

# MICROPAS

## MICROPAS7 IECC Version Sample Compliance Results

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800-755-5908

Sample results using MICROPAS7 IECC version on a 2689 ft<sup>2</sup> two story slab on grade home. The base configuration includes:

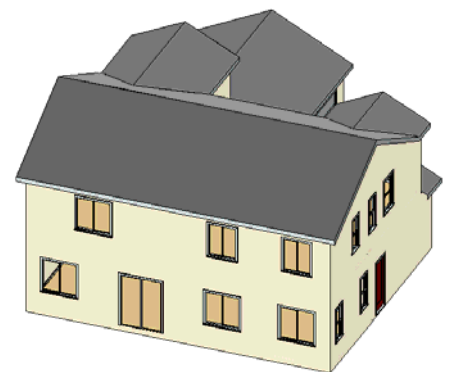
- 10 SEER air conditioner
- 78% gas furnace
- R4.2 ducts
- Unverified duct leakage
- 0.575 EF water heater
- Aluminum double clear windows ( $U=0.67$ / $SHGC=0.70$ )
- No radiant barrier
- R30 attic
- R13 walls



This example assumes a window area equal to 20% of the floor area in two configurations—Case #1 with glass equally distributed on all four orientations and Case #2 with 50% of the glass at the back of the home facing west.

Then, each of the following items is varied one at a time:

- 13 SEER air conditioner
- 92% gas furnace
- R6 ducts
- Verified duct leakage
- 0.62 EF water heater
- Aluminum double low solar low E windows ( $U=0.57$ / $SHGC=0.40$ )
- Vinyl double clear windows ( $U=0.52$ / $SHGC=0.65$ )
- Vinyl double low solar low E windows ( $U=0.37$ / $SHGC=0.32$ )
- Vinyl double extra low solar low E windows ( $U=0.37$ / $SHGC=0.20$ )
- Radiant barrier
- R38 attic
- R13 plus R5 foam board walls



In real homes, builders will combine features. To illustrate this, two packages of features are also run.

- Package 1—13 SEER, Verified Ducts, 0.62 EF, Vinyl double low solar low E windows, R38 attic and R13 plus R5 foam board walls
- Package 2— Includes all of the features above with Vinyl double extra low solar low E windows.

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<b>Case #1 - Equal Glass Orientation</b>									
<b>Name</b>	<b>Source Energy (kBtu/ft2)</b>				<b>Compliance Margin</b>	<b>Percent Savings (over Base)</b>			
	<b>Heating</b>	<b>Cooling</b>	<b>Water</b>	<b>Total</b>		<b>Heating</b>	<b>Cooling</b>	<b>Water</b>	<b>Total</b>
Standard	10.96	55.67	8.57	75.20	0.00				
Base	11.51	77.46	7.50	96.47	-21.27	0%	0%	0%	0%
13 SEER	11.51	64.64	7.50	83.65	-8.45	0%	17%	0%	13%
92% AFUE	9.83	77.46	7.50	94.79	-19.59	15%	0%	0%	2%
Duct Sealing	9.66	65.25	7.50	82.41	-7.21	16%	16%	0%	15%
R6 Duct	11.17	74.66	7.50	93.33	-18.13	3%	4%	0%	3%
62% EF	11.51	77.46	6.85	95.82	-20.62	0%	0%	9%	1%
Aluminum LowE	13.62	61.29	7.50	82.41	-7.21	-18%	21%	0%	15%
Vinyl Clear	9.91	72.96	7.50	90.37	-15.17	14%	6%	0%	6%
Vinyl LowE	10.19	53.51	7.50	71.20	4.00	11%	31%	0%	26%
Vinyl ELowE	11.61	47.42	7.50	66.53	8.67	-1%	39%	0%	31%
Radiant Barrier	11.14	71.63	7.50	90.27	-15.07	3%	8%	0%	6%
R38 Attic	11.33	76.72	7.50	95.55	-20.35	2%	1%	0%	1%
R13+R5 Wall	9.98	73.92	7.50	91.40	-16.20	13%	5%	0%	5%
Package 1	6.92	34.66	6.85	48.43	26.77	40%	55%	9%	50%
Package 2	6.67	27.74	6.85	41.26	33.94	42%	64%	9%	57%

<b>Case #2 - 50% of Glass at Back Facing West</b>									
<b>Name</b>	<b>Source Energy (kBtu/ft2)</b>				<b>Compliance Margin</b>	<b>Percent Savings (over Base)</b>			
	<b>Heating</b>	<b>Cooling</b>	<b>Water</b>	<b>Total</b>		<b>Heating</b>	<b>Cooling</b>	<b>Water</b>	<b>Total</b>
Standard	10.96	55.67	8.57	75.20	0.00				
Base	11.75	83.82	7.50	103.07	-27.87	0%	0%	0%	0%
13 SEER	11.75	70.00	7.50	89.25	-14.05	0%	16%	0%	13%
92% AFUE	10.03	83.82	7.50	101.35	-26.15	15%	0%	0%	2%
Duct Sealing	9.87	70.71	7.50	88.08	-12.88	16%	16%	0%	15%
R6 Duct	11.40	80.81	7.50	99.71	-24.51	3%	4%	0%	3%
62% EF	11.75	83.82	6.85	102.42	-27.22	0%	0%	9%	1%
Aluminum LowE	13.83	64.72	7.50	86.05	-10.85	-18%	23%	0%	17%
Vinyl Clear	10.14	78.86	7.50	96.50	-21.30	14%	6%	0%	6%
Vinyl LowE	10.37	56.20	7.50	74.07	1.13	12%	33%	0%	28%
Vinyl ELowE	11.73	48.98	7.50	68.21	6.99	0%	42%	0%	34%
Radiant Barrier	11.38	77.60	7.50	96.48	-21.28	3%	7%	0%	6%
R38 Attic	11.57	83.12	7.50	102.19	-26.99	2%	1%	0%	1%
R13+R5 Wall	10.22	80.37	7.50	98.09	-22.89	13%	4%	0%	5%
Package 1	7.08	36.64	6.85	50.57	24.63	40%	56%	9%	51%
Package 2	6.76	28.81	6.85	42.42	32.78	42%	66%	9%	59%