



Aerial view of the Meyrin-Satigny-Vernier industrial zone (ZIMEYSAVER) | 2022: thousands of square metres of dark flat roofs, exposed to full sun, absorbing heat instead of reflecting it. ©FTI – Olivier Riethauser

The Asset You Look at Every Day Without Seeing It: Your Roof — Your Flat Bituminous Roof

Data centres, warehouses, production sites: your largest surface is asleep in the sun.

Switzerland's industrial fabric rests on thousands of square metres of flat bituminous roofing. Today, each one is a thermal cost centre — and could become a performance centre.

The new season is approaching, the holidays are ending, and with them the summer interlude that has — once again — put industrial buildings to the test. It is the right moment to talk about an asset that most industrial operators own in abundance, look at every day, and almost never exploit: their roof.

The Swiss industrial building has one dominant architectural signature: the **flat roof**, most often in **dark bituminous membrane**. Logistics warehouses, production halls, data centres, distribution hubs — tens of thousands of square metres, flat, in full sun, from spring to autumn.

This surface has one particularity: thermally, it is the building's weakest link. And that is precisely what makes it the largest reservoir of savings.

The Physics of a Dark Bituminous Roof

A black bituminous membrane has a very low albedo — around 0.05 to 0.15. In other words, it absorbs 85 to 95% of the solar radiation it receives.

The result is spectacular: on a summer's day, a dark bituminous roof commonly reaches **70 to 85 °C at the surface**. This heat does not stay outside. It passes through the insulation, transfers to the structure, and radiates inward for hours — including after sunset, preventing any night-time cooling.

For an industrial building, this heat has three direct — and costly — consequences.



On a summer's day, a dark bituminous membrane reaches 70 to 85 °C at the surface. A thermal image instantly reveals this accumulated heat, invisible to the naked eye. (AI-generated image)

Three Sectors, One Shared Problem — but Different Stakes

Data centres: heat is enemy number one. A data centre fights constantly against its own heat, to which is added the heat entering through the roof. Air conditioning and cooling account for a major share of its electricity consumption — the well-known PUE (Power Usage Effectiveness). Every degree gained on the envelope's thermal load is cooling energy saved, 24/7, all year round. On a line item where electricity runs into hundreds of thousands of francs, the effect is far from marginal.

Logistics platforms: comfort, storage conditions and the sheer scale of surfaces. A warehouse means thousands of square metres of roof and, often, temperature-sensitive goods. Not to mention the forklift operators and staff working beneath that roof — a working-conditions issue under growing scrutiny. The very scale of logistics surfaces means that the slightest gain per square metre multiplies considerably.

Production plants: processes, machinery and productivity. In a production hall, overheating degrades working conditions, disrupts certain temperature-sensitive processes, and drives up the consumption of cooling systems. For precision-manufacturing activities — numerous in the Swiss and Jura industrial fabric — controlling thermal variations is even a direct quality factor.



Data centres, logistics platforms, production halls: three worlds, one shared thermal vulnerability through the roof — but distinct stakes, from continuous cooling to the protection of goods and processes. (AI-generated image)

Reflect Before Cooling: the First Step

A thermo-reflective coating applied to a bituminous roof radically reverses its behaviour. Where the dark membrane absorbed up to 95% of the radiation, the treated surface **reflects up to 91%**.

The effects measured on this type of intervention:

- **Up to 50%** reduction in roof surface temperature
- **Up to -12 °C** in indoor temperature beneath the roof
- **Up to 40%** saving on cooling and air-conditioning needs
- **An extended service life for the membrane** itself: fewer thermal shocks, less expansion-contraction, and therefore less cracking and ageing

This last point deserves the attention of industrial asset managers: the coating does not merely save energy, it **protects the waterproofing** and pushes back the deadline for a costly roof overhaul.

On a bituminous membrane, the protocol is rigorous — **cleaning, a specific bonding primer, then two cross-applied coats of thermo-reflective coating** — because it is this preparation that guarantees durable performance, up to ten years. The whole operation is carried out from the outside, without removal or interruption of activity.



Application is carried out from the outside — cleaning, bonding primer, then two cross-applied coats of thermo-reflective coating — without removal, without structural work, and without interrupting the site's activity.

The Multiplier: Synergy with Photovoltaics

This is where the industrial roof shifts from cost centre to productive asset.

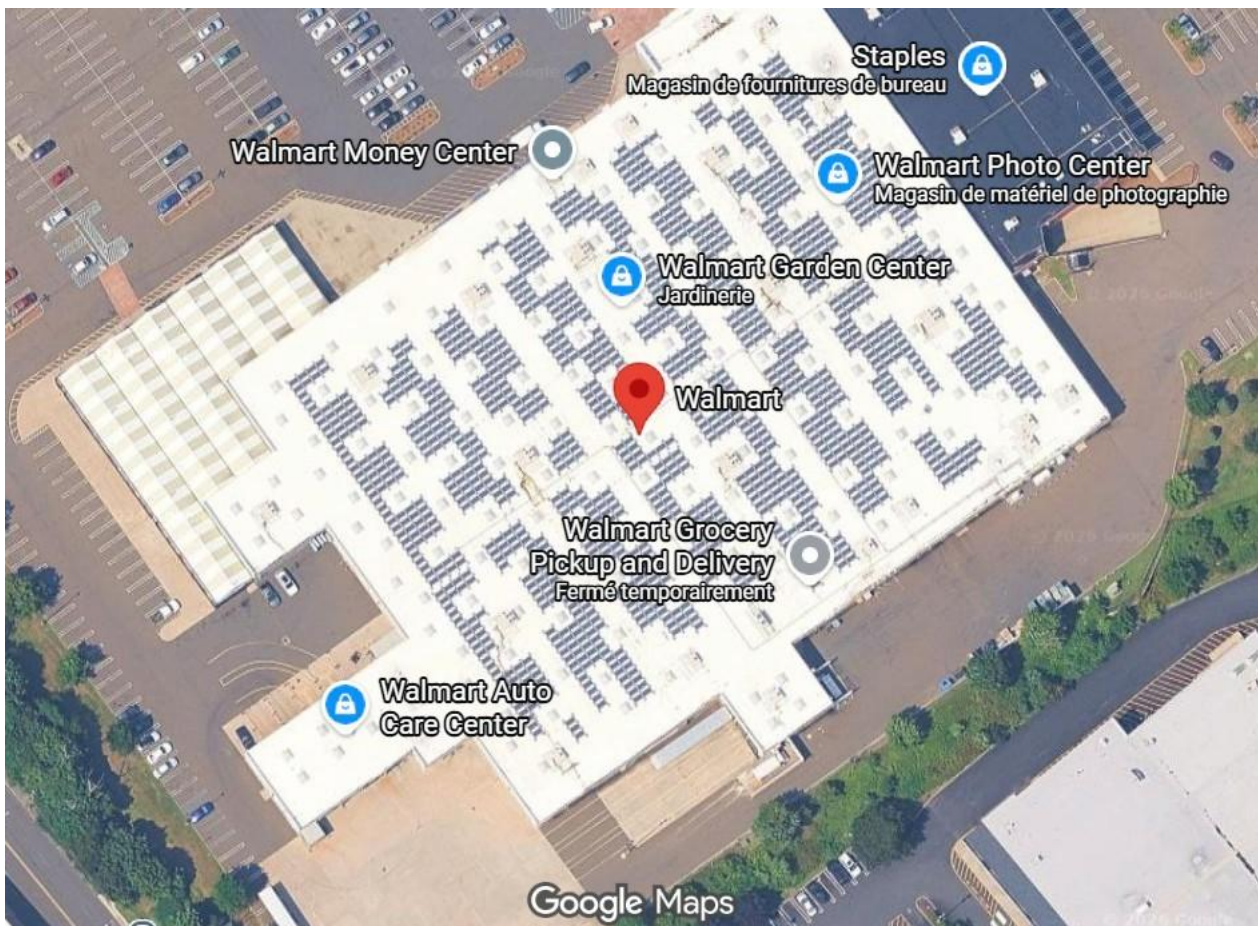
Large flat roofs are the preferred supports for photovoltaic installations — and more and more industrial operators are taking the step. But few know that **the yield of these panels depends directly on the temperature of the roof that carries them.**

Two effects combine:

- **Heat penalises PV yield.** A panel loses efficiency as its temperature rises. A reflective, cooler roof keeps the modules within a more favourable temperature range — they produce more.
- **Albedo boosts bifacial modules.** On a light, reflective roof, the rear face of bifacial panels captures significant diffuse radiation: up to +20% additional output.

This is no theoretical claim: in the United States, major retailers such as Walmart have for years fitted a large majority of their hypermarkets with reflective roofs, and are deploying photovoltaics massively on those same surfaces. Two strategies that reinforce one another, across thousands of buildings.

In other words, **treating the roof before or during the photovoltaic installation means optimising two investments in a single move:** a cooler building *and* a more productive solar plant. For an industrial operator, it is the roof that, at last, begins to pay off.



On a light, reflective roof, photovoltaic modules stay cooler and produce more — up to +20% for bifacial panels thanks to the albedo effect.

The Argument That Speaks to a CFO

The industrial decision-maker does not reason in terms of comfort, but of return on investment. And that is precisely where the case is strong:

- **Energy savings** documented on cooling and air conditioning.
- **Increased photovoltaic output**, and therefore a faster payback on solar installations.
- **Waterproofing membrane that lasts longer**, pushing back a heavy capital expense.
- **Improved working conditions**, with the known impact on productivity and absenteeism.
- **ESG and energy compliance** — required by clients, shareholders and regulation (MoPEC 2025).

All of it **measurable** under the international IPMVP protocol: the gains are not promised, they are proven, with field figures to back them. This is the language a management committee expects before approving an expense.

In a Word

Switzerland's industrial and logistics fabric owns, often without knowing it, a considerable and under-exploited asset: its flat roofs. Today, these thousands of square metres of bitumen absorb heat, inflate cooling bills, and age prematurely.

Treated with a thermo-reflective coating, and paired with photovoltaics, they change in nature: they stop costing and start producing. Less heat, less energy, more solar yield, waterproofing that lasts — and figures to prove it.

The start of the season is when investment budgets are planned. **Your largest exposed surface is waiting for its share.**

Sources: Technical data on thermo-reflective coatings (albedo, SRI, surface temperature) · AREP/SNCF and Pouget Consultants studies on reflective processes, 2024-2025 · White Paper by SolarWorld AG / Institute for Solar Energy Research Hamelin (ISFH) on bifacial gain · MoPEC 2025, OFEN / EnDK · MeteoSwiss — Swiss Climate Scenarios 2025

Do you operate a data centre, a logistics platform or a production site? Your flat roof is a reservoir of savings. Let's do the maths together.

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