

# ENERGY COSTS THROUGH THE ROOF?



**trueROOFcost**  
**TrueRoofCost Life Cycle Savings Report**  
 Project: Whitehead Logistics Warehouse  
 Scenario: 50MIL PVC vs 75MIL EPDM

**Life Cycle Cost Summary**

**Life Cycle Cost Overview:**  
 A Life Cycle cost analysis is an important part of the decision process in determining the best alternative in a roofing decision. The energy costs of heating and cooling a structure is often the largest of the "hidden costs" associated with the selection of any roofing system.

Typically, when decisions are based on low initial costs, there is a resulting increase in operating costs. Increased energy costs, maintenance costs, and a shorter operating life can result. When decisions are based on increasing the quality of performance of the roof system, significant benefits can be achieved in operating cost reductions. TrueRoofCost allows you to consider the Total Cost of Ownership for competing roof systems.

**Total Life Cycle Cost Comparison:**  
 Considering the provided installation cost as well as the operating costs over the term of analysis, a Total Life Cycle Cost can be calculated for each roof system. The following summary shows a comparison of these costs.

	Baseline Roof A: 50MIL PVC	Proposed Roof B: 75MIL EPDM
<b>Estimated Operating Costs</b>		
Total Heating:	\$1,165,719.82	\$381,674.13
Total Cooling:	\$89,784.85	\$64,722.12
Total Maintenance:	\$450,000.00	\$40,000.00
	<b>\$1,745,504.67</b>	<b>\$486,396.25</b>
<b>Depreciated Installed Costs</b>		
Installation:	\$300,000.00	\$600,000.00
Depreciation:	(\$196,153.85)	(\$332,307.69)
Estimated Tax Credit:	(\$24,000.00)	(\$48,000.00)
	<b>\$109,846.15</b>	<b>\$219,692.31</b>
<b>Total Life Cycle Cost:</b>	<b>\$1,855,350.82</b>	<b>\$706,088.55</b>
	\$18.55 /sq ft	\$7.06 /sq ft

**Est. Life Cycle Savings: \$1,149,262.27**  
 Est. Operating Cost Savings: \$1,259,108.42  
 Dtd. Installed Cost Difference: (\$109,846.15)  
 Return on Investment: 1146.25%

**Life Cycle Savings Report**  
 Facility: Warehouse  
 Roofing: 75MIL EPDM

**Project Information**  
 Facility Location: 1 Hartford Drive, 06101, CT  
 Term of Analysis: 20 Years  
 Roof Area: 100000 sq. ft.  
 Facility Type: Warehouse/Storage

**TrueRoofCost Weather Data**

Regional weather data, Heating Degree Days (HDD) and Cooling Degree Days (CDD) are based on 30 year historical data from National Oceanic and Atmospheric Administration (NOAA).  
<http://ndbc.noaa.gov/CDD/index>

The map shown here shows U.S. Climate Zones according to the American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE). Climate Zones are based on ASHRAE standard 90.1-2004 with zone 1 being the hottest zone and zone 8 being the coldest zone.



**ASHRAE Alert:**

**Minimum Insulation Levels:**  
 The 2007 version of the ASHRAE 90.1 standard contained updated R-values for commercial roofs. This new updated value mandates a 33% increase from the 2004 ASHRAE Standard 90.1 in climate zones 2 through 7.

Many regulatory agencies will be adopting this increase as the minimum standard for all new construction design projects. Most buildings will be required to upgrade the levels of insulation used in their proposed roof systems during new construction or re-roofing operations where insulation is being removed to comply with the new ASHRAE minimum standards.

In light of the ASHRAE increases, the Polyisocyanurate Insulation Manufacturers Association (PIMA) has taken the initiative of publishing recommended R-values categorized by ASHRAE zones for use to reach beyond the new ASHRAE minimum standards.

## A TrueRoof Cost report can:

- Quantify total lifecycle savings for the life span of the roof
- Discover optimum R-values for maximum long-term return
- Demonstrate potential energy savings for building owners
- Diagram how to reduce carbon footprint
- Identify assemblies that provide maximum ROI in specific climates
- Generate reliable, accurate data compiled by the USDOE, NRCA and ASHRAE

