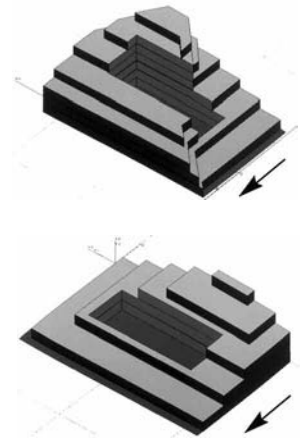


Solar Envelopes:  
 (Top) Envelope B;  
 (Bottom) Envelope D.  
 (While north is up in  
 the site plans, the images  
 here are viewed from the  
 northwest.)

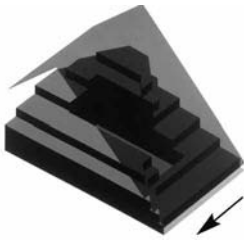


Building Masses:  
 (Top) Building B;  
 (Bottom) Building D.

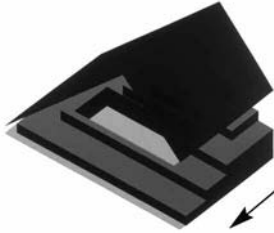
While neither courtyard performs well for sunshine, both do much better for ventilation. Still, there is a difference between the two. The courtyard wall of building B is lower on the west end than on the east, effectively channeling summer breezes from the ocean. Building D has the opposite condition, higher on the west than on the east, but since the building is generally lower with fewer stories, ventilation of the open courtyard is moderately good.

Summer envelopes, each defining the upper boundary of its interstitium, peak midway along the two sites. The major plane for envelope B slopes down to the west and is determined by morning rays of the summer sun; a minor plane is less critical. The major plane for envelope D slopes down to the east following rays of the afternoon sun, but, in this instance, a minor plane is also important.

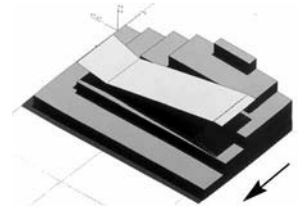
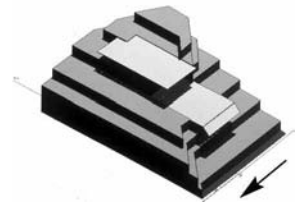
With courtyard covers in place, ventilation is excellent. Cover B is in two parts, but wind enters only at the lower level since it cannot simultaneously enter at both windward openings. The wind then exits at the upper windward level and to the side (dotted). Cover D is simpler, one piece rising high to catch the westerly winds.



Summer Envelopes Defining  
Upper Boundary of Interstitium:  
(Top) Interstitium B;  
(Bottom) Interstitium D.

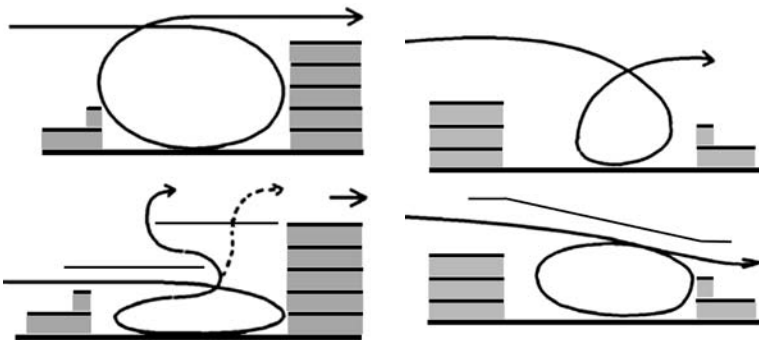


Courtyard Covers Designed  
within Interstitium:  
(Top) Cover B;  
(Bottom) Cover D.



In each of the four examples, the courtyard covers are unique, and they satisfy in different ways the summer conditions of sun and wind. The requirements for summer shading are completely met. The requirements for ventilation are also met, but with varying degrees of success. The configurations shown for courtyard covers represent only one set of design possibilities. Alternatives, perhaps better ones, are surely possible.

Such large structures that expand upward into the interstitium would very likely need to be mechanized. Perhaps if the application is small, as in a house, adjustments can be manual as with the



Sections Showing  
Wind Flow over Open  
and Covered Courts:  
(Left) Site B;  
(Right) Site D.