

Facade Environments

The Potentials of Large-Scale Adaptive Models

Hisham El-Hitami, Mona Mahall and Asli Serbest

Abstract: Facade Environments is a large-scale spatial installation that models an adaptive facade conceived by the authors. This facade is based on research arguing for the negotiability and adaptability of spatial limitations and thus for connections across the architectural facade. The model shows how size and scale create immersive qualities and how the operability of our spatial boundaries encourages relationships between beings and things.

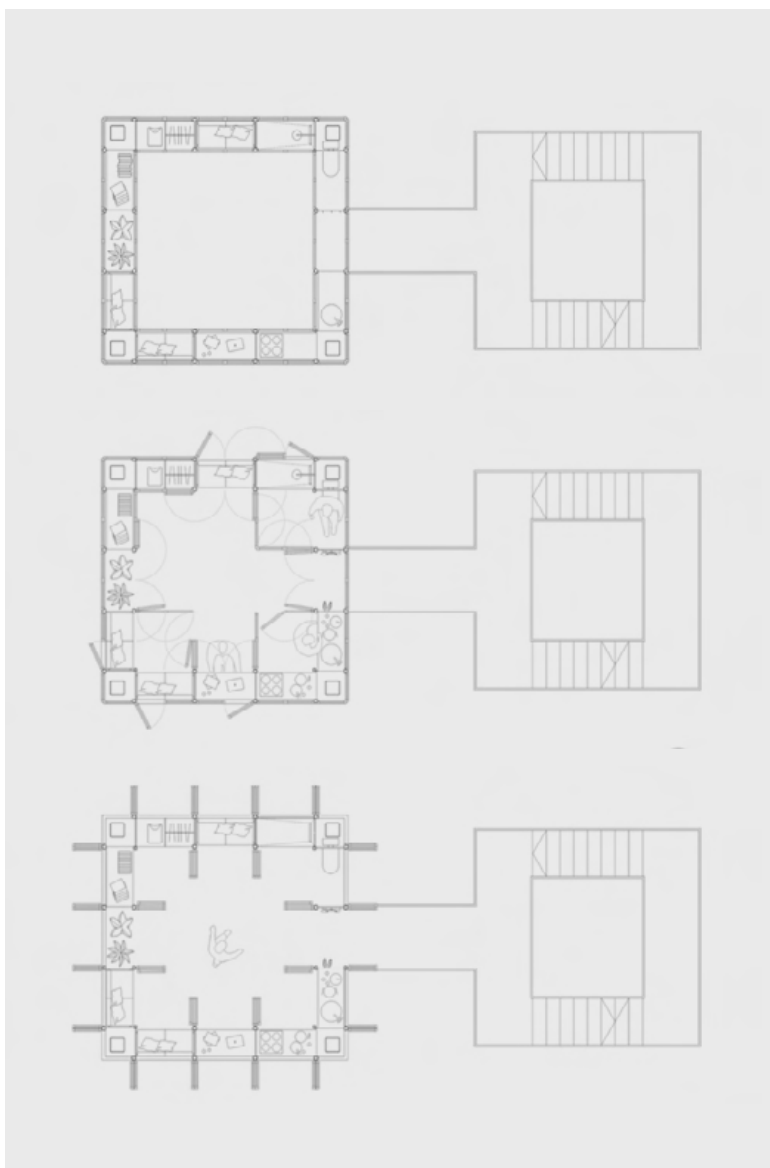
Keywords: Model; Facade; Windows; Environments; Spatial Installation; Inside and Outside

This article is based on the presumption that models exist as their own spatio-material objects, in constant dialogue with planners, architects, clients, and a possible public, as well as a changing political and cultural context. Constructed in part independently of the project design and the plans they represent, they have a material, historical, and symbolical life and affordance of their own. In that, models share qualities with maps, doll houses, or amusement parks.

Thea Brejzek and Lawrence Allen consider models to be »inherently performative and epistemic« (2018: 1). In other words, they intersect with the realms of the »projective design« and the actual lived world. Paying particular attention to large-scale models, Brejzek and Allen argue that it is not so much the scale but the size that can create a sense of immersion in the relationship between the observer and the model. According to them, by being physically accessible and creating a particular atmosphere, such large-scale models can be both an outcome and a reflection of modes of perception. This description applies to the model of a facade case study that we recently realized within the Collaborative Research Center 1244, where we have been developing a comprehensive approach to architectural adaptation as a relational process that involves things and beings.

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floorplans of case-study facade, various spatial conditions.

Illustration: Hisham El-Hitami, 2022.

Titled »Facade Environments« and built at a scale of 1:2, the installation models an operable glass facade with a space between the interior and exterior layer, thus creating a variable in-between space (fig. 1–3). While the implementation of the case study is still pending, we have built this large-scale model as a spatial installation that could be visited at the festival of the International Building Exhibition (IBA '27) in Stuttgart (fig. 4–10). The model is large enough to be accessed and experienced spatially, yet small enough to be understood as a concept rather than a concrete inhabitable space. When entering, visitors have an ambiguous sense of being inside and outside the structure: They can overlook it but are simultaneously enclosed by it and can feel the large scale of its interior space. The operable facade elements are almost life-sized, yet they require us to bend over to pass through, reminding us of our physical relationship with the spaces we inhabit. Our perception of the environment is thus reconnected and directly related to the size, position, and activity of our own bodies, even more so as the installation allows visitors to navigate boundaries and inhabit different spatial constellations that require our physical, performative, and playful engagement. Fundamentally an open-ended process, interaction with the installation suggests that space is always in the making, with things and beings equally involved as space-making agents.

Reflecting on the dichotomic conception of interior and exterior spaces (Ulber/Mahall/Serbest 2021), we have moreover been focusing on the design of facades and their potential to allow transboundary connections. Challenging the rigid discrimination between inside and outside (Morton 2010) proves to be a key obstacle in understanding the entangled relations in environments. Previous research shows the potential of two-layered facades to encourage relationships between beings and things on both sides of such spatial boundaries (El-Hitami/Mahall/Serbest 2023). Beyond incorporating the ambiguous space to challenge the dichotomy between inside and outside, the installation allows visitors to negotiate its spatial limits. By moving the facade elements, the boundaries between inside and outside shift and reveal the (often overlapping) spaces as »unstable« and permeable. The fact that the space cannot be stabilized is demonstrated by the enormous variety of spatial situations created by visitors. The elements are moved around in ways beyond prediction during the design phase of both the initial facade and the 1:2 model, using two-dimensional drawings and digital models.

To support the spatial conception, the window panes have different colors depending on their position in the structure: The outer layer is yellow, and



4.
»Facade Environments«, spatial installation at TOP, Berlin.

the inner layer is blue. This highlights the double-layered nature of the facade as the visual superposition creates a green color. At the same time, it visualizes the space in between the layers in the fields of vision where the panes do not overlap. In addition, one angle of the installation uses red glass to highlight the spatial extensiveness of the project's corners. Together, the three window pane colors create a variety of different colors and shades, especially when they are moved around and rearranged according to their initial closed position. This encourages active engagement with the installation, which changes spatial boundaries and colors in correspondence with the visitors' interactions. It also challenges the experience of what is regarded as strictly inside versus outside the installation and, more generally, addresses the boundaries between human-made interiors and their surroundings.

Due to its size and scale, as well as material and color, »Facade Environments« anticipates the immersive and participatory experience of an adaptive architecture. Visitors engage with the installation in an enthusiastic manner and create their own spaces and color schemes while exploring and appropriating the ever-changing structure. This realization is of notable importance considering current architectural developments, which require buildings to perform in increasingly adaptive ways to meet the demands of changing societies for mutable spaces. In many cases of modern interiors, air-conditioned spaces surrounded by non-operable glazing, automated sunscreens, and a distant external world make it increasingly difficult to recognize the intimate relationality of beings and things. In contrast, »Facade Environments« might remind us of the mutability of the boundaries we set, the various and shifting relations we maintain with our surroundings, and our own agency as human beings in co-constituting the environment.



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Photo: Hisham El-Hitami, 2023.





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Photo: Hisham El-Hitami, 2023.



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