Incremental Construction
Low-cost modular housing scheme, Addis Ababa, Ethiopia

Main author
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Summary by the jury
The research project Sustainable Incremental Construction Unit (SICU) is a response to the housing challenge in the rapidly-urbanizing capital of Ethiopia, Addis Ababa. The project is process-oriented and aims to both explore and implement specific construction techniques to tangibly upgrade the city’s housing stock. Whereas the first phase of the process was framed by collaboration between academia, local administration, and inhabitants; the second phase is specifically focused on the development of a prototype – a purposefully incomplete structure that is both affordable and rapid to assemble. Close to 90% of the building components including prefabricated concrete elements and lightweight eucalyptus frames are prefabricated and produced by micro and small-scale enterprises, creating the opportunity for skilled employment and capacity building. The housing unit is a “half-ready construction” where the homeowners will be able to finish the construction themselves, installing building components and finishes according to their needs.

Appraisal by the jury
The project incorporates a series of features that promote the concept of sustainability beyond the common understanding of the term. The jury greatly valued the role of the university as a critical player in advancing the constructive framework of the city, engaging a series of stakeholders – city officials, local inhabitants, craftsmen, etc. – in the very formation of the urban habitat. While the project offers strategies for formalizing the informal, at the same time it learns from local construction practices and social customs to produce a new form of urban vernacular – a strategy that essentially formalizes the formal.

Project data
Context: Architecture, building and civil engineering
Client: Administration of Lideta Subcity, Addis Ababa
Background: Research project
Planned start: September 2013

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Image 1: The SICU prototype is a compact double-story unit comprised of a prefabricated concrete lower structure and lightweight eucalyptus frames for the upper floor. After all parts have been prefabricated, the building was constructed in ten days by 35 students from three countries and now stands erect in a typical neighborhood of Addis Ababa, serving to demonstrate an alternative housing approach and to prompt further discussions between policymakers, industry and academia.

Image 2: The project experiment is situated in an area earmarked for total renewal in a typical neighborhood of Addis Ababa, one of the fastest-growing cities in Africa. New constructions in the city predominantly use concrete frame and cast in-situ construction; and the city has banned natural materials from being used in buildings since 2009, limiting the solutions available for house construction. It aimed to investigate possibilities for an alternative urban housing unit in this context.
SICU is situated in a compound of 150 inhabitants, most of whom have low incomes. The local community was present at the launch event for the assembly of the prototype. The prototype was also intended to initiate discussions between the different stakeholders. The flooring of the upper story of the house is constructed with prefabricated plywood boards. SICU is a semi-complete construction where the homeowners are able to finish the building themselves. Metal connectors were used to secure the eucalyptus frames to the wooden beams. Each prefabricated building element was coded and labeled to aid the efficient assembly of the building. Students from Ethiopia, Germany and South Sudan participated in the assembly of the prototype.