

Archi-Tectonics refurbishes an old townhouse with a new climate skin in SOHO, New York



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Tags: [Residential](#) / [Adaptive Reuse](#) / [House](#) / [Refurbishment](#) / [Jaali](#) / [New York](#) / [Recycled Materials](#) / [Lattice Facade](#) / [Climate Skin](#)

Type: [Houses](#) [Residential](#)

Architect: [Archi-Tectonics](#)

Size: [S](#)

Year: [2021](#)

People: [Justin Korhammer](#) [Winka Dubbeldam](#)

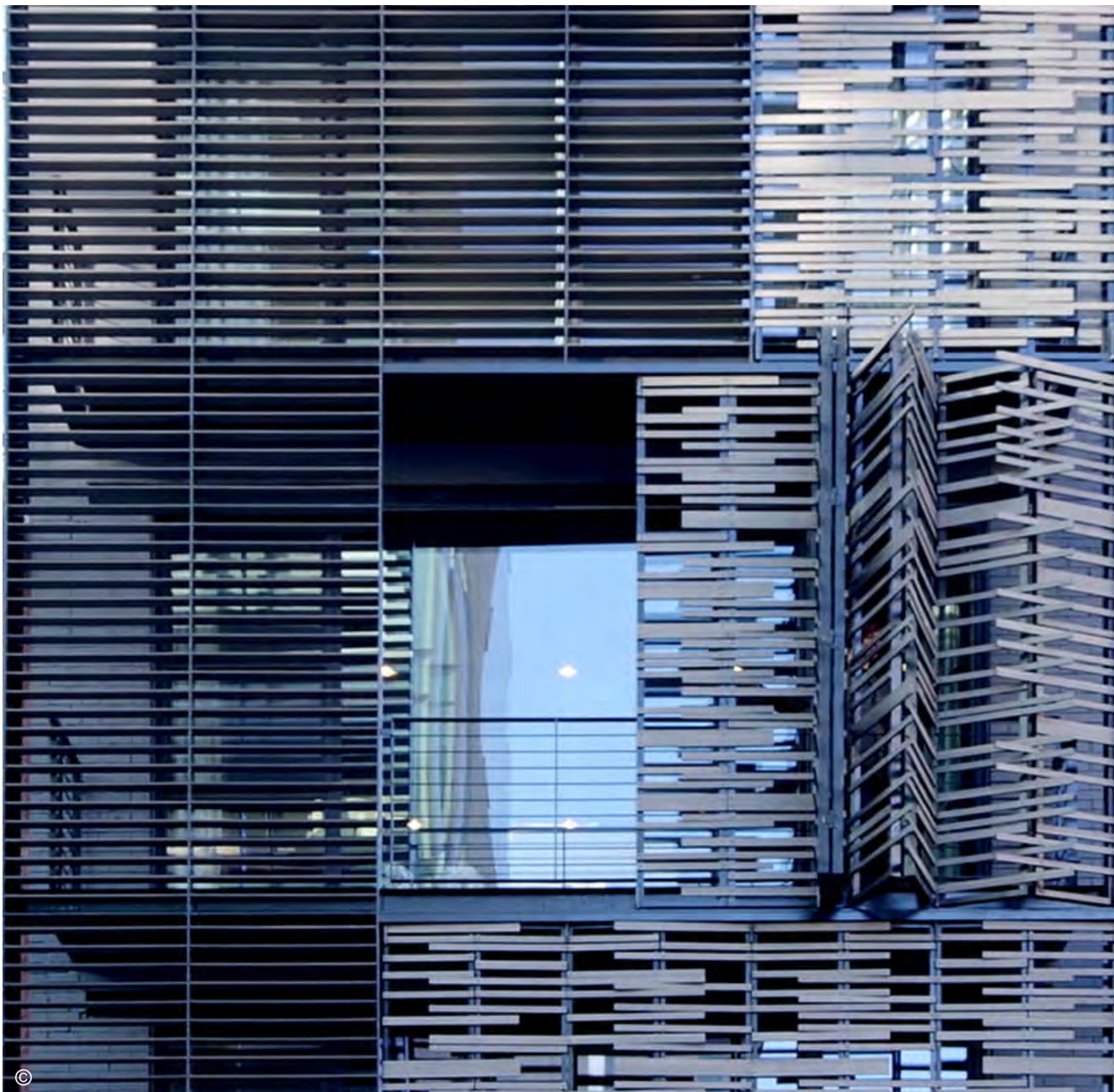


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Repurposing old structures for current times is an effective way of managing our current building stock and increasing their lifespan. It is widely accepted that adaptive re-use of old structures and upcycling of materials is an effective way to cut down carbon emission in the construction industry. It also offers innovative approach to counter housing shortages and skyrocketing prices in our cities, by utilising what already exists, instead of building new.

New York-based firm, Archi-Tectonics has completed the refurbishment of an old townhouse in SOHO area in New York, turning it into an 8-storey family home. The original 4-storey narrow industrial structure has been repurposed by adding 4 new stories on top and a new lattice façade, described by the studio as a 'climate skin'.

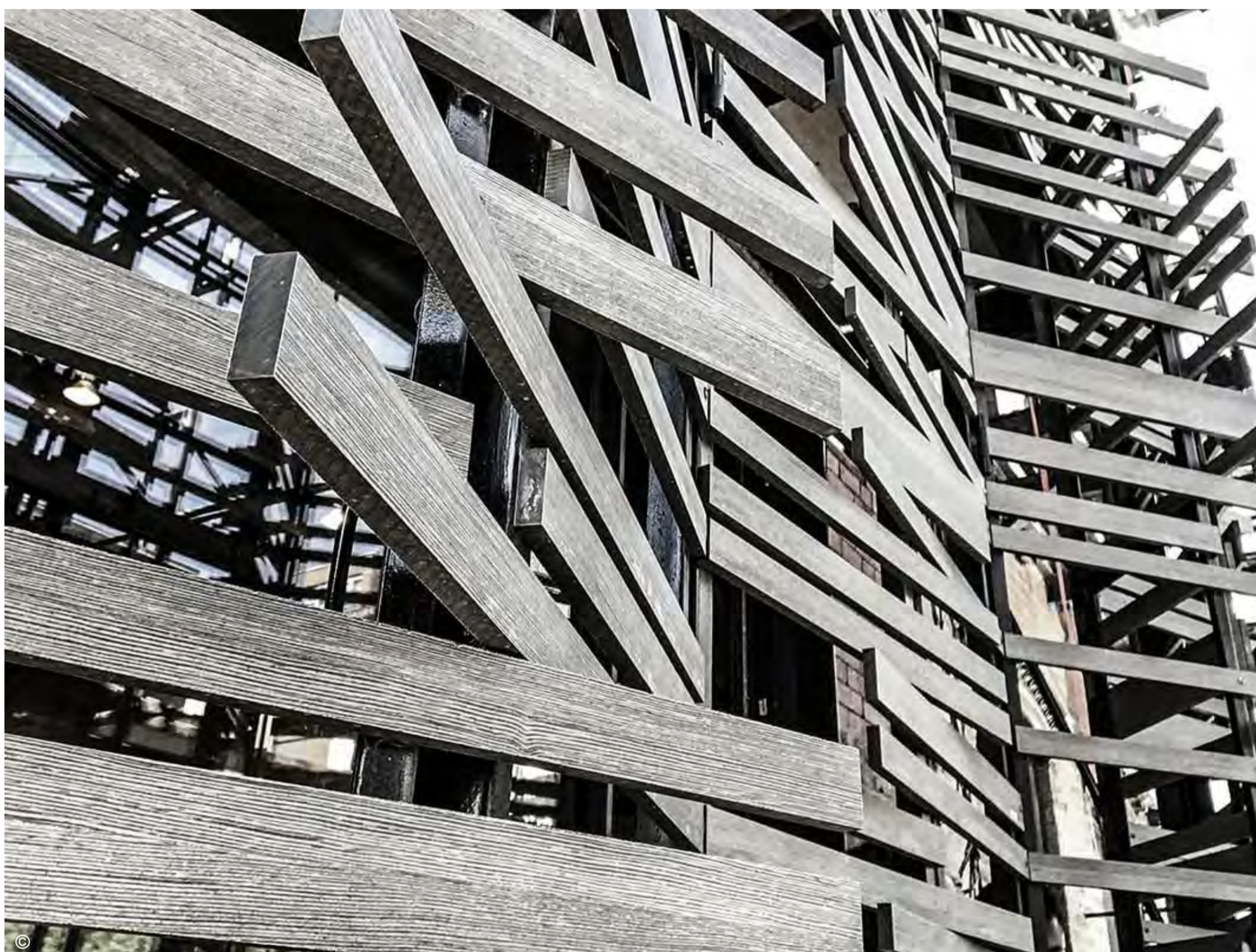




Completed in 2020, the building's 'climate skin' is made up of lightweight steel frame and folding panels, clad with slats made by Trespa. The black and grey colour lattice envelops the whole façade and draws the eye upwards where it wraps over the roof, sheltering outdoor spaces. The exterior skin is composed of 1,407 square feet of prefabricated panels that provide privacy to outdoor spaces.

"When closed, they appear as one smooth surface, but when opened, they fold out like feathers of a birdwing. Like an intricate lacework dress, the sheathing changes character and appearance at different times of the day and view angles and serves as both filter and amplifier between the privacy of the house and the public streetscape," explains the studio.

This new skin pushes the sustainable agenda, by providing control over its operability, giving flexibility to the residents to adjust ventilation, light, shade and temperature to achieve desired thermal comfort inside. The openable panels are set on rolling tracks and their resting and operable positions were optimised through extensive prototyping by the studio.





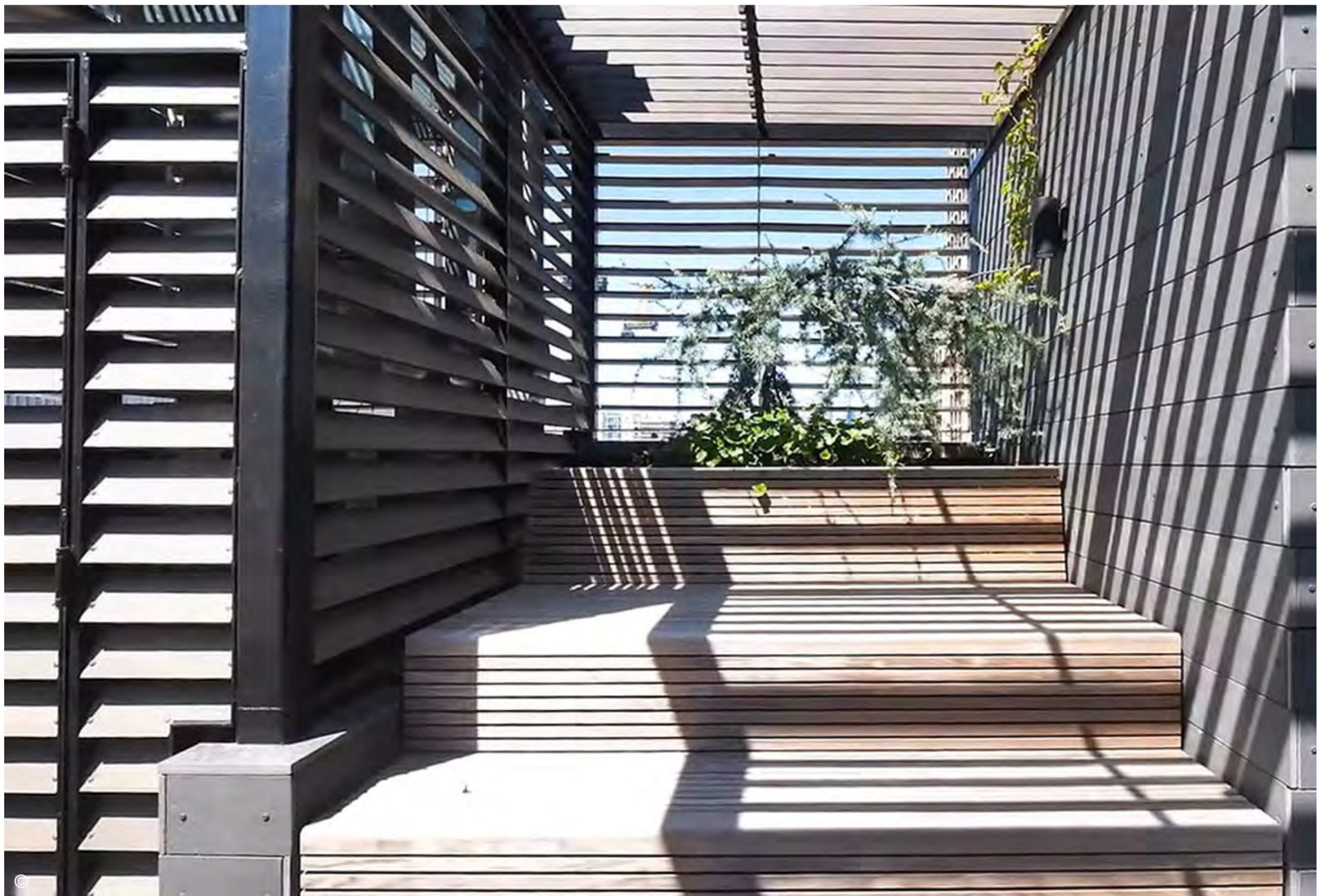
The 'climate skin' flexibility and operability allow it to reduce the internal radiation during the summer months, passively cooling the house and reducing the need for air-conditioning. During the winter months, the residents can open up the panels to let the sun in and heat up the interiors passively, reducing the reliance on heating. This strategy allows cutting down solar radiations by 45 per cent in warmer months and increase it by 25 per cent in cooler months, reducing the electricity usage in the house.

Once inside the townhouse, the iron-dominated character of the neighbourhood is reflected through the use of black steel inside the whole house. As part of the sustainability strategy, the house also restores the existing brick wall and upcycles the materials from the original building.











Internally, to increase the sense of space and improve visual connectivity, each floor contains a program connected through double-height voids. To improve the daylighting in the interiors, the architects incorporated double-height windows, a skylight and south-facing continuous window slot, bringing ample light inside.

The studio continues, “The climate skin’s adaptability to environmental conditions represents a rethinking of the residence’s footprint on the environment and reduces energy costs.”

The townhouse is a radical departure from the glassy towers of New York. The façade design is a vehicle to achieve its sustainability ambitions. Through its design, the house belongs in the existing neighbourhood and shows a way forward for urban living.

PROJECT DETAILS

Architects: Archi-Tectonics

Principal in Charge: Winka Dubbeldam, Assoc. AIA

Partner in Charge: Justin Korhammer

Archi-Tectonics Team: Hanxing Zu, Sarah Lulan, Filomena Nigro, Avra Tomara, Royd Zhang, Zhe Wen, Kristina Kroell, Elena Sarigelinoglu, Hsiang Wei Chen, Adin Rimland, Boden Davies, Nariman Kiazand, Robin Zhang, Thiebaud Nell

Main Contractor: Galcon Construction

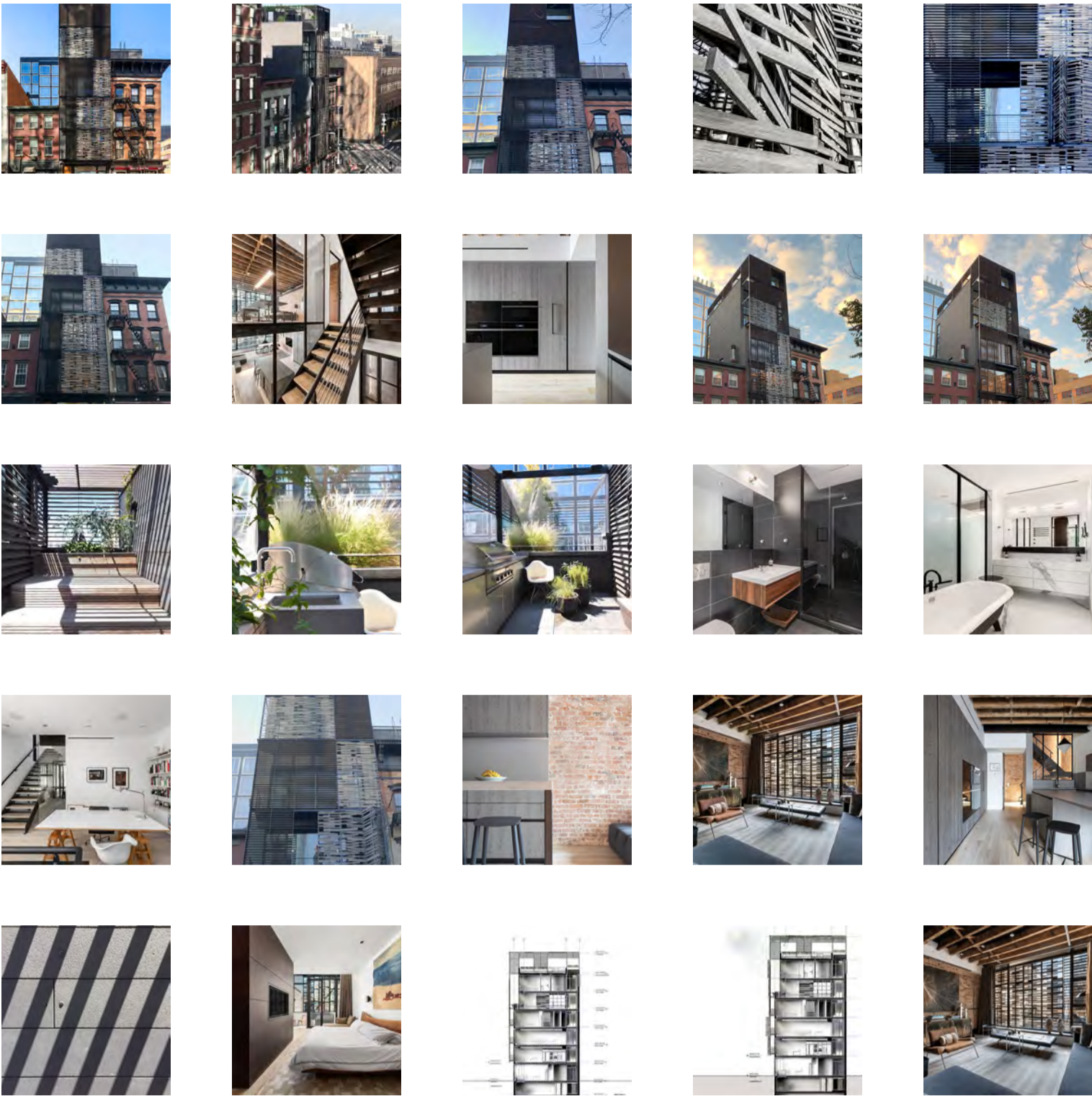
Consultants Structural Engineers: WSP GROUP

Mechanical Engineers: 2LS Consulting Engineering

ABOUT ARCHI-TECTONICS

Founded in 1994 by Winka Dubbeldam, Archi-Tectonics is a WBE-certified design studio with offices in New York City, Amsterdam, and Hangzhou. Dubbeldam and Justin Korhammer, partner since 2016, lead a multi-national team of architects, urbanists, industrial designers, and engineers that work across scales and types. The studio’s approach is rooted in systems thinking, exploring the interrelations between cities, buildings, environments, and objects, developing designs optimized across all aspects of a project—from production and manufacturing to performance and user experience.

IMAGE GALLERY



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