

Thermocline Urban Trellis provides social-ecological infrastructure and iconic scenography alongside the Guadalupe River at Arena Green West. Developed from a programmatically-optimized minimal surface, the trellis suspends a gradient of modular shading apertures that generate an extensive micro-climate in downtown San Jose. The porosity of the assemblage allows for substantial light and water transmission while reducing solar irradiance below. The trellis additionally provides aerial habitat and solar power capacity while offering the potential for exceptional elevated viewing opportunities along its upper surface walkways. At night, an LED network lights the trellis with programmable color variations and subtle illuminance.

Thermocline Urban Trellis serves as an ecological-armature for the establishment of native Santa Clara landscapes and associated plantings. The design allows for the preservation of existing coastal live oaks while simultaneously expanding on-site capacity for biodiverse landscapes. Plantings are supported with careful maintenance of the hydrological cycle through underground reservoirs that also allow for the playful use of surplus water. The terrain is sculpted to maximize topographical variability while respecting the at-grade conditions along the perimeters, allowing for increased accessibility from the street while creating new ecotones throughout the interior.

Alongside the recreational and psychological value of carefully crafted open spaces, the design program calls for the establishment of a restoration seed bank for the collection and propagation of native seeds for use along the riparian zone and the Guadalupe River watershed. The restoration program is housed across the river, in Arena Green East, where locally-recruited park stewards and interns are offered subsidized work-trade housing, an arrangement intended to achieve mutual benefit throughout the wider park system.

With the understanding that our cities are growing hotter seemingly every year, Thermocline Urban Trellis offers an iconic, innovative, and collaborative approach to urban ecology and design.

Notes:

- **Structural:** construction will take advantage of both conventional and cutting-edge additive production methods, leveraging the minimal surface reference geometry to optimize material usage.
- **Net-Zero:** energy requirements are low, though off-site solar may be required to run/offset any irrigation pumps; Proposed PV panels will power the LED system. Passivhaus design; Rooftop solar could be supplemented with off-site solar offsets for communal cooking facilities as necessary.
- **Housing:** positive interior pressure for indoor air quality assurance;
- **Urban:** the proposal advocates for additional urban design interventions, shown in the visualizations, that are outside the competition scope but which do not significantly impact the overall proposed trellis design.