Ambient Temperature =72 deg F | Heat Source = 250W IR Heat Lamp/test box, ~12" distance.

Each test box has a nominal R-19 with 1/2" thick G.W.B (R-0.45) top and bottom. The 12 x 12 5.5" exterior perimeter is made with 3/4" thick styrofoam.

Box A cavity is filled with a commercial 5.5." R-19 fiberglass batt (FGB)

Box B has a 1/2" sealed space before heat flow strikes a radiant barrier sealed inside a batt adjusted R wall cavity, Low E not applied.

Box C, ambient air temp vented 1/2 air space, RB on foam substrate with Low E backing & 1/4' air space, before adjusted batt inlay.

CEC DEMO Duration = 30 minutes

Table 1

System Type (see Box A, B, & C above)	Box A Closed	Box B Closed	Box C Open	
Exterior Box Front Temp	174	171	143	T1
Source Insulation Face Temp	110	79	76	T2
Inside Back at insulation face temp	80	78	75	T3
Rear box temp facing ambient air temp	78	75	72.5	T4
Ambient Air temp- Demo Room	72	72	72	T5
System R	20	20	19.45	
Delta T (T1-T5 unless noted otherwise)	102	99	4.0	
Delta T (T1-T4 unless noted otherwise)	96	96	3.5	

T1 Box C is removed from the Btu thruput equasion due to open system venting.

67 Deg F Excess thermal heat exhausted between T1 & T2 in box C.

Table 2

BTU Thruput per test Box. T1-T5	T1	T2	T3	T4	Ambient T5	T Diff	System R	U factor	BTU Thruput 30 minutes	Reduction	Area (sf)
Box A - Standard 2x6 FG Batt Wall,	174.0	110	80	78.0	72	102.0	19.9	0.0503	5.126	0.0%	1
Box B - Reflective material w/o venting @	171.0	79	78.0	75	72	99.0	19.9	0.0503	4.975	2.9%	1
Box C - Reflective material with venting #	143.0	76	75.0	72.5	72	4.0	19.45	0.0514	0.206	96.0%	1

Table 3

BTU Thruput per test Box. T1-T4	T1	T2	T3	T4		T Diff	System R	U factor	30 minutes	Reduction	
Box A - Standard 2x6 FG Batt Wall,	174.0	110.0	80.0	78.0		96.0	19.9	0.0503	4.824	0.0%	1
Box B - Reflective material w/o venting @	171.0	79.0	78.0	75.0		96.0	19.9	0.0503	4.824	0.0%	1
Box C - Reflective material with venting #	143.0	76.0	75.0	72.5		3.5	19.45	0.0514	0.180	96.3%	1

Table 4

BTU Thruput per test Box. T1-T5 with actual computed R	T1	T2	T3	T4	Ambient T5	T Diff	System R	U factor	BTU Thruput 30 minutes	Reduction	
BTU Thruput per test Box.											
Box A - Standard 2x6 FG Batt Wall,	174.0	110.0	80.0	78.0	72.0	102	19.90	0.0503	5.126	0.0%	1
Box B - Reflective material w/o venting @	171.0	79.0	78.0	75.0	72.0	99	20.21	0.0495	4.899	4.4%	1
Box C - Reflective material with venting # (T2-T5)	143.0	76.0	75.0	72.5	72.0	4	18.15	0.0551	0.220	95.7%	1

Reflects computing Box C as an open system

Table 5

BTU Thruput per test Box. T1-T5 with actual computed R	T1	T2	T3	T4	Ambient T5	T Diff	System R	U factor	BTU Thruput 30 minutes	Reduction	
BTU Thruput per test Box.											
Box A - Standard 2x6 FG Batt Wall,	174.0	110.0	80.0	78.0	72.0	102	19.90	0.0503	5.126	0.0%	1
Box B - Reflective material w/o venting @	171.0	79.0	78.0	75.0	72.0	99	20.21	0.0495	4.899	4.4%	1
Box C - Reflective material w/o venting (T1 - T5)	143.0	76.0	75.0	72.5	72.0	71	18.60	0.0538	3.817	25.5%	1

Reflects computing Box C as a closed system

@ = Non vented Radiant Barrier application.

Box B clearly indicates re-radiated heat conversion to rise in mecury T sensible heat through R system.

= T2 is the surface from which exterior T reference is used for design data. T2 is the reflective surface with a Low-E backing, second air space.

Table 6

Computed System R: 6.5" total thickness.	Box A "R" / Item	R Item Thick (in)	Box B "R" / Item	R Item Thick (in)	Box C "R" / Item	R Item Thick (in)
1/2" Gypsum Exterior	0.45	0.50	0.45	0.50	0.00	0.50
Air Space	na	na	0.50	0.50	0.00	0.50
Radiant Barrier (with air space)	na	na	1.25	0.00	1.00	0.00
Substrate Styrofoam	na	na	2.88	0.75	2.88	0.75
Low E Material	na	na	na	na	0.00	0.25
Fiberglass Batt	19.00	5.50	14.68	4.25	13.82	4.00
1/2" Gypsum interior	0.45	0.50	0.45	0.50	0.45	0.50
Total System R	19.90	6.50	20.21	6.50	18.15	6.50
					18.60	

Box C being extremely generous