

## CATEGORY

### SOCIAL GOOD

## DESCRIPTION

A dilapidated residence in an historic hutong neighborhood in Beijing is renovated using prefabricated 'Plugin' panels. The site of Mrs. Fan's Plugin House was the client's childhood residence until her family moved to an apartment in the suburbs when she was a teen. Preferring the intimacy and convenience of her old neighborhood, Mrs. Fan commissioned a redesign of her previous home. Her old neighborhood, however, is characterized by overcrowding and outdated infrastructure, lack of sewage system and reliance on public toilet facilities.

The Plugin House provides a modern living standard not usually available in these old areas, while the energy efficiency of a Plugin equals or exceeds that of new apartment towers. Furthermore, astronomical real estate prices in Beijing make Mrs. Fan's Plugin House an affordable alternative, as it costs 30 times less than a typical apartment in the city.

Replacing part of the old house, the Plugin House is custom designed for Mrs. Fan with new functions such as a kitchen and bathroom with an off-the-grid composting toilet. The living room is a double height space with skylights on either side of the ceiling. Sunlight is channeled in from above to flood the previously dark interior with light. To relieve Mrs. Fan of her claustrophobia the small bathroom also has a skylight and receives reflected sunlight from a blue privacy screen. A roof deck gives Mrs. Fan breathing room from her dense surroundings and is a generous private social space.

The form of the house is not defined by regulations, but instead by negotiated demands from neighbors. The angles of the roof and heights of the walls are designed to maintain their access to sunlight, air circulation, and views. Even as the structure was under construction, new demands arose. The Plugin Panel material makes accommodating these changes practical: chopping off entire sections of the building can be done on site.

The Plugin Panels were originally developed for the studio's Courtyard House Plugin's "house-within-a-house" renovations, deployed in Beijing's hutong areas to upgrade

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aging courtyard houses. The prefab modules incorporate insulation, interior and exterior finishes, wiring and plumbing into one molded part, and are attached with an integrated lock using just an Allen key. A few unskilled people can complete construction of a Plugin house in a day. An advanced weatherproof version of the Plugin was developed for Mrs. Fan's house.

As an expression of intersecting social forces, the Plugin House follows a new urban vernacular born from local conditions. It is rare for original residents like Mrs. Fan to move back to these historic parts of Beijing. By improving living standards at an affordable price within given social constraints, the Plugin House attempts to breathe new life into old neighborhoods.

## PROJECT SPECS

Area: 28 square meters // Materials: Structural composite panel // Fabrication Techniques: Molding // Manufacturing Process: Prefabrication // Building Process: Prefab panels are attached together with an integrated lock using an Allen key

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Mrs. Fan's Plugin House is as an affordable housing solution for underserved individuals who would typically have no access to architectural services let alone low-cost housing. Her house was developed as a stand-alone version of our studio's Courtyard House Plugin, a preservation and urban renovation alternative to the blanketed demolition approach to redevelopment that is common in China. The Plugin system is an urban scale project, and not a one-off preservation scheme. Over 20 Plugins have been deployed in Beijing's historic districts with funding from local authorities, demonstrating the project's impact on the government's shifting stance toward the regeneration of old neighborhoods. We are involved with a Plugin master plan for the city, determining with local authorities where renovations will be most effective.

While most Plugins have been built with government support, Mrs. Fan financed the construction of her own



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### SOCIAL GOOD (CONT'D)

house. We have recently completed other Plugin Houses for locals of modest means. These unsolicited clients validate the Plugin system's viability and affordability.

The Plugin provides higher living standards in centuries-old, rundown areas of Beijing, encouraging families who have lived in these neighborhoods for generations to stay and others to return, helping to preserve social networks and cultural continuity. Plugins also attract younger residents who bring new activities to rapidly aging communities.

This prefab system is employed to quickly and efficiently upgrade dilapidated homes to modern living and energy standards. A house constructed from these modules can be completed in one day at a fraction of the cost of typical renovations. Plugin panels are erected with minimal disturbance to existing historic structures or the structures of neighboring properties, thereby preserving architectural elements and social relationships. Significantly, a social entrepreneur foundation has recently invested in the Plugin system, increasing the project's potential to expand in scale to further its social impact.