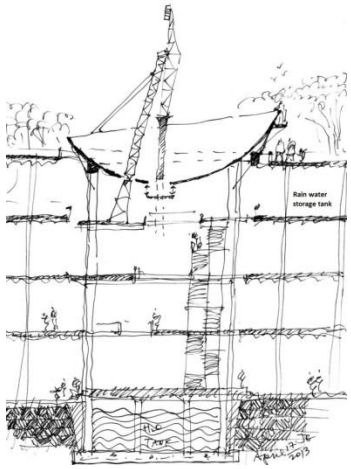

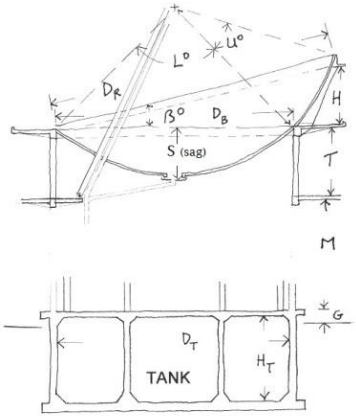

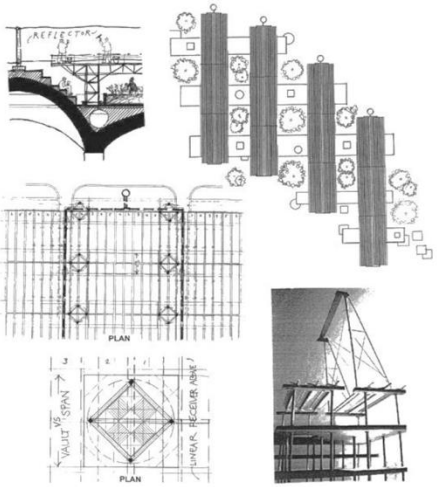

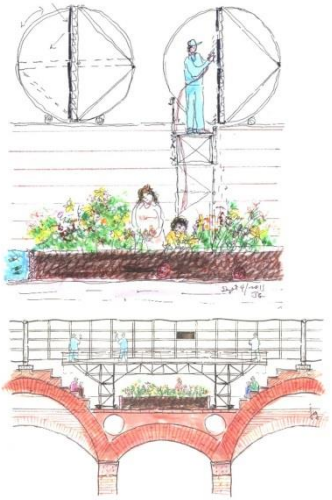

Bowls and LFR (linear Fresnel reflectors) in Tamil Nadu, India

There is performance, construction cost, and maintenance data for the solar bowl in Auroville and the KG Design Services LFR in Coimbatore. A suggested project is to prepare building integrated preliminary designs with both collectors for comparative evaluations.

Solar Bowl- A solar bowl above a water tank foundation project is to design a reinforced concrete frame structure and receiver-support to withstand cyclone winds as an emergency water collecting facility. A spherical bowl rim roof may be a combination of two circular rim segments; one horizontal, and the other inclined. They may be intersecting, or the horizontal circle fits within the inclined circle. This geometry expresses two different construction methods. A cable-concrete shallow spherical segment hangs from a horizontal rim-beam-platform; and the upper spherical segment is formed with lost-mold ferrocement channels filled in with concrete ribs supported on the horizontal beam-platform. It resembles an inverted cap; with the lower part similar to the Litchfield construction, and the upper fixed visor part similar to construction methods used in the Auroville, India bowl.

LFR (linear Fresnel reflectors)-

Building integrated linear Fresnel one-axis tracking long span reflector-trusses overhead above terraces and courtyards when inverted in stow position to collect less dust could have an aesthetic expression. For example, small gaps between standard size mirror facets would have a filigree of daylight to soften the rationalized structural expression of 3d open web long-span trusses (Reference: LFR by KGDS).