



TEMPERING
SURFACES

REFLECTING
HEAT

REGULATING
HUMIDITY

HEALTHY
LIVING

SAVING
ENERGY

PROTECTING
THE BUILDING
STRUCTURE

DRYING
WALLS

PLANNING
CORRECTLY

ALL-ROUND CAREFREE PACKAGE

for energy-efficient buildings

The Problem

To effectively solve problems in construction, the causes of high energy consumption and structural damage in the past 60 years must be considered. The construction techniques carried out when building apartments and buildings, by people outside the industry, have been detrimental to the community for decades. No author takes responsibility for the resulting billions in damages. Deliberate industry misinformation and incorrect heating methods associated with room air heating imply that comfort is only achieved with high ambient temperatures. Convective heat requires large investments in the building structure. Large-size cross sections should be created in the production of the exterior walls through insulation, by installing multi-pane glass windows, installing an airlock at the entrance door, creating ventilation to dehumidify the air, and other measures. The valuable heated air must not be lost. All this makes construction and renovation considerably more expensive. In addition, the health risk is increased due to building materials that contain or have contained toxic substances (asbestos, HBDC in polystyrene insulation, phenol in mineral insulation, cyanide in wood fiber insulation). Mold growth, contamination of ventilation systems and bacterial infestation of residential buildings are also often caused by highly insulated and airtight constructions, which no longer allow solar energy to enter the building. This results in allergies and other serious illnesses. The goal should be to prevent this.

The Solution

Today's planners must consider the building culture of the last 500 years. 2000 years ago the Romans already heated their homes with the hypocaust heating system. The air ducts ran through the floor to the exterior walls and therefore generated a better exchange of heat radiation within the living spaces through the interior surfaces of the heated room. Comfort is achieved already at low ambient air temperatures, which leads to considerable energy savings and does not form condensation on the inside of the outer walls. This is also achieved with innovative surface heating systems. Surface temperature control heaters are efficient (functional and economical) in ceilings and walls in water-based systems with low flow temperatures or coal-based electrical systems. They meet the requirements of innovative construction, comfort, energy saving and healthy living in equal measure. According to "Bedford and Liese", people feel comfortable in rooms with an ambient air temperature of 15 °C when the surrounding surface temperature of the room is 22 °C. Knowledge of human physiology supports claims about thermal comfort. To achieve this, only low flow temperatures are required, which is beneficial for the functioning of heat pumps. To further increase the efficiency of innovative panel heating systems, reflection levels are used that reflect and insulate heat. Here reflective foils are used, which have excellent reflection and insulation properties (λ 0.0198 W/mK). Moisture that occurs naturally in living spaces can be removed with simple measures. Special surface coatings ensure that the moisture absorbing surface is significantly enlarged. User-generated moisture can be removed more quickly and without significant energy input through that enlarged surface area. Moisture management on the enlarged surface leads to faster drying and thus a heatable wall. Only a dry wall can be heated. With increased surface temperatures of the ceiling and wall and the resulting improved heat radiation exchange, thermal comfort is rapidly achieved.

The Goal

A dry and warm wall

The Solution:

Tempering surfaces – Reflecting heat– Regulating Humidity