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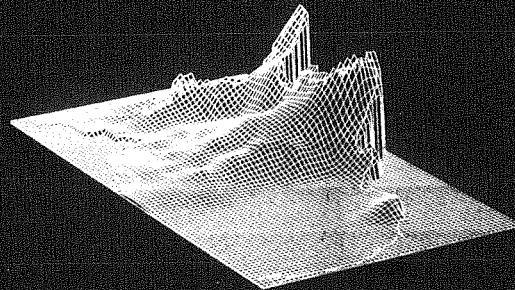
A Place in the Sun

During the summer of 1855, future General Philip Sheridan commented, "If I owned Texas and Hell, I would rent out Texas and live in Hell." A hundred and forty years later newcomers undoubtedly appreciate Sheridan's sentiments as the Texan climate remains oppressively hot. In our time, Houston's citizens invoke mechanical remedy at a grand scale. In the fifty years since air conditioning arrived they have sealed and chilled virtually every inhabited space: home, vehicles, offices, gyms, convenience stores.

Houston's extensive cooling is costly, however, and not just in terms of energy and capital. Air conditioned spaces are, by practice and design, divorced from nature: dark glass extinguishes daylight, a flush facade the sounds of nature. This is Le Corbusier's manifesto realized—the house is sealed fast! And deep within vestigial memories of time, season, and weather fade in the monotony of a steady state.

When Dan Solomon described to me the Beth Israel chapel project and Rabbi Karff's desire to avoid mechanical conditioning, I wavered between appreciation and fear. It was easy to embrace their desire for an architecture of physical qualities. Here was the rare assertion that a building, if clever, could adapt to Houston's natural setting and, in doing so, be closer to God. Willis Carrier be gone. We can exist for a moment without artifice, exposed and connected like the generations before us. My fears arose from years spent in the similar climate of New Orleans, a past filled with indelible impressions of a viscous, clinging atmosphere and spontaneous perspiration. Engaging the physical world without a mechanical safety net can get out of hand in these conditions. The design should provide a path to God, not cause a heat stroke.

Dan and I maintained a running discussion during the soft pencil stage of the chapel's design. Each sketch presented possibilities and cautions. Hot-humid climates such as Houston's offer little opportunity to reject unwanted heat. The traditional heat sinks for passive cooling—earth, air, and sky—are already warm. Without a heat sink, or mechanical intervention, the chapel design must painstakingly avoid heat gain. In our design meetings I found myself sounding like Barry Goldwater, "Extremism in roof insulation is no vice.



Enthalpy hour diagram. This plot, a plan view of the U.S. looking from the northwest, shows cooling loads by location in the country. The load is proportional to the height of the surface. Southeastern Texas is second only to Southern Florida in severity of heat gain, and Florida's climate is redeemed by a sea breeze.

Graphic: Charles C. Benton

And...moderation in shading is no virtue." At least some aspects of the program worked in our favor: the chapel had a transitory and infrequent occupancy, there were few internal sources of heat, and the site was favored by shade trees.

The building that emerged from the sketches is completely open toward the cemetery. The south wall is porous thanks to an ingenious baffling scheme tuned by acoustical consultant Charles Salter. The baffles provide a sculptural entry while shading and reducing sound from an adjoining roadway. The chapel's porous nature and tall ceiling allow free air movement and thus convective cooling of occupants.

Much attention was paid to the building's parasol roof, a large surface bearing the brunt of the summer sun. Here we used a ventilated ice house roof section with carefully chosen finish properties and insulated connectors to avoid thermal bridging. Heliodon studies at the Pacific Energy Center helped size and place a cleft in the roof. With its deep lightwell, the opening provides the desired daylighting effect without allowing excessive heat gain. The building's opaque walls have reflective finishes and are shaded. A large concrete thermal mass on the shaded north side dampens peak afternoon temperatures.

The chapel faces a brief but distinct heating season. Our scheme does not attempt to heat the building during cold snaps but instead warms occupants directly with a heated bench. Though designed, this feature will not be installed unless the congregation deems it necessary.

In the end it seems to have worked. The chapel has weathered its first cycle of seasons without calamity. It stands in Houston as an oasis of sorts, buffering the natural world without avoiding it and without mechanical distraction. Doing so seems particularly poignant in our day.