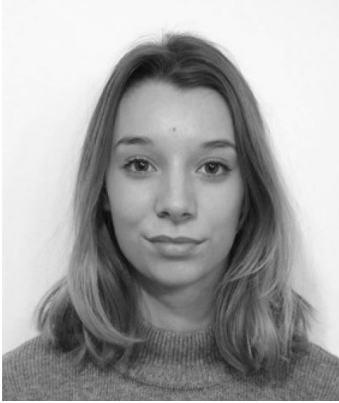


The unexploited potential in the design of the in-between space for low-income housing



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Introduction

As an old French proverb has it, « I would rather live in a small home of mine than a big of yours ». This applies particularly well to low-income families that often live in very small houses or apartments and still, are able to appreciate the true value of it.

Indeed, « There is no place like home », said this old Filipino woman when asked about her apartment. Even if home, for her, was a 24m² flat shared with her daughter, son in law and their baby daughter, in an unsanitary building next to the biggest dumpsite of the city.

Urban poorness is a reality that we can neither avoid, nor avoid seeing. As architects, we cannot refuse that some people live with very low income, and design only fancy and expensive houses that they will never be able to afford.

It is of our responsibility as professionals to adapt to people's income level and even to give priority to those who are in need. But that must not mean take away all the qualities of the space in order to make it as inexpensive as possible. So, how can we offer true spatial quality without raising the price of housing?

Transition and in between spaces can take part of an answer to this endless question. But in order to do so, they need to be properly defined.

The in-betweenness is a complex notion that will probably take the whole essay to define (or even partly define). As to begin, one can picture the in-between space as a threshold, a transition between one thing and another: inside and outside, private and public, big and small, warm and cool, etc. Those transitions exist in every scale of architecture and urban design. From the room, to the apartment, the corridor, the building, the site, the neighborhood, the city, the landscape, and so on. Every day of our lives, we cross dozens of thresholds, experience myriads of transitions, without even noticing. This omnipresence gives them real potential, not so often exploited.

This essay will focus on the building scale and all the complexity that can be found in the transitional details of the compact unit, the « home ». It will discuss how it can be used to expand to common areas such as corridors, entrances, facades, staircases, playgrounds...

The main idea is to show that by a deeper understanding of people's way of life, architects should be able to offer them more complexity in the design of their homes and the transition between their homes and the outside, public or semi-public. This complexity is not an end in itself, but a way to achieve spatial quality and affordance, in both social and climatic fields.

On the paper, the question of in-between space can seem quite promising or maybe even obvious, but in reality, it often is set aside, especially in low-income housing. During the Urban Shelter course's field trip to Manila in February 2019, the majority of the home units we visited were a simple room with a window to the outside and a door to the hallway, nothing less, nothing more.

But, even though transitional spaces were reduced to the minimum or even inexistent, people were creating them, using them, or showing a need for them, in the way they behaved in space. For instance, many times when we were talking to people in front of their homes, they were standing exactly in the opening of the door, or sometimes chatting through the window, as if this threshold space between what is theirs and what is common was a natural place to stay.

One example was this old lady we had the chance to interview. She was sitting on her doorstep, answering our questions, folding her laundry, while keeping an eye on her grandchildren who were playing both inside and outside the house. Watching this scene, it was obvious that this lady was spending most of her days sitting on that spot. So why does it have to be a doorstep and not a nice and simple built-in seat, designed according to her needs?

Many other examples followed during the trip to Manila. It soon became obvious that it really was a question and an issue to be thought about in the field of urban shelter, and not just an out of scope analysis based on my own architectural interests.

Nevertheless, it also is an analysis based on my own architectural interests. Because I truly believe that the design of transition spaces is a way to reach spatial quality but also climate responsive solutions.

Literature Review & Argument, Critique or Discussion

This paper is going to focus on two main aspects :

- The spatial potential of in-between space, first via socially focused design, second via affordance.
- The climatic aspect of in-between space, regarding the facade in a first part, and then and other features in the building.

1- Importance of the in-between space as spatial quality

A - Social and spacial transition

An in-between can be defined as a boundary between one side and the other. One usually pictures a boundary as a line, but this line can be thickened and become a space of its own. This in-betweenness confers to space a special status: semi inside and semi-outside. Yet, low incomers' life is already full of « semi », of nuances: semi-public, semi-outdoor, semi-permanent, semi-formal...

From the moment we accept that everything is not black or white, we can see the essence and potential of the in-between as an « integral » element. Such thing is quite rare today, as Robert Venturi points out: « the transition space, the threshold is never listed as a separate functional unit of a building, even if it can « open up » or « close off » access to it. »

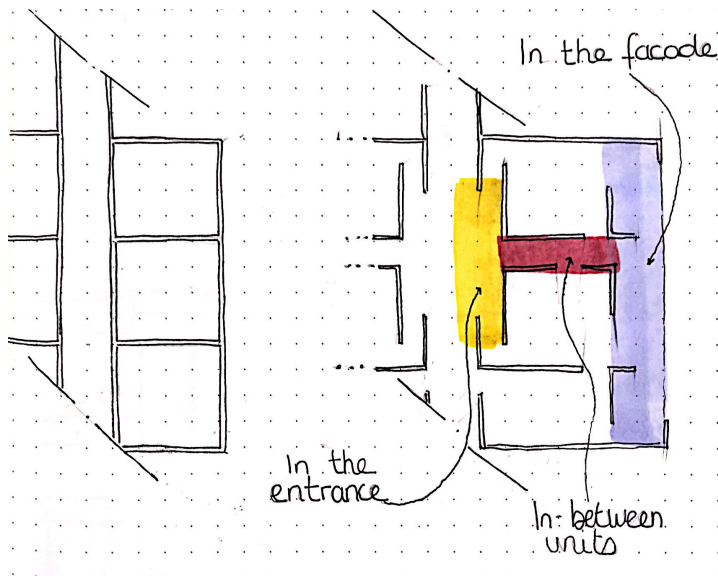
(T. Boettger, 2014)

Indeed, every time we create a room, we include it in an environment that is always existing, even though it is not always defined. Creating a new space necessarily means creating a transition between it and its existing surroundings. « The design of threshold is a direct result of the need to create space. Usable rooms are designed to be entered, passed through or filled. » (G. Simmel 1994).

But the actual period seems often somewhat distant from such preoccupations. Spaces are kept very compact in order to decrease cost. The economical preoccupation has priority, leading the transitional spaces to be retrofitted. « In projects from the 20th century to the present, treatment of threshold spaces is often inadequate [...] due to new economic and technical requirements and as a result, they have lost their particular spatial qualities. Thresholds spaces should not be thought of simply « technical systems » design to fulfill technical requirements ». (T.Boettger, 2014)

This is exactly the situation that Manila is facing today. The housing is designed as simple as possible, in order to make it cheap and fast, because they are facing an emergency situation regarding people's living condition. But in doing so, the designers sometimes lose

the opportunity of a better spatial quality that would however not mean to slow down the process, or make it more expensive. Indeed, it is not about making the place bigger, more luxurious or more expensive, but on the contrary, to defend that spatial quality is not about money. The more you pay doesn't necessarily mean the best you will get.

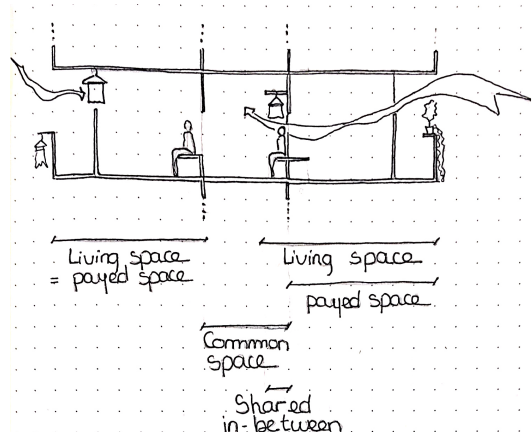


It is about complexity and careful design of every detail, especially when it comes to low-income housing, because people have a very small living unit, so it is all about the small scale. And this is the responsibility of the architect to take care of that, during the conception process.

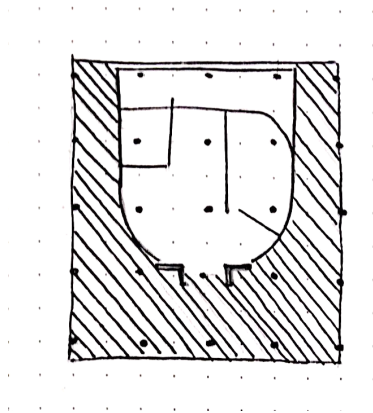
In this case, one could counter-argue that a more complex design would mean a higher cost of architect work. But in the Philippines and many developing countries, the task of low-income housing design is given to associations (governmental or not), so the time spent on the design and the complexity of it does not influence the cost of the project, as it would in a more « classic » configuration. (C. Correa, 2000)

Investing in a smaller scaled design offers the best potential to improve people's conditions of living. But in order to do so efficiently, it necessitates a true understanding of their way of life, habits, practices, but also of what they are missing. For example, in almost all the housing projects we visited in the Philippines, laundry was drying everywhere, inside and outside the units. It was not necessarily a problem, at least not in all the projects but in some of them, people had such a small space to dry their laundry that they had to hang it in the opening of their window, causing humidity problem on the façade and the units and stopping any refreshing air flow from going into their house.

This is an example of the potential of common space for housing quality. It could be an idea of transition space from a common area to units: by extending their daily routine to the common space in front of their houses, people could both have more space in their units, enjoy another bigger space that they do



not directly pay for and find some social interaction with their neighbors who would do the same thing. In between spaces have great social potential in the way that they give a physical space for people to talk to each other in a safe environment.



And of course, it does not necessarily need to be around the laundry. Many other activities and features can be found in-between home and common. Le Corbusier always gives additional features to his thresholds spaces, in order to create « spatial moments » (T.Boettger, 2014). For example in the Villa Savoye, in Poissy, the entrance door is sheltered under the overhang of the second floor, creating a covered area that acts as a multi-purpose transition zone between the garden and the inside. This space is not specifically designed, it is even quite simple,

but it is the starting point of the all narrative dimension of the house, it creates an entrance sequence, a « spatial moment ».

Complexity does not necessarily mean a specific purpose, it does not have to be complex in what it is but more in what it creates. By generating more layers in the domestic dimension, one allows people to have more specific behaviors and habits in specific areas of their homes. And by acting like so, they prove that human's activities and social habits are incredibly complex, layered and interesting and that we can not reduce their identity to their income, the way their units are reduced to a minimum size.

Indeed, low incomers in the Philippines actually make their homes much more complex than they are when they get it. They have to be doubly ingenious in order to compensate for the smallness of their homes, by creating homemade lofts, dish drying system, storage, etc. This is proof that actual spaces built by architects and associations are first of all not big enough, but also not complex enough to match the way of life of their inhabitants. Today, there is no true understanding of people needs, so they have to do adjustments that in the end can bring to a deterioration of the original project.

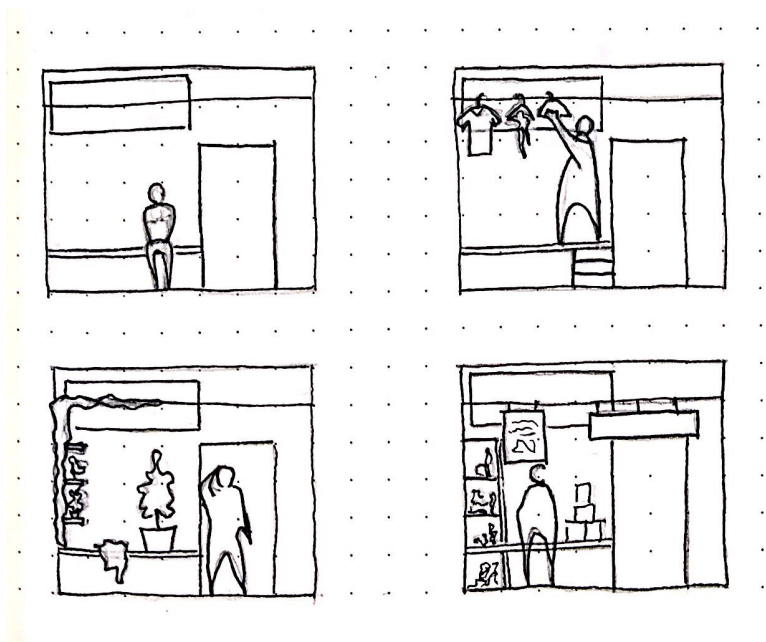
In order to remedy that, it is important to give space enough adaptability and affordability to fit people's different needs and desires.

B - Designing with affordance

The affordance means the « ability of an object or a place to suggest its own utilization » (Wikipédia). The suggestion can be interpreted differently by different persons, meaning that it can seem obvious to someone that an object x is made for a purpose x but a person y will see the same object and attribute a purpose y to it.

This can be the source of great potential for the in-between spaces. One simple and only design can be used and appropriated very differently by different users. For example,

imagine the entrance of an apartment where the door is associated with a horizontal platform 40cm above the ground and a tight cable above the door where a window would also take place. What could be the use of such a design?



- One could use the platform like a bench.

- One could use the platform as a scale to climb on and hang the laundry to dry on the cable, with the fresh air coming from the window.

- One could use it as a shelf to put plants like people really enjoy to have in a hot climate, as they grow very easily.

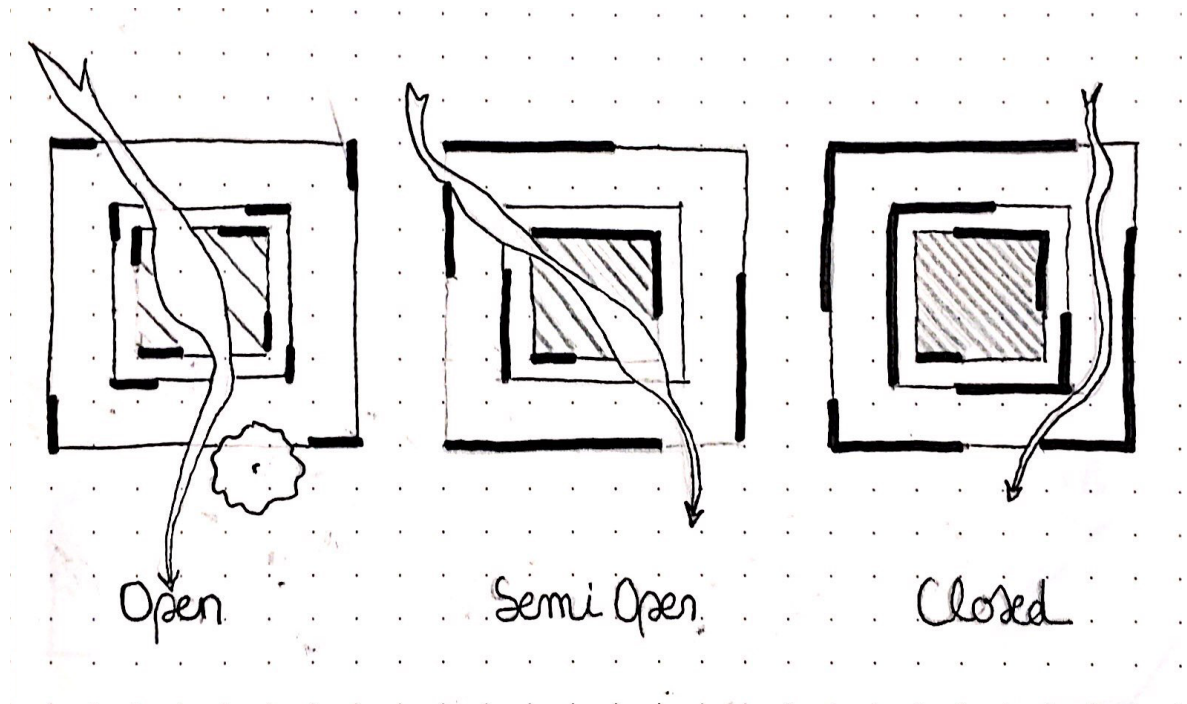
- One could use it as a display for a little sari-sari store, and could even hang an advertisement for the store on the cable, etc.

We can actually imagine as many interpretations of that design as there would be of inhabitants in the same corridor. And all of them would be valid because they come from the response to a need which is to have an entrance sequence, a ritual, a design.

However one risk could be that no one actually appropriates that space. But from our on-site observations and interviews, we have seen that people are very much inclined to personalize their space and the surroundings of it. Indeed, if one decorates with flowers and objects the front of his/her doorstep, one somehow makes it his/her own. And if everyone does that, then the corridor would become totally appropriated and all the inhabitants would enjoy the decorated common area. This is a simple example of how the affordance of space can become a factor of appropriation and social interaction. (C. Correa. 2000)

In a scale that involves more individual housing, the Japanese homes are an example regarding affordance. They often have two layers of sliding doors, allowing different opening possibilities depending on the level of privacy needed and the activities that one wants to have, both inside, outside and in between (T, Boettger, 2014). Simply in the way the doors are opened or closed, they suggest a different use of the space and create a real

buffer zone where the inhabitants have the opportunity to put and do exactly what they need, depending on the weather, the season, the number of people living there, their age... This is a good example for us to think about, regarding the simplicity of the dispositive and the great flexibility of it, all for the purpose of creating better quality space for each inhabitant and an overall more lively community due to the individual appropriation of space.



2- Importance of threshold as climate responsive quality

Include a climate response to architecture can allow to go from a standardized and possibly monotonous process to a more adapted and adaptative design, rooted in its site and climate.

Climate responsive housing requires different scales of analysis (E. O’Cofaigh, 1996). There is a real need to focus on the quality of both design and manufacturing, otherwise, nothing works the way it should and the building can even start to emphasize the difficulties of the climate. Here again, the process lies in doing better, not doing bigger.

So in order to respond properly to a tropical climate, it is important to define it first. What we usually design by the term « tropical » is the area that takes place between the tropics, with an average annual temperature of 21°C and a vertical sun at noon. There is not a big difference between the temperature in winter and summer, but the main variation affects more the rainfall that takes place in some areas, making them vulnerable to flooding, as we have observed in South East Asia for example. On the contrary, some other areas will stay dry all year long, as it is the case in the Middle East.

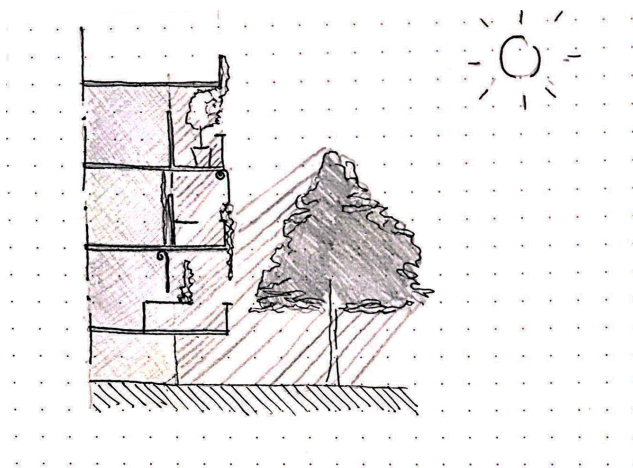
The tropical climate represents a big territory, with a lot of variations that altogether cover around 40% of our planet (C P. Kukreja, 1978). Knowing that, architects should put a lot of interest into hot climate design, as it represents such a big part of the globe, and furthermore the most densely populated part (Jenkins, P., Smitt, H. & Wang, Y. P., 2007). In such a challenge, transition spaces can have quite a big role to play.

A - The protective role of the facade

In a hot climate, heat is what people want to protect their homes from. « In the best case, the center space of the house, the most inward can ignore the exterior condition completely or admit only beneficial elements. » (E. O’Cofaigh, 1996). This is where a thick transition space can emphasize the protection between the hot outside and the cool inside, as a « buffer zone ».

Indeed, the facade is the architectural element where many climatic problems can be solved, when it is pictured as a threshold that envelops the whole building.

A good protective threshold facade is a combination of three factors (C P. Kukreja, 1978) :



-Natural devices (building orientation with the smallest facade facing the strongest sun, and vegetation, both protecting the facade from far and directly on it)

-Internal devices (curtains, louvers, etc)

-External devices (balcony, passageway, roof overhang, external louvers, etc)

To fit all of that in the buffer zone that the facade constitutes, the latter has to be quite thick, and de facto becomes a genuine transition space.

Of course, there is nothing new about that. Protective facades against the sun are a widespread solution in hot climates, now but also through history.

Another point is that having a thick boundary to the outside encourages day-night and winter summer rhythms. The ecologic adage « active users for passive buildings » seems to have inspired many architects through history that have studied these rhythms (E. O’Cofaigh, 1996).

- First Vitruvius was talking about « purposed orientation », meaning that the orientation of each room should be defined regarding its purpose and light need.

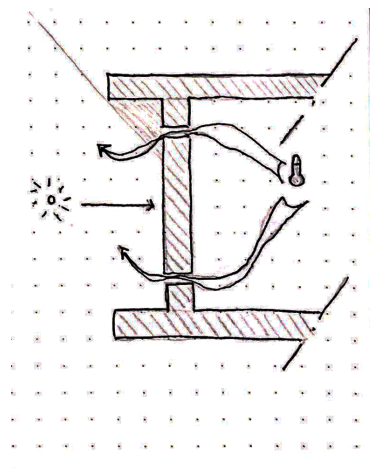
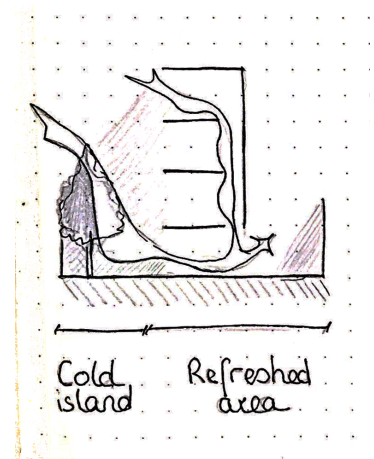
- Pliny the Younger was moving around his villa depending on the stimulus of the environment, calling this approach « from stimulus to comfort ».
- Alberti came up with some projects that had a « sunrise room » and a « sunset room »
- Scamozzi explained that we should spend summer on the ground floor of our buildings, close to the fresh soil, and winter above it, to project from the freeze.
- Many years later, Le Corbusier was still talking of « la journée solaire » as a way of living and design for others to live in buildings and cities.

Thus, as many examples showed it in the past centuries, moving around our house can be a way to maximize comfort and minimize energy consumption. But it can also be a way to activate the transition spaces as lively parts of the home. For example, if one knows that the bench in the passageway or the balcony will be particularly nice in the morning, then one will enjoy it much more at that time of the day, knowing that in the afternoon, he/she will be much more comfortable elsewhere.

But the facade is not only helpful for sun protection, but it also offers the opportunity to take advantage of the wind. Having a thick semi-permeable boundary reduces the unpleasant wind speed and turbulences by friction but allows the air to come inside the building. On the contrary, a poorly designed facade can increase the discomfort from the wind. (C P. Kukreja, 1978).

If associated with vegetation and/or water in the facade, the wind becomes an excellent way to refresh the building. Wet laundry can also work, as well as any fresh device put in the transition space of the facade, as long as it does not obstruct the openings.

Some systems are even made to combine sun protection and wind cooling. The Trombe wall constitutes a good example. The thick and heavy wall protects from the sun during the day and stores energy thanks to its good thermal mass efficiency, but the small openings at the top and bottom allow the air to go through, especially during the night when it is cooler and the hot air can evacuate from the building, for a durable fresh environment inside. (E. O’Cofaigh, 1996)



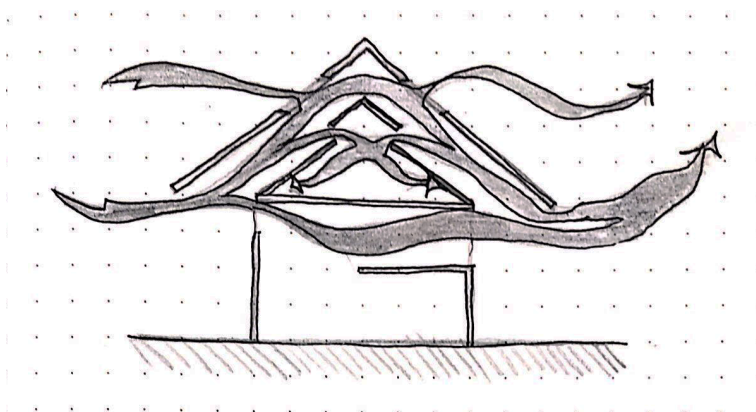
B - Examples of other climate responsive features

As said earlier, the facade is not the only transition space that can be climate responsive.

- For example, some houses in France are built with a double attic, creating a buffer zone under the roof. Filled with hay in winter for insulation, emptied in summer for air flow, it even is possible to use it as a summer sleeping deck, associated with reflective materials and a wide overhang. (C P. Kukreja, 1978). Of course, this solution is more designed for

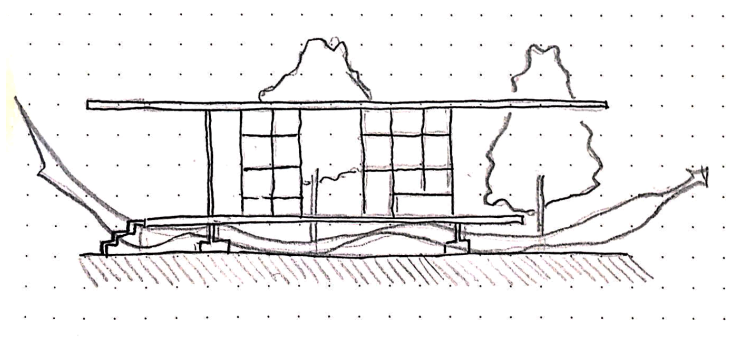
a temperate climate with a cold winter and a warm summer.

But one could imagine that this double attic would never need to be filled with hay in a tropical climate, but always air flow. The use of the space could then change depending on the need of the inhabitants: sleeping deck, storage, playground, laundry area...



- The north facing loggia is the best way to provide big openings in tropical housing. Indeed, as the sun is so hot, the window, if not properly protected, must always remain small in order to avoid overheating. But if the opening is placed to the north, it will never see direct sunlight, and the loggia's shape will keep the fresh air between walls, creating a « cool island » that will maximize the cool air flow inside. This technique also creates good space for storage. (E. O'Cofaigh, 1996)

- One can also think again about Japanese houses. First of all, because the use of folding or slicing paper walls is very good in a tropical climate, offering the best balance between ventilation, sun, insects protection and privacy.



There is also something to notice about the entrance of Japanese homes. In most of them, the traditional mat room floor is raised 40cm above the ground, meaning that there are a few steps to climb in the entrance. The raised mat room creates a gap under the house where air flow can pass.

All of these solutions are significant architectural elements, but the architectural choices should not be made only for climate resilience purpose, otherwise, everything would become dry and systematic. (E. O’Cofaigh, 1996)

The Japanese house constitutes a good argument to show that an architectural decision can go much further into symbolic and still be an efficient climate-smart system. As seen in both the first and second part, in between spaces prove to be good for both social, spatial and climatic purposes.

Urban Shelter Design

To invent the sustainable architecture of tomorrow, architects should inspire from the traditional knowledge of our ancestors and the vernacular techniques used in the area where the project takes place.« We can not unlearn the recent past, but in any event, there is no need to do so; rather, we must add what our ancestors knew to our own knowledge. » (E. O’Cofaigh, 1996)

All in order to have a better understanding of both the context, the challenges, and opportunities of a project.

The design of threshold can be an opportunity to create a more qualitative, adaptable and adaptative unit in low-income housing projects.

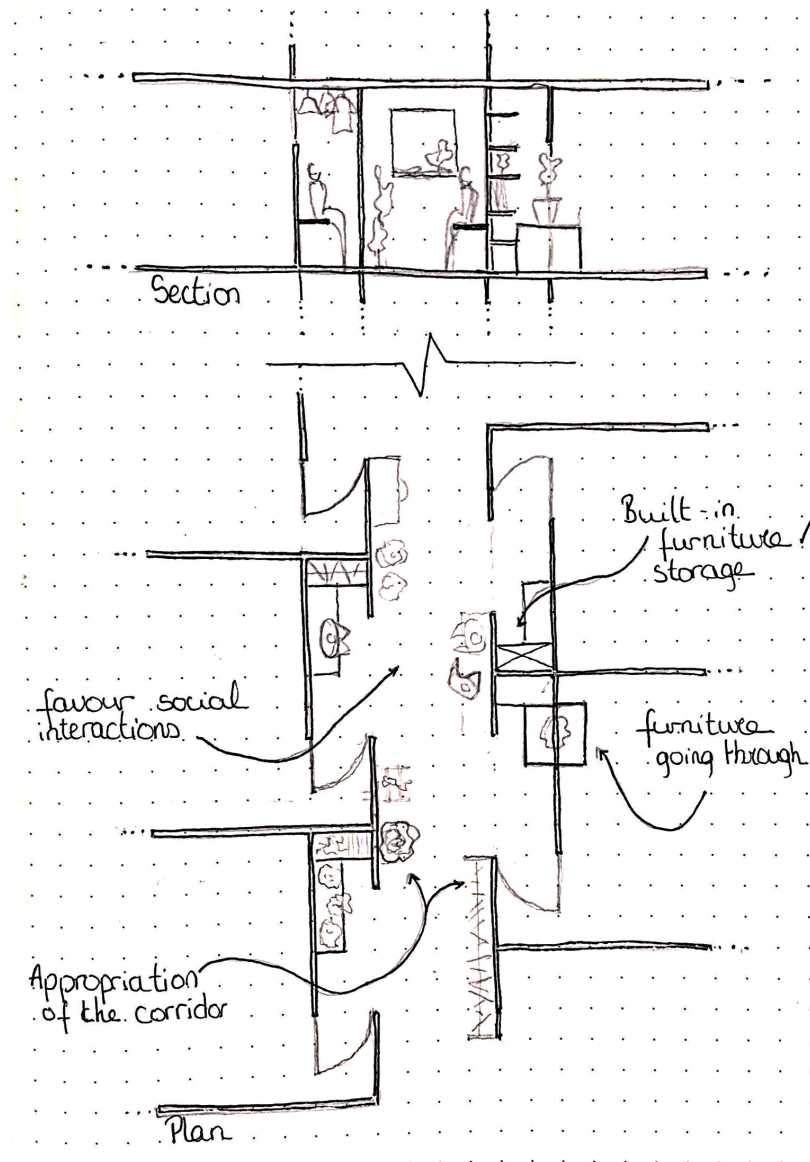
1 - A threshold to enter the home

A designed transition space between the common corridor of a building and the living unit can be a way to reinforce the « home » feeling of the dwelling. In order to do so, the design should be complex enough to allow specific behaviors but adaptable enough to offer affordance to every inhabitant.

Such a space can help to solve both social and spatial issues. Indeed, it can house technical features such as water, electricity and so on, but is also an opportunity for laundry and storage that will not crowd inside the units.

Morover, encouraging people to live a little bit more outside their closed unit space can help to reinforce the communication between neighbors and create a more lively community.

— unit — // — corridor — // — unit —

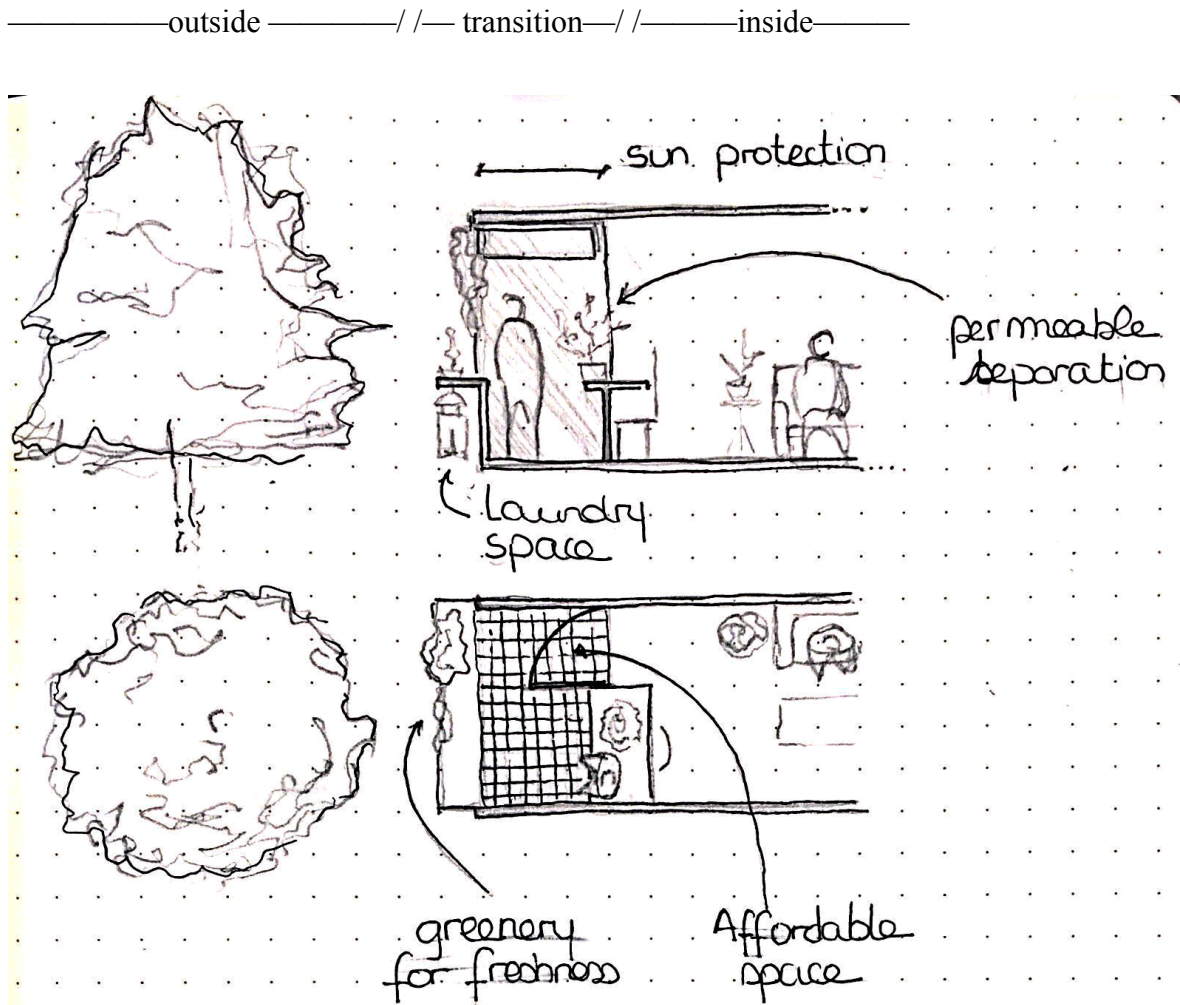


2 - A threshold to the facade

The design of the facade as a threshold can have both spatial and climatic qualities. First of all, having a loggia or a balcony makes the floor go further out from the actual limit of the unit, creating a sun protection for the unit below. This protection allows the separation between inside and balcony to be permeable, which is a good thing for ventilation, view and light filtration, making the space livable for every weather conditions.

It can also be a favorable space for a lot of greenery, that will not only create a nice and shaded environment but also help refresh the airflow going through the building.

Finally, an astute design of the railing can create a space for laundry that would be invisible from the inside of the unit. Indeed, laundry is such a repetitive and dull task, it would be pleasant to remove it from people's sight.



To sum up, design criteria for threshold spaces would avoid providing a unit that is just a room with doors and windows but allow more affordability, complexity, and quality. Such spaces should allow air communication between unit entrance and facade, in order to create good cross ventilation.

The Role of Architects

Low incomers living in urban poor areas often have very small units and a big need for more space. But in the design, it is difficult to give them more square meters because it would necessarily mean a rise in the price of each unit, which people would not be able to afford.

Instead, it is possible to give them more opportunities to custom the area they have already. But they would still need more space. Even the best-designed 24m² are still 24m², which is not enough for a family of 5-6 members or even more. Architects could think of the best entrance threshold, it would probably still end up being used for storage and laundry drying.

Our role as architects is to define if that is a problem or an opportunity. At first sight, one could think that if space is not used the way it was designed, it is a fail. But actually, it is not. It is a question of cultural difference and social acceptance. Indeed, one should be able to accept that people living in precariousness do not have the same priority as one would think they have.

This is especially true for European architects designing in tropical countries. As foreigners, our role is to accept that we are far from home and our habits and that we have to challenge what we know. It is not an easy thing because it means getting out of our comfort zone. But it makes a real difference, between a rather « colonialist » and/or standardized design and a very accurate analysis leading to a social-conscious design.

On the other hand, this status of a foreigner can give the benefit of hindsight. It becomes much easier to see problems when one does not live in them and experience them every day. And it also is easy to know when a solution used in our home country, or elsewhere could help to solve some issues in a specific country where they just do not know about it yet.

Eventually, the best proposal is probably often an in-between solution, mixing adjustment to a new culture and proposition of some of our own cultural features that we think could match in a specific context.

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