Solarpunk Building Changes

Solarpunk art frequently adds photovoltaic panels wherever it can but there are a number of other changes a solarpunk society might make to its buildings to control temperature and reduce energy consumption. These changes are suitable for retrofits of older structures, which can emphasize salvage and reuse, and many of them are low tech, meaning they don't rely on long supply chains, complex manufacturing and could be produced locally, on-demand, in small fabrication shops.

Some are distinctive enough for visual art, some are probably easier to describe or mention offhand in prose.

To paraphrase the article linked above: The first and best way to lower emissions, cut energy bills, and build resilience is to change our buildings so we don’t need so much energy to stay warm or cool. Some of these changes are the sort of structural fundamentals that feel a bit less glamorous, but which have an outsized impact on the efficiency of a home, such as improving insulation and reducing air leaks. Some are so simple they've been around for thousands of years, such as awnings or shutters. We'll start with the big stuff

The big stuff

Solar Thermal Systems

With 70 percent of our home energy use going towards heating and hot water, solar heat and solar hot water systems are critical technologies, already in use worldwide. eliminating pollution and reducing grid strain while ensuring the availability of hot water during outages

Technical Stuff

Heat Recovery Ventilators/Energy Recovery Ventilators

These devices bring fresh air into buildings without changing the temperatures inside. ERVs and HRVs both transfer heat between incoming and outgoing air streams. However, ERVs also transfer moisture and can help cool the home, while HRVs can’t.

ERVs are a good choice for climates with high humidity or for homes where maintaining consistent indoor humidity is a priority. HRVs can be a better choice for climates with mild humidity or in colder environments, as ERVs can have trouble functioning in cold temperatures.

These are usually large systems set up in an out-of-sight spot and connected to ductwork, but window units are going on the market now, so they may be more common in your solarpunk future.

Filtered Box Fan/Corsi-Rosenthal Box

Whole-House Fans

These fans are designed to circulate air through an entire house or other building by venting unwanted air into the attic or outside. This removes hot air from the building and draws in cooler outdoor air through windows and other openings.

Solar Attic Vent Fans/Powered Attic Ventilator

These fans vent hot air and moisture from the attic to the outside through an opening in the roof or gable. Most are wired into the house and connected to a thermostat but some are solar-powered, self-contained arrangements. This can reduce the load on HVAC or air conditioners by reducing the amount of heat inside the building (even if it's mostly trapped in the attic) and reduce damage to the building from mold or rot.

Low Tech Stuff

Awnings and shutters, to block sunlight further from the dwelling so it can't heat interior spaces. Inside the windows, white curtains or shades can help too.

Lattices and shade cloths are often used to shade private spaces in our present, but they might make more sense as communal projects, and there's certainly solarpunk themes in extending these private luxuries until they protect strangers.

Outdoor shade structures might become more common, even predominant in community spaces - this might be a lattice or shade fabric forming a canopy over a street These changes improve safety and comfort for people walking and cycling in their communities but they also shade nearby buildings, helping to keep them cool

Greenways, linear parks, treelined streets, and other formats for bringing trees back to our cities and towns

Lattice domes over intersections and courtyards