A fair turn of the tables

If Singapore drew on Switzerland for its finance, Switzerland can draw on Singapore for its roofs and façades

The city-state built its prosperity partly by looking to Swiss banking rules. Today it is a world pioneer of roofs and façades that send the heat back. The time may have come to return the favour.

By Joël Kohli, THERM'Reflectis (Suisse) Sàrl



The scheme to coat HDB blocks with heat-reflective paint will be offered to all town councils over the next five years, with the Government covering the extra cost of using these cool coatings. Straits Times PHOTO: LIM YAOHUI

There is a happy irony in this story. When Singapore built its financial centre from the 1970s onward, the hub drew heavily on the rigour and discretion of the Swiss banking model. Half a century later, the city-state has become one of the world's references — and perhaps *the* reference — for buildings that defend themselves against heat. The moment has surely come for Switzerland, and the French-speaking cantons first of all, to return the courtesy.

What Singapore does, in concrete terms

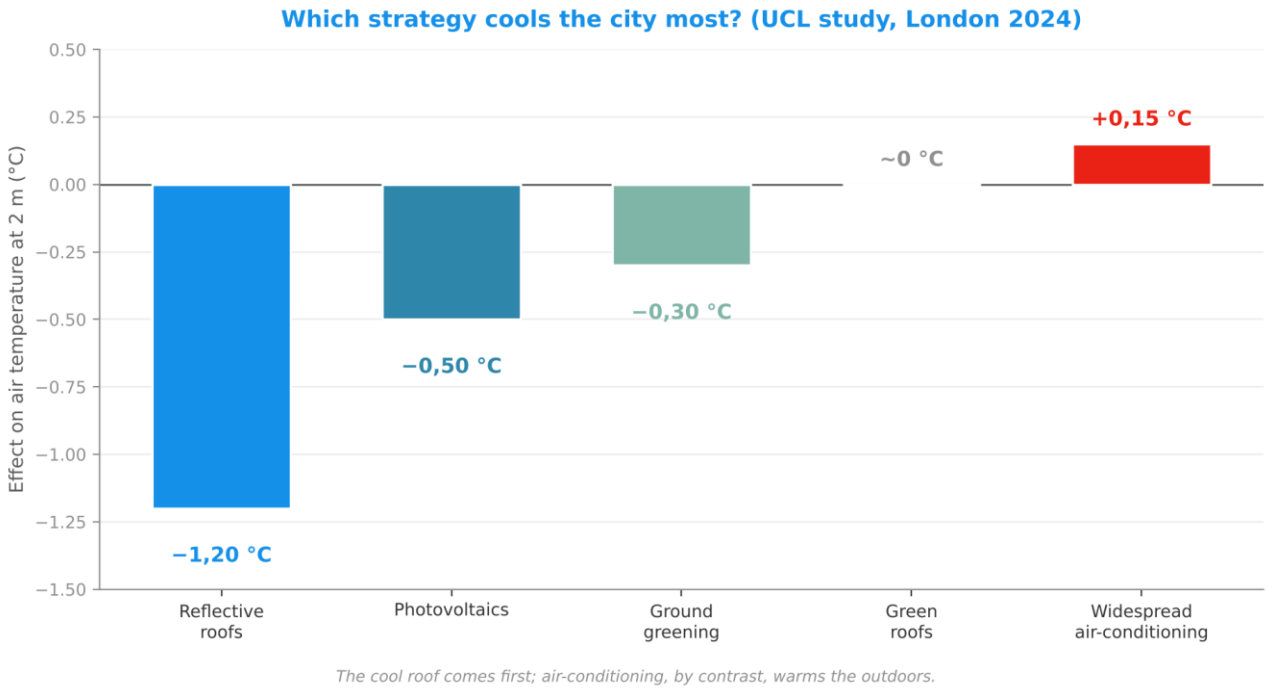
Facing an equatorial climate and one of the most intense urban heat islands on the planet, Singapore did not settle for air-conditioning. The city made the treatment of exposed surfaces a matter of public policy. Pilot programmes run with its housing and urban-planning agencies have covered entire districts with high-solar-reflectance coatings, applied to the roofs and façades of residential buildings. The readings are

unequivocal: several degrees less in surface temperature, less heat entering the dwellings, and relieved pressure on air-conditioning — and therefore on the electricity grid.

The reasoning is simple and unanswerable: rather than spending ever more energy to remove heat that has already entered, you stop it from entering. You act at the source.

What the science says: the cool roof comes first

This choice is neither intuitive nor ideological: it is now well supported. A study by University College London (UCL), published in 2024, compared the main urban-cooling strategies by simulating their effect on an entire metropolis during a heatwave. The verdict places reflective roofs clearly ahead.



Average effect on air temperature at head height, by strategy deployed at city scale. Reflective roofs outperform photovoltaics and greening. (after Brousse et al., University College London, 2024)

Deployed at large scale, reflective roofs lower air temperature by about **1.2 °C on average**, with peaks of up to 2 °C at the hottest hours. By comparison, photovoltaics deliver around −0.5 °C, ground greening −0.3 °C, and green roofs a near-zero effect at this scale. Air-conditioning, for its part, sits on the wrong side of the table.

Air-conditioning: a relief that worsens the problem

This is the paradox the study lays bare. By rejecting outdoors the heat it extracts from buildings, widespread air-conditioning *warms* the city by about 0.15 °C on average — and far more in the heart of dense urban centres. The hotter it is outside, the more we air-condition; the more we air-condition, the hotter it gets outside. The thermo-reflective coating breaks this circle: it treats the cause, not the symptom.



Two opposing logics: send the heat back before it enters, or extract it to reject it outdoors. The second warms the public space. (AI-generated images)

A word of caution: not every “white” is equal

A common misunderstanding is to believe that a simple tin of white paint would do the job. That is incorrect. A conventional white paint reflects *visible* light well, but little else; it soils, ages and loses much of its reflective power within a few seasons. A certified thermo-reflective coating is of another nature: it is formulated with **high-reflectance pigments** that also send back infrared radiation — invisible, yet carrying most of the heat. To this are added, still “at the margin” in current formulations, ultra-high-performance insulating fillers (microspheres, aerogels, ceramics depending on the diagnosis) that slow heat transmission. The result is measured in the field.

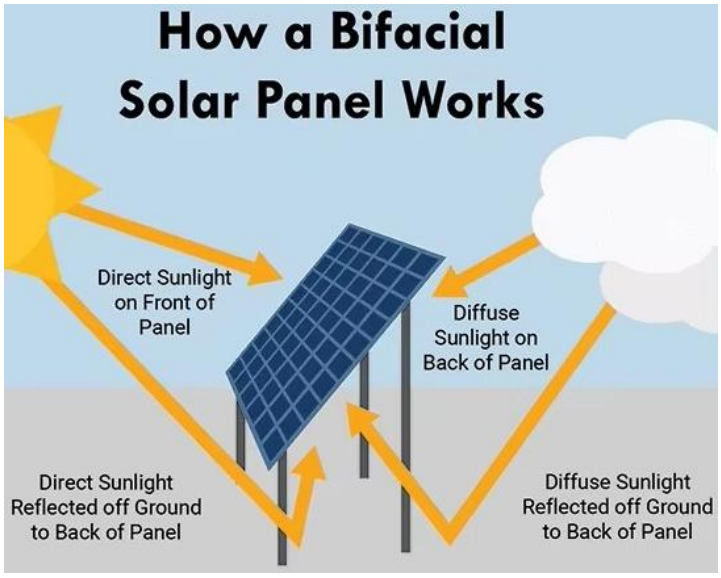


La Tour-de-Peilz (VD), last July: two south-west façades measured at the same moment. The thermo-reflective envelope reads 31.5 °C against 36.3 °C for the conventional envelope — close to 5 °C of surface difference in favour of the AQUACOOL Façade render (microspheres). Source: THERM'Reflectis field readings, Therma 1 thermometer.

Close to **5 °C of difference** between two neighbouring façades, exposed to the same sun, at the same instant: that is the gap between a wall that endures and a wall that sends back. That heat kept off the envelope is so much comfort gained inside and so much air-conditioning avoided.

Photovoltaics are not left behind — quite the opposite

Far from competing, the two approaches reinforce each other. A light, reflective roof stays cooler; and photovoltaic panels produce better when they do not overheat. A **bifacial** panel also captures light through its rear face: installed above a high-albedo surface, it benefits from the radiation sent back by the reflective support and gains in output. The reflective surface and bifacial photovoltaics thus form a virtuous combination, to be planned from the design stage of the project, whether new-build or renovation.



On a light surface, the bifacial panel stays cooler (better efficiency) and captures the reflected radiation through its rear face (additional output).

One more tool in the Swiss cantons' toolbox

Most Swiss cantons are investing heavily in the sustainability of their building stock: energy renovation, solarisation, envelope upgrades. The thermo-reflective coating does not seek to replace any of these levers — it *complements* them. Light, applicable without heavy works, compatible with heritage buildings as well as new constructions, it adds naturally to the existing toolkit, in particular where heavy insulation is difficult or costly to implement.

THERM'Reflectis is available to Swiss public authorities, property managers and engineering offices to integrate this additional building block into their projects: diagnosis, choice of the appropriate formulation, standards-compliant application.

Setting an example, in our turn

Singapore knew how to look to Switzerland to build its financial centre. Nothing prevents Switzerland — and its cantons, starting now — from looking to Singapore to cool its buildings. Public buildings, schools and administrations foremost, would be the first credible ambassadors of this approach: visible, measurable, exemplary. A fair turn of the tables, in short.

Sources: *Brousse, O. et al., "Cool roofs could be most effective at reducing outdoor urban temperatures in London", Geophysical Research Letters, University College London, 2024 · Deployments of high-reflectance roofs and façades in Singapore (HDB / JTC / NTU programmes) · THERM'Reflectis field readings, La Tour-de-Peilz (VD), July 2026. Partner suppliers: KOKUN Swiss SA (kokun.ch), RENOVCOAT (renovcoat.com), THERMACOTE (thermacote.com).*

What if the next public roofs and façades sent the heat back instead of storing it?

Request a THERM'Reflectis diagnosis.

Cool, Reduce, Reflect — naturally.

Our approach in 4 steps:

Thermal and structural diagnosis → Tailored planning → Certified application → Monitoring of the gains

Was your building designed to meet this new challenge?

Your potential is unique. Whether it is a home, a rental building or a public building — school, secondary school, gym —, an envelope that sends the heat back is worth more than one more summer spent enduring it. **Singapore has led the way; it is up to us to follow, with method.**

> ***Stop letting this potential lie dormant.***
> ***Every surface counts.***
> ***Every degree gained makes a difference.***
> ***Every project contributes to a more sustainable future.***

Contact THERM'Reflectis: together, let's turn your potential into results!

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