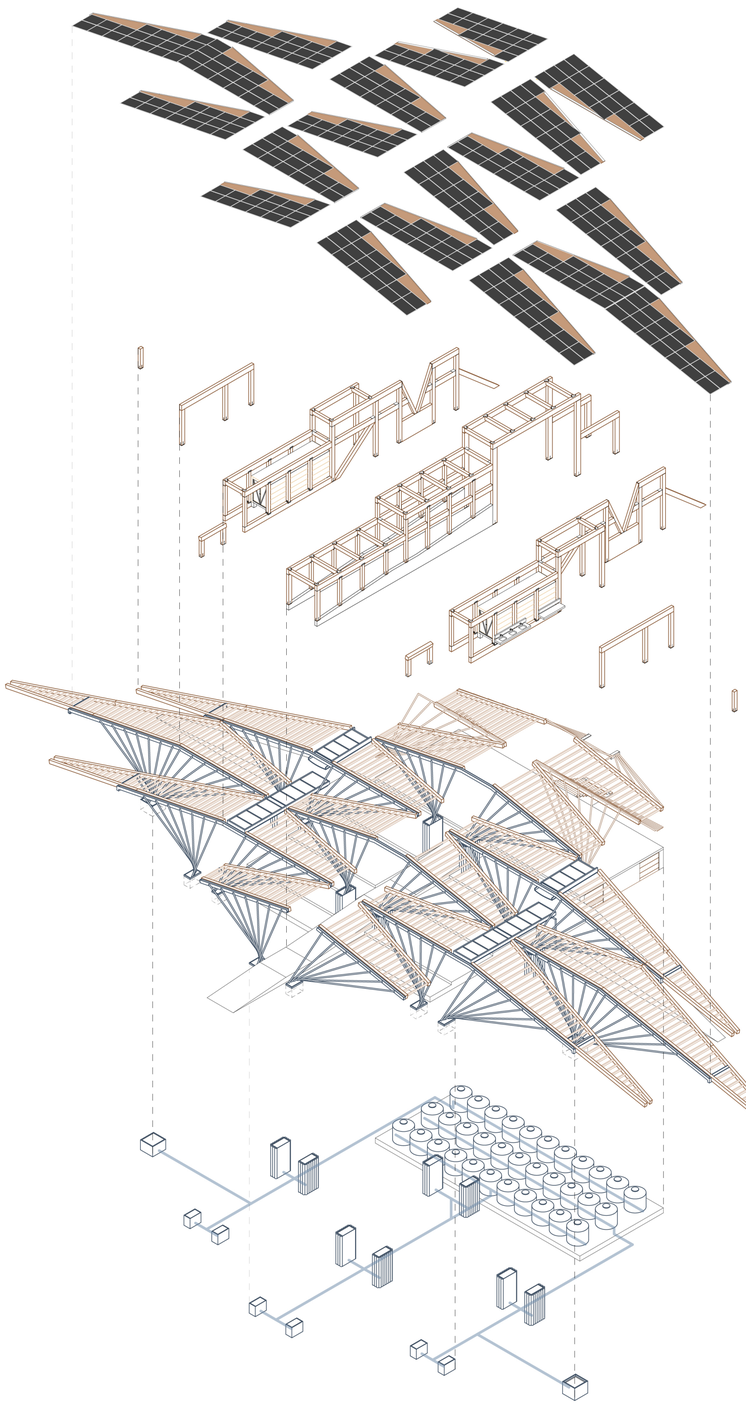

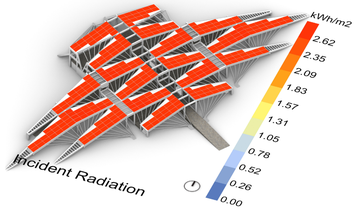

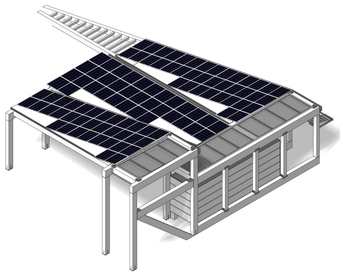

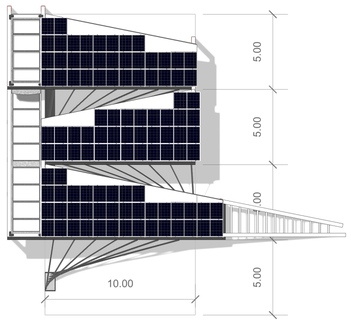

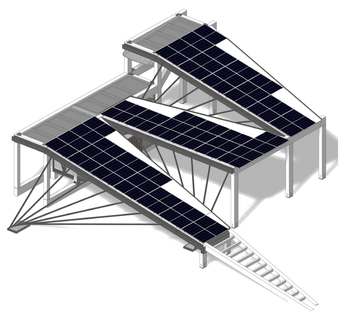

Sky Letters approachs technology creatively by embedding these systems directly into the structural and spatial systems. Solar panels become part of the canopy's form, while the water collection system reinforces its protective and communal purpose. The infrastructure is both technically and symbolically visible and tied to local climate resilience.

Sky Letters incorporates solar power generation, rainwater harvesting, and modular construction using locally available and cost-effective materials. The design prioritizes accessible technologies with proven efficiency and long lifespans, rather than high-cost or complex systems that may be difficult to maintain or replace in the local context. The total footprint of the project is around 1460m^2.

There are two standard module types, flat or fixed tilt at 15 degrees. Each module supports 17 monocrystalline solar panels (2 m^2 each), mounted directly on the primary beams. Monocrystalline panels were chosen over polycrystalline or thin-film alternatives due to their higher efficiency (typically above 20%), moderate cost, and long lifespan of approximately 30 years. An example of solar panels used in the design measures 1134 mm wide 1762mm long.

The entire system includes 352 solar panels, with a total solar panel area of 704m^2. Based on an average solar radiation of 1,000 W/m^2 and 20% efficiency, the system can generate approximately 140.8 kW of power, exceeding the estimated 75 kW peak requirement. This translates to roughly 267.52 MWh of clean electricity per year.

Regarding water harvesting from the solar panels, gutter designs and sloped surfaces direct rain into integrated storage tanks. With an estimated 85% collection efficiency, the system can harvest approximately 1,196,800 liters of rainwater annually for uses such as drinking, washing, and sanitation.

Stainless steel or other corrosion-resistant gutters run along the periphery of each module. Where continuous gutters are not feasible, angled metal deflectors redirect rainwater to the gutter ends. Attached to the gutters are 0.1-meter-diameter rainwater pipes, engineered with structural capacity, that channel water into individual collection tanks. To supplement the gutter system, two elevated catchment basins with integrated filters are positioned above the technical rooms. All rainwater is pre-filtered and stored in decentralized tanks, which are linked by underground conduits to central storage tanks located beneath the community stage.

The central tanks are made of durable, easily sourced polyethylene —selected for cost-effectiveness, low maintenance, and simple replacement. Each tank holds 5,000 liters and measures approximately 2,150 mm in diameter by 1,750 mm in height. A total of 33 tanks provides a combined storage capacity of 165,000 liters.