Along with increased production and development, the information age has also brought us a tremendous collection of environmental data, a lot of which is freely accessible or ‘open source’. This data, combined with the ease of access to powerful computational capabilities and low costs of customized digital fabrication gives the potential to push the construction industry into the age of sustainable development, whether by a bottom up or top down process. The architecture profession will either become more insular and guarded from the environment or it can become more inclusive and responsive to these forces of nature.

This paper seeks to question whether we can begin to create a critical framework for adaptation and evolution to address the climate challenges of today and the future; having our built environment develop in symbiosis with the natural world rather than against it. Can these new resources help redefine the design approach to include optimized pragmatic solutions to environmental data? The editing of this data is
paramount; what we want our architecture to respond to, and how the data is processed defines the form and function of our architecture and ultimately the longevity of sustained human life on this planet.

The research focuses on the adaptation and expansion of an existing open source WikiHouse platform. Currently it is a global, open-source, digitally de-centralized small home system, which is fairly autonomous; i.e. it has few connections to its specific environment and site. The research adapts this system to various natural forces and conditions, creating a new wiki design methodology, which incorporates various open-source inputs and new algorithms to create a more sustainable, adaptive design solution that is more in tune with its environment. It also speculates on future developments that would eventually lead to what Kengo Kuma has labelled an “architecture of disappearance, rather than image or form”.

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