

Towers of Light

Light is energy

Artist's Statement:

How can an individual connect to the scale of the landscape or the abstract processes of energy production? How can we integrate renewable energy into our culture?

Our work deals with the phenomena of light, as experience, energy, information and symbol. The tools are form, colour, shadow and space. The context is sunlight, landscape, the elegant technology of the solar chimney and the viewer. Our proposal is simple: light is energy and energy is light.

There are three distinct but connected scales of the artwork:

1 The towers from afar;

Prismatic glass surfaces, like artificial hills laid gently over the landscape, seem to support three sinuous towers standing against the sky.

Most viewers pass by on the road, and they see the towers from a great distance: the dynamic form shifts as the fast-moving viewer moves around them.

2 The surface/landscape approach

The surfaces trap energy, heating the air, which seeks to rise, moving towards the highest point at the centre.

Retroreflective strips on the prismatic surfaces light up using car headlights at night (using no additional energy) creating brilliant sheets of light.

Beneath the crystalline surface, lines of coloured light and shadow snake across the untouched landscape appearing to move toward the tower.

The viewer who has arrived by boat or from the bridge at the eastern end of the site, walks across the landscape through the shaded field of masts supporting the glass surface, under coloured projections and reflections of the sunlight, weaving one over the other, through moiré shadows to an underground space beneath the nearest tower.

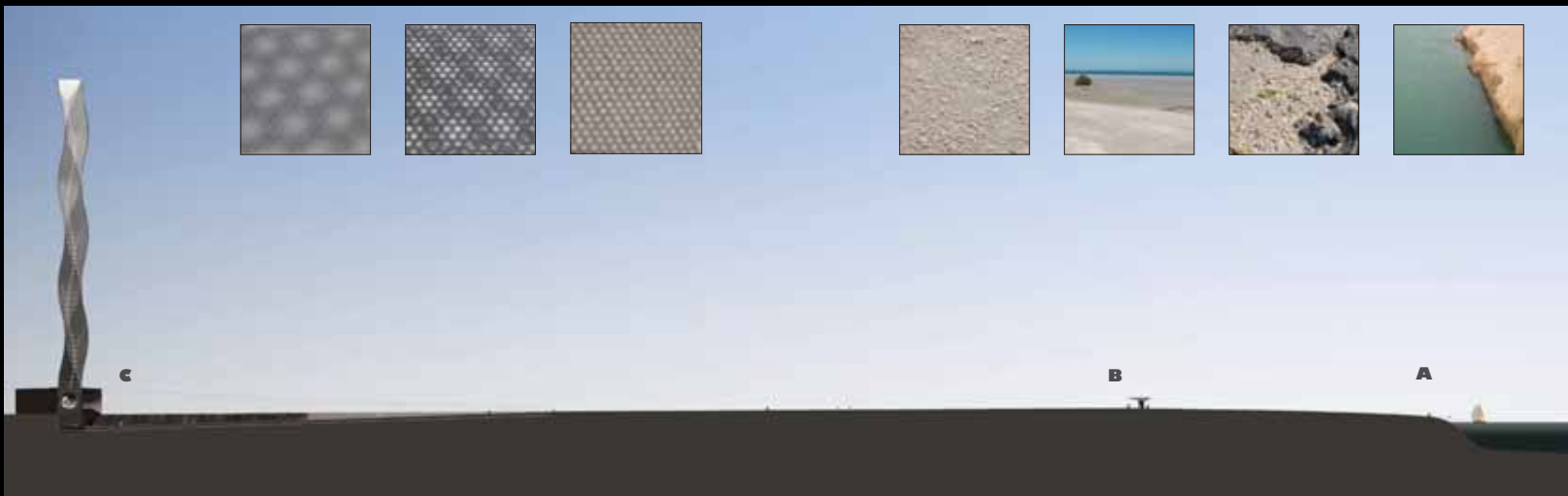
3 The interior of the tower.

The air passes up the hollow tower at the centre, powering turbines at the base, producing electricity.

A central space underground gives a distant view of the sky through interweaving lines of light within the empty tower.



Plan view of the three solar collectors and the pedestrian approach route from the east: A is the boat jetty, adjacent to the bridge; B is the viewing pavilion at the high point of the site; C is the base of the publicly accessible Light Tower



Section view of the eastern tower and the approach route: A is the boat jetty, adjacent to the bridge; B is the viewing pavilion at the high point of the site; C is the base of the Light Tower



View up the tower from the sky room

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Model view of the jetty and pavilion

Site 2:

This site has two distinct sides: a busy ten-lane highway with thousands of cars passing every day, and a beautiful water edge with views of the sea beyond.

Our proposal addresses both sides: the passer-by in a vehicle will see the towers from a long way off and will pass the prismatic panels of the solar collector in one minute - experiencing the dynamic fluid forms in light during the day and the retroreflective panels - illuminated by the car's own headlights - at night.

The viewer who visits specifically to see the artwork arrives by boat or across the bridge at the eastern end of the site, and takes an informal route via a small shaded pavilion at the highest point of the site which addresses the sea views. From there the viewer moves directly toward the eastern-most tower and slips under the edge of the glass solar collector.

The coated glass bands on the collector split the daylight into two halves and project coloured reflections and transmissions onto the land. A ramp, shaded by moiré shadows takes the viewer to an underground space directly below the tower from where flickering bands of light, admitted through perforations in the tower wall, twist and weave their way toward the sky.

Night and Day:

The experience of the artwork is intended primarily to work with daylight (the source of the energy), but the casual viewer, passing the towers at night is also treated to the spectacle of the roadside prismatic surface of the collector illuminated by their own headlights in thin strips of retroreflective material laid out on the tilted plane. The material is similar to that used in road signs and is lit brightly by the headlights of the passing cars. This captures the dynamism and also the essential efficiency of the process, no power is wasted.



Retroreflectivity

During the day viewers passing in cars see the towers as sculptural forms and the collector surfaces as gleaming facets, while the committed visitor on foot is engaged by the play of light on the towers; the shadows of the collector structure; and a complex play of mottled moiré shadow fields, with bars of reflected and transmitted light from dichroic glass strips attached to the collector surface.



Dichroism



View from the highway at dusk showing the towers in ambient light and the retroreflective strips on the collector surface illuminated only by the lights of passing cars

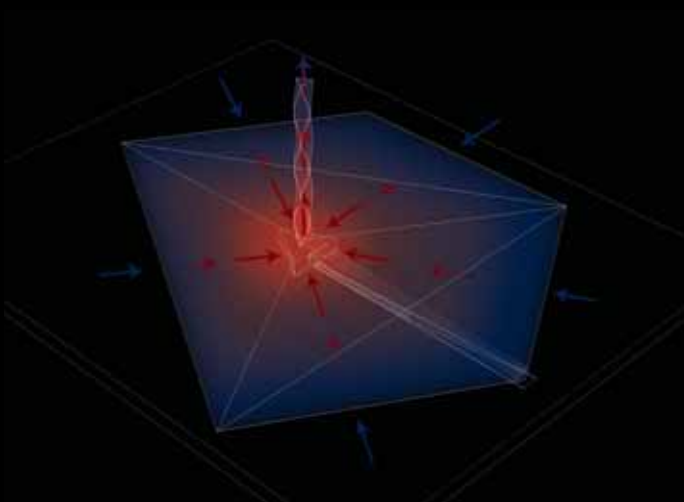


Diagram showing how the sun heats the air beneath the solar collector and the tower pulls the air up through the turbines

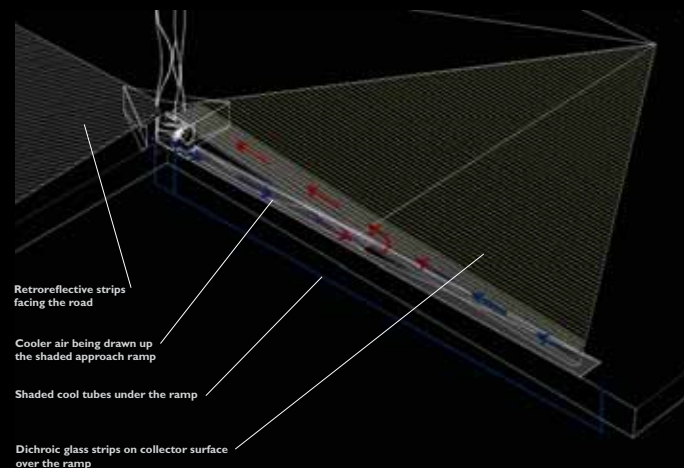
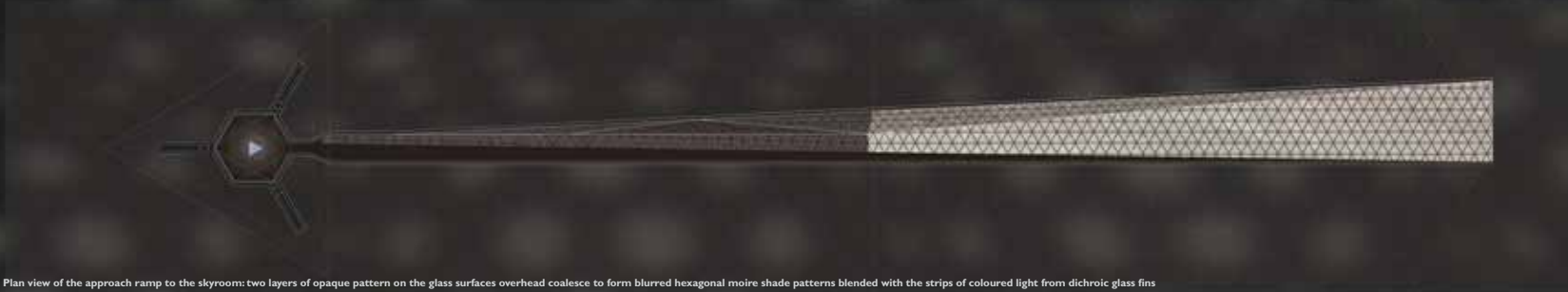


Diagram showing the passive cooling system under the approach ramp, pulling cooler air from shaded tubes in the foundations through the Sky Room. Also shown are the moiré shading pattern and dichroic strips on the segment of the collector over the ramp, and the retroreflective strips over the segment facing the road

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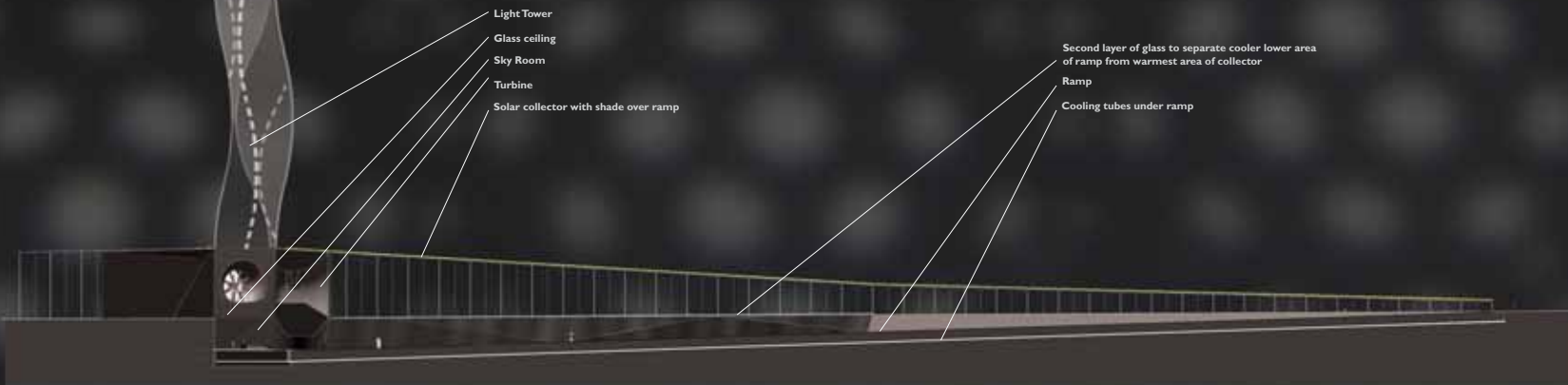
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Plan view of the approach ramp to the skyroom: two layers of opaque pattern on the glass surfaces overhead coalesce to form blurred hexagonal moire shade patterns blended with the strips of coloured light from dichroic glass fins



View down the approach ramp showing the tower, a turbine, the interwoven strands of reflected and transmitted colour, and the moire shade pattern, all under the solar collector canopy



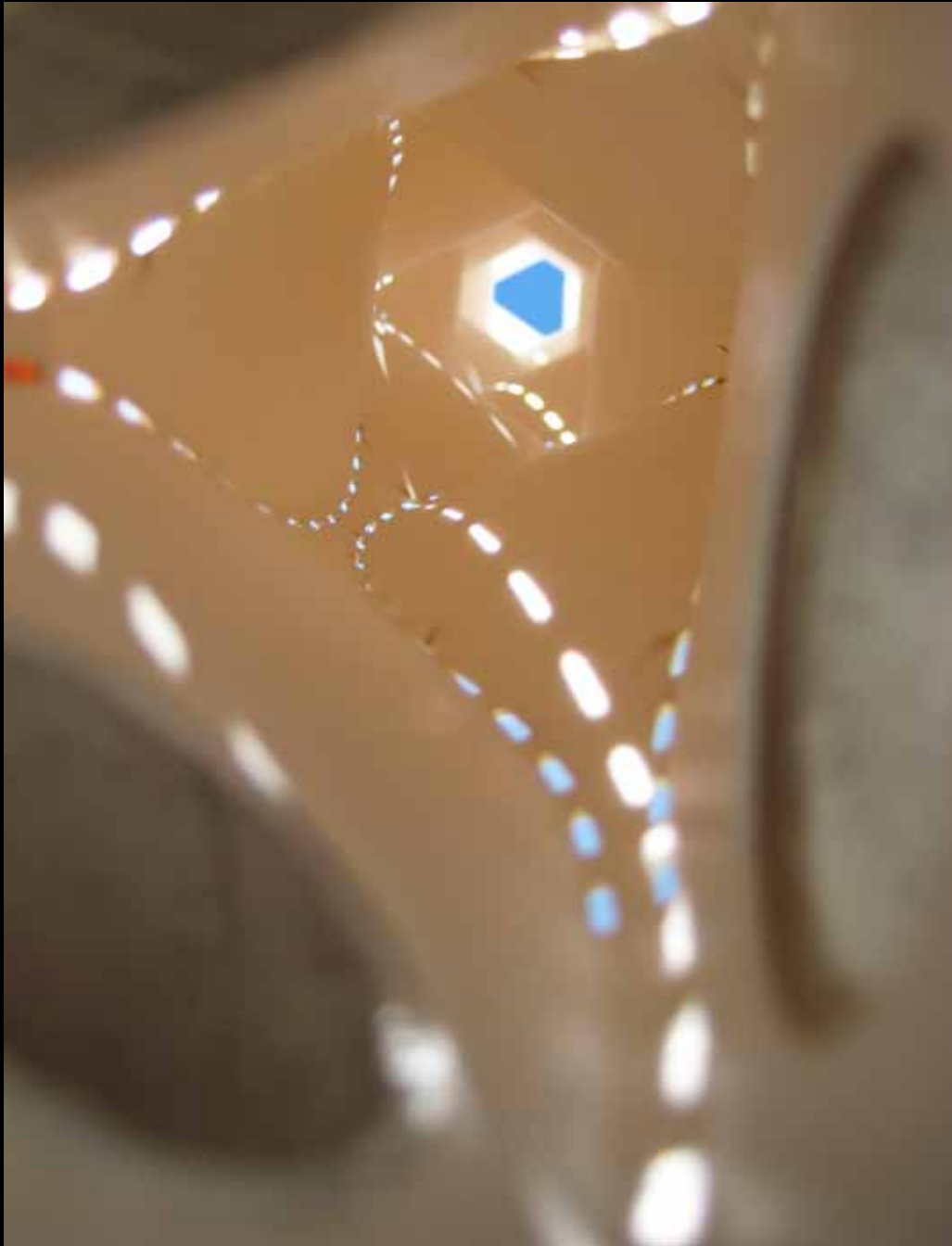
Plan view of the approach ramp to the skyroom: two layers of opaque pattern on the glass surfaces overhead coalesce to form blurred hexagonal moire shade patterns blended with the strips of coloured light from dichroic glass fins



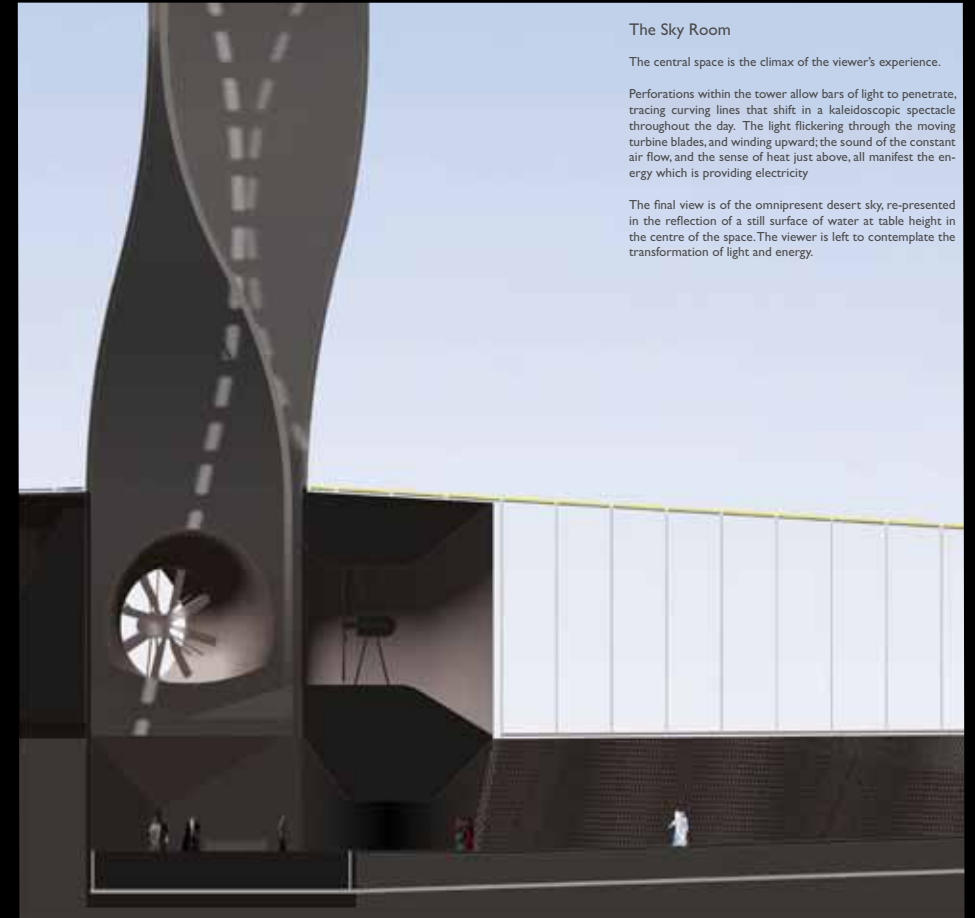
Study model of a Light Tower, turbines and Sky Room

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View up from Sky Room, past the turbine level, through the Light Tower, to the sky



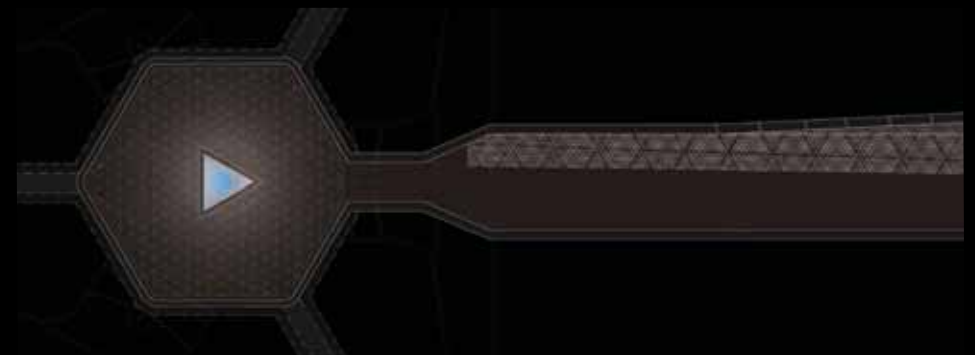
Section of Sky Room, turbines, and entrance from approach ramp

The Sky Room

The central space is the climax of the viewer's experience.

Perforations within the tower allow bars of light to penetrate, tracing curving lines that shift in a kaleidoscopic spectacle throughout the day. The light flickering through the moving turbine blades, and winding upward; the sound of the constant air flow, and the sense of heat just above, all manifest the energy which is providing electricity

The final view is of the omnipresent desert sky, re-presented in the reflection of a still surface of water at table height in the centre of the space. The viewer is left to contemplate the transformation of light and energy.



Plan view of Sky Room with reflecting pool and approach ramp