

WULUMUQI ROAD APARTMENT

About SKEW Collaborative:

SKEW Collaborative is an architecture and research practice that started in 1999 in the city of New York, and currently based in Shanghai and Hong Kong. Facing the need to reconcile these triangulated geographies, the cultural disparities between the cities became the raw material that feeds the studio's work. Through an analysis of culture and the city, SKEW seeks to create architecture that is elegant and relevant, but more critically, architecture that can increase awareness about our cities and natural environment. In every project, SKEW will examine architectural artifacts produced by different cultures in order to design architectural strategies that can bridge, critique and translate between cultures and systems.

Through various professional, research and academic platforms, the design principals of SKEW are committed to an inventive and culturally sensitive design practice. The design principals are currently teaching at the University of Hong Kong in Shanghai and Hong Kong. They have also taught at Columbia, Yale, Princeton Universities, NYU and Pratt Institute. SKEW's work has been featured at acclaimed design events and forums such as the 2004 Venice Biennale, 2004 Singapore Art Festival, 2004 SENI Contemporary Art Exhibition, 2005 ERA05 Copenhagen World Design Congress, 2005 Harvard Asia GSD Tsunami Design Conference, 2007 & 2009 Shenzhen Biennale, 2008 Fondazione Sandretto Re Rebaudengo's YOUprison Exhibition, 2010 Beijing Architecture Biennale, 2011 Chengdu Biennale, and 2011 Singapore Hub-to-Hub Public Art Exhibition.

Wulumuqi Road Apartment - A Study in Sustainability and the Vernacular

The alteration and addition of Wulumuqi Road Apartment took advantage of what was an interpretation of a local policy of urban beautification in the city of Shanghai. There was a city-wide policy (平改坡) where pitched red-clay tiled roofs were being added to the flat reinforced concrete roofs of modern commune housing that were considered dull and devoid of civic or traditional character. The drab housing that qualified for this alteration tends to be housing blocks that were built hastily by the Communist Party in the 1940s and 50s. However, the site for this project was a particularly poorly built Lilong housing block of the 1930s.

In the re-design of this top-floor apartment, the original flat roof was partially demolished to give way to an attic addition. This addition not only took reference from the vernacular form of the dormer window found in the neighborhood, it also attempted to engage in traditional, local building practices, as well as literally create the new from discarded building materials.

Name of Project: *Wulumuqi Road Apartment*

Client: Huang Family

Design Firm: SKEW Collaborative

Principal Architects: H. Koon Wee, Eunice Seng, Darren Zhou

Team: Zhao Wenju, Sam Cheng, Beatrix Redlich

Green Dot Award Category: Build, Residential



City, Community, and Memory

The design sets out to blend the addition with its surrounding by adopting the city's policy of generating more pitched roof housing with civic character. Without being embroiled in an aesthetic debate of what constitutes a more contemporary language of architecture, this project took the pitched red-clad tiled roof as the Shanghai 1930s modern vernacular, and reconstructed a new narrative around this genealogy.

However, it was crucial for this project to engage and critique the development of rapidly urbanizing Shanghai, where rampant regeneration threatens to wash away traces of the city's history, and the intelligences of traditional building crafts. The construction of the new attic roof was done with recycled red clay tiles, bricks and timber beams from demolished buildings in the vicinity, and local craftsmen were hired to build it in the old fashion way, using traditional and affordable sheet metal flashings, roof valley gutters, and perimeter gutters. The project thus adds a twist to the adaptation of the dormer window and pitched roof vernacular. Apart from visually connecting to the 1930s modern heritage of Shanghai, it also connects more deeply to the socio-economic roots of its surroundings by searching out the old generation of trades and craftsmen who could put their skills to good use.



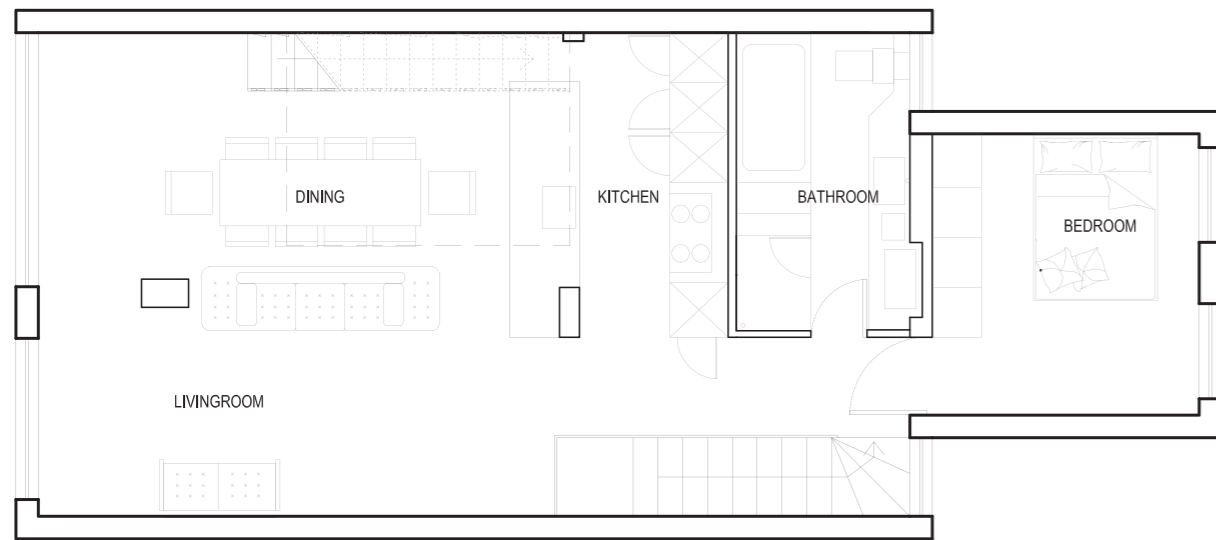
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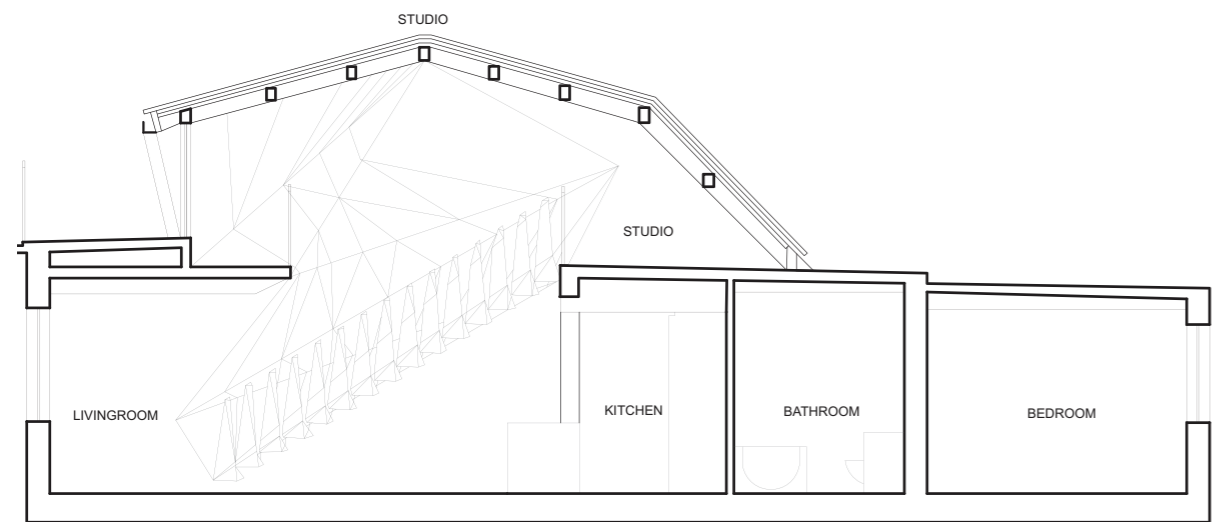
Minimizing Carbon Footprint

The main contribution this project makes towards green building practices is the maximum use of recycled building materials and the retention of the original architecture. We actively sought out projects undergoing demolition in the surrounding neighborhood to obtain materials such as clay roof tiles, bricks, and timber beams, which became the raw material of the added attic structure. This desire to go with local recycled materials and craftsmen meant that the carbon footprint could be kept at a minimum.

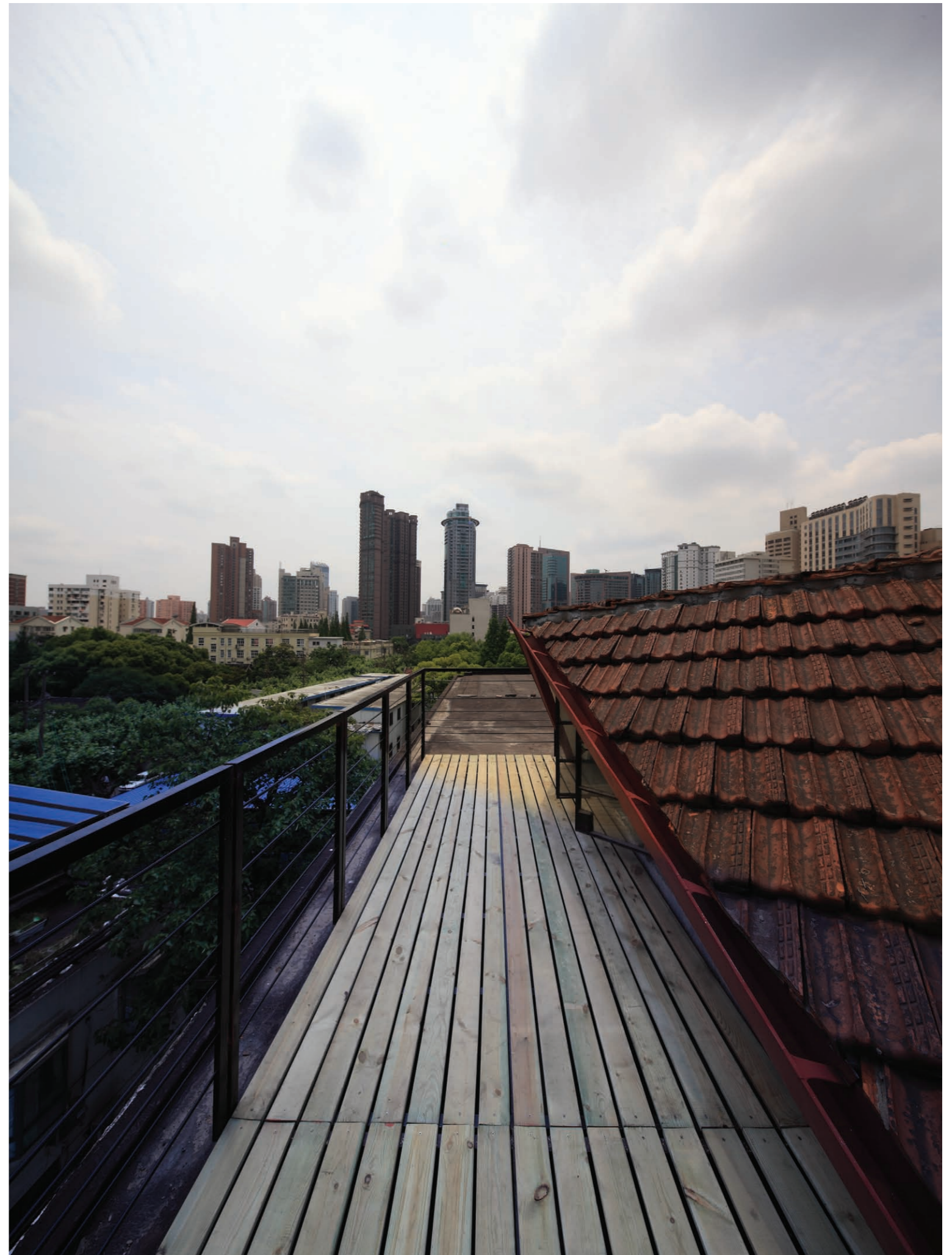
The other notable challenge was how the original architectural fabric was retained to ensure the character of the architecture was protected. For example, original steel windows were retained in favor of standard aluminum windows, but these steel windows had to be retrofitted with insulated glazing and seals. Because the old steel window frames had very small sectional profiles, the absence of a thermal break became a less problematic issue. The design also retained the existing wood flooring and original staircase, which were found to be in relatively good condition.




Plan Drawing



Section Drawing





Energy Efficiency Through Form

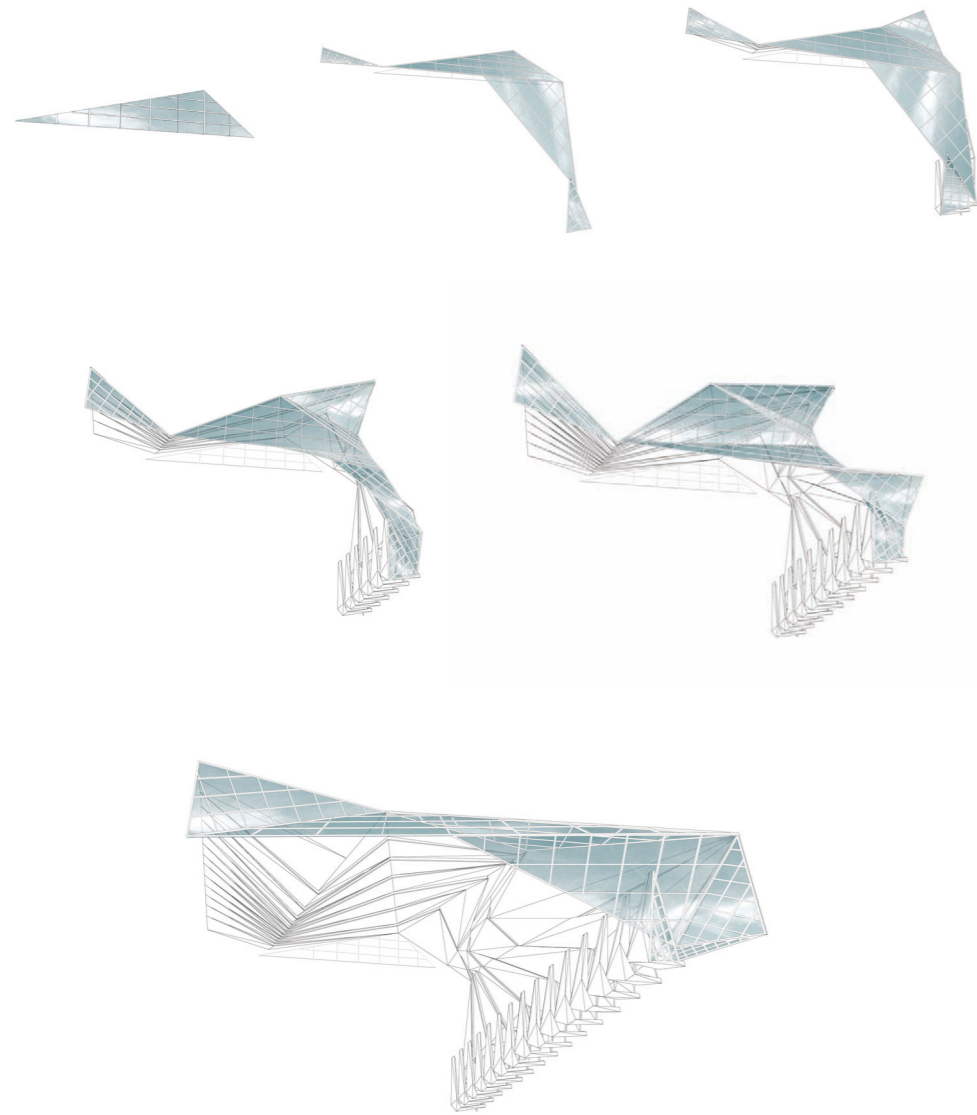
As the addition was done on an existing building from the 1930s, the design had to mostly rely on traditional, rather than high-tech solutions, for energy efficiency. The creation of a dormer window in the addition meant that natural light could penetrate deeper into the apartment, reducing the reliance on artificial lighting systems.

At the same time, the new double height space allowed for a passively cooled interior, where hot air is able to rise and escape through the attic windows. Supplementary heating systems and radiators were also placed along the perimeters where the fenestrations are, to minimize heat loss and gain.

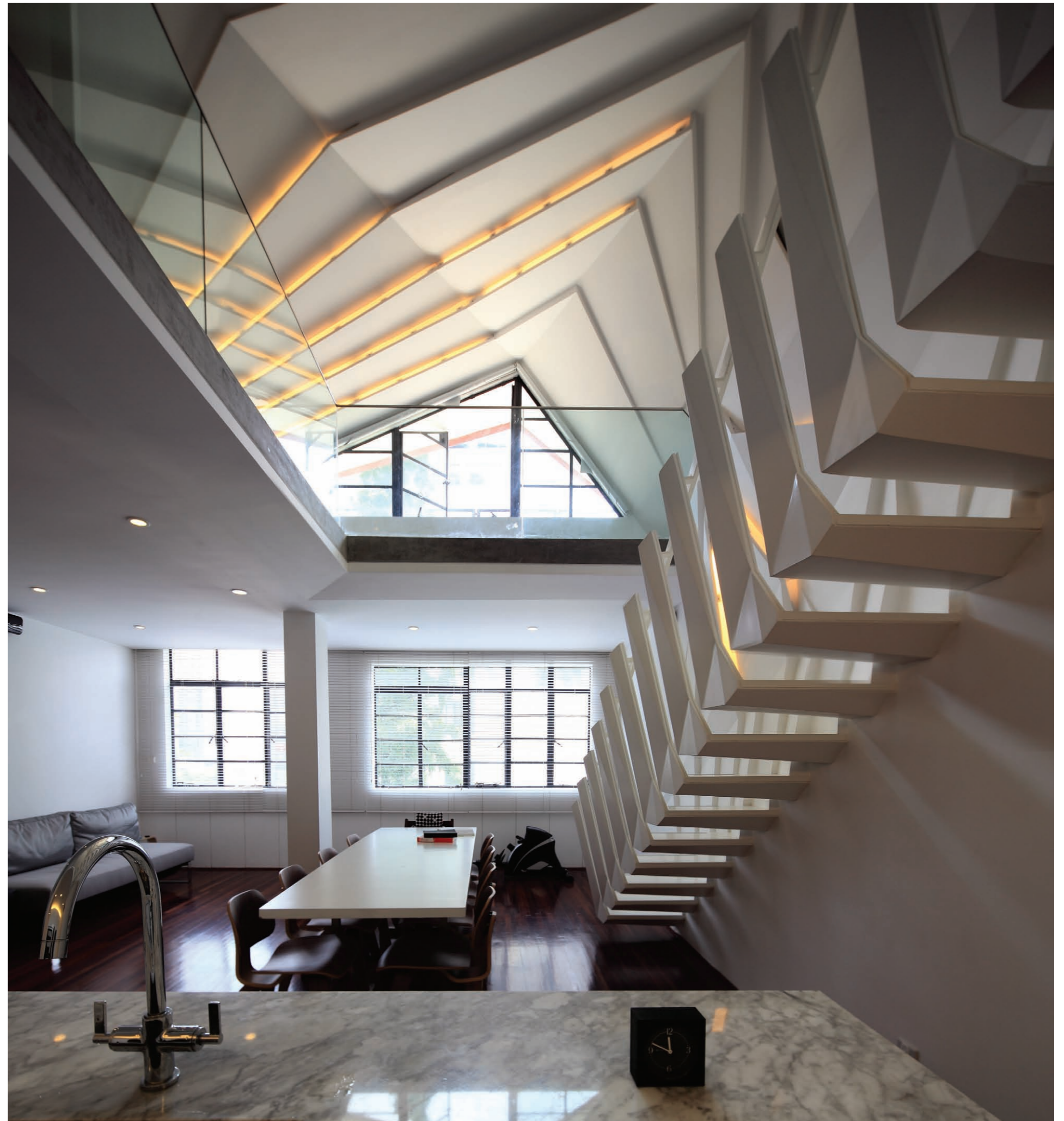
Learning from the Vernacular - Formal Experimentation

While the environmental and social ambitions of the project looked to the vernacular for inspiration, the very same design intelligence became the springboard for architectural experimentation. On a formal level, the triangular form of the dormer window roof served as an archetypal form that was rigorously applied to this project, with all of its implications of structure, envelope and geometry.

This triangulation – traditionally necessary in a dormer window in order to bring daylight into the attic – was extrapolated to give shape to the ceilings, walls and a new staircase. Indirect artificial lighting was achieved by concealing lights along the edges of overlapping triangles that made up the walls and ceilings. The staircase took on a similar form, where each tread and baluster was separately articulated to mark the culmination of these graduating and transformative triangle surfaces.



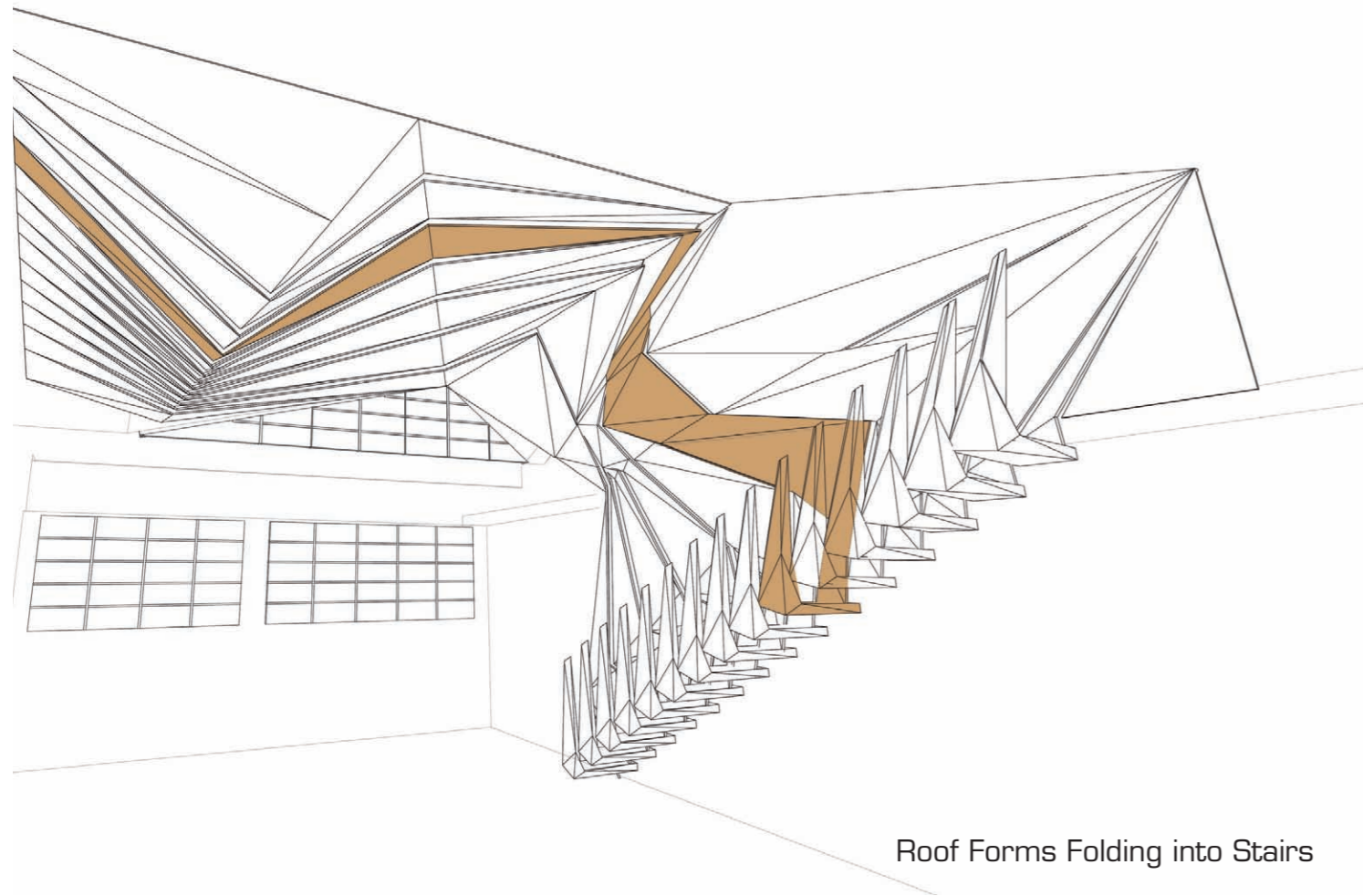
Unfolded Windows' Frame



New Programming and Forms for Contemporary Living

The addition of an attic bedroom and study meant that the main floor can be freed up as an enlarged loft-like living space with an open kitchen, instead of its original walled up bedrooms and living room. On the programmatic level, the new continuous form not only gave rise to the fluid expression of the staircase, but it also gave an organizational logic to other functional needs of the apartment, such as roof level access to a small outdoor roof patio, as well as a passively cooled interior. The rest of the apartment was kept relatively plain and simple, where the existing industrial steel windows, wooden flooring and white plaster walls were retained, in anticipation of the unfolding elements from the new attic space.

The Wulumuqi Road Apartment is a multi-faceted project, not only in its design, but also in its making. Through its form-finding, concept, construction, and narrative link to history, the project aims to reclaim criticality as a central part of the design discipline, which often foregoes substance for flash.



Roof Forms Folding into Stairs

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