SDGE San Diego Gas & Electric
PO. BOX 1831 • SAN DIEGO, CA 92112 • 619/696-2000

Ed Jones

14 August, 1989

FILE NO.

Dear Ed:

Here are the results of the calculations I discussed with you on the phone comparing Cerama-Tech and conventional capsheet. The data you provided shows Cerama-Tech reducing heat transmission into the cooler by about 39%. I have extrapolated that data to predict reductions for interior temperatures of 50F, 60F, and 70F.

At an outside temperature of 104F, the following occurs:

Room Temp	Capsheet Temp	Cerama-Tech Temp	Heat Transfer Reduction (%)
40F	150F	107F	39.1 (measured)
50F	150F	107F	43.0 (estimated)
60F	150F	107F	47.8 "
70F	150F	107F	53.8 "

The applicable equation is the Conductive Heat Transfer Equation,

$$Q = UA\Delta T, \quad \text{where}$$

- Q is heat conducted through the wall, Btus/hr,
- U is heat transmission coefficient, Btus/hr*sqft*F,
- A is wall area, sqft,
- ΔT is the temperature difference between the outside surface and the interior surface.

Assuming UA is held constant for all four conditions considered, the ΔT becomes the only variable, with Q being directly proportional to ΔT. (It is also assumed that the exterior surface temperature would remain the same in each case, 150F for the capsheet and 107F for the Cerama-Tech.)

Room Temp	Capsheet Q	Cerama-Tech Q	Cerama-Tech Savings vs Cap (%)
40F	(150-40)UA	(107-40)UA	(110-67)/110*100 = 39.1%
50F	(150-50)UA	(107-50)UA	(100-57)/100*100 = 43.0
60F	(150-60)UA	(107-60)UA	(90-47)/90*100 = 47.8
70F	(150-70)UA	(107-70)UA	(80-37)/80*100 = 53.8

I hope this is helpful to you. Please let me know if I can help in any other way.

Sincerely,

Skip

Don "Skip" Fralick
Engineer
Tech Support
699-5101