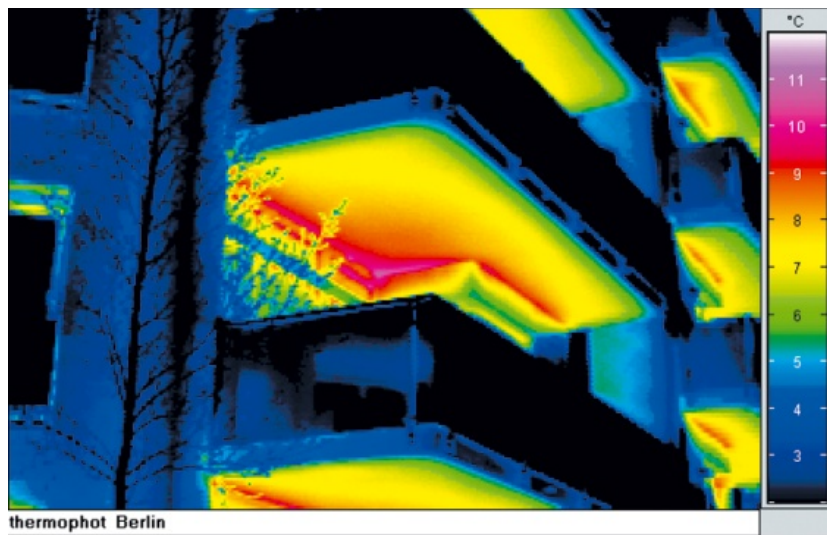
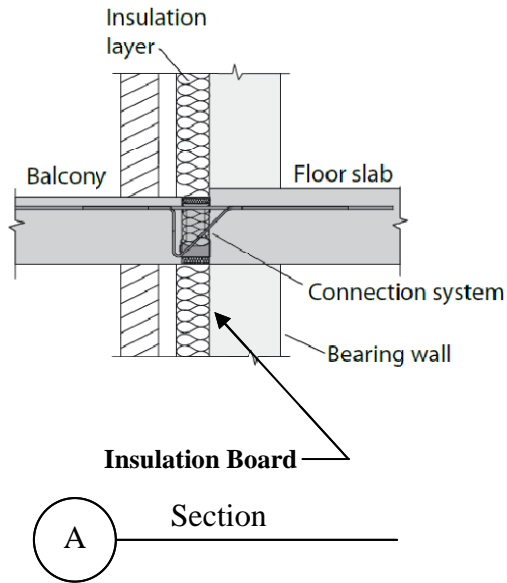


## **Thermal Bridging**

Concrete buildings are considered thermal mass because of their ability to absorb, store, and at a delayed time release the absorbed heat energy. The source of the energy is either exterior (sun) or interior (furnace, heater ...). Therefore, it is important to protect and prevent structures from losing this absorbed energy prematurely. Balconies, in concrete structures, are a venue for heat interior loss during cold winter times. To prevent the heat loss by the thermal bridging effect, insulation along the balcony connection to the buildings is provided. However, it is imperative that this discontinuity of concrete does not result in loss of structural integrity. Below find such a detail that has been used successfully in preventing heat loss at balconies.



**A thermographic image demonstrates the heat loss caused by the thermal bridge at a concrete balcony. While the temperature of the balcony is over 11°C (52°F) near the building, it drops to below 5°C (41°F) at the balcony edge. Thermal bridges not only waste energy, they can lead to local cold spots on walls and ceilings, and condensation and mold may result.**



**In Europe, connection systems such as the one shown here are commonly used to prevent these problems. While the bulk of the system comprises insulating material, stainless steel bars transfer flexural and shear forces. The system can reduce average thermal conductivity by around 90% relative to a conventional concrete balcony (*Images courtesy of Schöck Bauteile GmbH*).**