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Inhabiting the facade: conquering a sensory layer

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Abstract. *In the current context of architectural design and developments, the facade shifted away from its traditional function of dividing, light-filtering wall. It is now diversified in an array of increasingly complex spaces, thus growing in adjustable thickness. Balconies, loggias, terraces, corridors, all stemming from different cultures, nowadays develop new spatial, environmental and behavioural propositions. Moreover, the paper shows how the study of ambiances of the ensemble of intermediary spaces, brought together under the name “Thick Facade Devices” (TFD), can highlight cross-cutting and contemporary challenges regarding the design of intermediary spaces.*

Keyword: *thick interface, balcony, ambiances, appropriation, inhabiting, eco-district*

Introduction

In 2050, according to OECD projections¹, more than 70% of the world's population will live in cities. Urban sprawl finds its limits considering that space is a finite resource-good, and that distances create a strong dependence to cars, playing a part in global warming. In response to that, cities choose other lines of development, especially in terms of housing, which increases density and encourages the creation of new ecological neighbourhoods. However, a dense habitat goes against the still widely shared ideal of individual housing, and it is far from being approved by the population living in it. Moreover, from the perspective of collective housing, especially social housing, density often goes together with a negative perception of the habitat, as it creates a proximity that makes intimacy difficult for residents while imposing external constraints.

We noticed during this research a real desire to open housing to the city and the city to housing; this objective is often expressed in the form of the creation of intermediate spaces, such as balconies, loggias, terraces and corridors.

These intermediary spaces between interior and exterior, integrated into a facade, are becoming more and more decisive in the design choices of collective housing in dense urban areas and even in the case of numerous renovations.

The locals are looking for a direct connection with the outdoors and the natural elements: being able to take the air, enjoy the sun, relax, without having to leave your home, represent an aspiration commonly shared today. Intermediary spaces give residents a feeling of freedom and well-being, the feeling of having a piece of sky, of being able to connect to the world.

The general hypothesis of this paper is that the ensemble of intermediary spaces (balconies, loggias, terraces, corridors), brought together under the name “Thick facade devices” (TFDs), fully takes part in the design and the experience of contemporary

¹ <https://www.oecd.org/fr/env/indicateurs-modelisation-perspectives/49884240.pdf>

housing. Especially implemented in sustainable neighbourhoods, TFDs are increasingly becoming operators of architectural design that strongly involve ambiances in their impacts on lifestyles.

Thick Facade Devices (TFDs)

TFDs belong to the “intermediary spaces” family, i.e. places characterising a transition area that separates two spaces with two different degrees of intimacy, establishing connections between the inside and the outside, enabling permeability with natural elements, neighbours, the urban context or the bigger territory.

Nowadays, the imperatives of ecological transition, Economic concerns, the evolution of the family, longer life expectancy and the evolution of the world of work completely disrupt housing design. The quality of these must be measured by their capacity to transform. So we should consider several functions and multiple uses for these thick facade devices, which are now part of the current architectural vocabulary.

Architects thematise more and more their designs from TFDs habitability's potential habitability's TFDs by various factors, for example by connecting them to nature, by creating intimate interfaces to better inhabit the dense city. By definition, TFDs, all stemming from different cultures, developed nowadays new spatial, environmental and behavioural propositions.

In addition, the growing interest in these extensions of housing to the outside is concomitant with a new urban planning which incorporates the objective of reducing energy costs, the desire to develop common outdoor spaces and to offer qualities of ambiance both inside and outside.

This urban planning leads to new types of neighbourhoods which offer a variety of innovative architectural forms in terms of morphology, materiality and ambiance.

An architectural element in evolution

Balcony and its different variants (loggias, terraces, corridors), considered as thick interfaces, constitute an evolution of the problems of recent architectural design and are omnipresent in new constructions which follow the principles of sustainable development. These interfaces are however rooted in a history linked to the evolution of potentials and technical knowledge from different epochs.

Military device in the Middle Ages, a space of representation and power around the 17th and 18th century. In the 20th century, it is considered an extension from the inside to the outside and is given real use. The balcony inhabited at 21st century with a new usage which gives it the role of one more interior room and a construction mark participating outside on the urban level; and finally at the moment of the confinement, the balcony becomes the star of the confined city, both a place of survival and freedom, of demonstrations in support of carers, and of a control tower from which the confined people watch the neighbourhood, or even have a little social life with its neighbours. The balcony has developed as a place to live where we look at each other, where we interact. Today the question of power is no longer expressed in the same way, but the fact remains that these TFDs are used by users to regulate their links with the direct exterior, the neighbourhood, the street and the immediate environment. The ambient dimension of these devices is today embodied in a very large number of possibilities which are

ultimately only a logical evolution in relation to the needs of the populations, the contemporary city, its environment and its lifestyles.

The exploration work; at the origin of this paper leads to the following questions:

- Do the intermediary spaces allow you to change the feeling of density and intimacy, and by what means?
- How do these devices offer new modes of appropriation for the inhabitants?
- Can we consider them as sensory instruments for reception and for the production of ambiance?
- How important is the modularity and flexibility of the TFDs to improve the quality and sense of appropriation?

In an attempt to answer these questions, we have essentially studied the potential for appropriation of TFDs in new neighbourhoods where they seem to contribute to better living in collective housing by responding to this complex equation between density, intimacy and sociability.

Methodological Itinerary

This research has thus started on the ambiances of the thickness of the facades by first working on the only sound modality through a research contract entitled " Esquis'sons "². The main objective of this project was to explore the sound dimension of TFDs from the angle of the articulation between private and public space in six sustainable neighbourhoods in Europe. This perceptive dimension, less directly worked on by the architect than the visual one, appeared as a very good entry to the development of our problematic.

The question of ambiances must be approached from a multidisciplinary point of view; the sciences of construction, i.e. all the technical devices implemented by architects and builders, the physical reactions of these spaces to sounds, heat and air currents, are only one facet of the phenomena of ambiances. Ambiances are also actualized in the ordinary practices of these spaces where qualitative dimensions less predictive like social practices, postures play an equally determining role.

At the end of the "Esquis'sons" contract, we undertook a second stage of research to extend the observations to other senses with complementary methods.

An initial fieldwork focused on the architectural solutions developed in the so-called "ecological" districts in Grenoble and Boulogne-Billancourt in France.

During our work, we studied in detail a certain number of buildings and we conducted a series of architectural surveys and then a series of sensitive surveys to assess the ambiances created and produced in and thanks to the TFDs. These surveys were combined with surveys of the residents of these neighbourhoods, to better understand the particularities of their use of TFDs. We have also produced a series of videos to encourage residents to project themselves and imagine transformations that could improve their usage. On the strength of these experiences, it appeared interesting to cross these technical, sensitive and social dimensions and to bring them together in a methodological

² <http://www.esquissos.fr/>.

tool for representing the observed phenomena: a directory of 25 technical-sensitive sheets.

The objective is both to describe what is happening in each field of study, but also to show the minimum conditions for the existence of phenomena.

To respond to the hypothesis that the thickness of the facade is a way of influencing the ambiance and offering comparative presentations between TFDs, we then synthesize the analyses of our technical-sensitive sheets in a table which then made it possible to carry out a large number of sorts, reconciliations and comparisons.

Six angles of reflection

At the end of this cross-analysis by filters, we have grouped our results into 6 headings which today question the general thematic of TFDs: 1. A **contextualized interface**, 2. A **chameleon space**, 3. An **area to play with the five senses**, 4. A **cocoon space**, 5. A **space for sharing and sociability**, 6. An **interface from flower to mountain**.

For the sake of space, we will develop only four of these themes here. For more information, the interested reader is referred to [Thesis]³.

1. A chameleon space: a space with strong adjustable appropriation

With this expression, we are questioning versatility, i.e. a space involving flexible configuration, by mobile architectural elements and devices, thought out from the conception or whose shape and dimensions allow diversified uses. Certain types of TFDs favor the appropriation of the inhabitants better than others. For example, the loggia, by its degrees of closure and also the supports that walls and ceilings represent for hanging protective devices, is more likely to be flexible in relation to the climate, orientation and privacy. This is also the case for the mixed or double-skinned types of TFDs. On the other hand, other types such as the projecting balcony leave little possibility of diversifying atmospheres and uses. The degree of closure and the modularity of the TFDs are therefore the two essential criteria for the expression of this configuration called "chameleon" space, because the image evokes the change of skin depending on a direct and sensitive environment, both climatic that social.

2. An area to play with the five senses

TFDs can become a place of exchange, passage, negotiation for the senses and therefore is likely to enrich the perceptions and feelings of the architectural capacities developed by the design.

This field of questioning "a place for each sense" engages the designer's reflection on the porosity of the TFDs in both directions of depth, towards the interior of the dwelling (continuity, transparency) and towards the exterior.

The size and quality of the openings and glazing, with their light, sound, thermal, aeraulics and olfactory contributions, become major ambient factors here.

³ <http://www.theses.fr/2019GREAH019>

Their modulation will impact the interior/exterior ratio by bringing into play an ambient threshold that will determine the qualification of the interface. How a dose of exterior can penetrate the dwelling and colour its ambiance through the materiality of this threshold.

3. A cocoon space: un intimate and convivial place.

The image of the "cocoon" concerns spaces in which the feeling of intimacy and security is essential. The degree of visual porosity and the degree of sound permeability thus become the essential criteria for this type of configuration; this is based on the shape and depth of the interface as well as on the dimensions and materials of the railings and roof overhangs, hence the great importance of the height.

The feeling at home dominates in this configuration and is achieved through the possibility of seeing without being seen with, ideally, an adjustable degree of visual porosity, that is to say giving a little bit of self to see and to show themselves, while having the ability to isolate themselves from the outside as from the inside.

4. An interface from flower to mountain: Access to nature

The TFDs then promote connection to nature and this on all scales: from the detail of the petals of a flower in a pot on a balcony to the perception of mountain ranges in the great landscape. This point groups together the ways in which the ambiances accompany the TFDs feelings about nature, i.e. allow them to link a private space, more or less open to the outside, with the very diverse manifestations of the weather, the seasons or the landscape. If the quality of the outdoor landscapes on which the TFDs give is essential to develop a natural ambiance, we find variations of this same configuration in many new or eco-districts for which a landscape reflection on public space has been conducted. The interface connection to nature attenuates the oppressive feeling of density. But to be effective, a certain degree of transparency is necessary.

Conclusion

The analysis of three eco-districts (in Grenoble and Paris) allows to explore the typological variety of the built environment and its multi-scaled extensions into intermediary spaces (balconies, loggias, terraces and corridors). It also allows to study the diversity of their access modes, such as open landings or individual pathways.

The fundamental questions that our work reaches are of a practical and methodological nature: how to design TFDs for the all of a facade while providing a home space for everyone? And how does the study of the ambiances of the TFDs make it possible to update the transversal and contemporary challenges of the design of this type of intermediary space?

The core of this article is that TFDs take on specific sensitive contours relating to both environmental and spatial data, perceptual dimensions and usage patterns. The ambition is therefore to link as well as possible the different aspects that allow us to grasp these intermediate spaces as places of sensitive and practical experience.

Designing the accommodation and thinking of the ambiances of the TFDs through this grid then becomes for the designer a process of enlarging and enriching his housing project.

The 25 reference situations studied during this work clearly show that each project is unique, even if, of course, it is enriched by previous experiences. To read our sheets, it is necessary to read the minimum conditions for the appearance of certain ambiances, it is to read the minimum formats of urban block templates, the minimum forms of neighbourhoods, priority directions, exhibitions, materials and details that favour the apparition of this or that quality.

At the end of this research, two points of view can be crossed to measure the validations obtained from our hypotheses: The first, retrospective, highlights the place of ambiances in architectural analysis and their heuristic qualities both for problematizing a subject and for developing a methodology. The second point of view, prospective, is an attempt to link this research work to the operational concerns of designer-directors who have to integrate TFDs into their projects.

Today, the TFDs no longer constitute a simple threshold between the interior and the exterior but they have become an identity mark for the designer, the building, the inhabitants and also for passers-by and visitors. Signs of home in the dense city, the TFDs have gone from the status of a simple representation space to a modular living room that opens up to a plurality of ambiances and human relationships.

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