Save with stainless steel: compare Life Cycle Costs!

Choosing the right material for your project is often critical...

- It commits the user to a financial package over the entire life of the project itself, which can be over 100 years
- Bad choices will generate huge future costs that will
  - put constraints to future decisions
  - burden future generations
- Responsible decisions are based on long term thinking

### How to calculate the cost?

<table>
<thead>
<tr>
<th>Component</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total life cycle cost (LCC)</td>
<td>$LCC = AC + IC + \sum_{n=1}^{N} OC(1+i)^n + \sum_{n=1}^{N} LP(1+i)^n + \sum_{n=1}^{N} RC(1+i)^n$</td>
</tr>
<tr>
<td>Initial materials acquisition costs (AC)</td>
<td>$AC$</td>
</tr>
<tr>
<td>Initial materials installation &amp; fabrication costs (IC)</td>
<td>$IC$</td>
</tr>
<tr>
<td>Operating &amp; maintenance costs (OC)</td>
<td>$OC$</td>
</tr>
<tr>
<td>Lost production costs during downtime (LP)</td>
<td>$LP$</td>
</tr>
<tr>
<td>Replacement materials costs (RC)</td>
<td>$RC$</td>
</tr>
</tbody>
</table>

All Costs Are at Present Value

Where: $N = \text{Actual Service Life}$, $i = \text{Real interest rate}$, $n = \text{Year of the event}$

### Some examples

- Schaffhausen bridge
- Water mixing tank
- Bus Body
- Progreso Pier
- Chrysler Building
- Breakwater
- Water pipes
- Stonecutter’s Bridge

Usually, only the costs of the project itself are to be taken into account. However, there may be other costs that a community wants to consider as well:

- Utilities, such as power plants, water supply and waste water treatment, hospitals, ... cannot be shut down and demand continued service
- Indirect societal costs such as loss of working hours to people and increased pollution by idling vehicles due to traffic disruption.
Stainless Steel Benefits

**ACQUISITION COSTS**
Higher material costs per kg, but usually less material is needed.

**INSTALLATION**
Less material, easy on-site installation, no finishing operations needed, ...

**MATERIALS**
At least 60% of recycled content. High strength stainless steel products allow a sparing use of materials and lighter structures.

**RECYCLING**
High value of scrap High recycling rate

- Reuse of scrap for same quality products. No upper limit to the recycled content.
- Lighter stainless steel structures, prefabricated components, absence of finishing coatings or paint reduce drastically the IC burden

**OPERATION**
No repairs required, no costs incurred

- Optimal use of existing capacities and resources. Includes socio-economic side effects such as fewer traffic disruptions, less degraded service and lost time.
- No repairs leads to no extra environmental burden in energy and materials.

**LOST PRODUCTION**
No lost production costs, no additional society costs

**SUSTAINABLE operation**
Overall COST SAVINGS

Invalidation of the IC burden, high recycling rate, saving of losses, no repair, low material costs (lighter structures), low CO2 emission per kg of material.