



Therm-O-Lite Windows The Window Replacement Alternative

URS Energy Analysis Report

for the Renovation of the McNamara Federal Building
Detroit, MI 48226
28-story Class "A" Office Building



Therm-O-Lite installed 2,440 Fixed Windows-Series 1000 with between glass blinds on this GSA owned facility. As a result or improving the building envelope with interior insulating windows, GSA was able to downsize their HVAC system upgrade by over \$1.5 million. Additionally, GSA documented annual energy cost savings of over \$400,000.

URS, the nationally recognized A&E firm as the architect of record, was under contract with GSA to perform the Mechanical, Electrical and Plumbing analysis for the modernization of the facility. As part of this work, URS conducted an energy analysis, which reaffirmed the annual energy savings and provided a summary of the HVAC load calculations. The final load calculations were based upon the incorporation of the Therm-O-Lite system but ignored the effect of the between glass blinds. This resulted in an equipment requirement of eight (8) AHU for an estimated cost of \$6M versus \$7.5M as originally specified.

Annual Energy Savings – Ability to Reduce Mechanical Equipment Sizes, i.e. Reduce Cost

	Cooling Load					Heating Load			Total
	Ton Hrs/Yr	KW/Ton	KWH/Yr	\$/Yr	Svgs/Yr	Lbs/Yr	\$/Yr	Svgs/Yr	\$ Svgs/Yr
Original Windows w/o Upgrade – Old AHUs & Chillers	4,750,557	1.50	7,125,835	\$712,584	\$ 0	17,694,870	\$164,031	\$ 0	\$ 0
Original Windows w/o Upgrade – Old AHUs & New Chillers	4,750,557	1.02	4,845,568	\$484,557	\$228,027	17,694,870	\$164,031	\$ 0	\$228,027
Original Windows w/o Upgrade – New AHUs & New Chillers	4,750,557	0.92	4,370,512	\$437,051	\$275,533	17,694,870	\$164,031	\$ 0	\$275,533
Storm Windows w/o Blinds – New AHUs & New Chillers	4,166,756	0.92	3,833,415	\$383,342	\$329,242	8,598,785	\$ 79,711	\$84,320	\$413,562
Storm Windows w/ Blinds 60% Open – New AHU & New Chillers	3,739,610	0.92	3,440,441	\$344,044	\$368,540	8,459,279	\$ 78,418	\$85,613	\$454,153

Notes:

- 1.) Assumes \$0.10 per KW Electrical Cost
- 2.) Assumes \$9.27 per 1,000 Lbs. Steam Cost

	AHU CFM	\$/CFM	Installed Cost \$	Installed Cost \$ Savings
Original Windows w/o Upgrade – 53 deg – FLAT	728,000	\$10.42	\$7,585,760	
Storm Windows w/o Blinds – 53 deg – FLAT	576,000	\$10.42	\$6,001,920	
Storm Windows w/ Blinds 60% Open – 53 deg - FLAT	504,000	\$10.42	\$5,251,680	