

LIFE CYCLE COSTING

While stainless steel costs a bit more up front, it returns on that investment in many forms for as long as the building stands. This paper serves to aid in the process of determining variables to consider when evaluating different materials on a life-cycle basis.

When properly specified and installed, stainless steel will last the useful life of the building and save energy and operating costs along the way. Is often the material with the least long-term cost to the building owner. It also limits environmental impact (see **Save Energy, Reduce Climate Change and Other Environmental Benefits** on our website). The Federal Highway Administration issued a report in 2001 estimating that in the United States alone, we spend \$550 billion per year combating metallic corrosion. Of that cost, \$113 billion per year is spent on construction related metal failures ranging from roof perforation to replacement of components that have become aesthetically unattractive. This suggests that to a significant degree, we are penny wise and pound foolish with the metals we specify. Smart building owners take life cycle costing into account when selecting materials.

In order to evaluate the relative life cycle costs of different materials, it is necessary to estimate all expenses, and the dates these expenses are expected to occur. The analysis should take the following factors into account:

ACQUISITION COSTS

- **MATERIAL:** High performance metals like stainless steel represent higher up -front costs than most alternatives. However, when considered in light of life cycle costing, their true value is determined.
- **FABRICATION:** At times, fabricators will charge a premium for working with stainless steel. Some of these costs are well justified in terms of additional time for machining and welding, as well as a higher cost penalty for generating substandard pieces that need to be scrapped. A fabricator that is experienced in these metals, however, will have the proper tooling and will not feel the need to add contingency costs for unexpected outcomes.



- **INSTALLATION:** Essentially the installed price of the building system being evaluated with different materials is the objective in determining the acquisition cost. It is important to note that higher quality fasteners will often be appropriate for a stainless steel installation.

OPERATING COSTS

- **ENERGY CONSUMPTION:** The remarkable thermal properties of stainless steel promote energy savings. More on this topic can be found under **The Insulation Value of Stainless Steel** on our website.
- **MAINTAINANCE:** When stainless steel is properly specified and installed, there is no need to refurbish them as would be necessary in the case of painted finishes. Learn how stainless steel can help **Reduce Maintenance Expenses** on our website.
- **REPLACEMENT:** When properly executed, a stainless steel building system will not require replacement. If the building is expected to last more than 50 years, a replacement expense or two is very likely to occur with other materials.
- **DAMAGE LOSSES:** Stainless steel can help Reduce Damage Losses from fire, hail and tagging.

- **SERVICE DISRUPTION:** Very often overlooked, the cost of service disruption should be calculated. Even when the building can be occupied during construction, there are still costs that can include lost productivity due to noise and reduced business traffic.

DISPOSAL COSTS

There are two ways to think about disposal. One is to sell the building, but demolition is the traditional way of thinking about the end of a building's life cycle.

- **RESALE VALUE:** If selling the building is in the owner's exit plan, it is important to consider how stainless steel helps to **Maintain Property Values** (see article on our website).

- **DEMOLITION:** When it comes time to demolish the building, the relatively high value of stainless steel scrap will provide an offset.

Once all of these costs are dated and estimated, they need to be factored to present dollar terms (a \$5 million roof replacement 20 years from now would only cost \$1.8 million if the building owner put the money in the bank today at 5.25% interest). After a present value analysis is concluded for all of these costs, the different material choice options can be measured in like terms. The usual conclusion is that stainless steel is the low cost solution. A life cycle costing model is available from the Specialty Steel Industry of North America at (202)342-8630 or www.ssina.com.

A Contrarian Metal Resources Product Consultant would be pleased to assist in helping you establish input assumptions for your life cycle analysis.



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