CHEERS

SCAN HERE TO VALIDATE DOCUMENT

ENERGY EFFICIENT HOME CREDIT (45L)
PLAN DESIGN PRE-QUALIFICATION

PLAN NAME: Plan 2554 (2019)
FLOOR AREA: 2554
CERTIFICATE NUMBER: 45L20-02729240

PLAN DESIGNER NAME: John Barrymore
COMPANY: Acme Energy Consulting
ADDRESS: 1610 R Street
Sacramento, CA 95819

45L ANALYSIS RESULTS	NORTH	EAST	SOUTH	WEST
EFFICIENCY IMPROVEMENT:	52.1 %	51.3 %	54.2 %	50.8 %
ENVELOPE IMPROVEMENT:	42.2 %	41.0 %	44.1 %	40.0 %

45L

This plan design meets 45L energy efficiency criteria. A home built and inspected to these specifications will be eligible for the 45L tax credit.

This plan design has been evaluated with Micropas v7.6 and has a projected level of annual heating and cooling energy consumption that is at least 50 percent below the annual level of heating and cooling energy consumption of the reference dwelling unit in the same climate zone;

Building envelope component improvements alone account for a level of annual heating and cooling energy consumption that is at least 10 percent below the annual level of heating and cooling energy consumption of the reference dwelling unit in the same climate zone;

Heating and cooling energy consumption have been calculated in the manner prescribed in Section 2.03 of Internal Revenue Bulletin: 2008-35.

Project Name..... Meadow Lark Estates Date..07/29/20 13:24:06
Plan Name..... Plan 2554 (2019) ******
v7.6
Documentation Author... ******
Builder.....

Climate Zone..... CTZ13S05 in IECC Climate Zone 3
Compliance Method..... MICROPAS7 v7.60 r05 for Tax Credits by Enercomp, Inc.

MICROPAS7 v7.60 File-APP45LRUN Wth-CTZ13S05
User#-MP0001 User- Run-45L

MICROPAS7 ENERGY USE SUMMARY

Normalized Modified Loads (kBtu/sf-yr)	Reference Design	Proposed Design	Percent Improvement
Space Heating.....	5.95	1.49	75.0%
Space Cooling.....	12.54	7.36	41.3%
North Total	18.49	8.85	52.1%
North Envelope Improvement		42.2%	
Space Heating.....	5.95	1.66	72.1%
Space Cooling.....	12.54	7.34	41.5%
East Total	18.49	9.00	51.3%
East Envelope Improvement		41.0%	
Space Heating.....	5.95	1.66	72.1%
Space Cooling.....	12.54	6.81	45.7%
South Total	18.49	8.47	54.2%
South Envelope Improvement		44.1%	
Space Heating.....	5.95	1.54	74.1%
Space Cooling.....	12.54	7.55	39.8%
West Total	18.49	9.09	50.8%
West Envelope Improvement		40.0%	

*** Building meets Tax Credit Criteria ***
*** HERS Verification Required for Tax Credits ***
*** TaxCredit Energy rules for IECC Climate Zone 3 ***
*** Tax Credit rules in accordance with RESNET 001-16 ***

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GENERAL INFORMATION

HERS Verification.....	Required
Conditioned Floor Area.....	2554 sf
Building Type.....	Single Family Detached
Construction Type	New
Fuel Type	NaturalGas
Building Front Orientation.	Cardinal - N,E,S,W
Number of Dwelling Units...	1
Number of Building Stories.	2
Weather Data Type.....	FullYear
Floor Construction Type....	Slab On Grade
Number of Building Zones...	2
Conditioned Volume.....	20432 cf
Slab-On-Grade Area.....	1224 sf
Glazing Percentage.....	9.8 % of floor area
Average Glazing U-factor...	0.3 Btu/hr-sf-F
Average Glazing SHGC.....	0.22
Average Ceiling Height.....	8 ft

BUILDING ZONE INFORMATION

Zone Type	Floor Area (sf)	Volume (cf)	# of Dwell Units	# of Peop-le	Cond-it-ioned	Thermo-stat Type	Vent Height (ft)	Vent Area (sf)	Verified Leakage or Housewrap
LIVING_A									
Residence	2231	17848	0.87	5.2	Yes	Setback	8.0	Standard	3.6 SLA
SLA = 0.00036 (ft2/ft2) Sensible = 72,420 Btu/day Latent = 18,908 Btu/day									
MULTI_GE									
Residence	323	2584	0.13	0.8	Yes	Setback	8.0	Standard	3.6 SLA
SLA = 0.00036 (ft2/ft2) Sensible = 25,862 Btu/day Latent = 4,964 Btu/day									

OPAQUE SURFACES

Surface	Frame Type	Area (sf)	U-fact-or	Sheath-ing R-val	Cavity R-val	Act Azm	Tilt	Solar Gains	Appendix U-factor Reference	Location/ Comments
LIVING_A										
1 Wall	Wood	202	0.064	15	0	0	90	Yes	None	Comments
2 Wall	Wood	395	0.064	15	0	90	90	Yes	None	Comments
3 Wall	Wood	8	0.078	15	0	90	90	Yes	None	Comments
4 Wall	Wood	523	0.064	15	0	180	90	Yes	None	Comments
5 Wall	Wood	8	0.078	15	0	270	90	Yes	None	Comments
6 Wall	Wood	456	0.064	15	0	270	90	Yes	None	Comments
7 Wall	Wood	102	0.078	15	0	0	90	Yes	None	Comments
11 Wall	Wood	49	0.057	21	0	0	90	No	None	Comments

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OPAQUE SURFACES

Surface	Frame Type	Area (sf)	U-factor	Cavity R-val	Sheathing R-val	Act Azm	Tilt	Solar Gains	Appendix U-factor Reference	Location/ Comments
12 Wall	Wood	97	0.078	15	0	0	90	No	None	Comments
13 Wall	Wood	45	0.078	15	0	0	90	No	None	Comments
15 CoolRoof	Wood	1324	0.015	49	19	n/a	0	Yes	None	Comments
16 CoolRoof	Wood	50	0.022	30	19	n/a	0	Yes	None	Comments
18 FloorExt	Wood	32	0.029	30	0	n/a	0	Yes	None	Comments
19 FloorExt	Wood	320	0.032	30	0	n/a	0	No	None	Comments
22 Door	Other	20	0.200	0	0	0	90	Yes	None	Comments
24 Door	Other	18	0.200	0	0	0	90	No	None	Comments
Emittance = 0.90		Attic Vent =		5.26 ft2			Crawlspace Vent =		0.00 ft2	
MULTI_GE										
8 Wall	Wood	93	0.078	15	0	0	90	Yes	None	Comments
9 Wall	Wood	64	0.078	15	0	90	90	Yes	None	Comments
10 Wall	Wood	121	0.078	15	0	270	90	Yes	None	Comments
14 Wall	Wood	131	0.078	15	0	0	90	No	None	Comments
17 CoolRoof	Wood	203	0.015	49	19	n/a	0	Yes	None	Comments
23 Door	Other	20	0.200	0	0	270	90	Yes	None	Comments
Emittance = 0.90		Attic Vent =		5.26 ft2			Crawlspace Vent =		0.00 ft2	

PERIMETER LOSSES

Surface	Length (ft)	F2 Factor	Insul R-val	Solar Gains	Appendix F-factor Reference	Location/ Comments
LIVING_A						
20 SlabEdge	91	0.730	R-0	No	None	Comments
MULTI_GE						
21 SlabEdge	43	0.730	R-0	No	None	Comments

FENESTRATION SURFACES

Orientation	Area (sf)	U-factor	SHGC	Act Azm	Tilt	Exterior Shade Type	Location/Comments
LIVING_A							
1 Wind Front (N)	16.0	0.300	0.220	0	90	Standard	SHGCw=0.187/SHGCs=0.154
2 Wind Front (N)	16.0	0.300	0.220	0	90	Standard	SHGCw=0.187/SHGCs=0.154
3 Wind Front (N)	6.0	0.270	0.240	0	90	Standard	SHGCw=0.204/SHGCs=0.168
4 Wind Back (S)	33.3	0.290	0.230	180	90	Standard	SHGCw=0.196/SHGCs=0.161
5 Wind Back (S)	15.0	0.300	0.220	180	90	Standard	SHGCw=0.187/SHGCs=0.154
6 Wind Back (S)	15.0	0.300	0.220	180	90	Standard	SHGCw=0.187/SHGCs=0.154
7 Wind Back (S)	15.0	0.300	0.220	180	90	Standard	SHGCw=0.187/SHGCs=0.154
8 Wind Back (S)	9.0	0.300	0.220	180	90	Standard	SHGCw=0.187/SHGCs=0.154

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FENESTRATION SURFACES

Orientation	Area (sf)	U-factor	SHGC	Act Azm	Tilt	Exterior Shade Type	Location/Comments
9 Wind Back (S)	15.0	0.300	0.220	180	90	Standard	SHGCw=0.187/SHGCs=0.154
10 Wind Back (S)	15.0	0.300	0.220	180	90	Standard	SHGCw=0.187/SHGCs=0.154
11 Wind Right (W)	15.0	0.300	0.220	270	90	Standard	SHGCw=0.187/SHGCs=0.154
12 Wind Right (W)	15.0	0.300	0.220	270	90	Standard	SHGCw=0.187/SHGCs=0.154
13 Wind Right (W)	15.0	0.300	0.220	270	90	Standard	SHGCw=0.187/SHGCs=0.154
14 Wind Front (N)	6.0	0.270	0.240	0	90	Standard	SHGCw=0.204/SHGCs=0.168
MULTI_GE							
15 Wind Front (N)	15.0	0.300	0.220	0	90	Standard	SHGCw=0.187/SHGCs=0.154
16 Wind Right (W)	15.0	0.300	0.220	270	90	Standard	SHGCw=0.187/SHGCs=0.154
17 Wind Right (W)	15.0	0.300	0.220	270	90	Standard	SHGCw=0.187/SHGCs=0.154

THERMAL MASS

Mass Type	Area (sf)	Thick (in)	Heat Cap	Conduct-ivity	UIMC	Surface R-value	Location/Comments
LIVING_A							
1 SlabOnGrade	180	3.5	28.0	0.98	4.60	R-0.0	Std Exp Slab
3 SlabOnGrade	721	3.5	28.0	0.98	1.80	R-2.0	Std Cvr Slab
MULTI_GE							
2 SlabOnGrade	65	3.5	28.0	0.98	4.60	R-0.0	Std Exp Slab
4 SlabOnGrade	258	3.5	28.0	0.98	1.80	R-2.0	Std Cvr Slab

HVAC SYSTEMS

System Type	Minimum Efficiency	Verified EER	Verified Refrig Charge or TXV	Verified Adequate Airflow	Verified Fan Watt Draw	Verified Maximum Cooling Capacity
LIVING_A						
Furnace	0.950 AFUE	n/a	n/a	n/a	n/a	n/a
ACSplit	16.00 SEER	No	No	No	No	No
MULTI_GE						
Furnace	0.950 AFUE	n/a	n/a	n/a	n/a	n/a
ACSplit	16.00 SEER	No	No	No	No	No

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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)
LIVING_A				
Furnace	24126	n/a	n/a	n/a
ACSplit	n/a	14472	17409	n/a
MULTI_GE				
Furnace	5546	n/a	n/a	n/a
ACSplit	n/a	3575	4301	n/a
Total	29672	18047	21710	n/a

Orientation of Maximum..... Front Facing 270 deg (W)
Sizing Location..... BAKERSFIELD AP
Winter Outside Design..... 26 F
Winter Inside Design..... 70 F
Summer Outside Design..... 101 F
Summer Inside Design..... 75 F
Summer Range..... 34 F

DUCT SYSTEMS

System Type	Duct Location	Duct R-value	Verified Duct Leakage	Verified Surface Area	Verified Buried Ducts	Modeled Duct Efficiency
LIVING_A						
Furnace	Attic	R-8	5% fan flow	No	No	0.88
ACSplit	Attic	R-8	5% fan flow	No	No	0.88
MULTI_GE						
Furnace	Attic	R-8	5% fan flow	No	No	0.88
ACSplit	Attic	R-8	5% fan flow	No	No	0.88

SPECIAL FEATURES AND MODELING ASSUMPTIONS

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

This is a multiple orientation building. This printout is for the front facing North.

This building incorporates a Cool Roof.

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HERS REQUIRED VERIFICATION

*** Items in this section require field testing and/or ***
*** verification by a certified home energy rater under the ***
*** supervision of an approved HERS provider using approved ***
*** testing and/or verification methods. ***

HERS verification always required for tax credits.

This building incorporates Grade I HERS verified Insulation Installation.

This building incorporates HERS verified Reduced Duct Leakage. The total air leakage has been calculated at the cfm rate specified in the DUCT SYSTEMS section at 25 Pascal across the entire system, incuding the air handler. Tested duct leakage shall be determined using the RESNET on-site inspection protocol.

REMARKS

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