?
- Run on **virtually any computer** from the oldest to the newest?
- Include support for all of the minimum and optional capabilities, plus special features to handle **additions, subdivisions** and more?
- Include documentation **written by practicing Title-24 experts** with help on how to do Title-24 calculations, not just how to use the software?
- Include one year of **free updates** to protect your investment?
- Include a **45 day money back guarantee** if you are not satisfied?

We already know the answer – MICROPAS7 is the only package available to include all of these features and more.

The full version of MICROPAS7 is now available at the price of \$795 plus tax and shipping. We ship MICROPAS after receiving your payment and we can take credit card orders over the phone.

Thank you for your interest in MICROPAS7. We hope that the enclosed product literature answers most of your questions about the program. If not, please don't hesitate to call. Our toll free number is 800-755-5908.

Sincerely,



Ken Nittler, P.E.
Enercomp, Inc.

MICROPAS Support Policy

- **One year of free updates.** This protects your investment from changes in the software or standards for one year from the date of original purchase. Mailing and handling costs not included.
- **One year of unlimited technical support.** We are here to make sure that you get the most out of your MICROPAS purchase. Our toll free number is 800-755-5908.
- **45 day money back guarantee.** If the software doesn't meet your needs, you have 45 days to return it for a full refund.

"MICROPAS...is the most widely used computer compliance program in California"
Committee Report, Commissioner Art S. Kevorkian Presiding Member, California Energy Commission

***Any Questions? Call us at 800-755-5908 or
visit our web site at <http://www.micropas.com>***

Demo!

Enercomp thanks you for your interest in the MICROPAS program. Enclosed is your free demo version. This demonstration version is the same as our full working version except that the building size is restricted to 1600 sqft in one California climate zone and our comprehensive User's Manual is not included.

The purpose of this demo version is to give you an idea of how the program operates and to verify that it works on your computer. If you are interested in the details of how to use MICROPAS for actual compliance work, you might want to attend one of our seminars. Or, better yet, go ahead and buy MICROPAS with our money back guarantee. You then have 45 days to try the software risk free. If you are not satisfied that MICROPAS is right for you, you may return it for a full refund.

WINDOWS INSTALLATION INSTRUCTIONS

1. Place CD in your CD drive.
2. IF installation does not start—click on the Run dialog box, and enter:

D:\INSTALL
3. Respond to each prompt
4. When complete, click on the MICROPAS Icon to start the demo version of the software
5. To access the user manual with it's "How to Use" chapter, press the start button, pick all programs, pick the Micropas 7 folder and pick the appropriate PDF document

An important part of our products is our technical support, so please don't hesitate to call if there are any questions or problems.

Any Questions? Call us at 800-755-5908

MICROPAS7

**The Complete
Residential Energy
Compliance
Software
Solution**

**Version 7
for the
2005 Standards**

CF-1R Page 1

Date..08/22/06 09:28:40

CERTIFICATE OF COMPLIANCE: RESIDENTIAL COMPUTER METHOD

Project Title..... Sample Micropas Run *****
 Project Address..... 2300 Mace Ave *v7.20*
 Modesto CA *****
 Documentation Author... Sample Author
 Enercomp, Inc.
 1721 Arroyo Drive
 Auburn, CA 95603
 530-885-9890

Climate Zone..... 12
 Compliance Method..... MICROPAS7 v7.20 for 2005 Standards by Enercomp, Inc.

MICROPAS7 v7.20 File-MP7BASE Wth-CTZ12S05 Program-FORM CF-1R
 User#-MP2099 User-Enercomp, Inc. Run-Sample

MICROPAS7 ENERGY USE SUMMARY			
Energy Use (kTDV/sf-yr)	Standard Design	Proposed Design	Compliance Margin
Space Heating.....	15.19	17.06	-1.87
Space Cooling.....	11.97	10.11	1.86
Water Heating.....	13.53	12.91	0.62
Total	40.69	40.08	0.61

*** Building complies with Computer Performance ***
 *** HERS Verification Required for Compliance ***

GENERAL INFORMATION

HERS Verification..... Required
 Conditioned Floor Area..... 1600 sf
 Building Type..... Single Family Detached
 Construction Type..... New
 Fuel Type..... NaturalGas
 Building Front Orientation..... Front Facing 0 deg (N)
 Number of Dwelling Units... 1
 Number of Building Stories.. 1
 Weather Data Type..... FullYear
 Floor Construction Type.... Slab On Grade
 Number of Building Zones... 1
 Conditioned Volume..... 12800 cf
 Slab-On-Grade Area..... 1600 sf
 Glazing Percentage..... 16.5 % of floor area
 Average Glazing U-factor... 0.65 Btu/hr-sf-F
 Average Glazing SHGC..... 0.4
 Average Ceiling Height..... 8 ft

Building Permit #
 Plan Check / Date
 Field Check/ Date

ENERCOMP, Inc.

RESIDENTIAL BUILDING ENERGY STANDARDS (TITLE-24)

All new homes built in California must meet a high level of energy efficiency, as required by the *Residential Energy Efficiency Standards*. These standards provide a choice of two methods to show compliance:

- *Prescriptive Packages* (inflexible, seldom used).
- *Computer Performance* (most compliance flexibility, most popular method).

The MICROPAS software package shows compliance with the *Computer Performance* method. The California Energy Commission (CEC) has specifically approved MICROPAS for showing compliance with the standards.

WHY USE COMPLIANCE SOFTWARE?

- Fast and easy to make design trade-offs.
- Get credit for building features that aren't accounted for in the *Prescriptive Packages*.
- Model the features that are the most economical for your project.
- Allows you to take full advantage of energy conserving features and arrive at the most cost effective building design.
- Compliance software is used in most building submittals statewide.

WHY MICROPAS?

MICROPAS is the most popular compliance program in use today . . . more compliance submittals are being made with MICROPAS than any other compliance program.

The popularity of MICROPAS is simple. It is the result of word-of-mouth referrals by our many satisfied customers based on:

- The features MICROPAS offers.
- The user support Enercomp provides with the purchase.
- The value MICROPAS gives to a compliance oriented business.

USER SUPPORT

Providing you unsurpassed support continues to be a priority at Enercomp, as it has for over 18 years. Some of our support services include:

- One year of free, unlimited technical phone support from Enercomp -- experts in the operation of MICROPAS and in the details of Title-24 compliance issues.
- A Toll Free support hotline to ensure that your questions are answered promptly.
- Software updates provided free for a year. Protects your software investment.
- Notification of changes in the Title-24 energy standards that affect your use of MICROPAS.

MICROPAS AS A BUSINESS

Hundreds of energy consulting firms statewide rely on MICROPAS consulting as their primary source of income. Why?

- You get technical phone support during business hours to resolve your problems quickly.
- Our software is designed to give you and your client the most design flexibility, while minimizing your compliance effort.
- You can rely on Enercomp to update MICROPAS when the CEC changes the energy standards. We provide updates on time and as promised.

WHAT INDUSTRY SAYS

"At last count approximately 95% of our members are using the Performance Approach. In particular, the MICROPAS program. MICROPAS is used the overwhelming majority of the time."

Robert Raymer, Technical Director
California Building Industry Association

"I would like to extend my personal gratitude to you and your company for the dedication and commitment made to develop MICROPAS. This program helps support the residential standards and meet a Commission objective of providing the building industry with flexible design tools for determining building energy compliance."

Elena Schmid, Manager, Building and Appliance Efficiency Office
California Energy Commission

"We used several other software packages . . . but not one of the companies give the in-depth assistance which we find at Enercomp. Your knowledge of your product and its application is excellent. I don't believe we ever called you with a question which you didn't answer."

Darrel Kelly, Builders Energy Services, Gilroy, CA

"As a person who does a high volume of compliance business, and one who wants a top quality product, I personally use MICROPAS . . . For the money you get all the Title-24 help you can handle . . . It would be hard to go wrong purchasing this product."

Don Hughes Energy Design Consulting, La Jolla, CA

EASY TO USE

- Menu driven software with clear prompts and extensive error checking.
- Interactive data entry functions similar to a spreadsheet program.
- MICROPAS calculations are easier to plan check because the compliance printouts are clear and understandable -- yielding a faster turn-around at the building department.

TIME SAVING FEATURES

- Optimization reduces the number of calculations by up to a *factor of 16* compared to other software packages.
- In most cases, all compliance documentation is generated by MICROPAS, no hand calculations are required.
- Both *Computer Performance* and *HVAC Sizing* calculations are performed automatically.
- Compliance results for building design changes are available in seconds.
- Multiple-orientation analysis for *production housing* is performed automatically and summarized on a single printout.
- *Multiple-run* feature allows you to run from a few to a few hundred building compliance calculations at a time. It stores the results and lets you select those which meet your compliance criteria.
- *WS-5R (Kitchen Lighting)* and *MF-1R (Mandatory Measures)* forms can be completed within the software for complete compliance submittal.

MICROPAS . . . a Brief Overview

COMPLETE COMPLIANCE DOCUMENTATION

MICROPAS automatically generates all the compliance forms you need to complete your compliance submittal.

PROFESSIONAL COMPLIANCE FEATURES

MICROPAS has the most complete and the most flexible set of compliance features on the market. This optimizes your compliance efforts and ensures that you have the tools for flexible, cost-effective building designs.

- **Computer Performance Method**
- **HVAC Sizing Calculations**
- **Production Housing**
- **Building Additions**
- **Energy Star**
- **Any HERS Verified Measure**
- **Complex Water Heating Systems**
- **Database for managing results**

USER SUPPORT

Enercomp provides the best user support in the business -- complete documentation, regular updates, the most advanced compliance features, unsurpassed technical phone support . . . all part of the MICROPAS package.

 **1-800-755-5908**

MONEY-BACK GUARANTEE!

We guarantee your satisfaction. If you are not fully satisfied with the MICROPAS package, return the product within 45 days and Enercomp will refund the entire purchase price.

ENERGY FEATURES

- Building surfaces: walls, doors ceilings, floors, windows, skylights, etc.
- Window shading: overhangs, side fins, shade screens.
- Thermal mass: slab floors, fireplaces, tile, mass walls.
- HVAC equipment efficiencies.
- Natural ventilation.
- Water Heating: gas, electric and heat pump; single systems or complex, multiple heater systems.

Special Energy Features:

- House Wrap.
- Radiant Barriers and Cool Roofs.
- Reduced Air Infiltration measures.
- Tested Duct Leakage.
- Reduced Duct Surface Area.
- Buried Duct.
- Duct Design Credit.
- Verified Fan Wattage.
- Maximum Cooling.
- Refrigerant Charge and Airflow.
- Thermostatic Expansion Valves.
- Building Additions.
- Production Housing (subdivisions).
- Multiple-zone buildings.
- Zonally controlled HVAC systems.
- Controlled Ventilation Crawlspace
- Hydronic Space and water heating systems.

HVAC SIZING CALCULATIONS

The MICROPAS package includes calculations to determine the design loads for sizing heating and cooling equipment.

- Based on ASHRAE Cooling and Heating Load Calculation Manual.
- HVAC sizing calculations can be performed separately or as part of the MICROPAS run.
- Includes ASHRAE design temperatures for *all California* locations. Custom design conditions can be added by the user.

SOME OF OUR THOUSANDS OF USERS

ENERGY CONSULTANTS

Consulting, construction, and manufacturing companies throughout California and the U.S.

UTILITIES

Pacific Gas and Electric Company, Pacific Power & Light, Sacramento Municipal Utility District, San Diego Gas and Electric, Southern California Edison, Southern California Gas Company.

BUILDING DEPARTMENTS

Over one hundred city and county building departments are using the MICROPAS program and the *MICROPAS Compliance Manual* to verify compliance submittals throughout the state of California.

ADVANCED FEATURES

Multiple runs:

MICROPAS can run up to 1,000 runs at a time unattended (during coffee break, lunch, etc.)

Database of Run Results:

You can better manage your Title-24 jobs by using the MICROPAS database. This feature automatically stores the results of each calculation and then lets you selectively printout whichever jobs and reports are needed. This database makes complex jobs and a busy compliance office much easier to manage.

Parametric Run Generator:

This option gives your the power to efficiently perform analyses that involve a large number of MICROPAS runs. First, you input one or more buildings, and then specify which variations you wish to make on those buildings. MICROPAS will automatically generate and calculate each building variation (up to 1,000 at a time).

Optional: Research Version:

The Research Version of MICROPAS *unlocks* a variety of input values that are normally constrained for California Title-24 compliance work. This version allows you to do analyses for out-of-state locations (weather data is available) and for any analyses which requires non-Title-24 assumptions.

Optional: C-HERS Version:

The C-HERS (California Home Energy Rating System) Version of MICROPAS is used to determine if a home meets Energy Star criteria set by the U.S. Environmental Protection Agency. This version is used in conjunction with the CHEERS (California Home Energy Efficiency Rating System) HERS rating program and is used in many utility incentive programs.

HARDWARE REQUIREMENTS

Personal Computers: Requires Windows 3.1/95/98/ME/NT/XP/2000 or DOS, 640k of memory and a hard disk. Works with any printer.

Macintosh Computers: Compatibility with the Macintosh is accomplished using a software emulation product which essentially turns your Macintosh into a PC running Windows.

PACKAGE INCLUDES

- MICROPAS Program CD.
- Sample building data.
- Weather data for all 16 California Climate Zones.
- MICROPAS User Manual
- One year of toll-free technical phone support.
- One year of free software updates.
- 45-day Money-back Guarantee.

**Call us at
800-755-5908**

ENERCOMP, Inc.

Compliance Report Overview

The reporting capabilities of MICROPAS provide you with the proper compliance documentation for nearly all compliance situations -- eliminating hand calculations, making the most of your time, and speeding the plan checking process by providing clear, complete and concise reports.

This document describes many of the MICROPAS compliance reports including:

- CF-1R Certificate of Compliance
- Production Housing CF-1R Summary
- HVAC Sizing Calculations

Other compliance report available with MICROPAS (but not shown here) are:

- MF-1R Mandatory Features Checklist (a required features checklist for plan checking).
- WS-5R Kitchen Lighting Worksheet (required to document compliance with requirement that 50% of kitchen lighting be from fluorescent).

CF-1R Report: Certificate

The CF-1R Report lists the energy features of the building. The Report shows if the proposed building design complies with the *Computer Performance Method* of compliance. The CF-1R Report must be signed by the appropriate parties and attached to the building plans.

CERTIFICATE OF COMPLIANCE: RESIDENTIAL COMPUTER METHOD CF-1R Page 1

Project Title..... Sample Micropas Run Date..08/22/06 09:28:40
 Project Address..... 2300 Mace Ave
 Modesto CA *v7.20*
 Documentation Author... Sample Author ***** Building Permit #
 Enercomp, Inc. Plan Check / Date
 1721 Arroyo Drive Field Check/ Date
 Auburn, CA 95603
 530-885-9890

Climate Zone..... 12
 Compliance Method..... MICROPAS7 v7.20 for 2005 Standards by Enercomp, Inc.

MICROPAS7 v7.20 File=MP7BASE Wth=CT212S05 Program=FORM CF-1R
 User#=MP2099 User=Enercomp, Inc. Run=Sample

MICROPAS7 ENERGY USE SUMMARY			
Energy Use (kTWh/sf-yr)	Standard Design	Proposed Design	Compliance Margin
Space Heating.....	15.19	17.06	-1.87
Space Cooling.....	11.97	10.11	1.86
Water Heating.....	13.53	12.91	0.62
Total	40.69	40.08	0.61

*** Building complies with Computer Performance ***
 *** HERS Verification Required for Compliance ***

GENERAL INFORMATION

HERS Verification..... Required
 Conditioned Floor Area.... 1600 sf
 Building Type..... Single Family Detached
 Construction Type..... New
 Fuel Type..... NaturalGas
 Building Front Orientation. Front Facing 0 deg (N)
 Number of Dwelling Units... 1
 Number of Building Stories. 1
 Weather Data Type..... FullYear

Floor Construction Type... Slab On Grade
 Number of Building Zones... 1
 Conditioned Volume..... 12800 cf
 Slab-On-Grade Area..... 1600 sf
 Glazing Percentage..... 16.5 % of floor area
 Average Glazing U-factor... 0.65 Btu/hr-sf-F
 Average Glazing SHGC..... 0.4
 Average Ceiling Height..... 8 ft

Compliance Results (Computer Performance)

Signatures of designer or owner, documentation preparer and plan checker

CERTIFICATE OF COMPLIANCE: RESIDENTIAL COMPUTER METHOD CF-1R Page 6

Project Title..... Sample Micropas Run Date..08/22/06 09:28:40

MICROPAS7 v7.20 File=MP7BASE Wth=CT212S05 Program=FORM CF-1R
 User#=MP2099 User=Enercomp, Inc. Run=Sample

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.

DESIGNER or OWNER DOCUMENTATION AUTHOR

Name.... Arthur Doe AIA Name... Sample Author
 Company. Doe & McClatchy Company. Enercomp, Inc.
 Address. 121 E. Broadway Ste 200 Address. 1721 Arroyo Drive
 Sacramento CA 95814 Auburn, CA 95603
 Phone... (916) 555-2323 Phone. 530-885-9890
 License. #23120

Signed... (date) Signed... (date)

ENFORCEMENT AGENCY

Name....
 Title.....
 Agency.....
 Phone....
 Signed... (date)

CF-1R Report (continued)

The CF-1R Report shows a detailed list of the energy related building data used for the analysis. This data is verified by the building department during plan check.

CERTIFICATE OF COMPLIANCE: RESIDENTIAL COMPUTER METHOD CF-1R Page 2

Project Title..... Sample Micropas Run Date..08/22/06 09:28:40

MICROPAS7 v7.20 File-MP7BASE Wth-CT212S05 Program-FORM CF-1R
User#-MP2099 User-Enercomp, Inc. Run-Sample

BUILDING ZONE INFORMATION

Zone Type	Floor Area (sf)	Volume (cf)	# of Dwelling Units	# of People	Cond-itioned	Thermo-stat	Vent Height (ft)	Vent Area (sf)	Verified Leakage or Housewrap
Residence	1600	12800	1.00	4.0	Yes	Setback	2.0	Standard	No

OPAQUE SURFACES

Surface	Frame Type	Area (sf)	U-factor	Sheath-Cavity R-val	Shading R-val	Act R-val	Solar Gains	Appendix IV Reference	Location/Comments
1 Wall	Wood	204	0.102	13	0	0	90	Yes IV.9 A3	
2 Wall	Wood	264	0.102	13	0	0	90	Yes IV.9 A3	
3 Wall	Wood	192	0.102	13	0	180	90	Yes IV.9 A3	
4 Wall	Wood	288	0.102	13	0	270	90	Yes IV.9 A3	
5 Wall	Wood	37	0.102	13	0	45	90	Yes IV.9 A3	Corner Wall
6 Roof/Rad	Wood	1592	0.026	38	0	n/a	0	Yes IV.1 A8	
7 Door	Other	20	0.500	0	0	0	90	Yes IV.5 A4	

PERIMETER LOSSES

Surface	Length (ft)	F2 Factor	Insul R-val	Solar Gains	Appendix IV Reference	Location/Comments
8 Slab/Edge	160	0.730	R=0	No	IV.26 A1	

FENESTRATION SURFACES

Orientation	Area (sf)	U-factor	SHGC	Act Azm	Exterior Shade Tilt	Type	Location/Comments
1 Wind Front (N)	24.0	0.650	0.400	0	90	Standard F1/Metal Operable	Low E2
2 Wind Front (N)	40.0	0.650	0.400	0	90	Standard F2/Metal Fixed	Low E2
3 Wind Left (E)	24.0	0.650	0.400	90	90	Standard L1/Metal Operable	Low E2
4 Wind Back (S)	48.0	0.650	0.400	180	90	Standard B1/Metal Operable	Low E2
5 Door Back (S)	80.0	0.650	0.400	180	90	Standard B2/Metal Patio Door	Low E2
6 Wind Right (W)	32.0	0.650	0.400	270	90	Standard R1/Metal Operable	Low E2
7 Wind Front (NE)	8.0	0.650	0.400	45	90	Standard C1/Metal Fixed	Low E2
8 Skyl Front (N)	8.0	0.750	0.400	0	23	None	SKYL/Metal Skylight Low

CERTIFICATE OF COMPLIANCE: RESIDENTIAL COMPUTER METHOD CF-1R Page 3

Project Title..... Sample Micropas Run Date..08/22/06 09:28:40

MICROPAS7 v7.20 File-MP7BASE Wth-CT212S05 Program-FORM CF-1R
User#-MP2099 User-Enercomp, Inc. Run-Sample

OVERHANGS

Surface	Area (sf)	Window			Overhang		Left Extension	Right Extension
		Width	Height	Depth	Height			
1 Window	24.0	n/a	4.0	2.0	1.5	n/a	n/a	
2 Window	40.0	n/a	5.0	2.0	1.5	n/a	n/a	
3 Window	24.0	n/a	5.0	2.0	0.5	n/a	n/a	
4 Window	48.0	n/a	4.0	2.0	0.5	n/a	n/a	
5 Door	80.0	n/a	6.7	2.0	0.5	n/a	n/a	
6 Window	32.0	n/a	4.0	2.0	0.5	n/a	n/a	

SLAB SURFACES

Slab Type	Area (sf)
Standard Slab	1600

HVAC SYSTEMS

System Type	Number of Systems	Minimum Efficiency	Verified EER	Verified Refrig or TXV	Charge Adequate	Verified Airflow	Verified Fan Watt Draw	Verified Maximum Cooling Capacity
Furnace	1	0.800 AFUE	n/a	No	Yes	n/a	No	n/a
AC/Spilt	1	13.00 SEER	No	Yes	No	n/a	No	n/a

Detailed Building Data

CERTIFICATE OF COMPLIANCE: RESIDENTIAL COMPUTER METHOD CF-1R Page 4

Project Title..... Sample Micropas Run Date..08/22/06 09:28:40

MICROPAS7 v7.20 File-MP7BASE Wth-CT212S05 Program-FORM CF-1R
User#-MP2099 User-Enercomp, Inc. Run-Sample

HVAC SIZING

System Type	Total Heating Load (Btu/hr)	Sensible Cooling Load (Btu/hr)	Design Cooling Capacity (Btu/hr)	Verified Maximum Cooling Capacity (Btu/hr)
Furnace	32554	n/a	n/a	n/a
AC/Spilt	n/a	17229	20530	n/a

Sizing Location..... MODESTO
 Winter Outside Design..... 25 F
 Winter Inside Design..... 70 F
 Summer Outside Design..... 98 F
 Summer Inside Design..... 75 F
 Summer Range..... 36 F

DUCT SYSTEMS

System Type	Duct Location	Duct R-value	Verified Duct Leakage	Verified Surface Area	Verified Buried Ducts
Furnace	Attic	R-6	Yes	No	No
AC/Spilt	Attic	R-6	Yes	No	No

WATER HEATING SYSTEMS

Tank Type	Heater Type	Distribution	Number in System	Energy Factor	Tank Size (gal)	External Insulation R-value
1 Storage	Gas	Standard	1	0.60	50	R= n/a

Special Features and HERS Verification messages

CERTIFICATE OF COMPLIANCE: RESIDENTIAL COMPUTER METHOD CF-1R Page 5

Project Title..... Sample Micropas Run Date..08/22/06 09:28:40

MICROPAS7 v7.20 File-MP7BASE Wth-CT212S05 Program-FORM CF-1R
User#-MP2099 User-Enercomp, Inc. Run-Sample

SPECIAL FEATURES AND MODELING ASSUMPTIONS

*** Items in this section should be documented on the plans, ***
 *** installed to manufacturer and CEC specifications, and ***
 *** verified during plan check and field inspection. ***

This building incorporates a HERS verified Refrigerant Charge test or a HERS verified Thermostatic Expansion Valve (TXV). If a cooling system is not installed, then HERS verification is not necessary.

This building incorporates HERS verified Duct Leakage.

This building incorporates a Radiant Barrier.

HERS REQUIRED VERIFICATION

*** Items in this section require field testing and/or ***
 *** verification by a certified home energy rater under ***
 *** the supervision of a CEC-approved HERS provider using ***
 *** CEC approved testing and/or verification methods and ***
 *** must be reported on the CF-4R installation certificate. ***

This building incorporates a HERS verified Refrigerant Charge test or a HERS verified Thermostatic Expansion Valve (TXV). If a cooling system is not installed, then HERS verification is not necessary.

This building incorporates HERS verified Duct Leakage. Target leakage is calculated and documented on the CF-4R. If the measured CFM is above the target, then corrective action must be taken to reduce the duct leakage and then must be retested. Alternatively, the compliance calculations could be redone without duct testing. If ducts are not installed, then HERS verification is not necessary.

Production Housing Worksheet

CERTIFICATE OF COMPLIANCE: RESIDENTIAL COMPUTER METHOD CF-1R Page 1

Project Title..... Sample Micropas Run Date..08/22/06 12:08:52
 Project Address..... 2300 Mace Ave Modesto CA *v7.20*
 Documentation Author... Sample Author Enercomp, Inc. 1721 Arroyo Drive Auburn, CA 95603 530-885-9890
 Climate Zone..... 12
 Compliance Method..... MICROPAS7 v7.20 for 2005 Standards by Enercomp, Inc.

MICROPAS7 v7.20 File=MP7CARD Wth=CTZ12S05 Program=FORM CF-1R User#-MP2099 User=Enercomp, Inc. Run=Cardinal Orientation

MICROPAS7 ENERGY USE SUMMARY			
Energy Use (kTDF/sf-yr)	Standard Design	Proposed Design	Compliance Margin
Space Heating.....	15.19	14.85	0.34
Space Cooling.....	11.97	8.48	3.49
Water Heating.....	13.53	12.46	1.07
North Total	40.69	35.79	4.90
Space Heating.....	15.19	15.27	-0.08
Space Cooling.....	11.97	12.70	-0.73
Water Heating.....	13.53	12.46	1.07
East Total	40.69	40.43	0.26
Space Heating.....	15.19	15.30	-0.11
Space Cooling.....	11.97	8.83	3.14
Water Heating.....	13.53	12.46	1.07
South Total	40.69	36.59	4.10
Space Heating.....	15.19	15.23	-0.04
Space Cooling.....	11.97	11.88	0.09
Water Heating.....	13.53	12.46	1.07
West Total	40.69	39.57	1.12

*** Building complies with Computer Performance ***
 *** HERS Verification Required for Compliance ***

.MICROPAS has the powerful capability of analyzing compliance for production housing (subdivisions).

Production house design (one which can be built in any compass orientation) must be shown to comply in the four cardinal orientations (north, south, east and west). MICROPAS automatically performs calculations for each of these orientations and then summarizes the compliance results on a single CF-1R page (as shown on the left).

This feature lets you use only one building data file and thus saves you the hassle of maintaining four files as the building design is finalized. The reports generated by this feature are one-fourth as many pages and provides a single place for verification by the building department.

Compliance Results for all four cardinal

HVAC Sizing Report

The MICROPAS HVAC Sizing Report shows the design loads for the heating and cooling equipment. These loads are one of the criteria used to select HVAC equipment.

The report shown at the right is a summary page. Detailed reports of the load calculations are also available.

HVAC SIZING HVAC Page 1

Project Title..... Sample Micropas Run Date..08/22/06 09:28:40
 Project Address..... 2300 Mace Ave Modesto CA *v7.20*
 Documentation Author... Sample Author Enercomp, Inc. 1721 Arroyo Drive Auburn, CA 95603 530-885-9890
 Climate Zone..... 12
 Compliance Method..... MICROPAS7 v7.20 for 2005 Standards by Enercomp, Inc.

MICROPAS7 v7.20 File=MP7BASE Wth=CTZ12S05 Program=HVAC SIZING User#-MP2099 User=Enercomp, Inc. Run=Sample

GENERAL INFORMATION

Floor Area..... 1600 sf
 Volume..... 12800 cf
 Front Orientation..... Front Facing 0 deg (N)
 Sizing Location..... MODESTO
 Latitude..... 37.6 degrees
 Winter Outside Design..... 25 F
 Winter Inside Design..... 70 F
 Summer Outside Design..... 98 F
 Summer Inside Design..... 75 F
 Summer Range..... 36 F
 Interior Shading Used..... Yes
 Exterior Shading Used..... Yes
 Overhang Shading Used..... Yes
 Latent Load Fraction..... 0.19

HEATING AND COOLING LOAD SUMMARY

Description	Heating (Btu/hr)	Cooling (Btu/hr)
Opaque Conduction and Solar.....	14241	3729
Glazing Conduction and Solar.....	7758	6950
Infiltration.....	6192	1915
Internal Gain.....	n/a	2520
Ducts.....	4363	2116
Sensible Load.....	32554	17229
Latent Load.....	n/a	3301
Minimum Total Load	32554	20530

Note: The loads shown are only one of the criteria affecting the selection

Design Loads

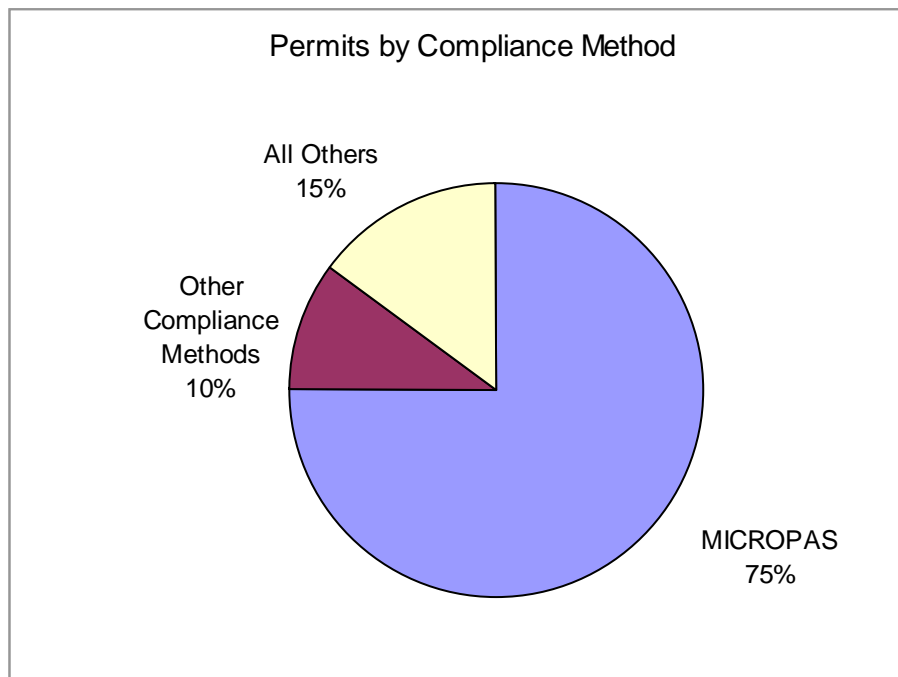
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MICROPAS

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Haynal & Co., Inc. Energy Calculations, Escondido and San Diego

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Tom Rotchford, P.E.
President, Solargy, Inc., Woodland Hills

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Energy Compliance Systems, San Jose

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past-chair, CABEC, San Diego

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Energy Etc., Santa Clarita

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Mike Hodgson, President
Consol, Inc., Stockton

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