Climate coating - little effort, big effect

Heat loads in summer are increasing all the time. This not only poses major challenges for residential and office buildings, but also requires more and more countermeasures in industry. This example shows how this can be achieved in warehouses without technology and energy consumption.

More and more vehicles and appliances are being powered by rechargeable batteries in everyday working life. It is often a requirement that the batteries are stored separately from the device and completely outside the storage depots.

At the same time, there must be no risk of overheating in order to comply with fire safety regulations. For this reason, a large German logistics provider has set up storage containers for batteries at all its locations.

As it was not in the operator's interest to install an air conditioning system in each container just for battery storage, a different solution was sought.

The decision was made in favor of a *ClimateCoating* all-round climate control coating and it was assumed that small air conditioning units would only have to be used for peak loads. These were to be switched on and off automatically by a temperature logger when a critical limit value was reached.

A test field on a first container took place in hot June 2023 and after coating, the internal temperature was continuously logged and monitored.

The result was surprising and even more positive than expected. Even with a very high heat load, the peak temperature in the container remained several degrees below the defined limit value.

An air conditioning unit did not have to be switched on at any time. Based on this test, the containers were coated at all locations and the operator assumed that no additional air conditioning would be used.

Would you also like to easily solve heat problems in your building? As an independent specialist in energy-neutral climate control materials, we will be happy to advise you and find a tailor-made solution for you.

Focus: Heat

COOLANTS GERMANY

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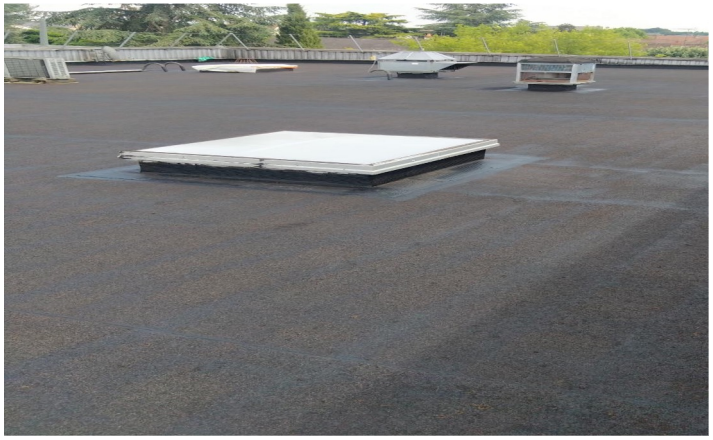
Climate coating - little effort, big effect

The heat loads in summer are increasing all the time. Large low-rise buildings in particular, which stand without shading all day, heat up quickly as a result. This is an increasing problem, especially with heat-sensitive goods and a lot of public traffic, including in all supermarkets that are not built around or over. However, one French supermarket owner did not want to install air conditioning and found a different solution.



Supermarkets are often under great competitive pressure. In addition to product range and price, the shopping experience also plays a major role. It is unacceptable for the market space to be overheated, either in terms of product quality or the customer's sense of well-being.

At the same time, you have to be very cost-sensitive in order to remain competitive - installing and operating an air conditioning system is therefore a double-edged sword.

A supermarket owner in France was therefore looking for a different solution and opted for a *ClimateCoating* climate control coating. Due to the fact that he owned two similar supermarkets in terms of location and heat load, it was decided to combine the coating with a comparative measurement and only coat one of the stores.

The measurement was carried out on the outside of the roof and in the interior. It was also important to find out whether the coating reduces the heat input in summer, but also increases heating costs in winter, as this would not be effective in terms of the overall energy balance. For this reason, the heating costs were also compared in winter 2023/24.

The result was very clear, not only in summer as expected, but also during the heating period.

At outside temperatures of 33°C, the uncoated roof temperature rose to 72°C and the coated roof temperature to 44°C. In the interior, this effect caused a difference of 7°C.

In the uncoated store, the thermometer showed a peak of over 30°C, in the coated store only a good 23°C, i.e. a pleasant 10°C cooler than the outside temperature. In winter, on the other hand, the coating did not increase heating requirements - quite the opposite.

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Climate coating - little effort, big effect

In southern Europe, people have been dealing with the issue of heat protection for much longer than here in Germany. The usual measure against heat is air conditioning, but the architect and builder of a picturesque villa with guest apartments directly on the Portuguese Algarve did not want this under any circumstances. He opted for a completely new and sustainable solution at the time, which was implemented around 2005.

Focus: Heat

Dutch architect Jan Krielaars fought for a long time to obtain planning permission for his highly individual and picturesque villa Quinta Zacarias in the Algarve. It was finally allowed to be built at the end of the 1990s.

His dream was to furnish the apartments in a variety of international styles and to create an open, natural overall impression with a high feel-good factor throughout the building. The ingeniously designed house includes an oriental and an African apartment, an ocean apartment and an original small farmhouse.

The architect found the solution for heat protection in Germany in the form of *ClimateCoating* from SICC Coatings. It works purely physically and, thanks to its very strong reflective performance, protects the facade from overheating even in midsummer, which significantly reduces the heat load in the house.

The partially rather dark colors used on the house reflect at least 50% of the sunlight, the white version 85%.

The house is still lived in and rented out without air conditioning, despite the typically high summer temperatures in the region. In internet reviews, guests mentioned things such as a lack of TV and poor Wi-Fi, but never a lack of air conditioning.

The paint is now around 19 years old and, due to the geographical location, is exposed to strong sun, a lot of wind, salt and sand. This does not detract from the appearance, the facades are still in very good condition.

Would you also like to significantly reduce the heat load in the building? And facades with such long service lives? Or do you have a problem with excessive heating costs that you simply want to solve? Here too, *ClimateCoating* is a reasonable approach.

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COOLANTS GERMANY

Reflective surfaces - little effort, big effect

Saving energy is not only an issue in winter, but increasingly also in summer. In many places, air conditioning systems are being installed due to increasing heat loads - an unfortunate development in terms of CO_2 and energy consumption. A 1970s bungalow in Berlin shows that there is another way.

The main aim of energy-efficient renovation is to keep heat inside the house and thus save heating energy. Heat load from outside is also slowed down when it penetrates, but once the heat is inside, it can no longer get out of a well-insulated house and the so-called heat trap snaps shut.

This was also the case with this 1970s bungalow after the energy-efficient refurbishment in 2008. It became very warm in the summer - and stayed that way.

The owners did not want to install air conditioning and were looking for sustainable solutions. They focused on the two main entry points for heat: the dark bitumen roof and the large windows facing east and south.

A so-called Cool Roof coating was applied to the roof, which prevents the roof surface from heating up and thus unwanted ceiling heating due to its high reflective and emissive properties.

For visual reasons and because the windows and facade had already been renovated, no external sun protection was desired for the windows.

Highly reflective internal roller blinds were used here, which also provide significant heat protection on the inside of the window - even though they still allow light to pass through, meaning that no artificial light is required even when the sun is shading the room completely. This ensures a pleasant feeling of sunshine inside while keeping the heat outside.

The result was not only palpable, but was also proven by continuous measurement: Throughout the entire period from mid-May to the end of August 2022, the room temperature was almost always between 21 and 25°C - despite outside temperatures of up to 37°C.

Would you also like to easily solve heat problems in your building? As an independent specialist in energy-neutral climate control materials, we will be happy to advise you and find a tailor-made solution for you.

Focus: Heat

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Reflective surfaces - little effort, big effect

Windows are a major gateway for summer heat. It is generally emphasized that real heat protection is only effective from the outside, as internal sun protection provides shade but does not offer any substantial reduction in heat radiation. A comparative test in an old apartment in Potsdam shows that this is not true when the right material is chosen.

The tenants of the listed, spacious old apartment in Potsdam had a serious problem: the large window fronts and all-day exposure to the sun made it unpleasantly hot in summer.

Particularly in the two corner rooms in front, the indoor temperatures in summer could easily reach 40°C, despite the thick white curtains that the landlord had installed.

As one of the rooms houses the kitchen and it was therefore impossible to reduce its use in hot weather, the tenants decided to have the blinds replaced with highly reflective special fabric.

The material with a solar reflection of 85% still allows a basic level of visible light through, so that a pleasant lighting atmosphere prevails inside even in bright sunshine - a point that was important to the tenants in order to avoid the need for artificial light during the day in midsummer.

The temperature difference in the two corner rooms was measured comparatively during a heat period and the extent of the temperature difference surprised everyone involved:

Up to 10°C lower values for the daily maximum were measured in the room with the special curtain, even though additional heat was generated in the room due to the cooling chimney and cooking activities.

Based on the measurement, the tenants decided to also equip the large box-type windows facing west, which expose the living room to direct sunlight until sunset, with this heat protection.

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Focus: Heat

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Climate coating - little effort, big effect

The expected output of solar modules is calculated with a panel temperature of 25°C. If the temperature of the solar panels rises, their performance is reduced. The resulting reduction in energy yield is often underestimated. This effect can be minimized by applying a cooling coating under the modules.

For many modules, the energy yield decreases by 0.35% for every degree Celsius increase in temperature. That doesn't sound like much at first, but with a temperature difference of 10°C, that is already 3.5% less energy generated.

In midsummer, module temperatures on conventional roofs rise far higher than 10°C above the 25°C standard temperature. 60-70°C are not uncommon, resulting in losses of over 15%.

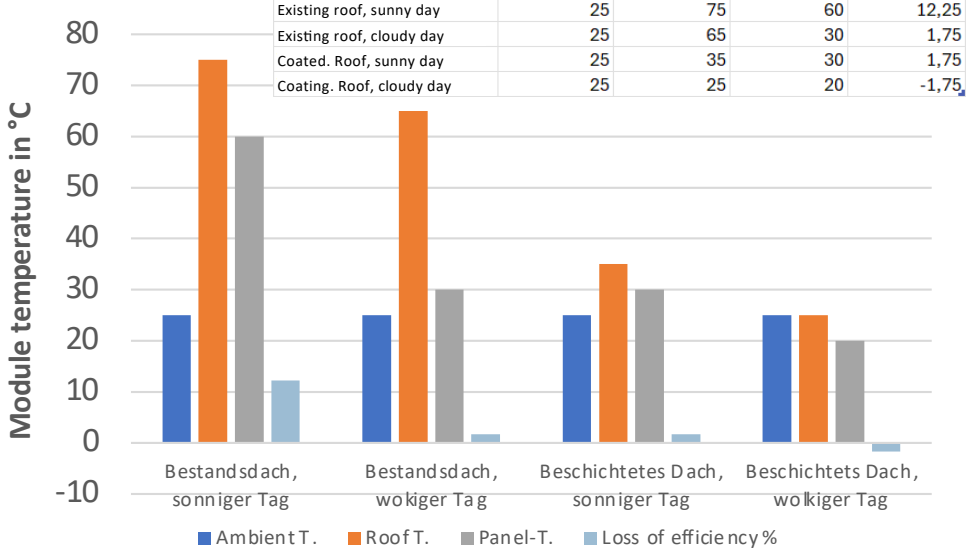
In the Netherlands, a comparative measurement was carried out on a gravel roof in order to be able to classify the negative effects on typical summer days. The graph below shows the results for two different weather situations with and without *Climate Coating* at an outside temperature of 25°C.

Another important finding came from a winter measurement over the first quarter of 2024:

Lower temperatures do not have a negative effect on module performance; the yield was identical on both substrates.

Would you also like to easily solve heat problems in and around your building? As an independent specialist in energy-neutral climate control materials, we will be happy to advise you and find a tailor-made solution for you.

	Ambient T. °C	Roof T. °C	Panel T. °C	Efficiency loss %
Existing roof, sunny day	25	75	60	12,25
Existing roof, cloudy day	25	65	30	1,75
Coated. Roof, sunny day	25	35	30	1,75
Coating. Roof, cloudy day	25	25	20	-1,75



Focus: Energy yield

COOLANTS GERMANY

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Climate coating - little effort, big effect

Saving heating energy is the order of the day - so clear, so complicated. What to do when an energy-efficient facade renovation is not a viable solution? The housing cooperative WGP Perleberg eG has shown how great things can be achieved with little effort.

Focus: Cold and algae

Not all owners are able to carry out extensive energy-efficient refurbishment of their facades - economic aspects, lack of financial strength or restrictions such as monument protection are possible obstacles. On the other hand, there is great pressure to reduce energy consumption. At the same time, the costs of simple maintenance continue to rise and tradesmen are rare. So what can be done?

The housing association WGP Perleberg eG was already concerned with the issue of sustainability at the turn of the millennium - high heating energy consumption in old and prefabricated buildings, constant trouble with algae infestation and far too short renovation intervals were driving the company.

The solution was *ClimateCoating* from SICC Coatings, which, thanks to its special physical properties, keeps the facade looking good in the long term and reduces heating requirements at the same time. After successful testing, all 30 existing buildings were coated by 2009 and the energy consumption was scientifically evaluated over several years.

The results are impressive:

18-21% heating energy was saved annually, the algae problem has been solved to date and the master painter carrying out the work said on site in 2022 that he didn't see the need to replace the facade for another “about 15 years" - that would be a service life of 30-35 years. The photo from June 2023 supports this assessment - a flawless facade that doesn't look its age.

Would you also like facades with such a long service life to look their best? And save significant heating energy at the same time? Or do you have heat problems in the building that you simply want to solve? Here too, *ClimateCoating* is a reasonable approach and highly efficient solution.

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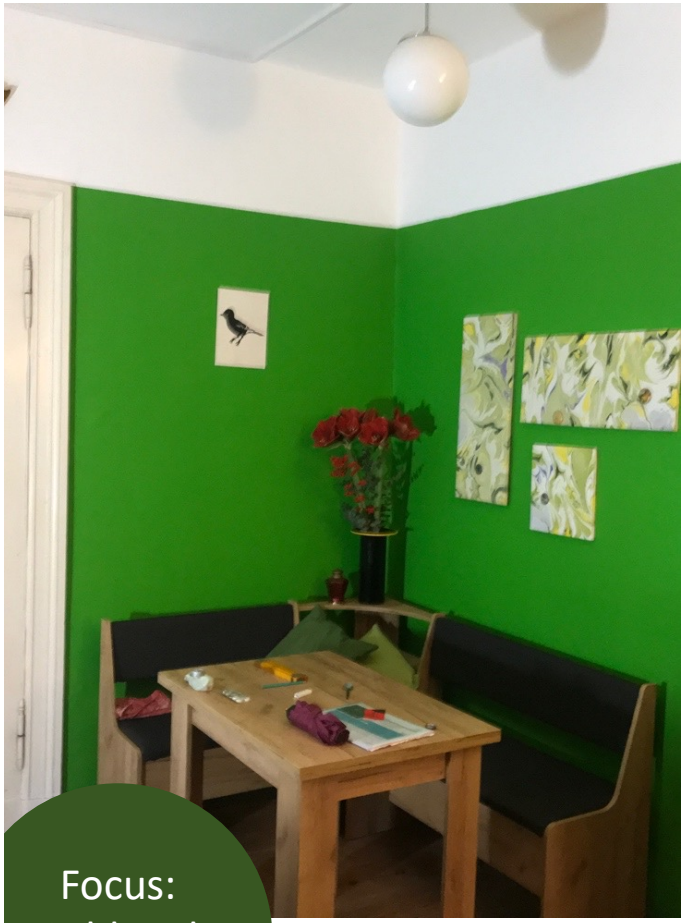
COOLANTS GERMANY

Climate coating - little effort, big effect

We all want to save heating energy, but many people do not have access to the building envelope and heating technology. So what can you do if you are renting, for example? The tenant of an unrenovated old apartment in Berlin has shown how you can also do a lot from the inside.



Focus: Cold and heat

According to federal state statistics, Germany is the number one tenant country in the EU: almost exactly half of the population here lives in rented accommodation.

So what should this half do in view of the climate crisis, high heating costs and now also high heat loads in summer? All the usual recommendations such as window replacement, new heating, facade insulation, greening or external sun protection are not feasible.

In the winter of 2022/23, for example, many people simply turned down the heating and massively reduced ventilation - with the result that the level of comfort at home fell rapidly and often even led to mold infestation.

An unrenovated apartment in an old Berlin building is a good example of how things can be done differently. The kitchen-living room there had an extremely unfavorable indoor climate at all times of the year: in winter it was unpleasantly cold despite two pairs of socks thanks to the adjacent fire protection wall, stairwell and roof terrace above, while in summer it was far too warm.

To solve the problem, the room was painted in September 2022 with *ClimateCoating* from SICC Coatings in Berlin.

The result was convincing: all-round comfort instead of shivering, warm feet even without double socks and the heating reduced from 21-22°C to 18.5°C throughout the winter. The result is impressive: A comparison with the previous year shows a reduction in gas consumption of over 25%.

In summer, the kitchen-living room suddenly became the coolest room in the apartment. Home office days were no longer necessarily spent in the bedroom, but in the optimal climate of the kitchen-living room.

Would you also like to improve the indoor climate and significantly save heating energy at the same time? Or do you have heat problems in the building that you simply want to solve? Or both?

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Climate coating - little effort, big effect

The historic apartment building at Artur-Becker-Ring 58/60 in Spremberg was built in 1927 and has 12 residential units. In 1999, a complete refurbishment was due, during which the interior and exterior facade were treated. The aim was to improve energy efficiency and protect the facade permanently against algae and moss.

Focus: Cold and algae

The owner of the property is a painter himself and a recognized building protection expert. At the time, he deliberately decided against additional insulation and instead opted for a climatic coating from SICC Coatings both inside and out.

The reasoning behind this was as follows: The 49cm-thick stone walls already provided the required insulation performance and, in combination with the coating, the facade would remain open to diffusion. The coating would ensure optimum moisture management on and in the wall to protect structural health and reduce heating costs due to permanent wall and plaster dryness. The coating would also protect the facade from algae and moss in the long term, despite its location under trees.

After implementation, the building was monitored for seven years by a team from FHTW Berlin and FH-Lausitz in Cottbus and the heating energy consumption was analyzed in detail. This included not only heating costs, but also weather data and building plans.

The evaluation revealed a clear picture: energy consumption was 28% below the legal requirements at that time. For the residents, this has resulted in very low heating costs with a maximum feel-good climate to this day.

And the aesthetic quality of the facade remains virtually unchanged after a quarter of a century. Pictures from April 2024 impressively demonstrate that the facade still looks as good as new - and the expert owner expects it to do so for another 20-25 years.

Would you also like facades with such a long service life and the best appearance? And save a significant amount of heating energy at the same time? Or do you have heat problems in the building that you simply want to solve? Here too, *ClimateCoating* is a reasonable approach and highly efficient solution.

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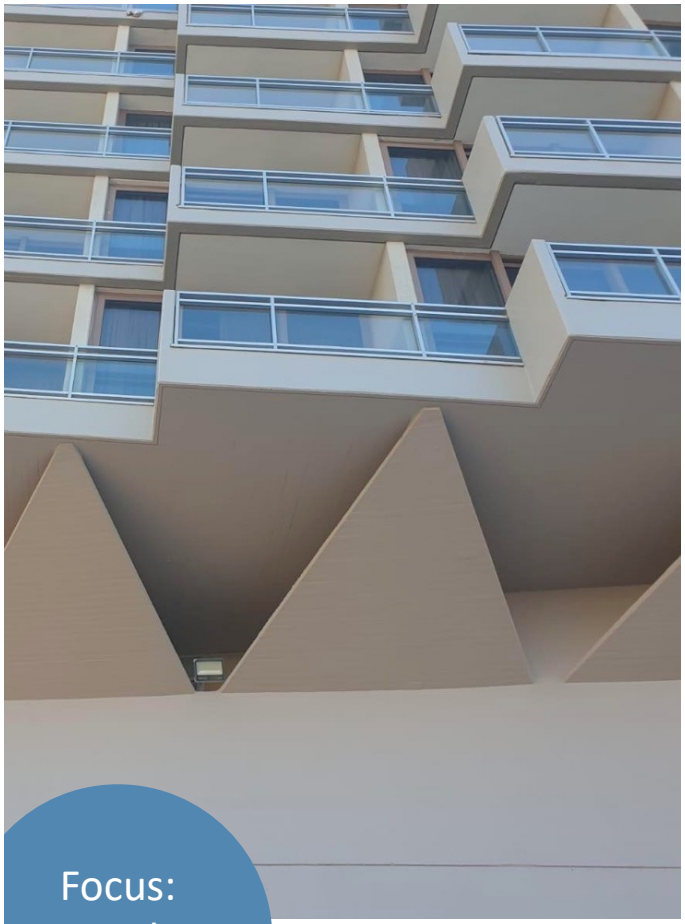
COOLANTS GERMANY

Climate coating - little effort, big effect

Many hotels and vacation homes around the world are located directly by the sea and are exposed to extreme levels of sunlight, wind, moisture and salt. This results in short lifetimes and color fastness of plaster and paint, frequent repair costs and visual impairments due to patchwork and color differences on the facade.



Focus: Facade protection

The management of the Hilton Hotel on Tel Aviv beach also struggled with these problems. The huge concrete block from the 1960s, unprotected on all sides, was constantly showing minor and major damage to the facade caused by moisture and salt.

Repairs had to be carried out approximately every six months, which was not only an unsustainable situation in terms of maintenance costs and loss of use, but also because of the resulting lack of high-class visual impact on guests.

In 2021, it was decided to refurbish the entire facade with *ClimateCoating* from SICC Coatings with the aim of ensuring the quality of the facade in the long term. Reducing the heat load in the building was seen as a welcome side effect.

In addition, all metal shafts of the air conditioning system on the roof were coated to ensure the system's performance in summer.

The result is impressive in the truest sense of the word. Not a single repair has had to be carried out on the facade since the coating was applied. After three years, the visual impression of the building is still top notch and the management is highly satisfied.

Painting the air conditioning shafts has also paid off: the entire cooling system remains significantly cooler and therefore more efficient during the summer months.

Would you also like to protect your facade from such stresses? And also significantly reduce the heat load in the building? Or do you have a problem with excessive heating costs that you simply want to solve? Here too, *ClimateCoating* is a sensible approach.

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COOLANTS GERMANY

Climate coating - little effort, big effect

Poor thermal insulation and cold, damp walls are the ideal breeding ground for mold. It is often assumed that incorrect user behavior is the cause of mould, but this is only half the truth. Thermal bridges and particularly cold north walls cannot be "ventilated away".

The tenants in the top apartment of this post-war building had a major problem:

Massive mold was forming in two rooms on the cold north wall - firstly in the particularly cold area above the skirting boards, and secondly at the transition to the thin roof and directly on the ceiling.

Both rooms were bedrooms, so a solution was urgently needed.

To solve the problem permanently and in a healthy way, the tenants resorted to self-help in December 2023.

After the mold had been professionally removed, the affected rooms were completely painted with mold paint from the *ClimateCoating* series by SICC Coatings.

The water-based emulsion paint is free from fungicides and, like all *ClimateCoating* products, works exclusively physically thanks to its special additives.

The following happens due to reflection effects and the ability to manage moisture:

- The surfaces remain significantly warmer so no dew point develops
- Spores find neither a foothold nor food on the special surface of the paint
- Moisture is extracted from the wall and air and evaporates slowly

The tenants did not change the position of the furniture or their living or ventilation habits after painting. Despite this, no new mold has developed to date.

Would you also like to easily solve moisture and mold problems in your building? As an independent specialist in energy-neutral climate control materials, we will be happy to advise you and find a tailor-made solution for you.

Focus: Mold + moisture

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Climate coating - little effort, big effect

Heat protection in buildings is becoming increasingly important, even in our part of the world, and technical air conditioning is often not the best and certainly not the most sustainable solution, especially in existing buildings. A Berlin hospital shows how it is possible to keep the heat out and optimize humidity without technology and with little structural effort.

In this 1960s building with full southern exposure, there have been complaints about excessive heat every summer for years.

From the second floor upwards, the trees no longer provide protection from the sun and the ward there was regularly far too hot in summer.

This was equally problematic for the people working there and the patients and therefore a problem that urgently needed to be solved.

For this reason, the technical management decided to have the entire interior of the ward painted with *ClimateCoating*. As the ward was due to be relocated in-house, the empty rooms and corridors could be painted in one go.

The water-based emulsion paint is solvent-free and classified as particularly low-emission with the highest level of the Green Guard label. This meant that nothing stood in the way of its use in patient rooms.

The paint is not only visually appealing and can be mixed in a variety of colors, but also acts as a physical thermal barrier and moisture management layer.

The following happens due to reflection effects and the ability to absorb moisture:

- Incoming heat remains in the wall and ceiling, the heat gradient is slowed down
- High humidity is absorbed and evaporative cooling occurs when it is released

The effect was clear and was confirmed many times by the staff: Not too hot and a much more pleasant room climate. And patients did not have a single complaint about the heat throughout the summer of 2025.

Would you also like to solve heat or humidity problems in your building? As an independent specialist in energy-neutral climate control materials, we will be happy to advise you and find a tailor-made solution for you.

Focus: Heat and humidity

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