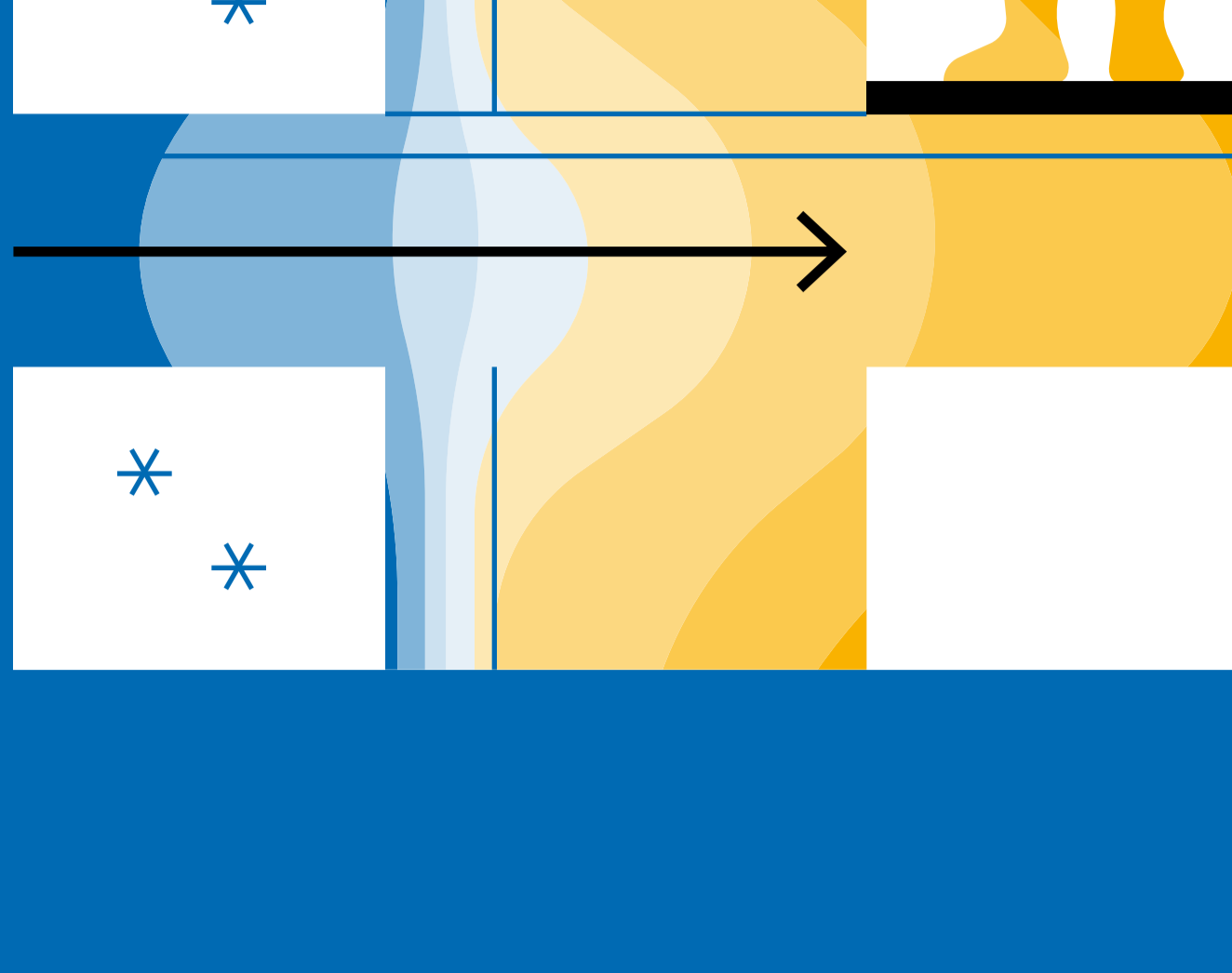
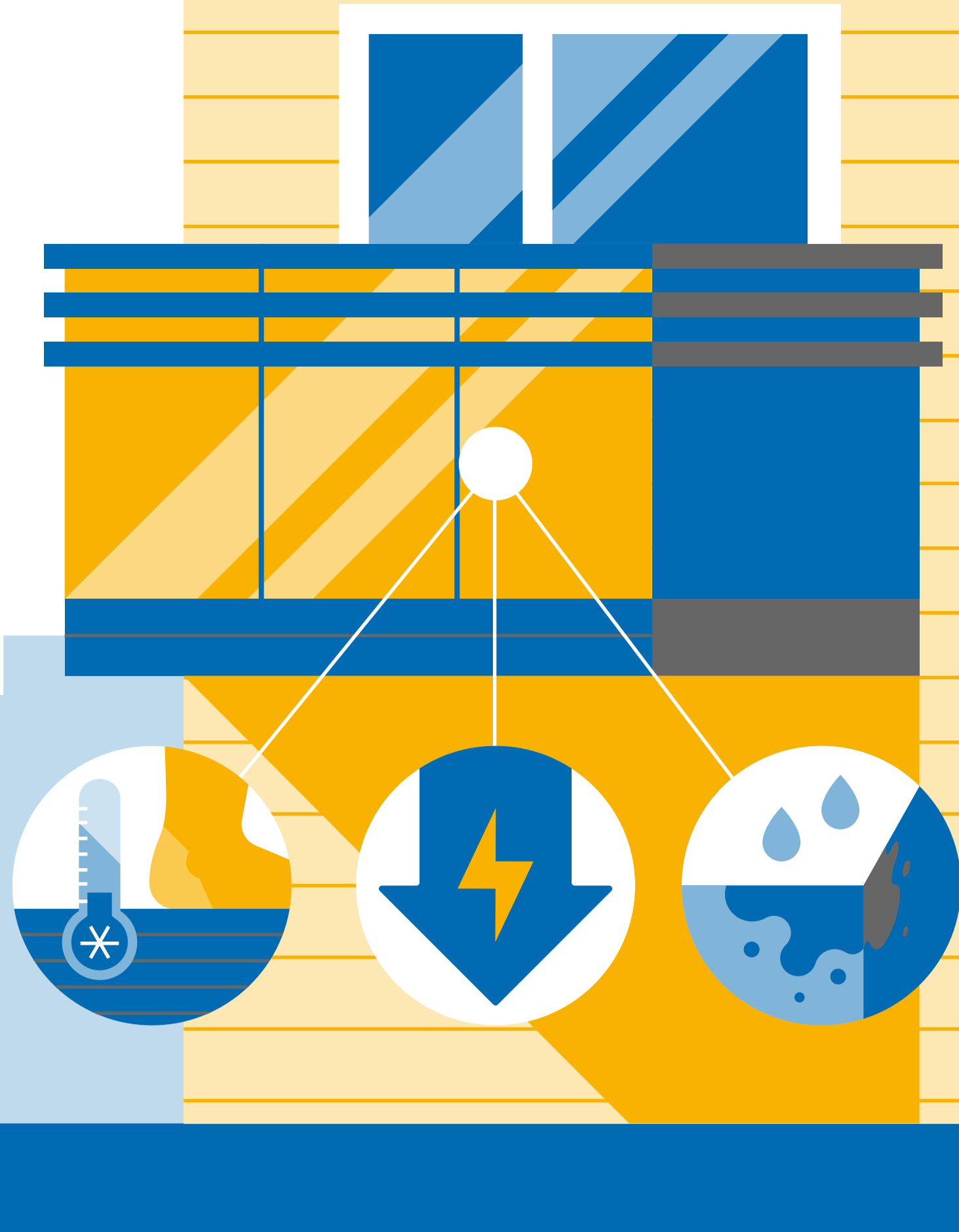


Building Efficiency at the Balcony

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.

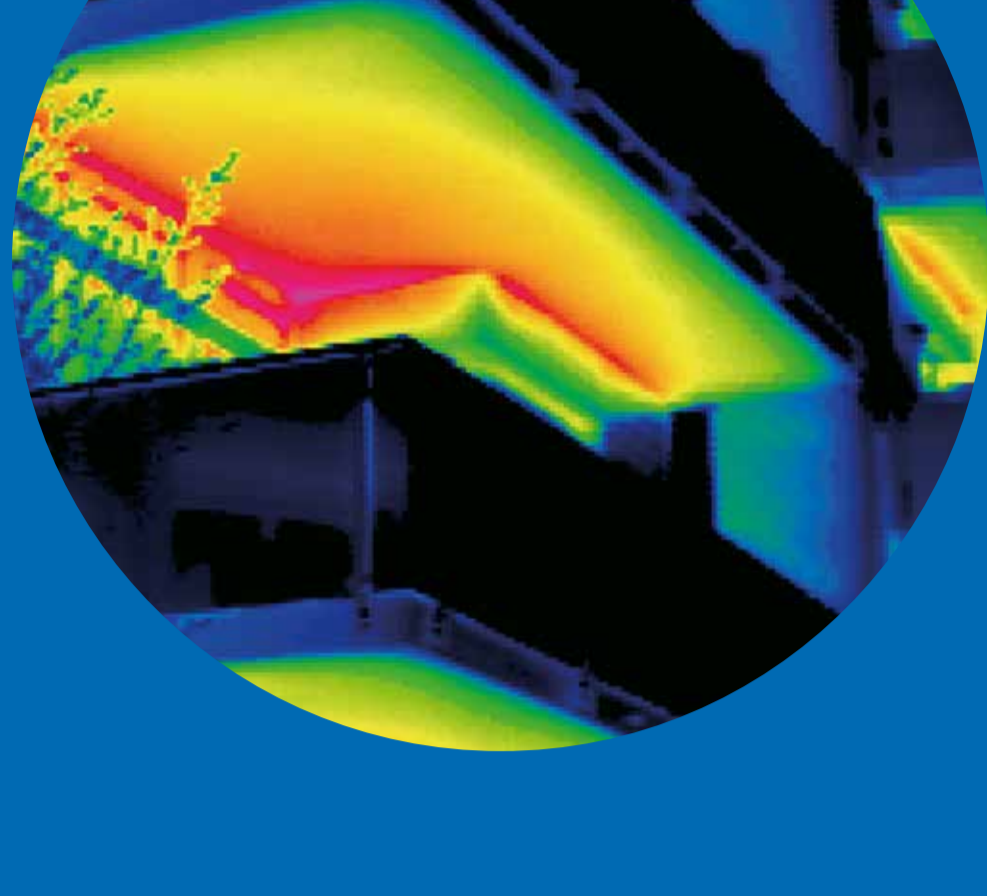
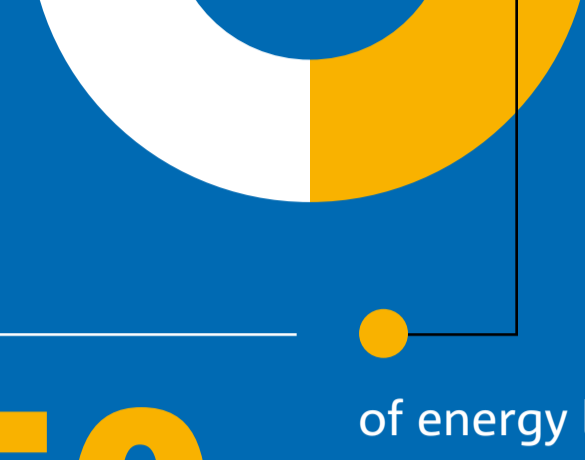


Figure 1



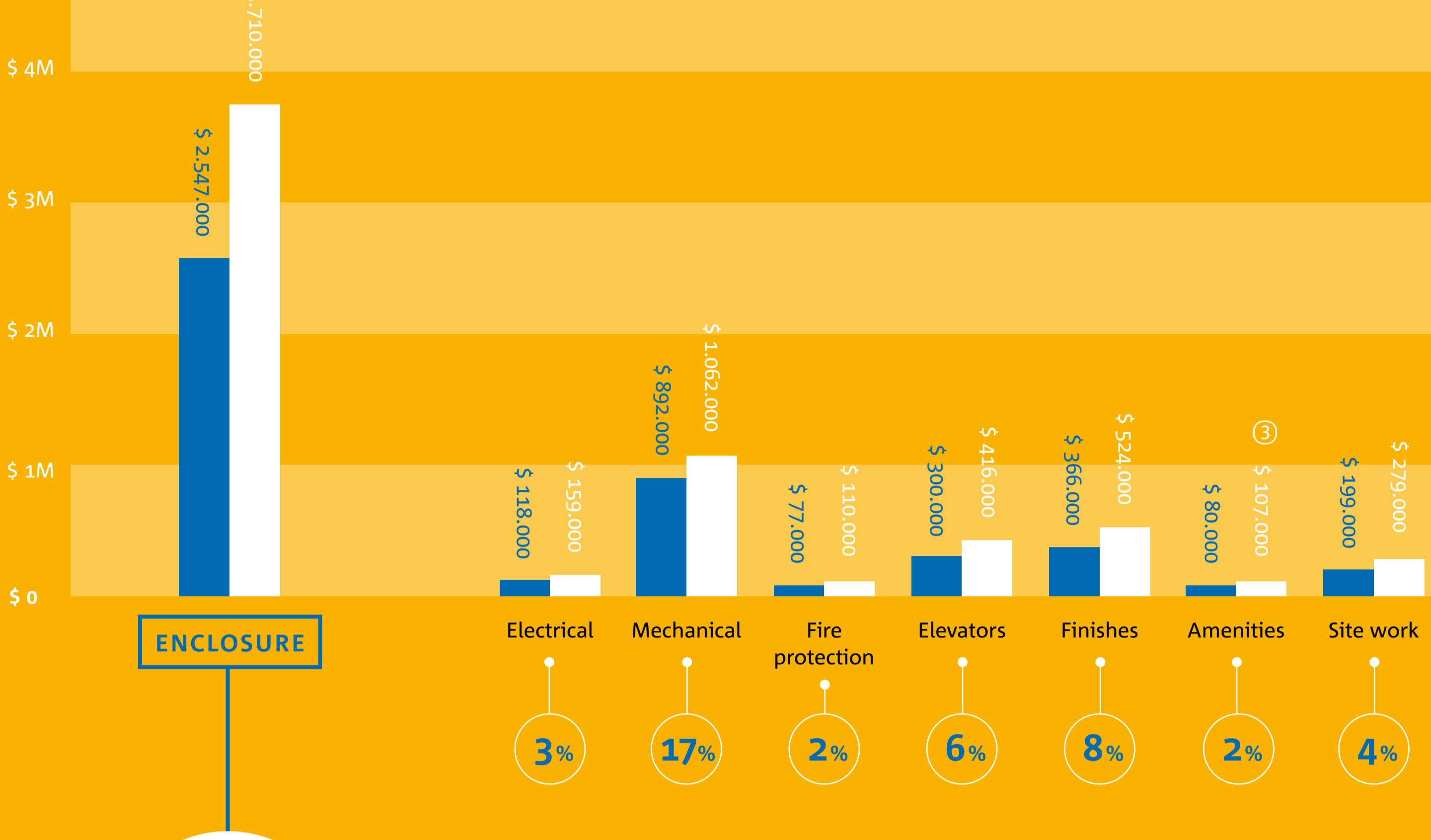
50% of energy loss in buildings is accounted to thermal bridges

①②

Major Maintenance and renewal costs for buildings^③

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

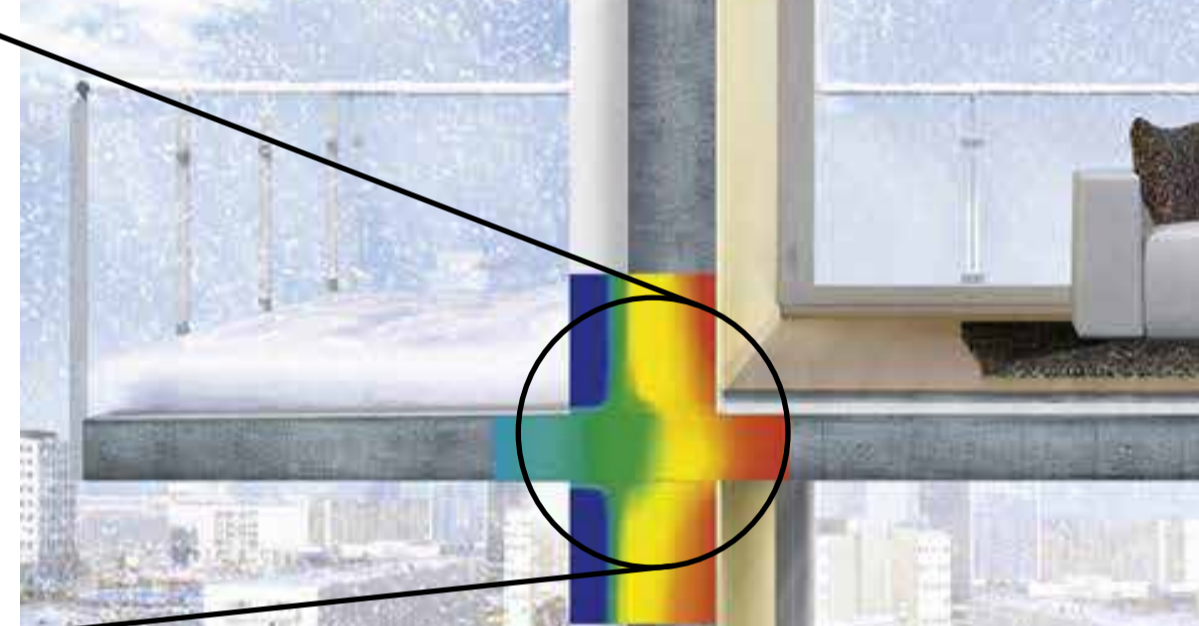
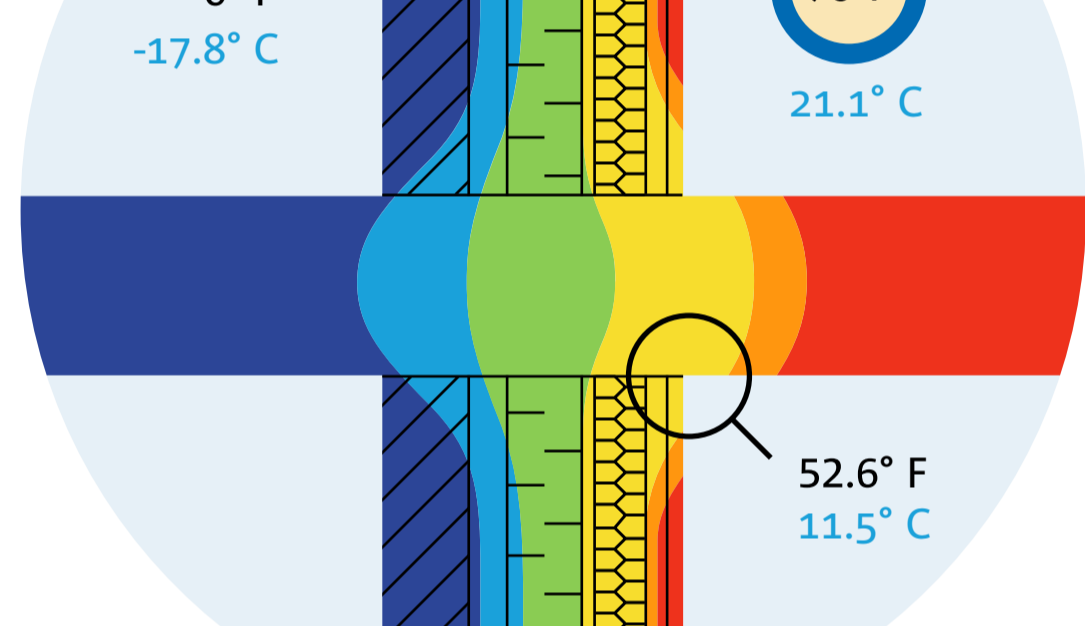
Major maintenance and renewal costs for buildings include **balcony membrane and sealants** in the first

1-16 years

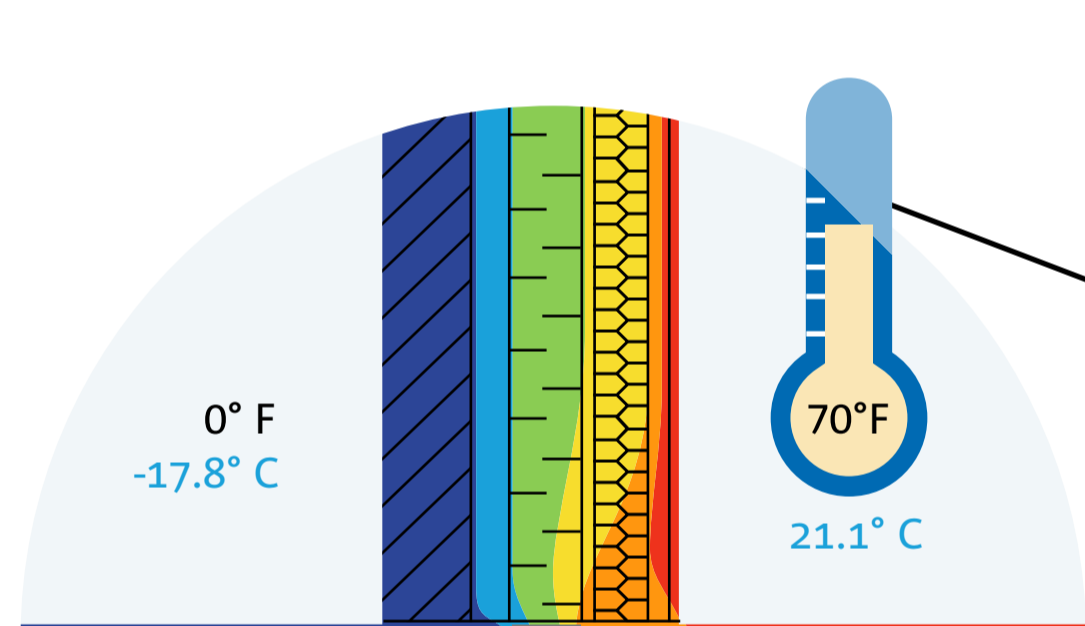
Balconies as a feature versus issue

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

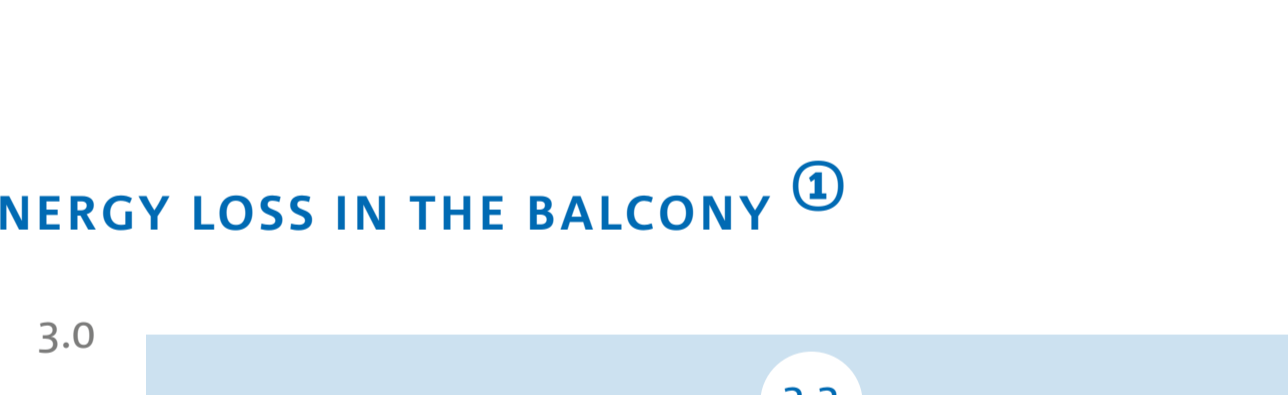
WITHOUT THERMAL BREAK



WITH THERMAL BREAK



ENERGY LOSS IN THE BALCONY^①



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

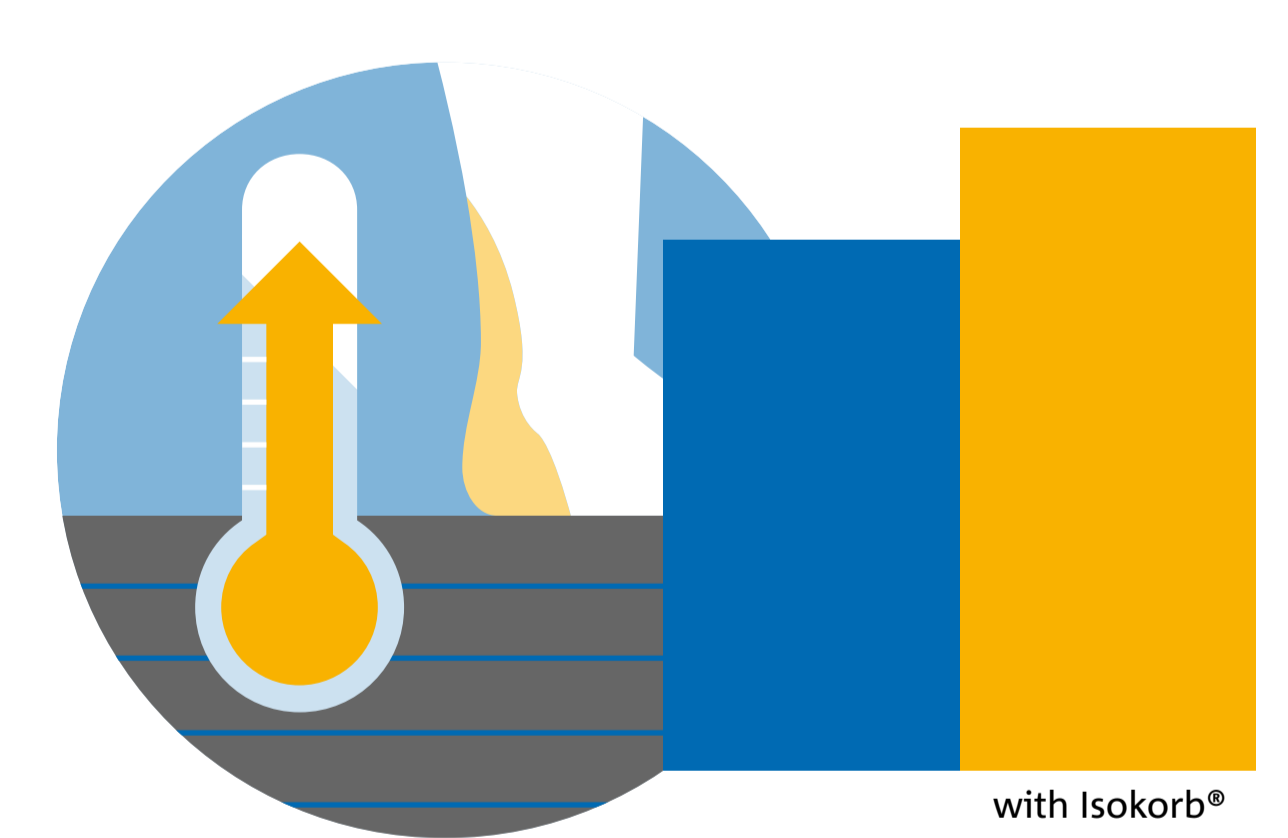
Compared to non-insulated connections, structural thermal break elements reduces energy loss in the balcony up to

90%



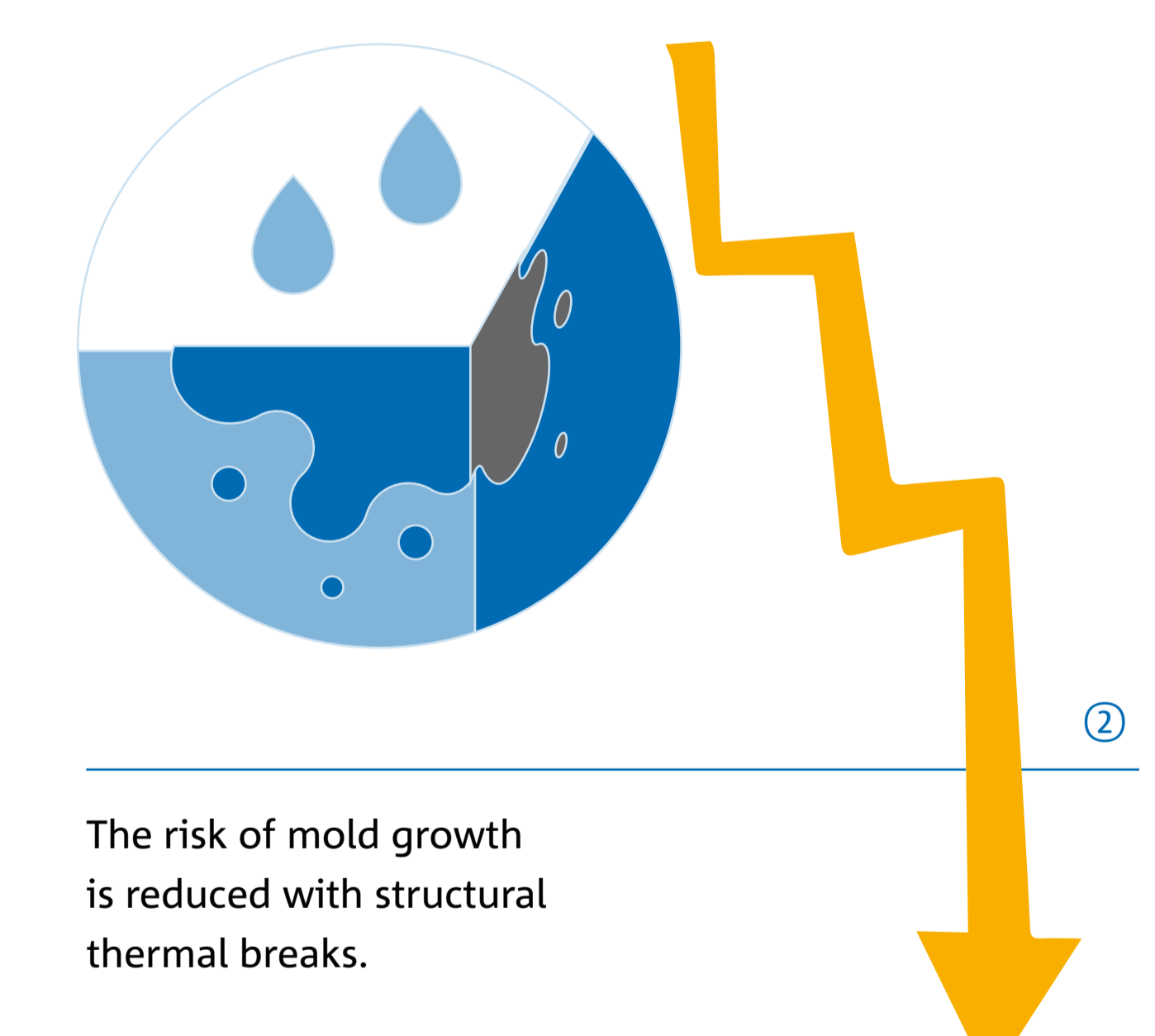
Placement of concrete structural thermal breaks at the balcony window.

Surface Temperatures



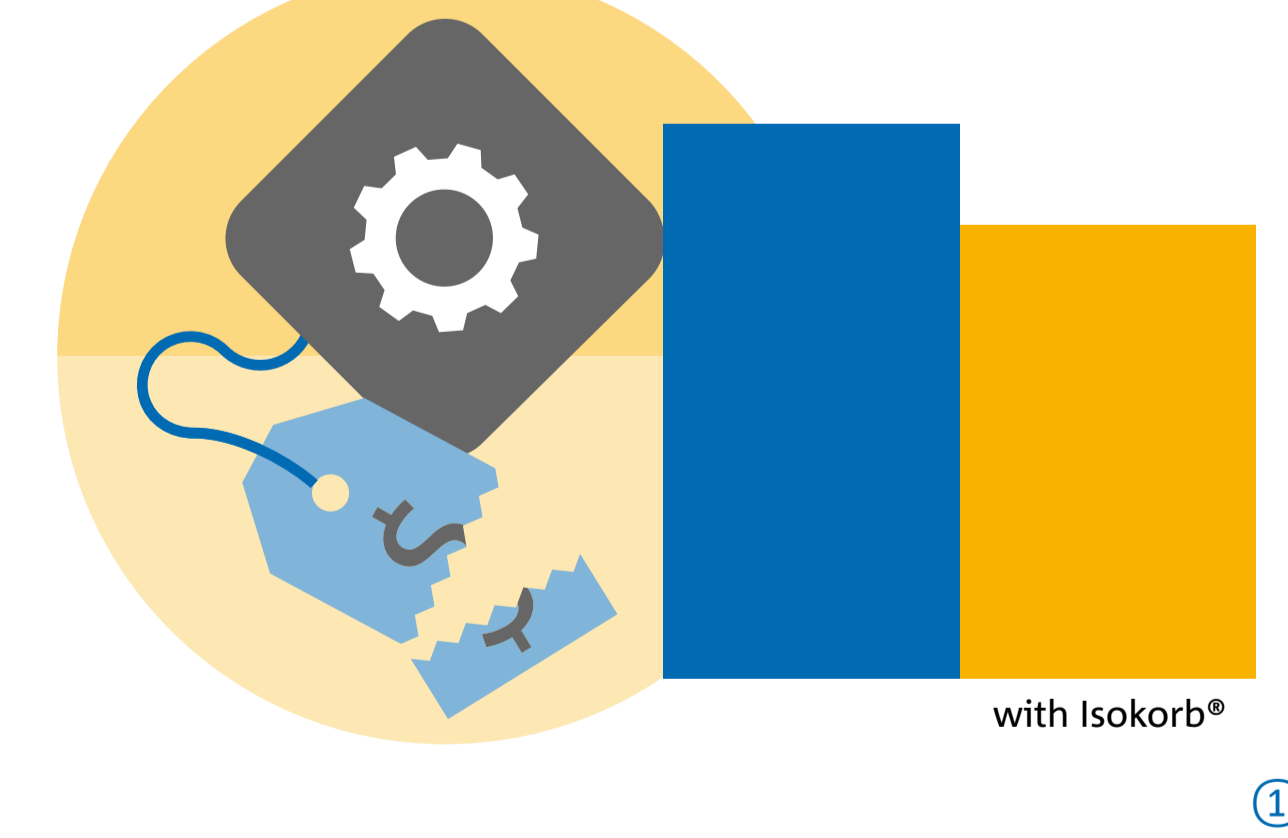
Structural thermal breaks can increase surface temperatures by up to

13°F / 7°C



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

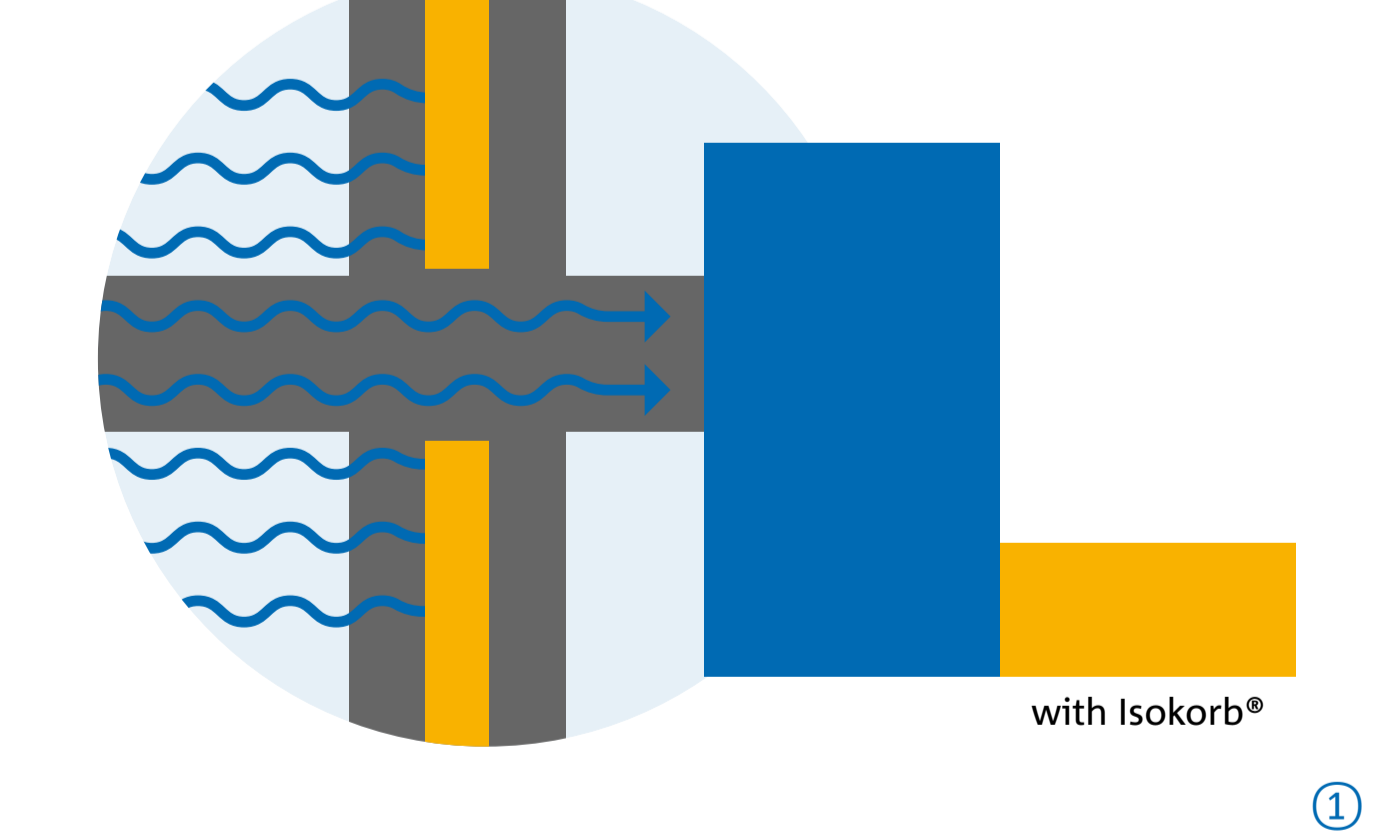
Operating Costs



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

14%

Heat Flow

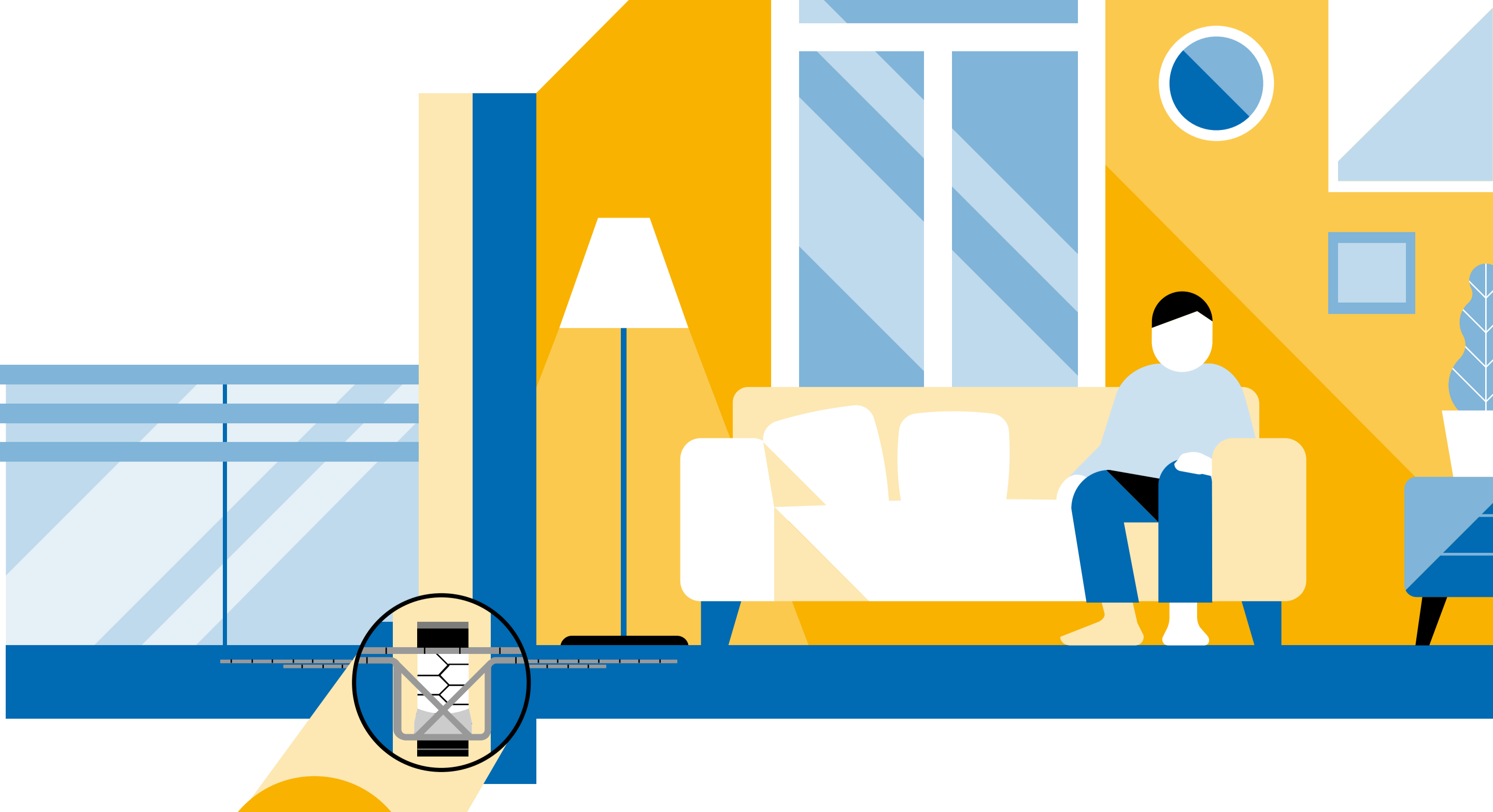


Compared to a conventional continuous balcony, structural thermal breaks cut heat flow through and around the slab by

75%

Sustainable-luxury for the future

Providing energy efficient construction with Isokorb® 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®.



Performance and Value Add from Schöck Isokorb®

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/>