

Implementation of IR Services in Developing a Sustainable Roof System Program

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Abstract

Combining IR scans with yearly walkover inspections and material performance, we have been able to develop a roof program that is cost effective and code compliant. Our involvement in conducting IR scans of over 20 million square feet per year for the past 25 years has allowed us to develop this program for long term building owners. We have six years of records tracking actual labor and material costs involved with this program. This paper will show how we have used IR to maintain a cost effective and code compliant roof system program.

Discussion

Sustainable: According to Webster, “sustainable” is defined as “a practice that sustains a given condition without destroying or depleting natural resources or polluting the environment.”

In 1985, we started large scale roof inspections and IR scans of roof systems for several multiple building owners. The general purpose was designed to supply information to management about conditions and schedule repairs or replacements.

In 1998, one of our major accounts asked us to substantiate to a major lending institute the conditions and the age of their roof systems. These roofs were several years older than the lending institutions were accustomed to dealing with. The aggressive inspections and IR scans that the owner had in place allowed for the roof system to last longer.

With the knowledge that we would be starting an extensive roof replacement program of roof systems that were 23+ years old, we began working with the owner and a roofing manufacturer to put together a roof replacement program that would be sustainable.

The roof system needed to be environmentally friendly, comply with all applicable codes, and be easy to install. The system needed to be easily upgradeable and the warranty needed to be transferable if properties were sold. It is critical to the success of

the program that the roof's life can be easily and economically extended at the end of the initial warranty without tearing off the original roof system. The cost of maintenance and inspection also needed to be fair and equitable.

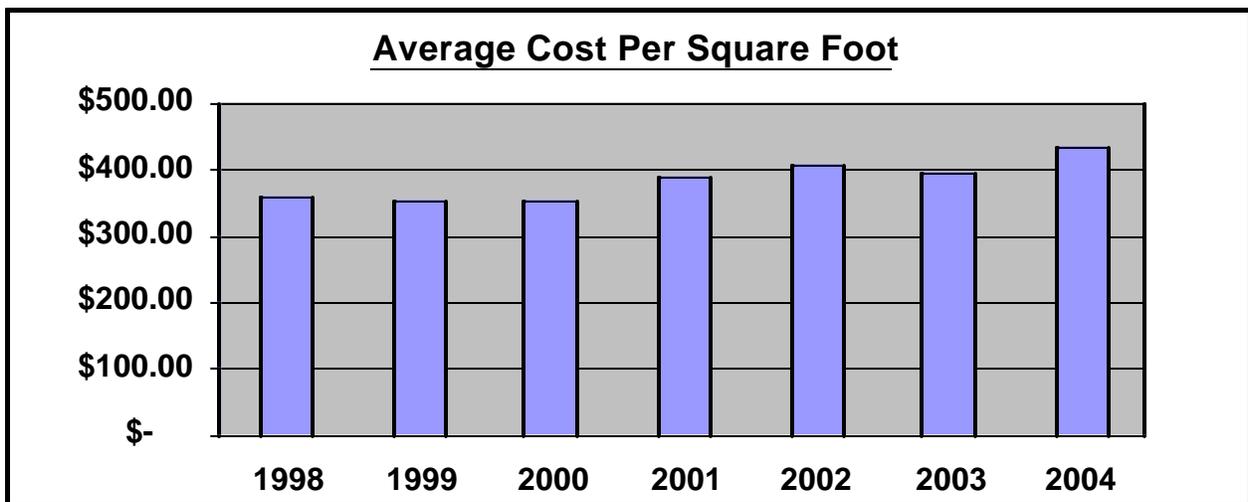
One very important aspect of re-roofing is the rising cost of landfill charges and the decreasing numbers of certified landfills to haul these discarded materials to. The reason for bringing this up is that when you have millions of square feet of roof systems, the real cost associated with this part of re-roofing becomes very noticeable.

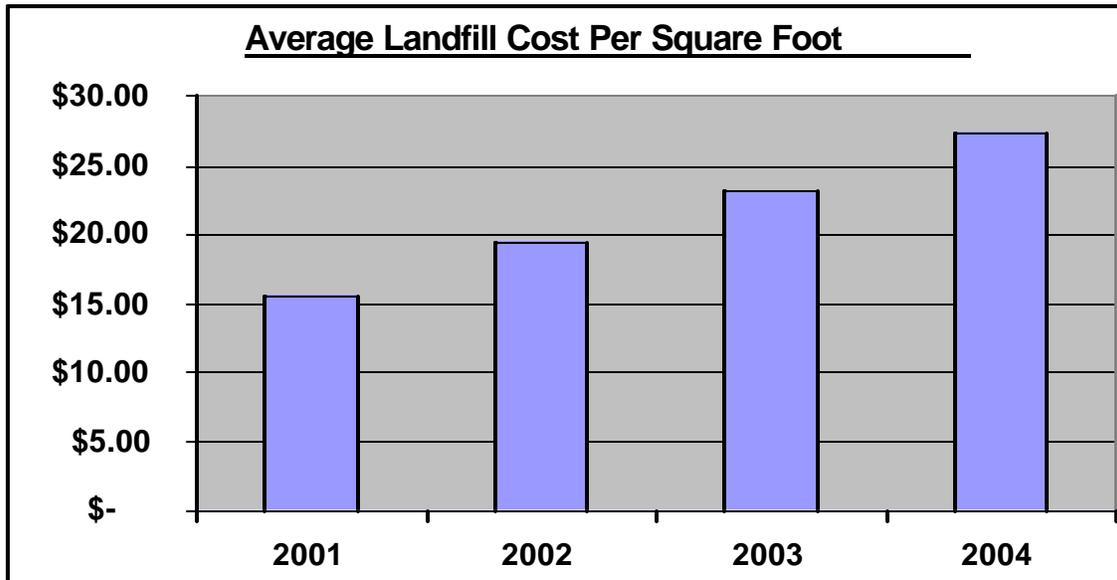
The sustainable roofing program we have had ongoing for the past seven years involves properties from Wisconsin to New Jersey to Florida and the data we have is based on these projects only.

Our company background is in commercial roofing. Setting up this kind of program was within our expertise and we already had the knowledge and equipment to perform inspections and evaluate roof conditions. We have been able to put this expertise and experience to work for the building owner.

The program design allows for maximum usage of allocated funds for the roof system. The roofing materials are directly purchased by the building owner on a negotiated cost basis. The roofing contractors bid labor and installation costs only. The landfill cost is paid by the owner, along with warranty and inspection costs. This allows for no monies to be lost in overhead and insurance costs.

The current program is set up to replace roofs over 12 years and involves a total of more than ten million square feet, so an investment of this type of capital requires maximum dollar usage to be able to meet this demand.





How the program is run after installation

- Upon completion, all roof systems are inspected by the manufacturer, consultant and building owner's representative
- Roof systems are inspected and scanned yearly by consultant
- All reported areas of damaged roofing or insulation are repaired or replaced under the warranty terms
- Under the warranty term, the extension rider for upgrading of the roof system can be implemented
- The intention of the program is to maximize roof life, eliminate costly removals and provide managed roof systems

Seven year review of program

- Twenty-one million square feet of retail properties under inspection program
- Four million square feet replaced under the sustainable roof program
- Warranty repair cost by warrantor less than \$4,000
- Repair cost by owner not warranty related \$6,000 (HVAC or weather related items)
- Cost to run program: **PRICELESS**