Workshop 18 - Residential Environments and People

The façade - mediator between inside and outside

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Abstract:
Dwellings have boundaries, filters between the inside and the outside. In this sense the facade as the shell of the house is a complex part of the house: it is its face, its functional skin and a mediator between the dwelling space and the public space. It is the element that allows the resident to choose how much contact he wants to have with the outside world. A trend towards individualistic life styles has transformed the form we give to our dwelling space. How should building designers react to these changes? Inspection of some recent European housing projects suggests that the protective ‘cocoon’ aspect is sometimes emphasized at the expense of the spaces and elements that promote contact with society. This article presents a brief overview of the layers in the facade that determine the level of contact and that make the facade the complex fabric it is. Some historical and recent concepts are discussed within the context of the search for new housing concepts. It is time
to re-define the facade as an intermediary between indoors and outdoors and as the face
towards the public domain.
New concepts for the dwelling – new concepts for the facade
Spatial layering of the facade as a mediator between the interior and the exterior

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1. **Introduction**

As an architect, it has always particularly fascinated me as to how people are always making some kind of adjustments to their homes. The facade is the very first part of a home that anyone sees. The home and the way it is designed are always going to be the subject of discussion.

My study of dwelling concepts throughout history clearly revealed two major processes influencing the facade, skin of the dwelling: right from the dawn of time, people started to give their house a face by decorating their tent, their cave or hut as lovingly as their own clothes; and they introduced elements to control access to and from the outside world, to achieve the right balance between insulation from and openness to climatic influences, daylight and other people. As a member of the research group “New concepts for the dwelling”, I asked myself where there are any design aspects of the skin of the dwelling that we need to re-think when we consider what form the dwelling of today and tomorrow should take. The question which at present arises for me with regard to the facade is based mainly on today’s forms of residential construction. Large residential areas with often very minimalistic facades and little spatial diversity in the facade gave me the following impression: The facade seems to be an independent design object with precious little differentiation. However, because we as architects bear responsibility for the design of residential buildings, and as we are developing new concepts for the dwelling, what does this mean for the facade? This was the starting point of the present study of new concepts for the facade. To find an answer to this, I have been considering various different aspects. Can I find criteria in a facade, and I mean in particular a spatially-layered facade rather than a minimalistic single-layer design, which can support my thesis that new concepts for the dwelling need a re-think of the facade? Can sociological studies help me in my work? In the final analysis, I hope to be able to give an answer to the question as to how the architect can make a contribution to the theme of the new concepts for the dwelling even when designing the facade.

2. **Key questions posed and research concept**

The main topic of the present study is the spatial layering of the facade. What kinds of interfaces can we distinguish in the facade, and what kinds of spaces do they separate? Are they in any identifiable sequence from inside out, and can the occupant manipulate them? Can this spatial layering mediate between the interior and exterior spaces in line with the occupant’s wishes, or are changing life styles leading to new demands that still have to be met in this respect? I will try to answer these questions with reference to the classification of new dwelling concepts worked out in our department, as explained in section 8 below. The study may be divided into four parts:

A **The context of this research**

- The background of this study which is founded in the research project “New Concepts For The Dwelling”
- The functions of the facade
- He recent debate about the facade and the dwelling
- The social aspects of the facade
- The principle of layering
- Categorizing new concepts for the dwelling

B **Historical perspective on the spatial layering of the facade**

An inventory of the various forms this phenomenon has taken in the course of time.

C **Detailed theoretical analysis of spatial layering, with special reference to the category of time based concepts**
D Practical Field Study
What effect does spatial layering of the facade have on the occupant, and are the spaces created by this layering the ones the occupant wants? This part has to be done in future by observation and interviews.

This paper explains the context of the study (A) and presents the results of the second part of the study, the historical review (B). It also gives the preliminary results of the third part, based on comparative analysis of some projects (part C, see section 10).

Part A

3. Background of this study: New concepts for the dwelling
“The meaning of housing has undergone rapid change in recent decades. This is the result of a series of developments in society such as increasing prosperity and individualisation, but also the influx of sections of the population from a non-Western background (…) On top of the shift in the meaning of housing, time is also a factor in the way people think about housing and homes. The rapid changes increasingly affecting the way people live make housing needs unpredictable, whereas building is an activity that sets things in stone for a long time to come. The average useful life of a house in the Netherlands is still around 100 years, but the average length of occupation is about seven years. Consequently a house has to ‘prove itself’ in a constantly changing housing market several times during its lifetime.”

Various changes have been taking place in the design and construction of housing of recent years. A growing demand has emerged for new, flexible concepts that can be adapted to the changing needs of the occupants. The research group “New Concepts For The Dwelling”, which falls under the Chair of architectural design: Dwelling in the Faculty of Architecture at Delft University of Technology, is looking for new housing concepts that are likely to continue to appeal to a succession of different users, thus remaining economically viable for a relatively long period of use. We refer to dwellings that meet this criterion as “time-based dwellings”. The research group is studying several aspects of this theme. The first step is a classification of new concepts for the dwelling, as described in section 8 below. We also work, often together with students, on a number of different sub-themes as indicated below.

New Concepts For The Dwelling

- Evaluation of the existing housing stock
- Cultures and their living pattern
- Permanent and variable space within dwelling
- The polyvalent dwelling
- Spatial layering of the façade and new concepts for dwelling

The present study focuses on the spatial layering of the skin of the dwelling as the filter between the interior and the exterior, and as the face presented to the outside world. The interior and exterior spaces are mutually interdependent. The transition between the two can be realised with the aid of many different materials. Why are this outer shell and the transition from inside to outside important in the study and design of housing? This shell, no matter what it looks like, is the element the resident uses to select the degree of contact he
wants with the outside world. In the words of the German philosopher Peter Sloterdijk: “The one who builds a dwelling (...) makes a statement about the relationship between (...) being outside and being inside.” Studying new concepts for the dwelling also involves an open challenge to re-think the relationship between the interior and the exterior, as governed by the facade, since the latter can contribute to the development of concepts for the time-based dwelling. The façade continually fluctuated (and still does) between a monolithic shell and a layered building offering a sequence of different spaces. These two aspects of designing the shell of the dwelling actually has gotten very much criticism during the last years.

4. The recent debate about the facade and the dwelling

The facade has undergone various changes of recent years. Consideration of the facades of housing to be seen around 2000 provides support for the criticism uttered by Xavier Gonzales: “To compensate for the uniformization of the body of habitat and respond to desires for difference expressed by the future buyers, weary architects have little by little abandoned experimentation in living space to concentrate on envelope and appearance. They vary supply in formal terms, playing on different materials and styles in the same way as ready-to-wear clothes makers react swiftly on fashion trends.”

The facade seems to be the only element that architects have a free hand to design - within the limits set by the standard construction, of course. Many more materials are available, and architects are ready to use any of them in an attempt to create a striking new look for their building; but do they consider the aspects of the facade that could be of real value to the occupants? Gonzales says no. “Architecture has lost the sense of its social ambition and is concerned with little more than décor, a wardrobe, a marketing product designed with clearly identified commercial targets in mind.”

This missing sense of social ambition within the current facade design Peter Faller, a German architect who studied the historical development of the dwelling and compared it with time-based concepts, is very critical of. Looking at the supposedly innovative housing concepts used by the Austrian architects Riegler and Riewe, e.g. in the housing development in Strassgang, Faller notes the minimal contact between the interior and the exterior offered by these houses. The houses do not have any external space, not even a terrace or patio on the ground floor. Faller believes that people do not want to be cooped up in their homes to this extent, and that housing must be designed to provide the necessary contact with the outside world. (Faller 2002, p.258) The Dutch architect Hermann Hertzberger shows what can be done to realize such contact. For example, his housing project in the Haarlemmer Houttuinen in Amsterdam clearly shows the difference. We may call this transition between inside and outside that allows the desired level of contact a soft border.
But do people in the 21st century really want their homes to have this in-between. “People create atmosphere by pressing each other, coming too close to each other. You may never forget that what we call society includes the phenomenon of the unwelcome neighbour. …You should write in praise of isolation. This would work on a dimension of the community that accepts that people have a never-ending desire of non-communication” Now that society has become so individualistic, do we perhaps need dwellings that cut off the occupants even more from the outside world?

To answer this question, which is crucial for all further conclusions which I draw with regard to the facade, I have to clarify the functions of the facade (section5) and I make reference (section 6) to sociological studies by Machiel van Dorst relating to the direct living environment and its influence on the behaviour of the residents.

## 5. The functions of the skin and the focus within this research

Closer consideration of the facade reveals a number of different functions. First of all, it is the face of the building – after all, the word ‘facade’ comes from the Latin *facades*, which means face. And like any face, its aesthetic features are important. People seem to have an instinctive need to decorate a house, to underscore its identity as a home and to show off its beauty to others. But the facade also acts as a physical filter – a complex regulatory system to make the inside of the building comfortable – and a social filter. A successful dwelling allows the occupant to regulate its psychological and social functions as well as its air conditioning and heating. This combination of aesthetic, physical and social functions makes the study of the facade a complex undertaking, requiring sociological as well as architectural insights. “It may be impossible to study objects without references to humans.”

In the course of this study, I will therefore distinguish between the three above-mentioned aspects of the facade as the face, the physical filter and the social filter, with special reference to the two functions located nearer the outside - the social filter and the face.

In this paper, I focus on the spatial layering of facades throughout history, with special reference to its significance in new concepts for dwellings. On the one hand, I shall look at the elements and materials that were and are used to create space within the facade; on the other, I shall study the social implications of this transition.

The main question posed in this study is how the spatial layering of the facade can mediate between the internal and external spaces, how it can provide the desired social filter. This question will give direction to my examination of the historical record and of some modern time-based dwelling projects.
The face is the part of the dwelling that is presented to the outside world. In most cases, it embodies the physical and social filters. 

The physical filter is the whole regulatory system within the skin whose function is to create comfortable conditions within the building.

The social filter comprises all elements that regulate contact between the internal and external spaces.

6. The social aspect of the facade

The facade, no matter what it looks like, is always the element used by the occupant to regulate the degree of contact he wants with the outside world. Machiel van Dorst, who has devoted a great deal of research to the built environment, argues that “The occupant’s need to interact with his living environment depends on how he feels or what he is doing at the time. A dwelling with interfaces that move from private to public scenarios enables him to regulate this interaction.” Some fundamental laws for Man and his environment are summarised by Dorst (Dorst 2005, p.85) The most important are:

- Man constantly wants to be able to intervene in his environment;
- Man strives towards attaining his own territory;
- Man needs contact with the natural environment.

As the occupant’s needs may vary, he must be able to control his environment or the environment must be versatile enough to meet his different requirements. The facade is the first layer between the inside and the outside world. It may be a simple wall, or it may be spatially differentiated. In the latter case, the facade has a social as well as a physical function. The spatially differentiated facade represents a very interesting interface between inside and outside. The occupant can make contact with the outside world through the window, but he can also step right into the facade in a sense (e.g. if the facade includes a balcony). These differentiated zones in the facade create private-to-public transitions for the occupant. Such ‘privacy zones’, as van Dorst (2005, p.123) calls them, are not always clear-cut or immediately recognizable in spatial terms, but they are implicitly present for the occupant. A balcony clearly belongs to a dwelling and is recognizable as such, but a bench next to a front door on a walkway has a different status from a balcony and from the walkway itself. Occupants feel a shared sense of privacy on their own walkway or in their own street. Hence, the transitions from public to private and vice versa are fluid, moving more or less between the following zones: Public; a collective outside area like a communal garden or a drive-in; a collective inside area like a walkway or the stairs; a semi-private zone like a bench on a walkway; and finally a private outside.
It is important that the elements used to indicate the switchover between private and public be able not only to act as a barrier but also – and more specifically – to invite contact with the outside world. A bench on the walkway or pavement can, for instance, invite social interaction, while flowerboxes can act as a buffer against inquisitive passers-by.

Safety is an important factor here. If basic safety is not guaranteed in residential areas, then people are more likely to create barriers and social interaction will be limited. Safety, in turn, is closely related to the idea of territory. People feel a need to stake out their own ‘patch’. Irwin Altman (Altman 1975 p.112-120) defines territoriality, which deals with the distance between one patch and another, as a visible border, which is static and tied to a particular location. There is no denying that safety is becoming increasingly important to the residents of modern cities. This aspect emerged in particular from the research that Dorst conducted on neighbourhood liveability. He realised that if the territorial border is readable, people will use the zone in front of the house or apartment much more than if it is not readable (Dorst 2005 p.130). The visible territorial border can just as easily be a two-metre-high wall surrounding the house as a one-step platform in front of the house. The closer the element, the less interaction there will be. There are various ways in which a facade can be used to prevent or promote visual and aural contact. As Jan Gehl mentions in his study on ‘living between houses’, there are elements that function as a threshold and others that invite interaction (Gehl 1978 p.50). The border between the two is fragile. Large horizontal and vertical distances are a natural barrier. Barriers can also be perceived in elements that are not transparent and are too high to look over. A short distance can invite interaction, as can elements like benches which are placed in a communal or semi-private zone. These elements create some extra space within a layer, e.g. within the floor space of a walkway. The important thing is that these spaces should be visible. And that a consciousness of using these elements in the right way to get a social zone between inside and outside is developed.

If I summarise these sociological studies, the conclusion can be drawn that transitions from the public to private are important, but likewise need clear boundaries. An important factor in this is to offer people different possibilities for intervening, changing, or using. A monolithic facade, with no spatial layers or transparency at all, cannot offer these possibilities. A facade which can offer a variety of spatial layers will offer these possibilities.

7. The principle of layering

Layering of the facade means the addition of several material layers, relatively close to each other, to form an element. In primitive societies, people fashioned walls for their dwellings from woven cloth and mats (Semper 1851, Die Vier Elemente Der Baukunst, p.57). Later, when these protective elements were replaced by solid walls, the woven structure still formed an important layer inside the brick wall. As a result of this switch in material the original wall made out of cloth became the artificial wall, the decoration (Semper1851). This is one of the first examples of layering of the enclosure. In architecture today layering is more complex. Architectural layering can occur in every spatial dimension.

According to A.C. Schultz, “Layering lives by the plurality of the single elements and their reaction to each other”8. Schultz identifies two types of architectural layering: material layering in which several material layers, relatively close to each other, form an element; and spatial layering in which different spaces and zones, horizontally or vertically adjacent or overlapping, create an overall impression characterized by depth, dynamism or transparency. Spatial layering is mainly applied to internal spaces, but can also be used alongside material layering - in facades. One classic example is the Giuliani-Frigerio House designed by Giuseppe Terragni, which has been analysed by Franco Fonatti (Fonatti 1987). The facade is an addition comprising different layers, of which Fonatti identifies four: the first is the metal frame on the outside, creating the parapet walls; the second is the balconies; the third is the permeable wall; and the fourth is formed by integrated or added elements, such as windows and sun screens.
These material layers and the spaces in between create a sense of depth. You need to look twice to understand it. The layers offer a transition between inside and outside, between the private and public spaces. A façade which can offer a variety of spatial layers will not so rapidly fall victim to the time factor as a spatially single-layer envelope.

8. **Categorizing new concepts for the dwelling**

As a result of the dynamic nature and above all the unpredictability of modern society, the relatively unchanging nature of such a medium as a building can present us with problems. The design of a house is not infrequently changed radically before building commences. When does the architect know for whom the building is being constructed? When is it time to convert a house into an office? A present-day architect should really start from the assumption that the building he is designing is for an unknown client and that it should be so adaptable that it can always be modified to meet changing demands so that it will remain attractive to potential buyers.

How can we achieve a flexible, adaptable building style? Inspection of the answers that have been given to this question shows that they tend to fall into one of the following three categories (Jürgenhake+Leupen, *Bauwelt* 5/2005 p.22-25):

a. **Polyvalence: the multi-purpose dwelling.** The interior space in the polyvalent house (or multi-purpose house, as it is often called in the Anglo-Saxon literature) is designed in such a way that different usages are possible without necessitating changes to the walls or other elements. This is a very important point economically.

It was in 1962 that the Dutch architect Hermann Hertzberger introduced the concept of polyvalence in the architectural debate. The Diagoon Houses in Delft, designed by Hertzberger in the period 1967–71, were based on the idea of polyvalence. The spaces in these houses are arranged in such a way that all dwelling activities can be performed in any room used for residential purposes. The houses were well received. They were all used in different ways; the only thing they had in common was that each household had adapted its house to its own use.
b. **Buildings with a permanent part and a variable part.**

In this approach, buildings are divided into a permanent part (the ‘support’), which cannot be changed without extensive constructional measures, and a variable part, the ‘infill’, that can be modified to meet the needs of the occupants (Leupen 2002). This category has been the most widely used of the three discussed here. In fact, it comprises a number of partly overlapping concepts. The relatively abstract support/infill concept, that was developed in the Netherlands in the late 1950s by John Habraken is one of them. Habraken put forward his ideas in the book “De Dragers en de mensen; het einde van de massawoningbouw” (1961) [This book has been translated into English, German, Italian and Spanish; the English translation, “Supports; an alternative to mass housing”, appeared first in 1972 and was republished in 1999.]

The Elemental project designed by Pasel Künzel Architects from Rotterdam is a recent example of a permanent and a variable part. This envisages a support zone with stairs and services as the permanent part of the house, alongside a free zone, to be filled in and changed in accordance with the occupant’s wishes.

7: The Elemental project designed by Pasel Künzel architects

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c. **Semi-permanent buildings** such as the IFD (industrial, flexible and demountable) building, which is designed for a life of 20 years. When it has reached the end of its useful life it can be dismantled and parts of the building can be used to build a new one.

Repeating the question: “How can we achieve a flexible, adaptable building style?” designing less so as to offer more is the advice which some architects give, and that certainly applies to the ground plan, which should offer a great deal more freedom to the user. But how should we deal with this freedom when we come to the facade, which in the meantime has become such a high-grade technical element that we must ask ourselves what contribution the facade can in fact make at all, as an envelope for the dwelling space, with regard to the theme of the “New Concepts for the dwelling”?.

To answer this question I carried out a historical review of the development of various housing concepts and their facade. Then I started to study about recent concepts for the dwelling focussing mainly on the first two concepts, explained above. Each of which entails a different approach to the floor plan and leaves the user different degrees of freedom.
9. New residential concepts and the facade throughout history

Material and spatial layering has been practised for centuries, with wide regional variation. Faller carried out a study on interior lay-outs and facades in which he convincingly showed how the temple with its colonnaded portico evolved from a simple living space with a doorway (Faller 2002, p.230).

Illustration 8: The basic types of Greek temple – the development of the colonnade

There are essentially two types of shell: a solid support wall, and a wall with separation and support functions. But there have always been different variants and combinations of these two basic types. “Throughout the long history of housing the dominant dwelling has, without question, been the roof-and-four-walls model, simple in morphology with windows and a door in clearly defined outside walls. This applies not only to the more modest human dwellings, but also to city mansions, country villas and state palaces.” But, Faller continues, in all types of dwelling – even the simplest – we find examples of a more differentiated approach to the facade and stronger indoor-outdoor ties. The porch, which can be traced back to the Greek temple, is a case in point. It may be a small, covered area or a whole colonnade. These elements (the porch, the protrusions, the windows, the awning) are either integrated in the outside wall or have been attached later. Throughout the ages, social and economic factors and popular styles and fashions have produced some magnificent examples.

Interestingly, the first monumental residential complexes were geared far more to the creation of an urban space than to meeting the needs of the occupants. The facade, regarded as a communal amenity, was a pre-defined element which architects had to strictly adhere to. So, facades had scarcely any spatial depth and the occupant – the user – could not annex off an intermediary space. This was presumably not the custom at the time. The Place Royal, built in Paris in 1607, is an excellent example of this, where the facade is the permanent part of a building of the type described in section 8b. In this respect, the Place Royal can be seen as a perfect model for a project that deals with the aspect of time. Each dwelling behind the facade can have a different floor plan. Perhaps the most fascinating feature about this example is that it remained in use for almost four hundred years while the functions and usages changed continually behind the scenes.
A look at the ensemble as a whole shows that the façade has developed very uniformly. The residents have an informal yard at the rear, where the entrance to the apartments and the fountains are located. All the windows, looking both onto the yard and the square, are large French windows. On the outside are uniform wrought iron balustrades, which have the effect of small baskets, and are very transparent. The depth of the window niches provides enough space for one to stand in the opening and likewise fit interior windows or curtains. Without much spatial depth, but just enough, it is possible for each resident to intervene in their part of the envelope. On the other hand, the façade is sufficiently neutral for apartments, hotels, and offices to be secured behind it with no problem. The limits here are also quite clear: the arcades on the ground floor, which are indeed still part of the building, do not belong to the residents but to the businesses. The residents have an entirely different and much more informal entrance.

The importance of the appearance of urban space is discernible in several projects continuing through the next two centuries. Take, for example, the Royal Crescent in Bath. The facade here has a material layering which gives the crescent a classical aura and creates an impression of depth.

Henry Roberts was a pioneer in drawing attention to the aesthetic possibilities of social housing, to the need for identification and to the possibility of creating a kind of hybrid intermediary zone. He exhibited several new models for working-class dwellings at the Great Exhibition of 1851 in London. The walkways of these complexes are almost balconies integrated into the main volume of the building. They accentuate the entrance and offer a small but pleasant intermediary zone.

In the Netherlands after the passage of the Housing Act in 1901, the urge to build attractive housing reflected the growing awareness of the need for social emancipation. There are a few exceptions where functionalism did not lead primarily to extremely austere housing designs—such as the housing block in Spangen, designed by Brinkman in 1919. This is a nice example how a walkway as a layer of the façade supports the “flowing” of living from outside to the inside and vice versa. The gallery for the first time is built with the intention being a street, a space used collectively. Thanks to the width of this street, it really could be travelled by the milkman of those days. The small private balconies of the apartments are likewise oriented to this side of the communal area, but are on other storeys, so that the residents can decide for themselves whether they wish to sit directly in the corridor or rather be more private but still with contact to the communal yard. The gallery is not anonymous, since it provides hanging baskets where the residents can grow plants and so annex a part of it for themselves. The whole complex was and is therefore closed off to the rest of the quarter. This in turn allows the residents to feel that their gallery really is in effect their own street.
The Functional dwelling might best be described as ‘straitjacketed’. Even in the facade functions often were readable. Mies van der Rohe was one of the first Functionals to give some thought to the freedom of the occupant. The use of steel pillars as support in the Weissenhof housing estate in Stuttgart made it possible to move the light interior walls in the individual dwellings to suit the occupants’ wishes. This may be seen as the first example of flexibility in the floor plan achieved by using the load-bearing system as the permanent part of the building. The facade is neutral and monolithic; strip windows reflect the flexibility of the lay-out. The balconies are too shallow to sit on.

After WW II, when Functionalism made a comeback and became a standard concept in modern construction, Mies returned to the flexibility theme: “Only a clear expression of the structure could give us an architectural solution which would last”\(^{10}\).

Unfortunately, high-rise flats continued throughout the 1960s, when they seemed to spring up all over the place, most of them blots on the landscape – and not only in the Netherlands. Willem Van Tijen described the housing design of this period as an international failure. New themes such as atmosphere, variation, individualism and small-scale construction were thrashed out. People wanted to decide the form of their dwelling for themselves. This is when flexibility became a realistic option. John Habraken developed the Open Building approach by deploying a frame-and-infill set-up that gave occupants freedom to shape their home. Walkway access, which had figured prominently in the buildings of the 1950s and 1960s, had proved disastrous, leading to high levels of vandalism and neglect. And people felt anonymous. Textured facades, extra windows and block separation had long since disappeared. Nor was there a decor for public interaction. An international debate arose around the loss of (traditional) human styles of living. Spatial differentiation in the facade became a major issue. The walkway had to be a meeting place as well as a means of access, functioning in the same way as a pavement. Balconies, protuberances or terraces would create a sense of depth and again offer social contact zones. Herman Hertzberger built various housing projects in which spatial layering was dominant in the facade. The support structure served as an independent basis for creating e.g. a balcony or access zone. The balustrades were also independent layers with enough depth for flowerboxes. Models of “human housing” can be found all over Europe, some characterized by participation and others by mixed functions.
Over the past 15 years, cost-cutting programmes have led to the re-emergence of a trend towards simple architectural quality in housing projects. Many of these projects are reminiscent of the rigid functional architecture of the modern movement. Simplification caused a decline in spatial differentiation in facades. In the City Building constructed in Rotterdam in 2003, the wide use of glass cancels out any differentiation in the glass facade. The relationship between inside and outside is purely visual. The residential function is no longer immediately obvious to the onlooker. Indeed, the building looks more like an office. Housing construction frequently finds itself in the firing line. People are becoming ever more aware of the time factor. An individualistic society needs adaptable housing.

10. **Spatial layering of the facade in detail**  
*Analysis of projects falling into categories 8a. and 8b.*

As mentioned in section 8, new concepts for the dwelling that have emerged in recent years tend to fall into three categories: the polyvalent or multi-purpose building, the building with a permanent and a variable component and the semi-permanent building. One example of polyvalence that was successful in many respects is the above-mentioned Strassgang project by Riegler and Riewe. People looking for the living room here are baffled to discover that it does not exist. A challenge to individual use! But how does this time-based concept deal with the interior-exterior transition? Not very well, it must be said. The facade is identical on both sides; there is no clear distinction between the front and the back. At first sight the facade looks flat, the depth we have seen in Terragni’s house is not repeated here. This facade has three different material layers: first, the metal rails with the sliding metal panels which function as a sun screen or a privacy baffle; second, the permeable concrete walls; and third, all the elements in the openings in this wall: the windows and the French balconies in front of them. This material layering does not offer any space, as it could not be flatter. Access is provided by one staircase for six dwellings – again, the bare minimum. The onlooker sees a very introvert building with a kind of flexible element as a metaphor for the adaptability of the rooms. Residents cannot sit outside and annex an intermediary space.

Buildings with a permanent and a variable part (category 8b) seem to have been the most widely used. Different concepts fit into this basic pattern, depending on the structural layer chosen by the architect as the permanent component. The block of flats in Hellmutstrasse, Zurich, built by ADP architects has a fixed structure of supporting walls. The services are located in the transparent core of the building and there are some additional spaces in this zone that can be used for elements such as glass screens and extra doors. The rooms are polyvalent as in the project in Strassgang. The walkway-type access is used by six families, but the transition from outside to inside, from public to private, is gradual. This facade has
four layers. The first is a complex set of metal balustrades for the walkway/balcony. The second is formed by the walkway itself and the third is the permeable stone walls. The fourth layer is the doors and windows. The main difference between this and the Strassgang project is the depth of the layering made possible by the walkway, which can be annexed by each household as a private area in the outdoor space. This walkway is regarded very much as a semi-private zone. As each dwelling also has its own balcony, the occupants can choose whether they want contact with the outside world or not.

Finally, I would like to return to John Habraken and his Open Building approach. Though barely applied in the 1960s and 1970s, this approach has retained its relevance. The experimental stage is over and examples in Japan, Finland and even the Netherlands show that it works. The Next21 project in Osaka was built according to the basic support-infill principle (Heijne, Leupen 2005). The facade elements were designed by the architect but can be easily moved around so that internal space can be converted into external space and vice versa. The resident decides whether and where he needs a terrace and annexes the external space for this purpose. This creates exciting spatial perspectives – and what’s more, it is the brainchild of the occupant. This project agreeably combines the time-based dwelling with the added value of the variable intermediate zone. And, thanks to the permanent decorative elements, the facade radiates unity despite its variety.
11. Conclusion

In the Introduction to this article I asked whether spatial layering in the facade can facilitate new concepts for the dwelling. The historical study reported in this paper and the analysis of recent innovative housing projects both confirm the need to re-think the function of the facade as a transition zone between interior and exterior. This hybrid zone has been treated very differently at different periods in the past. The example of Place Royal shows us how long a facade can fit in the concepts of living behind it, how sustainable it can be and how careful architects need to be, even with very little spaces. It may be concluded already, although more research is necessary, that whenever insufficient attention has been paid to the spatial layering of the facade – as has been the case in the recent past (e.g. the minimal walkways of the high-rise flats) – this has had disastrous consequences for the user-friendliness of the dwelling. Making use of the knowledge gained by social scientists about the behaviour of man in his direct home environment and the results of our own observations of the different ways users can annex space around their dwelling, we will be in a position to refine the new concepts for the dwelling now available so as to yield effective time-based dwellings – that is, housing that will be better equipped to serve the occupant in the longer term.

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