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EBE'1027/09

FEDERAL ELECTRICITY COMMISSION TESTING REPORT

Results from the Nansulate® Testing Project by the Comision Federal de Electricidad - Federal Electricity Commission of Mexico.

Report Objective: Compare two model homes with galvanized sheet metal roofs, one door and one east-facing window, and concrete block walls. One model home's roof is coated with Nansulate® thermal insulation coating at a three-coat thickness, and the other model home is left uncoated. Each home is 13 feet x 13 feet and 7.8 feet high. Each unit has a 1 ton air conditioner attached with temperature control set at 77 F.

Energy savings in the form of kilowatt hours (kWh) were measured in addition to internal ambient temperature and roof surface temperature. Measurements were taken over May 4th through 18th 2009, and averaged for final results.

	Uncoated Home	Nansulate® Coated Home	Percentage Energy Saved with Nansulate®
Energy Consumption Avg. - Daytime	8.84 kWh	7.72 kWh	12.67%
Energy Consumption Avg. - Nighttime	7.52 kWh	6.88 kWh	8.51%

Results

The energy savings found during the day is about 12.67% and the night is about 8.51%, resulting in a daily savings of 10.76% for the summer.

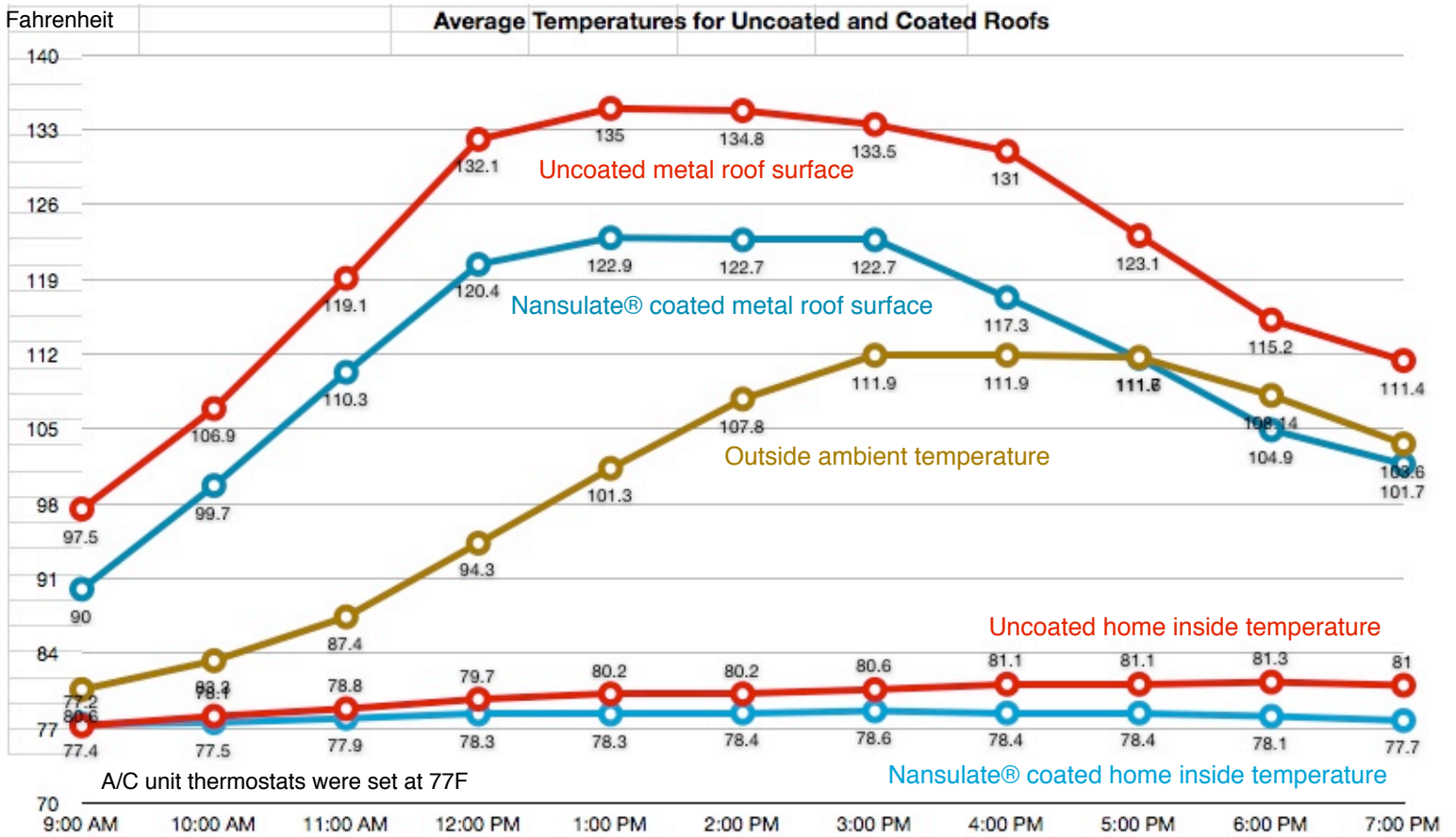
Conclusions

According to the results obtained, the NANSULATE® material was found to have adequate characteristics to be considered as an insulation, which when applied to the exterior of the roof, achieves energy savings from energy used for electrical air conditioning equipment .

NOTES: It is considered that on metal roofs, the savings are lower than could be obtained with a concrete roof.

The reduction of the roof surface temperature is significant considering that the coating is a thin layer similar to a paint.

Temperature Measurement Averages



The Nansulate® coated roof showed a significant difference in surface temperature throughout measured timeframe of 9:00 a.m. to 7:00 p.m. The Nansulate® coated roof was an average of 10.5 degrees cooler than the uncoated roof.

Even with internal A/C unit thermostats set to 77F in both homes, the Nansulate® coated home's interior temperature was closer to the desired temperature target of 77F. According to the U.S. Department of Energy, reducing a thermostat 10°–15° for eight hours, can save around 10% a year on heating and cooling bills.

Time of day	Exterior Ambient Temperature	Non Insulated Roof		Nansulate® Insulated Roof	
		Interior Ambient	Roof temperature	Interior Ambient	Roof Temperature
9:00 AM	80.6	77.2	97.5	77.4	90
10:00 AM	83.3	78.1	106.9	77.5	99.7
11:00 AM	87.4	78.8	119.1	77.9	110.3
12:00 PM	94.3	79.7	132.1	78.3	120.4
1:00 PM	101.3	80.2	135	78.3	122.9
2:00 PM	107.8	80.2	134.8	78.4	122.7
3:00 PM	111.9	80.6	133.5	78.6	122.7
4:00 PM	111.9	81.1	131	78.4	117.3
5:00 PM	111.7	81.1	123.1	78.4	111.6
6:00 PM	108.14	81.3	115.2	78.1	104.9
7:00 PM	103.6	81	111.4	77.7	101.7
Average Temp	100.2	79.9	121.8	78.1	111.3



Proyecto NANASULATE
ETA-EOS-08-08

Ahorro Promedio Nocturno		
	Sin	Con
	NANASULATE	NANASULATE
Consumo Promedio [kWh]	7.52	6.88
Ahorro ¹ [kWh]		0.64
Ahorro ¹ en %		8.5

Temperaturas Promedio [°C]			
	Exterior	Interior sin	Interior con
		NANASULATE	NANASULATE
Promedio	37.88	26.62	25.60
Diferencia en temp. amb interior			1.02

Ahorro Promedio Diurno		
	Sin	Con
	NANASULATE	NANASULATE
Consumo Promedio [kWh]	8.84	7.72
Ahorro ¹ [kWh]		1.12
Ahorro ¹ en %		12.7

Ahorro Combinado		
	Sin	Con
	NANASULATE	NANASULATE
Consumo Promedio [kWh]	8.18	7.30
Ahorro ¹ [kWh]		0.88
Ahorro ¹ en %		10.8

¹Estos ahorros corresponden a equipos de 1 TR instalados en recintos iguales en ubicación, orientación y tamaño de 4x4x2.4 m (largo x ancho x altura) y con techumbre de lámina galvanizada. Las mediciones se hicieron del 4 al 18 de mayo del 2009.



Anexo 1 del oficio EBE1027/2009

A full copy of the report can be downloaded at:
http://www.nansulate.com/pdf/CFE_Nansulate_Report_Eng.pdf