
Foster Farms Dairy

1707 MCHENRY AVENUE
MODESTO, CALIFORNIA 95350

November 16, 1988

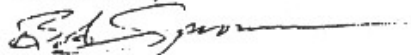
To whom it may concern:

Ralph Harrilson of Custom Portable Sandblasting applied Ceramitec to the roof of Foster Farms Daries Ice Cream plant.

The results were very good. The temperature reading of the roof surface on a 103 degree day was approximately 40 degrees.

The exact energy savings at this time is not known but it is expected to significant.

Sincerely



Bob Sprouse
Chief Engineer
Foster Farms Dairy

ALLIED REFRIGERATION

& ENGINEERING

2231 A FORTUNE DRIVE • SAN JOSE, CALIFORNIA 95131

CONT. LIC. NO. 250554

December 3, 1988

Dave Pewitt
1565 Bulldog Ln., Apt. #102
Fresno, Ca 93710

SUBJECT: Ceramatek

Dear Dave:

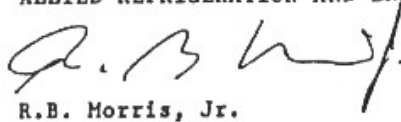
Confirming our recent conversations enclosed are copies of my calculation sheets for heat loss through the panel building at Foster Farms Dairy in Fresno. The panels are composed of 5" thick urethane insulation.

As you can see from the attached calculations in most cases Ceramatek cut the heat transmission loss by about 50%.

Dave, we trust this satisfies your immediate needs.

Very truly yours,

ALLIED REFRIGERATION AND ENGINEERING



R.B. Morris, Jr.

RBH/jjg

ASSUMING 5" URETHANE INSULATION

$$K = 0.16 \frac{\text{BTU}}{\text{HR} \cdot \text{ft} \cdot ^\circ\text{F}}$$

HEAT TRANSFER FORMULA:

$$Q = U A \Delta T \quad \text{WHERE } U = \frac{1}{R}$$

$$R = \frac{x}{K} = \frac{5''}{0.16} = 31.25$$

$$U = \frac{1}{31.25} = .032$$

A = 1 SQ. FT. SURFACE

ΔT = TEMP. DIFF.
BETWEEN OUTDOOR
SKIN TEMP &
INSIDE SKIN
TEMP.

TEST #1: (A) 114° F = OUTSIDE SKIN OF GALVANIZED FINISH
(B) 75° F = OUTSIDE SKIN OF GALV. PAINTED
w/ CERAMATEK.
40° F = ROOM TEMP. = INSIDE SKIN TEMP.

$$\therefore \text{(A) } Q = U A \Delta T = .032 \times 1 \times (114 - 40) = 2.368 \frac{\text{BTU}}{\text{H}}$$

$$\text{(B) } Q = .032 \times 1 \times (75 - 40) = 1.12 \frac{\text{BTU}}{\text{H}}$$

$$2.368 \div 1.12 = 2.11 \times 100 = 211\%$$

∴ GALVANIZED FINISH HAS 211% HIGHER HEAT LOSS THAN CERAMATEK FINISH.

OR, EXPRESSED IN ANOTHER WAY

$$\frac{1.12}{2.368} = .473 \times 100 = 47.3\%$$

∴ CERAMATEK ONLY HAS 47.3% OF THE HEAT LOSS AS DOES GALVANIZED FINISH.
OR, HEAT LOSS LESS THAN HALF.

TEST #2: (A) = 121°F $Q = .032 \times 1 \times (121 - 40) = 2.592 \frac{\text{BTU}}{\text{H}}$
 (B) = 79°F $Q = .032 \times 1 \times (79 - 40) = 1.248 \frac{\text{BTU}}{\text{H}}$

$\therefore \frac{2.592}{1.248} \times 100 = 207.7\%$ HIGHER LOSS WITH GALVANIZED FINISH.

TEST #3: (A) = 143°F $Q = .032 \times 1 \times (143 - 40) = 3.296 \frac{\text{BTU}}{\text{H}}$
 (B) = 94°F $Q = .032 \times 1 \times (94 - 40) = 1.728 \frac{\text{BTU}}{\text{H}}$

$\therefore \frac{3.296}{1.728} \times 100 = 190.7\%$ HIGHER LOSS WITH GALVANIZED FINISH.

TEST #4: (A) = 146°F $Q = .032 \times 1 \times (146 - 40) = 3.392 \frac{\text{BTU}}{\text{H}}$
 (B) = 99°F $Q = .032 \times 1 \times (99 - 40) = 1.888 \frac{\text{BTU}}{\text{H}}$

$\therefore \frac{3.392}{1.888} \times 100 = 179.7\%$ HIGHER LOSS WITH GALVANIZED FINISH.