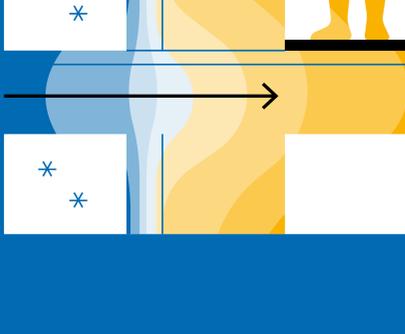
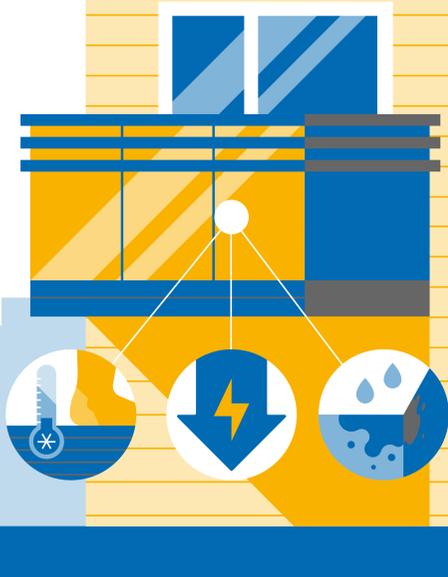


# Building Efficiency at the Balcony

Balconies enhance our views and extend buildings with a panoramic outdoor space. And while balconies provide aesthetic advantages, they often require extensive repairs and upkeep.

The most common problem with balconies is **thermal bridging** which causes **cold floors**, **energy loss**, and **condensation damage** with **potential mold growth**.



## What is a thermal bridge?

Thermal bridges are localized areas with higher thermal conductivity than their neighboring areas. Heat flow takes the easiest path.

The thermal bridging issue has a long history of damages relating to leaky balconies and building envelope failures.

## How we identify thermal bridges?

Using thermal imaging cameras, thermal bridges will appear as areas of higher temperature when viewed from the exterior of a building. This is shown in Figure 1 where higher temperatures (i.e. thermal bridges) around the door, window and balcony slab can be seen due to higher heat transfer through the building.

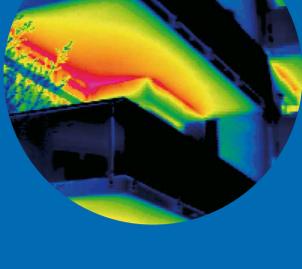
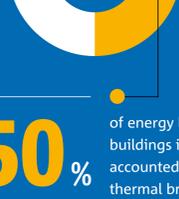


Figure 1



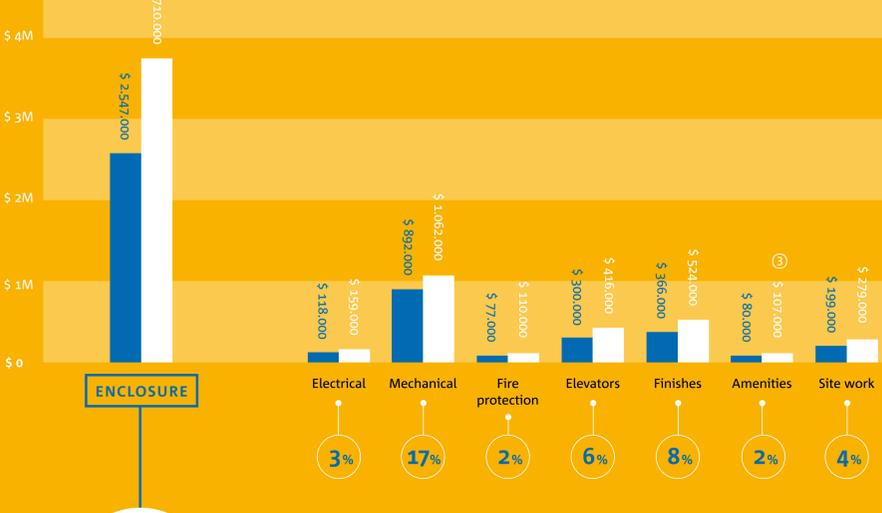
**50%** of energy loss in buildings is accounted to thermal bridges

①②

## Major Maintenance and renewal costs for buildings<sup>③</sup>

DISTRIBUTION OF THE 30-YEAR CAPITAL LOAD, BY SYSTEM, WITHIN A SINGLE BUILDING

● Current Value ● Future Value



**58%**

of all capital funding requirements is represented by enclosure system

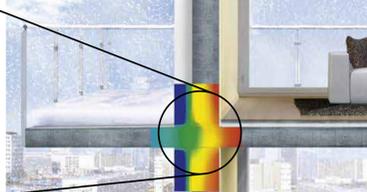
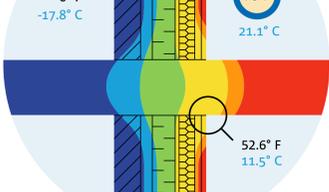
Major maintenance and renewal costs for buildings include **balcony membrane and sealants** in the first

**1-16** years

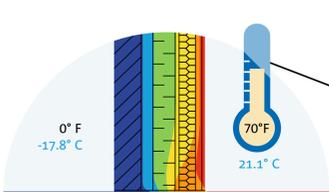
## Balconies as a feature versus issue

The solution to balcony construction issues is quite simple with innovative construction methods for balconies, which add a creative facet to durable design.

### WITHOUT THERMAL BREAK



### WITH THERMAL BREAK



## ENERGY LOSS IN THE BALCONY<sup>①</sup>



Thermal conductivity  $k_{eq}$  in W / (m · K)

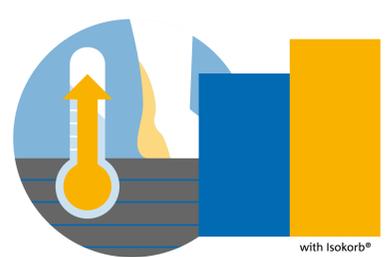
Compared to non-insulated connections, structural thermal break elements reduces energy loss in the balcony up to

**90%**



Placement of concrete structural thermal breaks at the balcony window.

## Surface Temperatures



Structural thermal breaks can increase surface temperatures by up to

**13°F / 7°C**



The risk of mold growth is reduced with structural thermal breaks.

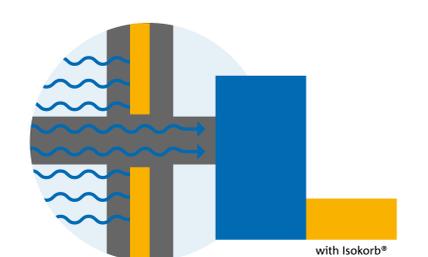
## Operating Costs



Structural thermal breaks reduce operating costs for heating with savings in energy costs of up to

**14%**

## Heat Flow



Compared to a conventional continuous balcony, structural thermal breaks cut heat flow through and around the slab by

**75%**

## Sustainable-luxury for the future

Providing energy efficient construction with Isokorb<sup>®</sup> structural thermal breaks demonstrates dedication to quality and comfort in your properties. It is time to future-proof your properties. It is time to code-proof your properties by preparing for upcoming code changes by preparing to stay one step ahead with Schöck Isokorb<sup>®</sup>.



Performance and Value Add from Schöck Isokorb<sup>®</sup>

Sources  
 ① Oxford Brookes University, Oxford Institute for Sustainable Development (OISD Technology), Report 060814SCH, Thermal Performance of Steel Beam JUNCTIONS Using Different Connection Methods  
 ② Morrison Hershfield Thermal Performance of Building Envelope Details for Mid- and High-Rise Buildings (1365-RP)  
 ③ RDH Research and Energy Group, ICBEST 2014 Enclosure Capital Load and System Cost Distributions  
 ④ Schöck Research Reports <http://www.schock-us.com/upload/documents/>