

Mpumulo: Investigation of Culturally Embedded Abuse in the Design of a Self Sustaining Shelter for Women and Girls in Blantyre, Malawi

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SUMMARY

Applied Building Module Development Phase. The data collected in the three preceding phases is applied to develop a typical module of the building with greater constructive detail. Attention is focused on the constituent typological detailing conditions used to categorize strategic approaches to enclosure design.

1. Enclosure Strategy: meeting the ground. Careful examination of support conditions and connection of the vertical enclosure to the grade condition was examined in the light of the research described above. Water run-off is a controlling factor in the design.
2. Enclosure Strategy: meeting the sky. Experimentation with systems employing bundled grasses evolved into double roof strategies for both performance and design scale. Connection of the vertical enclosure to the horizontal roof system provided a ventilation zone.
3. Enclosure Strategy: opening the wall. Aperture development in the primary vertical enclosure is governed by light, ventilation, and span. Mosquito abatement is also a consideration.
4. Material architecture. A primary research objective is to identify materials that both reinforce Malawian indigenous culture, and are also low cost and readily available. Coupled with the material identification process is the effort to use semi-skilled labor to enhance education and training. Initially cast as a construction primarily of wood, concerns about deforestation in Malawi and cost dictated the use of alternate materials. Cement stabilized earth manufactured on site in a 15cm x 15cm x 30cm unit forms the primary vertical enclosure. Wood from the Blue Gum will be used only for spanning members. The waste stream in Malawi is being analyzed for potential material alternatives for the outermost roof layer. Roof tiles and floor tiles can also be made from earth when properly reinforced.

Continuing Research. The next step in the development of this research is the construction of three full-scale building module mock-ups. This will allow testing of assemblies and materials in two important ways. First it will test the constructability and performance of the modules. Second, it will allow the Malawian residents an opportunity to respond and shape the final outcome.