*MAKE**SHIFT***

An Experimental Stage for Spatial Exchange

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Underpinning this architectural design and discourse is the exchange of digital and physical space. An exchange that can be multi-directional, rapidly shifting embodiments of space between modes of digital and physical models. The parameters for translation are defined by a digital culture in flux, perpetually evolving new mediums for building real and virtual space. A new direct link has been established between design and construction, where digital methods of conceptualisation, modification and fabrication are questioning the historic relationship between architecture and its production systems. Sited at the University of the Witwatersrand, this thesis explores architecture's role as a mediator for digital and physical translation. By proposing an experimental stage for spatial exchange, the building facilitates the collaborative and interdisciplinary integration of students, academics, industry partners and public around the archiving, projecting, conceptualising and fabricating of digital model space. As a hybrid, the building reimagines the factory, studio, library and archive typologies, subsequently speculating a new contextual role for university architecture that is educational, industrial, cultural and public.

As a by-product of an evolving digital culture, digitals models can be conceptualised, manipulated and embedded with intelligence. Advancing applications of virtual reality, however, free these digital models from conventional two-dimensional modes through immersive simulations that enable users to engage and interact with digital models of all scales. Furthermore, virtual projection mediums have the potential to transform how designers conceive, perceive and modify digital model space through the advent of intelligent sensor and tracking devices that allow human gestures to shape digital form. While digital models have traditionally been generated from nothing, new three-dimensional scanning technologies enable the capturing of small to large-scale physical space digitally. Finally, digital and robotic fabrication tools facilitate the shift from digital to real space by constructing physical objects with a greater complexity, speed, scale, affordability and material composition than previously possible.

Comprised of a sequence of interconnected 'fields' – namely scanning, projection, studio and fabrication fields – the building facilitates the local and global exchange of digital and physical model space. As a platform for integrating all the constituents of spatial exchange, this design and discourse challenges traditional modes of praxis by speculating an alternative future for architecture, technology, education and greater society.