

MATERIALITY RECONSIDERED

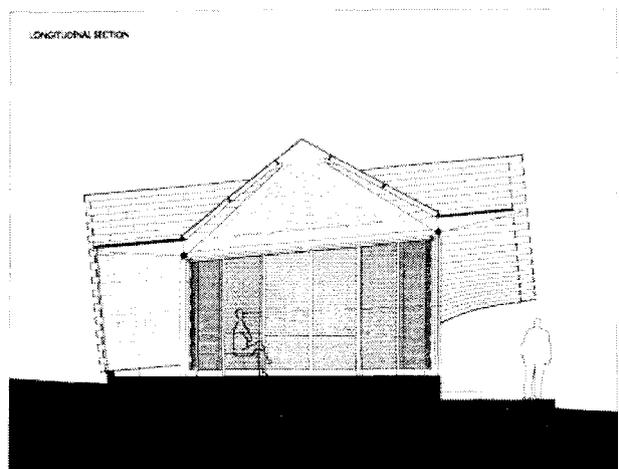
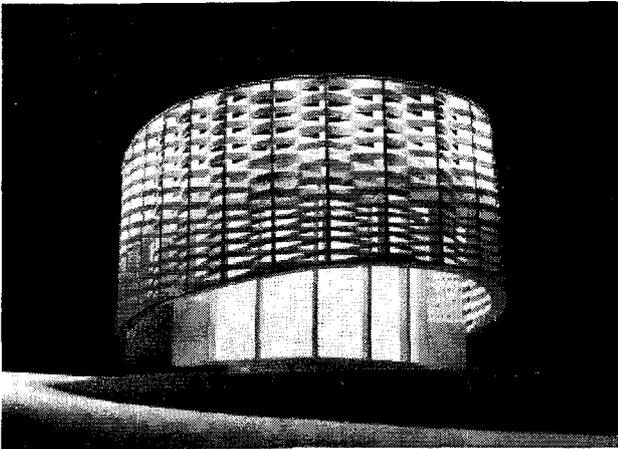
The Primitive Hut in the Digital Age: A Reassessment of the Woven Wall

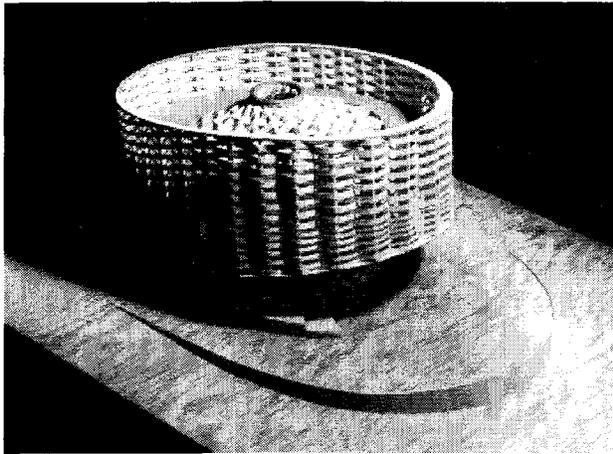
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The woven wall, though one of the earliest forms of wall construction, is rarely seen today beyond the vernacular architecture of certain indigenous cultures. The permeable nature of the wall is a major reason why we do not see more buildings utilizing this technique that is best adapted to tropical climates where the temperature is relatively constant and airflow is encouraged. However the advent of the glass curtain wall has shifted the focus of construction away from what Kenneth Frampton calls "wet" techniques such as masonry. The current trend of "de-materializing" the wall into separate "dry" systems of structure, enclosure and shading/climate control opens up new opportunities to appropriate the woven wall. The desire to admit an abundance of light without excessive overheating or ultraviolet damage creates one role for woven screens as shading devices. When combined with a sealed glass envelope they make an effective enclosure system against the elements. Because of their perforated

nature, woven walls screens also produce a pleasing filtered and dappled light effect like that found below a tree canopy. Another major role for the woven wall is as a visual screen that increases privacy and hides undesirable views. Depending on the intensity of light on each side, the screen can read from opaque to nearly transparent with multiple levels of translucency in between. Screens can also be layered to produce multiple readings of spatial depth.

This project is an attempt to apply my research of the woven wall to a case-study work of architecture. I wanted to test the potential qualities of the woven wall by updating the simple hut typology to incorporate modern materials as well as modern notions of space. The design for the hut evolved from various applications of the woven wall as shading devices and visual screens. The basic round form of the hut remains as the main organizing space and structural core, however the woven wall has pulled away to form a suspended wooden shading screen. An interstitial zone is created between the two forms that supports the functions for sleeping, bathing and cooking as well as sheltering the porch. This leaves the center space open and flexible to adjust to changing uses.

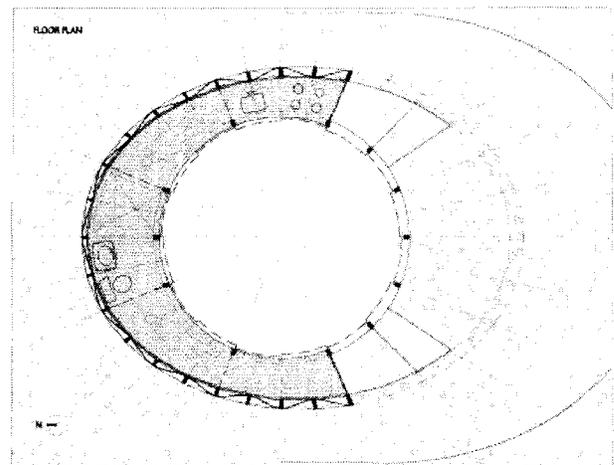




Woven Sun Screen - By freeing itself from the main wall, the oval screen adjusts to changing light conditions as well as the changing requirements of privacy. The wall is wider at the south end to create the correct angles to allow winter sunlight to penetrate while blocking most summer sun. The wall then thins on the north side where privacy is desired and there is no direct sunlight. On the west and east sides the screen works well to block the low angled glare of the sun. By extending above the level of the roof, the screen protects the skylight from the low angle of the rays.

View Openings - The woven nature of the structure of the screen can adjust to desired views by 'compressing and stretching' the weave to create viewing ports and panoramic views.

Woven Cable Tension Ring - The screen also serves a structural role by acting as a weight to pull down on rocker arms that support the skylight. In turn, the arms are held together by a woven tension ring of steel cables. This allows the center of the roof to remain open as a reinterpretation of the traditional 'smoke opening' to now allow for the escape of hot air rather than smoke.



Woven Fabric Skylight Shade - The woven cables also act as support for the fabric panels that shade the skylight. By tracing the path of the cables they can be installed in such a way as to allow winter sunlight to penetrate while blocking most summer sun. The crossing pattern of the fabric forms small openings in between to create a dappled light effect in the central space, similar to the woven sun screen.

Sliding Interior Screens - The central space is separated from the interstitial spaces by a series of sliding privacy screens that adjust their visual permeability depending on the need. They therefore are graduated from the most opaque at the bathroom to the nearly transparent insect screens overlooking the porch.

Tension Fabric Room Dividers - Tensioned fabric panels would provide separation between the service spaces. The double curving panels would accommodate the changing geometry between the central space and the suspended screen.