Project Analyses: Pruitt-Igoe and Vaughn Housing Projects

Residential Psychological Analyses Reveal the Mystery of Failure

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Abstract

Based on residential psychological analyses of two large housing projects in St. Louis, USA (Pruitt-Igoe and Vaughn), the results are presented together with deduced conclusions and practical benefits for future housing projects.
Both projects no longer exist, but still raise big questions. Pruitt-Igoe failed catastrophically, although it was originally a highly motivated showpiece project for social housing.
The central question remained: Why has it never been possible to define the actual causes of the failure in detail? Why was it not possible to prevent the failure despite committed efforts by the politicians, the property management, the authorities and, in some cases, the residents themselves?
The analysis focuses on the residential psychological mechanisms which often operate subliminally and over longer periods of time. This allows surprisingly conclusive explanations of the different processes and development phases.
The analysis of the neighboring sister-project (Vaughn) also proved to be very informative. This had many similarities to Pruitt-Igoe, it also had to struggle with major problems in some phases, but did not fail.
Especially the (residential psychological) zoning of the buildings plus surroundings attracted different patterns of behavior. This includes the inner structure of the buildings, the communal areas, the entrance level and the surrounding area. The constant trend towards congruence (attraction patterns) between spatial and behavioral patterns become increasingly effective the longer people are exposed to them. And in case of Pruitt-Igoe, they became increasingly concerning and oppressive. This also explains the way from the almost marvelous first phase of Pruitt-Igoe in the beginning on the one hand to the complete disastrous phase in the later years on the other hand. And it explains why Vaughn did not fail despite nearly the same circumstances.
Due to the logic behind, it was possible to derive solutions for the main mistakes plus recommendations. Some of these could also be useful for future housing projects.

Keywords:
Pruitt-Igoe, Vaughn, housing project, residential psychology, architectural psychology, settlement, project analysis, plan analysis, human-habitat system, patterns of behavior, attraction patterns, zoning, social control, anxiety spaces

Declarations of interest: none.

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1. Pruitt-Igoe – The Psycho-Logic behind the Failure

1.1. Introduction and central research question

Pruitt-Igoe (PI) failed disastrously. Although it was originally a highly motivated showcase project, or rather should have been. But why and above all: Why has it never been possible to define the actual causes of the failure? Why was it not possible to prevent the failure despite committed efforts by the politicians, the property management, the authorities and, in some cases, the residents themselves?

Central question: What were the main causes of the failure of PI?

The analysis focuses on the residential psychological mechanisms which often operate subliminally, and over longer periods of time. This allows surprisingly conclusive explanations of the different processes and development phases. This also makes it possible to derive solution approaches for the main problems. PI would not necessarily have had to fail that way. The analysis of the neighboring project (Vaughn) proved to be very informative, too. Vaughn also had to struggle with major problems in some phases, but did not fail.

A well-founded psychological analysis shows the stringent logic of the interrelationships and explains the developments and their causes in a comprehensible and consistent manner.

Photo 1: overview Pruitt-Igoe

1.2. Introduction 2: The brief history of Pruitt-Igoe

A short summary based on sources [1a, 1b, 1c, 1d, 1e, 1f, 1g, 1h, 1i, 1j, 1k, 1n]

Pruitt-Igoe was a huge housing development with about 2870 apartments and was originally considered a social prestige public housing project in St.Louis, USA. The planners [1a] were very ambitious to create a functioning social fabric with human scale.

Light, air, views and sun as well as contemporary living comfort were the premises. The ground area with green spaces should be available to all residents. It should offer plenty of space for everyone - for playing, spending time, sports, meeting people or recreation.

Since the planners were already aware of the problem of social isolation in high-rise buildings at that time, they combined three floors each into so-called ″vertical village communities″ (VVC). In the middle of each of these three floors were spacious communal areas. These VVC were intended to create a good neighborhood, and in the beginning they actually did.

The rather modest facade design of the buildings should not blind us to the fact that the project was led by some well-intentioned, innovative social ideas that could indeed have served as a role model.

The first tenants who moved in after completion also regarded it as personal progress in terms of living comfort, in some cases even as a social advancement or privilege to receive an apartment in this settlement.

Photo 2: Pruitt-Igoe

But the project developed completely different than expected. Soon after completion (February 1956), the first problems arose. Beginning with slight signs of vandalism, soiling, or damage to property, which visibly intensified over time. Later, there were even robberies and other crimes in the buildings.
While the occupancy rate exceeded 90% at the beginning (1957), it dropped continuously in the following years. First, the higher earners began to move out, then successively others followed. In turn, incivilities seemed to spread to the same extent.
Vandalism, dilapidation and crime became more and more prevalent. This in turn accelerated the tendency to move out. A negative cycle had been set in motion that was seemingly unstoppable.

There had been numerous renovations and rescue attempts, some of them even self-initiated by committed residents themselves, improvements of the infrastructure, etc. But all this could not really stop the negative cycle. Even an elaborate redesign of the entire immediate surroundings in the mid-1960s could only slow down the decay, but not stop it. This is the first indication that the causes of the failure could probably not only be found in poorly designed surroundings. In some cases, there were also plenty of social workers on the job. But the problems and the decay increased unperturbed by all this.
So after about 14 years (1970) only a few hundred of the original 12.000 residents remained. These were then grouped together in 6 buildings. The rest of the buildings stood empty from then on, were sealed off and more or less left to decay. Here, the end of the settlement was actually already sealed. But it still took about two years until the discouraged administration decided finally to tear down the settlement completely. The pictures of the demolition (March 1972) went around the world and made Pruitt-Igoe an icon of failure. Thus, an originally highly motivated housing project came to a media-effective end just 16 years after completion. The demolition work then lasted another four years.

Photo 3: Pruitt-Igoe collapses

The failure became not only a tragedy for many of the residents, but almost a kind of nightmare for the housing policy. Here, one of the primal fears of all the responsible people (planners, developers, authorities, and politicians), that a project could fail, became reality. Even more, in terms of its dramaturgy and the massiveness of its consequences, the worst fears were far exceeded. No one had expected such a development - on the contrary, it had been hoped to

create a thriving, peaceful and social residential neighborhood there.

1.3 Introduction 3: The endless search for the causes – short overview [1a-1n]

Years before the demolition, the seemingly endless search for the causes of the failure began. And this continues partly until today. One can find the most different hypotheses from different directions. Most of them turn out to be not very coherent or conclusive when scrutinizing them. Some of them are briefly mentioned here in excerpts:

o Architecture-related hypotheses: The architectural style [2], the building density, or the building height were to blame. In fact, the architectural style was rather sober and sparse, but this alone does not cause a project to fail. Otherwise countless other buildings with a similar style would have failed as well. There were and are also much denser and higher buildings that did not fail in this way. So this cannot be the (main) cause.

o Poor state of construction: In terms of construction technology the buildings were up to date. In terms of living comfort, most of the residents considered moving into these buildings as progress, sometimes even as a privilege.
It was only at a later stage, when many apartments were already empty, that maintenance became a problem. The income of the property management company continued to fall and, in turn, cases of damage and soiling increased. At some point, the property management alone was no longer able to fully finance maintenance and repairs. It was thus forced to neglect certain areas or to delay repairs. But this was the consequence and not the cause of the negative development.

o Economic or social hypotheses: Others thought that the cause of the failure was to be found in the economic situation, especially in high unemployment rates. However, the same economic and social conditions affected not only Pruitt-Igoe, but also many other regions and settlements at the same time, but which did not fail in such a way (e.g. the Vaughn project).

o Incongruous tenant composition or social segregation. At least in the early stages, this was not the case. In the beginning, the housing development represented more or less the average U.S. population: Blue collar, white collar, academic, even white middle class individuals. Only with the emergence of the first problems the better-off persons gradually began to move out. And in later phases only people who could not afford anything else were living there. Only in later phases did some people move in who did not take the law and social conventions very seriously.

o Politicians or the authorities were to blame. Politicians may be responsible for many things, but if the causes of the negative development are not clearly identifiable, then even the most responsible politicians are helpless. Then they can only try to cushion the effects or fight the symptoms.

o The residents themselves were to blame: Simply the ″wrong people″ would have moved in. This probably represents one of the most perfidious arguments. At the beginning, as mentioned, more or less the average regional population lived there. Only in the final phase, partly criminals and drug addicts (illegally) moved into some of the vacant apartments. On top of that, according to the reports, at least in the first years, most of the acts of vandalism and crimes were committed by people from outside who did not live in the project.

o Criminal intruders from outside would have destabilized the settlement and social life. This was indeed the case and was at least one of the main reasons for the negative development. But a central question remains: why was this settlement in particular so prone to illegal activities?

What these explanations have in common is that they name only partial aspects or reinforcing factors, but are not able to grasp the core of the problem. Therefore, they could also not provide logically sound and convincing reasons or solutions.
Since the actual root causes were never fully identified, it was also not possible to derive

effective countermeasures. That was precisely the core of the failure of Pruitt-Igoe. Therefore, all the restoration and rescue measures could only slow down the decay, but not finally stop the negative development.

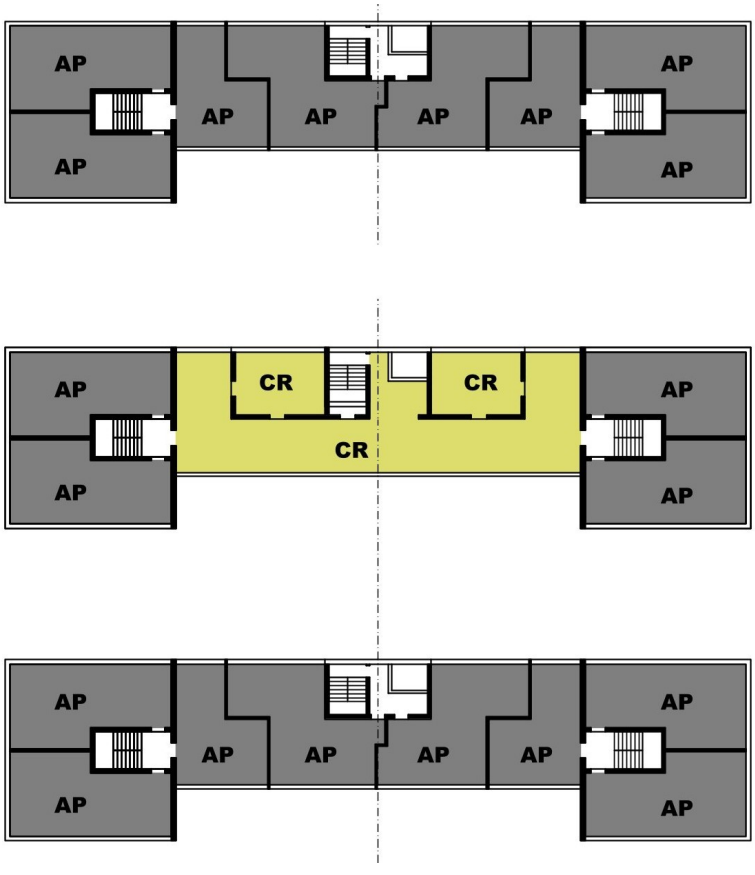
1.4 Residential psychological analysis – Results: Reconstruction of the development with explanation of the causes

Materials: The materials for the analysis can be found in the named sources [1a-1n] plus the documentary film [3]. They comprise plan sketches, pictures, photos, movies and descriptions of the housing project. However, the plan sketches and photos presented here should be sufficient to understand the content.

Methodology: The scientific basis for the analysis is created by combining knowledge from various disciplines that deal with the relationship between people and their living environment - like environmental psychology (of course), architectural psychology, social psychology, etc., the neurosciences (brain research), anthropology, human ethology, and others, supplemented with empirical knowledge from architecture and housing. Some of the knowledge could be found in the publications mentioned in [5-15]. Thus it would need several books to describe it sufficiently, but it all deals with the interrelations between the built environment and human feelings, perception and behavior. A sort of summary plus conclusions can be found in [17,18,19] as well as a concept of the whole ″human habitat system″ which was necessary to grasp the complex topic. Thus it is essential to draw transdisciplinary conclusions. To our experience it is not necessary to be an expert in all of the mentioned disciplines (which would hardly be possible anyway), to be able to understand the interrelations. An attempt is therefore made to explain the most important contents in a way that anyone interested can comprehend and follow the logic behind the development.

A few data about the object: The settlement consisted of 33 buildings. Of these, 10 were double blocks. Thus, there were 43 building blocks, which had the same or very similar internal structures. Each building block contained on average about 80 apartments and 11 floors.

Vertical Village Communities (**VVC**) - a revolutionary idea: The architects deliberately did not want to create anonymous mass housing with a high degree of social isolation. Therefore, they developed the innovative concept of ″vertical village communities″. These each consisted of 3 floors. In the middle of them was a spacious communal area.



Plan sketch 1: VVC consisting of 3 floors with communal rooms (CR / yellow) on the middle floor; and 20 apartments (AP).

This communal area was directly accessible not only from the adjacent apartments on the same floor, but also from the floors above and below via a staircase. It consisted of a wide ″communal corridor″ which was also intended

to serve as a sort of lounge and play area.

Sketch 1: communal corridor - as the architects imagined everyday life there.

Generous glass surfaces offered a panoramic view and were intended to provide a pleasant quality of stay.

Photo 4: The proud first residents in such a corridor.

Directly coupled to this communal corridor were other communal areas e.g: laundry and drying room, garbage chute, telephone booth, smaller storage rooms for the residents, side niches for rest or play, etc.
In principle, this represented a ″clustering″ of communal functions, which was intended to increase the frequency of interaction and thus neighborhood contacts. In a similar form, one could recommend such a clustering from a residential psychology perspective also today.
In the beginning, these rooms were indeed used more frequently, e.g. as a meeting place for spontaneous parties and especially by children as a play area. Then, however, it also happened from time to time that the common areas were used by people who expressed their "need to design" there, first by means of paint on walls, later also in destructive form on various furnishing objects. Since these areas thus became somewhat more unsightly, the residents stayed there less often, which in turn expanded the scope for destructive actions. At the same time, parents were less and less happy to see their children playing there.

The creeping process of change
One must imagine most of the described changes as very slow, creeping processes that developed or intensified over months or years. Many residential psychological processes work unconsciously, so the residents themselves could not name the time or occasion of the change. They could not name a specific date (not even a month or year) or any specific occurrence. Thus, no singular event was responsible for the change. And the processes appeared almost parallel in all buildings. A first hint that it might have something to do with the building structure and internal organization.
These three features can be seen (according to our experience) as almost typical of residential psychological processes: (1) they are unconsciously in many cases; (2) they usually do not depend on a singular incident; (3) and they unfold independently of the residents in many cases.

This represents perhaps the most important characteristic. It cannot be assumed that the identical personality structures were found in all 43 buildings. Additionally, there was a high fluctuation of tenants. So if there would be something like the ″wrong people″ they would have been in all buildings, which is very unlikely.

How did residents behavior "change"?
The residents themselves gradually cared less and less about the common areas, perceived them less and less as ″communal″, and felt less responsibility for them. At some point, they simply abandoned them because they were not "controllable". They felt less and less that they could influence or change them in a positive way. If the ″foreign territory″ for which one did not feel responsible for or did not want to feel responsible for used to be found somewhere outside the buildings, this now began more or less directly outside one's own apartment door.
For example, it happened from time to time that one left a garbage bag next to the garbage room because it was already full or the garbage chute was not working, or that one "stored" an old piece of furniture in the common area, and so on.
At some point, the first robbery happened - in a building! More were to follow, as well as drug offenses, harassment of women, etc. All this did not occur frequently at the beginning, but only in rare individual cases. But that was enough to cause, on the one hand, a clear acceleration of the tendency to move out and, on the other hand, an increased avoidance of the common areas. The frequency of incivilities gradually increased at a similar rate as more and more apartments were abandoned.
Only in the final stage did crime in all conceivable forms become an everyday phenomenon. A climate of permanent fear developed, and people only went outside their apartment when they had to go somewhere.

Photo 5: corridor in the final stage.

Excursus: loss of control and consequences from a residential psychology perspective [4,8,16, 18 etc.]
There are a number of typical reactions to loss of control over certain zones in the immediate living environment.

1. Attempt to regain control, so that the immediate environment can again become one's own ″territory″, one's own living space (e.g. residents' initiatives).
2. Reactance behavior in the form of avoidance behavior:

The affected areas are avoided as places to stay. This reduces social interaction between residents. And it reduces the emotional place attachment. The feeling of being at home gets gradually lost.

3. Reactance behavior in the form of withdrawal behavior: On the one hand, external withdrawal takes place. One stays more in one's own apartment. On the other hand, there is usually also an inner withdrawal - the willingness for social interaction is reduced. People communicate less with their neighbors. In the final phase they don′t even perceive them as neighbors but rather as strangers living in the same building.

4 Passivity and resignation: Many residents resign completely, give up, and just try to get by somehow, to survive. In some cases, the phenomenon of ″learned helplessness″ occurs. One has the feeling that one cannot change anything about the situation anyway, no matter what one does or not does. This is also considered one of the precursors to depression [4].

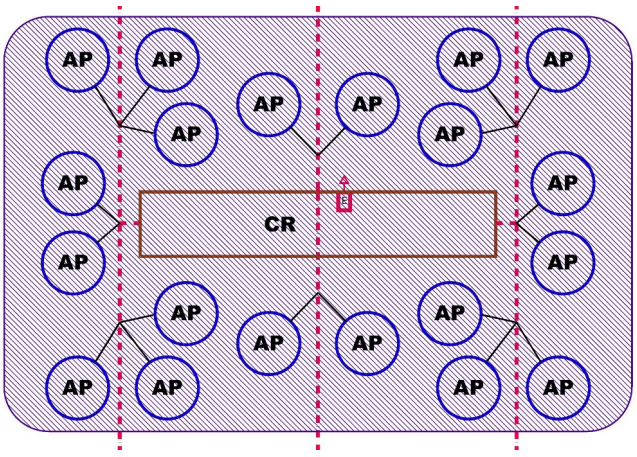
5. Uncertainty and insecurity: anxiety arises. One does not know what will happen in front of one's own apartment door, who will be there, what could happen to oneself or family members in the building or in the living environment.
6. Leaving the place: residents gradually leave the settlement.

Especially levels 2 and 6 intensified the problem enormously. The fewer people occupy and appropriate a building, the less social control works and the more likely fear and resignation become widespread.

1.5. Results – Part 2:
Massive Zoning Mistakes

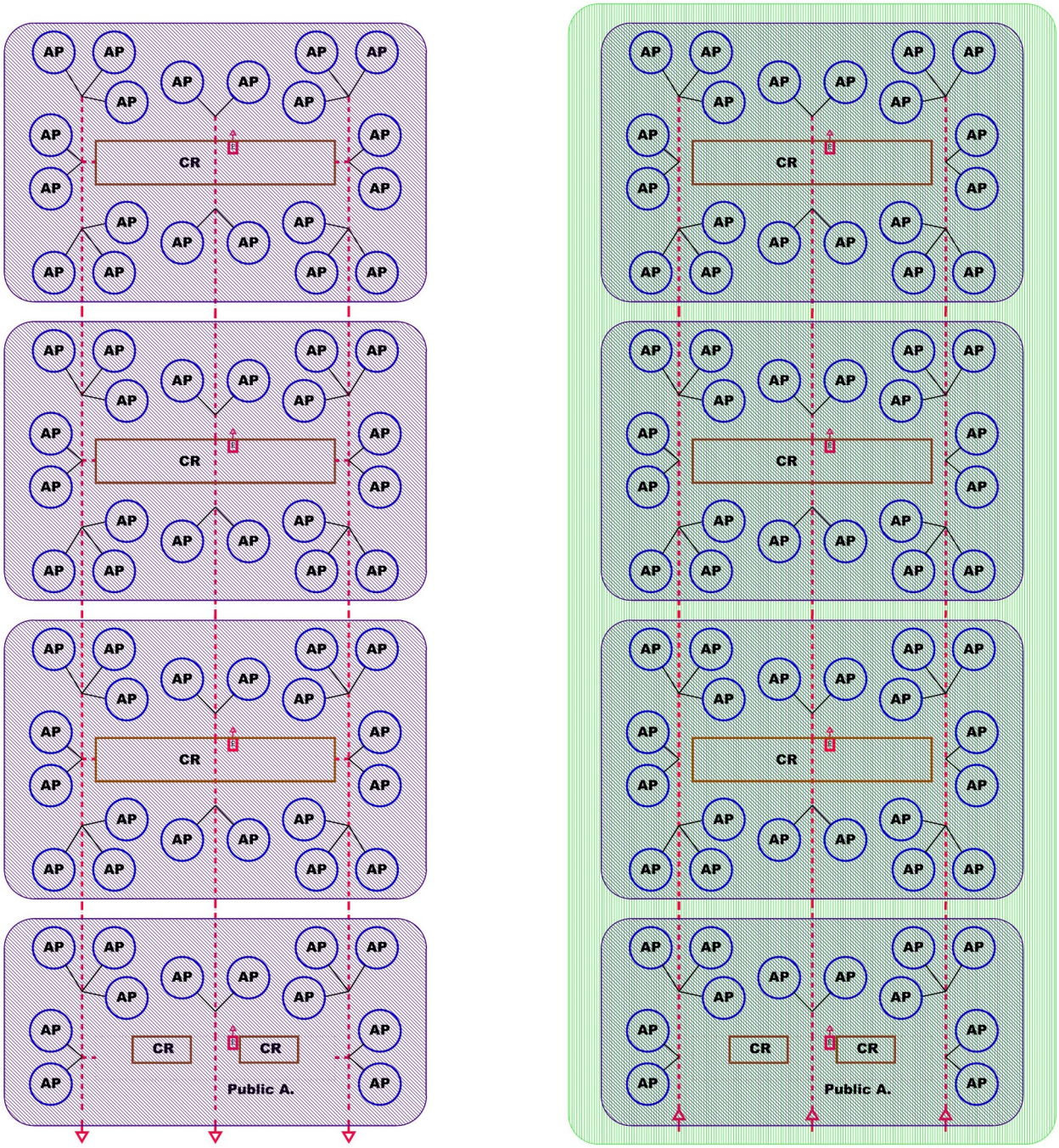
From the perspective of residential psychology, a human habitat (from the surrounding environment to the interior spaces of a building) can be divided into different zones. Each zone has to fulfill its own tasks and show special characteristics. There are not only private and public, but many more different zones [20, 21, 22, 23]. This is precisely where some of the central causes are to find.

Mistake 1: Confusion of communal and semi-public.
The intention was to create communal zones, but in reality they have created semi-public ones.
A zone is called ″semi-public″ when it is primarily used by residents, but is in principle also (almost) freely accessible to outsiders.
″Communal″ (=″collectively private″), on the other hand, means the following from a residential psychology perspective: first, that this zone is assigned to a clearly defined group of people or is primarily used by them - in this case, by the members of one(!) VVC.
Secondly, it means that these people feel at least co-responsible for the assigned areas and are thus also willing to take social control, to pay attention to these areas, in the best case also to help shaping or decorating them, etc. (- as it was originally intended to be and according to the reports even worked at the beginning).
It further means that the residents know the other co-users (= the other members of this VVC).
And it means, fourth, that they can clearly distinguish who comes from other floors of the building or from outside the building.
The number of assigned apartments (ca. 17-20) along with the resulting number of people, would have been quite an advantageous scale for the emergence of such a community.[5,6,7]



Scheme 1: VVC system:
AP (apartments) and CR (community spaces) in the center; vertical axes/ stairwells (red) and connections (black lines)

In addition, this was a clearly sociopetal structure [8], which means in this case bringing together plus promoting interaction.
Thus, some aspects were quite done right here, but: Since the 3 common areas were connected via 3 staircases, a large interconnected (and hardly surveyable) system of access routes and areas was created.



Schematic representations of the overall system of a building:
Scheme 2 - left: the system they wanted to create: a stacking of 4 VVC on top of each other, linked only in terms of traffic.
Scheme 3 - right: the system they actually created: a total system with some weaknesses. The 4 VVC are subsystems of a complex higher-level system.
AP (apartments) and CR (communal rooms); vertical axes / stairwells (red)

Due to the number of apartments and the access control at the three building entrances, which could never be implemented without gaps, a semi-public zone was created inside the building. This in itself would not necessarily have to be a major problem, but it had some unfavorable characteristics:

Mistake 2: Areas with lack of control
First, there was a lack of collective social control in this semi-public zone (stairs, hallways, and communal areas). There was a lack of sufficient visibility from the outside or by other people/neighbors. This was particularly true of the communal corridors. These areas were not visible from the apartments; the buildings opposite were too far away and the viewing angle from

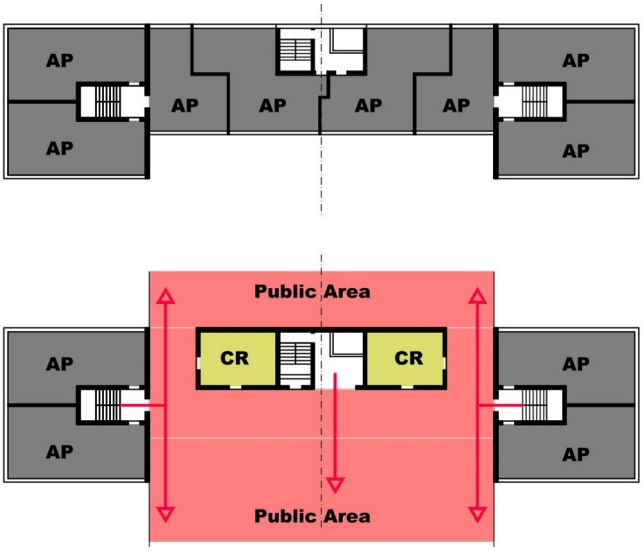
the outside ground space was also not suitable for exercising social control.
Thus, collective social control in such a setting can only function through people (residents) who are there or pass through. It only works when these areas are highly frequented.
Secondly, there was a lack of individual social control: this refers to the individual overview in the respective spatial situation from the perspective of the person walking through. There were a lot of unseen areas, niches, corners, rooms, etc.
This leads to a certain discomfort and - especially if there have already been unpleasant incidents - to avoidance behavior.

Mistake 3: Promotion of withdrawal behavior (reactance behavior)
If semi-public directly meets private (apartment) without an intermediate zone, then this increases the inhibition threshold to step outside the apartment door, because this is where ″foreign″ territory begins, in the sense that one does not know what is currently happening there or who is currently staying there. As one thus meets fewer and fewer people from the building, the degree of anonymity in the semi-public zone also increases. A high degree of anonymity, in combination with low-control areas, creates an excellent condition for the emergence of undesirable phenomena such as vandalism, dilapidation, crime etc.
The combination of (semi-)public zones with a lack of individual as well as collective social control plus a relatively high degree of anonymity at the same time also form ″ideal″ conditions for the emergence of ″anxiety spaces″ and incivilities of all kinds.
Therefore, in later phases, these phenomena were everyday life. And in the final phase, almost the entire internal building area developed into a collective anxiety space, which one only used when one had to.

Mistake 4: Lack of zoning of the site area and wrong affordance [24]
Almost the entire ground floor level (this includes the whole plot with its traffic and green areas up to the entrance areas under the buildings) forms a uniform zone with public character. What does this mean?
In a public zone, by definition, everyone is allowed to stay or move through it on an equal basis, whether they are residents or non-residents (similar to a public park or the like).
At first glance, this should not necessarily be a big problem. Due to the size of the settlement and the number of residents (several thousand), the residents could not distinguish who was a resident and who was a non-resident. This is a crucial point in the case of housing estates, because from then on social control is only possible to a limited extent.
Another characteristic of public zones relates to appropriation and interaction behavior. A public space can be appropriated equally by all - whether residents or outsiders. From the perspective of the residents, this also means that these areas are no longer perceived as their living environment. They are no longer their neighborhood territory or perceived as belonging to them. (These are usually essential characteristics of semi-public or communal areas - if they work).
At the same time, this means that emotional attachment to place is reduced, and with it the sense of responsibility for that zone. This also reduces the willingness to exercise social control and also lowers the willingness to interact among residents in these areas. The entire residential environment becomes an anonymous zone.
All this tends to increase the likelihood that other groups of people will (partially) appropriate these areas. This is of particular importance if the public zone also extends to the neuralgic points of a residential building - in this case to the building entrances in areas that are sometimes difficult to see from outside (= low control).
There are some groups of people who prefer anonymous, public, easily accessible zones. And there are people who prefer low-control areas. Not all of these have good intentions.

Mistake 5: Ground floor zoning
Much of the ground-floor space under the buildings was intended to be communal outdoor amenity space. It was freely accessible from the outside and - in terms of residential psychology - part of the public zone with no discernible transitions. In many cases, public paths even led through it.

Plan sketch 2: Ground floor and 2nd floor form a rudimentary VVC with communal rooms (CR); 12 AP; public area (red)



These areas under the buildings provided some protection from the weather that was elsewhere hard to find on the property. These also represented those areas that were best ″protected″ from social control, while the rest of the property areas were easily visible.
No matter who was there, whether residents, visitors, or drug dealers, hardly anyone was able to differentiate anymore. From the building opposite, the distance was too far to be able to identify anyone. For passers-by, this was no longer distinguishable anyway, since they themselves had the feeling that they could go there and stay there - just like in any other public place. It is precisely the most vulnerable areas on the entire site that are also the least controlled. This forms a very unfavorable constellation.

1.6. Consequences

How did the residents of the respective buildings experience the development?
Due to the analyses it can be assumed that in the beginning, when they still had more contact with each other, the residents of one building knew each other at least by sight - perhaps not all, but most. But in the course of the development described above, the communal areas were entered less and less frequently. Thus, the frequency of interaction as well as the willingness to make contact decreased significantly over time. Reactance behavior increased due to the lack of zoning and impairment of the need for protection - in the form of withdrawal, isolation, avoidance of contact. This, in turn, increased the degree of anonymity, so that in many cases, the residents themselves could no longer distinguish who belonged to the building and who did not, who was a neighbor and who was an intruder.
In the final stage, the common areas including the access system were a sort of ″wasteland″. And these had almost ″ideal″ conditions for the emergence of anxiety spaces and incivilities of all kinds. This was true for the interior areas and, to a greater extent, for the ground floor zones immediately adjacent to the exterior described above.

Change in thinking and behavior
The contexts in Priutt-Igoe are also an impressive example of how spatial structures influence human thinking and behavior. All the above-mentioned impact processes changed the behavior of the residents themselves - even among those who lived there from the beginning or over longer periods: from friendly, open to contact, helpful, neighborly in the best sense - to avoidance behavior, reactance behavior, carelessness, sometimes even destructive or hostile behavior.
It was only in later phases that actions such as soiling, littering or vandalism were sometimes carried out by the residents themselves. In a sense, they felt abandoned - by the authorities, the property management, the police, the politicians. And this sometimes led not only to frustration and anger, but also to a kind of negative emotional attachment to place - to a dismissive, antagonistic attitude toward their own living environment.
In any case, it was clearly perceptible that the residents gradually became more and more anxious, cautious, reserved, sometimes even dismissive with increasing length of residence. They met others more and more often with mistrust, suspected others (unconsciously) of certain intentions or misdemeanors. They felt stressed more and more often - not only in the problem areas of the building and the surrounding, but also in the apartments themselves. There was a persistent inner tension that hardly subsided. In the final stage, the entire setting was strongly

characterized by anxiety and fear.
In the final stages, on top of all this, it was a relatively advantageous setting for illegal activities of all kinds - starting with prostitution and drug dealing and ending with violent crime. In some cases, vacant apartments were also occupied illegally. From the upper floors, one had a good overview of the open spaces - and could thus recognize the approach of the police from afar. In the building itself, on the other hand, it was difficult for the police to apprehend anyone because of the many stairways, corridors and hiding places.

1.7 Interviews in the context of development

If the results of analyses are right, there should be no profound contradiction with the experiences of former residents. The interviews with some of them [3] can be described as extremely interesting and revealing. In the following sections - which represent respective phases of development - some original statements are inserted in each case.

The marvelous beginning
At the beginning there was joy and enthusiasm, because for most people moving in was a step forward in terms of comfort. Some were even proud to be able to live in such a project.
Here are some quotes from residents of the first hour:

- *"It was a very beautiful place, like a big hotel resort, I'd say, with plenty of green grass, trees ..."*
- *"It was like an oasis in the desert."*
  "I never thought that I would live in that kind of a surrounding"
- *"It was like another world ... and I was so happy"*
- *"It was like a Christmas present."*
- *"I felt like I was rich."*

The social structure functioned well at the beginning.
The intended vertical village communities were really formed! It is particularly remarkable that in the first phase the social structure developed well. Neighborhood was real. This also means that not everything was wrong with the concept of VVC - quite the opposite.

- *"I remember a warm sense of community"*
- *"There were some other white families and many black families ...*
  we all interchanged, exchanged babysitting with each other"
- *"We helped each other and kept to tackle the children"*
- *"It was a nice place to live and to raise a family"*
- *"We were a community - in the beginning"*
- *"We did share food … it was a wonderful feeling"*
- *"At the beginning there were white doctors and many persons you would like to have in your neighborhood"*

The communal areas were well frequented in the first phase. The spatial structure actually ensured that the residents knew and met each other - the VVC really seemed to work. The spaces had a community-building effect, at least in the beginning:

- *"it had another sense of community ... because of the building structure, because of the way it was made. It was a sense of togetherness, a closeness … a sense of family living together in a building"*
- *"It was a place where kids could have a chance to play"*
- *"sometimes somebody put out a record player somewhere ... we started a party ... and everybody came from everywhere"*
- *"In the building there was a sort of recreation room, we'd like to dance there, we did our singing"*
- *"It brings back wonderful memories. ... my memories of PI are probably some of the best memories I have"*

The slowly creeping turnaround
Since many residential psychological processes take place subliminally and often unfold their effects over longer periods of time, those affected are hardly aware of them. They are therefore seldom able to name these connections directly during interviews.
The "creeping and mysterious turn" to the negative did not happen suddenly, but took place hardly noticeably over years, accompanied by a continuous change of residents:

- *First, "you just get out to meet somebody, you knew everybody, … we felt safe"*
- *It was a place where, "you wanna go down to see who is out there, you wanna go out to play with somebody, to talk with somebody ..."*
  In the end, "you were worrying who is out there!"

No one could give a specific time when the "descent" began.

- *"Well, I don't know when it all began. One day we woke up and it was all gone."*
- *"When the number of residents per public space rose above a certain level, none would identify with these 'no man's land[s]' – places where it was impossible to feel ... to tell residents from intruder"*

Continuous decay / increasing loss of control
This slow and (seemingly) unstoppable decay took place over years. It was accompanied by a continuous decline of residents and an increase of intrudors.

- *"There were people, teenagers hanging round downstairs who you don't know." "There were teenagers running around we do not know."*
- *"There were people from outside doing the crime, … begging for some dollars"*
- *"It was easy to get in there, doing the dirty job, and leave"*

Final phase
Social control failed completely. Vandalism and crime became everyday phenomena. Criminals sometimes moved into vacant buildings, etc.

- *"il was just uncontrollable "*
- *"The danger was around the corner, it was right there."*
- *"The crime was real, but the crime stigmatized the people inside"*

Spaces influenced people's thinking, behavior, and personal development. A sort of negative emotional place attachment arises.

- *"The vandalism that existed in PI came from that environment, that things were allowed to deteriorate ... people were not really caring. So management decided instead of trying to enhance their existence, just to make things so that they cannot be destroyed." "The fact that it was indestructible, made you wanna try to destroy it."*
- *"It's the mindset of individuals that live in a constant fear. It changes people. It created a group of individuals that felt as if they had really nothing to lose."*

In the end, it was a place of "permanent fear," characterized by vandalism and crime.

Residential psychological conclusion
If we can clearly define the interrelations (cause and effect) a certain logic behind the development becomes visible. Then even statements of the residents can be classified which, considered in isolation, would sometimes sound puzzling or contradictory.

1.8 Discussion
Solution approaches - the main benefit for housing practice

The main benefit for practice is to derive solutions and helpful recommendations from the analysis. This can be illustrated by using this example.
The actual design of these recommendations allows in principle many variations and would form the central task for architects. Here is an overview of the most important aspects:

(a) Increasing collective social control inside the building (visibility) - however and by whatever means. This applies in particular to the communal areas.
Important support: increasing the quality of stay in the communal areas with attractive incentives for use. They should offer something that the apartments themselves cannot. The view alone is

not enough.

(b) Increase individual social control inside the building (when walking through): e.g., reduce corners that are hidden from view, increase transparency, and the like.

(c) Better subdivision of the overall system of a building. Better effective division into the originally intended subsystems - the VVC.

One of the most important consequences goes hand in hand almost automatically with (a), (b) and (c): the reduction of the degree of anonymity plus the increase of the degree of interaction among the residents.

(d) Additional meeting spaces for all residents of a building would be recommended - preferably on the ground floor. For example, a new foyer that combines all 3 entrances to the building - plus open spaces in front of it with different possibilities of appropriation for the residents of this building (play, recreation areas, etc.).

(e) Access area on the ground floor: Here it is absolutely necessary to increase the social controllability and to improve the regulation of accessibility.
In this context, the above-mentioned combination of the three entrances into one main access area in front of the building would also be advantageous. It should become a separate zone with a communal character, which would allow greater visual controllability from inside and outside.

(f) Better zoning of the entire site area or immediate living environment.
This includes establishing semi-public zones (rather than wholly public). A subdivision into smaller residential areas would be very advantageous. An absolute must is an intermediate zone between the house access areas to the building and the public zone. This intermediate zone should have a communal character along with the appropriate features. And clearly recognizable transitions to the public zone should be established!

From the perspective of residential psychology, these points would be the minimum requirements for initiating a positive turnaround. The mentioned negative self-reinforcing development spirals (vicious circles) could thus not work anymore.

1.9. Conclusion

The real course of development of PI does not contradict the attraction patterns (similar to patterns-of-behavior [25]) discovered by means of the detailed residential psychological analysis. On the contrary, the latter explain the former and could also have predicted it to some extent. Spatial structures and patterns-of-behavior are mutually dependent. Therefore, similar phenomena also occurred in all 43 buildings.
In this context, attraction patterns describe the most probable or the most preferred possible behavioral and usage patterns that are likely to occur in a spatial structure. In the end there is always a sort of congruence between human behavior and the local / spatial conditions due to the various interrelations between them.
The mechanisms of sociolocal behavioral congruence [26] become stronger the longer people are exposed to a setting. Therefore, they become particularly relevant in housing projects.

The final **general recommendation** for any housing project is to have these processes and effects analyzed in advance - before erecting the building, during the planning phase. This could significantly reduce the risk of ″bad″ surprises or negative developments. In turn, positive or desired effects can be better planned for.
This represents the enormous practical value of residential psychological knowledge.

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Photo 1: Housing project Pruitt-Igoe in St.Louis, USA (Pruitt-Igoe_section.jpg)
source: United States Geological Survey - United States Geological Survey,
source: https://commons.wikimedia.org/w/index.php?curid=5584780
Photo 2: Housing project Pruitt-Igoe in St.Louis, USA (Pruitt-Igoe-overview.jpg),
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Photo 3: Pruitt-Igoe-collapses. (Pruitt-igoe_collapse-series.jpg)
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Photo 4: Corridor and first residents (family-looking-out_Pruitt-Igoe.png)
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Photo 5: Corridor final phase (Pruitt-Igoe-corridor-final.jpg)
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All plan sketches copyright by H. Deinsberger-Deinsweger (all colored!)
Plan sketch 1: VVC consisting of 3 floors
Plan sketch 2: rudimentary VVC

All schemes copyright by H. Deinsberger-Deinsweger (all colored!)
Scheme 1: System of a Vertical Village Community (VVC)
Scheme 2: Intention: stacking of 4 VVCs
Scheme 3: Reality: social-psychological overall system

2. The Neighboring Settlement: The Vaughn Project
A Revealing Comparison

Analysis of the "Sister Project" - Parallels and Differences

Photo 6: Pruitt-Igoe in the upper part and Vaughn in the lower part on the right

2.1. Introduction [1a-1n; 27a-27g]
A comparison between Pruitt-Igoe (PI) and Vaughn is worthwhile primarily because both housing developments were built at almost the same time and had very similar circumstances. They were not only in the same town, but in close proximity to each other. They had the same clientele, the same property management, the same responsible authorities, etc. They were affected by the same economic, political, and social conditions.
Even the same architectural office [2] was planning. And thus the buildings were characterized by the same unadorned architectural style as well as the same urban planning principles: building high so that a lot of space remains free at the bottom for the residents and the public; Light, air, sun and views were the premises as well as abundant green spaces, play areas and meeting spaces for all, as well as communal spaces to promote neighborliness.
There were also certain parallels in development in the 1960s. Both struggled with vacancies, vandalism, and incivilities of various kinds. Both gradually developed into a kind of ghetto. Representatives of the middle class were no longer to be found in both after a few years.

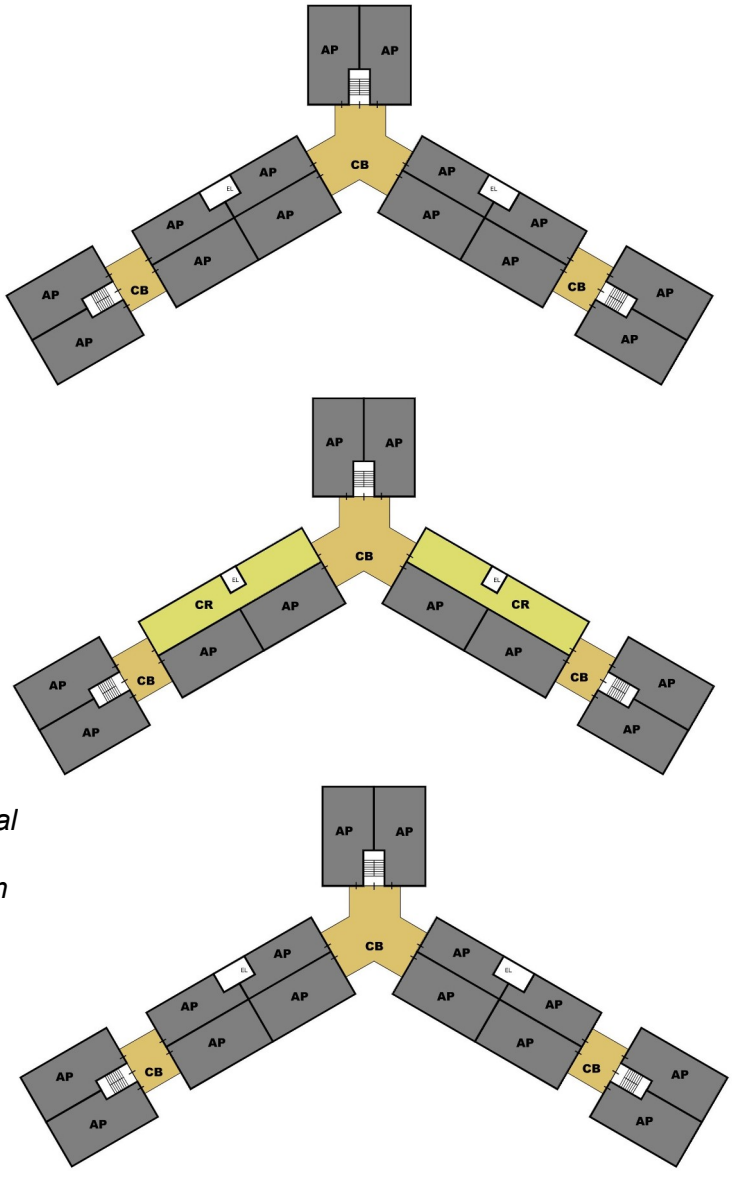
Nevertheless, there were also remarkable differences. One settlement existed for only about 16 years with an enormous number of vacancies (more than 90% in the last years of its existence). Therefore, the average duration of occupancy per apartment can be roughly estimated at around 7-9 years. This alone would be a disaster for any project - economically and socially.
The other existed for about 38 years with an average occupancy duration per apartment estimated at about 31-34 years. And most importantly, Vaughn was spared massive failure.

Photo 7: section Vaughn-Projekt

To start with a summarizing history [27a-27g]
The official opening was in June 1957, about 1 year after PI. Demolition began in 1995, 23 years later than PI. Occupancy rates fluctuated here as well, but did not reach those lows of PI. The Vaughn project also experienced increasing problems with vandalism, theft, littering, etc., in parallel with vacancies and structural deterioration. Vacant apartments were literally looted. Everything that could be dismantled was stolen. This also affected the communal rooms in particular.
But the conditions never reached the dramatic proportions seen in PI. In contrast to PI, a positive turnaround was achieved from 1970 onward with renovation measures including tenant participation, and the occupancy rate rose again. In PI, all efforts and redevelopment measures came to nothing. In the 1990s, the Vaughn buildings became rather old in a technical sense, and demolition work began in 1995.

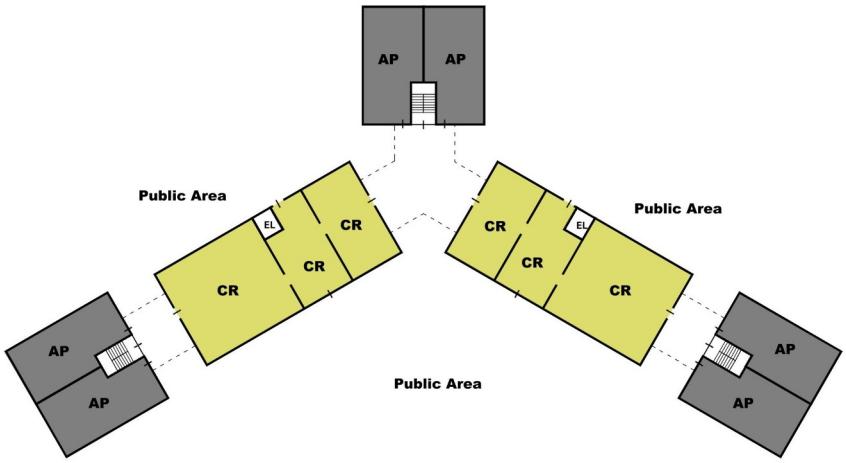
2.2. Introduction 2: The building structure

The settlement consisted of 6 similar building blocks. Thy were partly built adjacent to each other and had almost identical floor plans.
A building structure was composed of 5 building sections and 3 intermediate zones (junction areas), which run through all 9 floors. These intermediate zones were designed as so-called communal balconies. *(see plan sketches)*
Each building had 9 floors. And again similar to PI, 3 floors each were grouped into ″vertical village communities″ (VVC). But these had a much more complex structure and consisted of 38 apartments and some common areas.



Plan sketch 3: one VVC consists of 3 floors: 1 intermediate floor with 2 CR (communal rooms), 10 AP (apartments), 3 CB (communal balconies = junction areas);
and 2 standard floors (above and below) with 14 AP and 3CB each.

The lowest VVC (1st, 2nd, and 3rd floor) differs from the structure of the upper ones. The floor with the communal rooms was on the ground floor level and had only 6 apartments. Instead of the communal balconies, publicly accessible open spaces were found here. The two standard floors were located above.



Plan sketch 4: lowest VVC: ground floor with communal rooms (CR) and 6 apartments (AP) above 2 standard floors, like in plan sketch 1

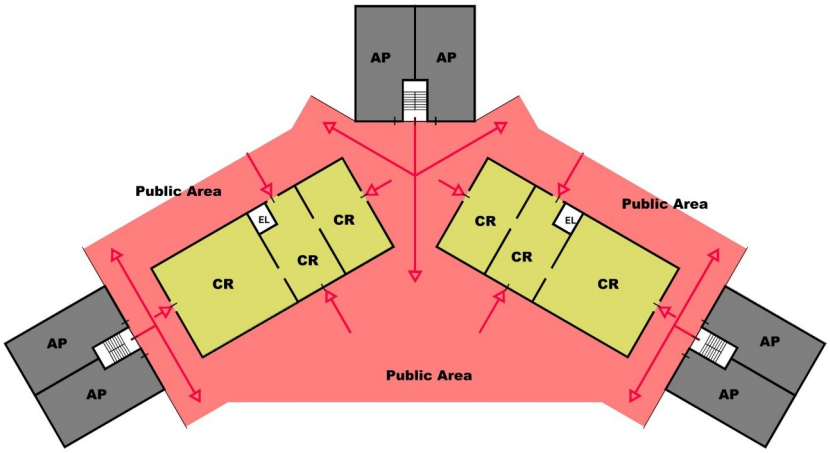
2.3. Residential psychological analysis – Results

Materials: The materials for the analysis can be found in the named historical sources [27a-27g]. They are comprising plan sketches, photos, and descriptions of the housing project. The plan sketches, schemes, and photos presented here should be sufficient to understand the content.

Communal rooms on the ground floor
On the ground floor, there were relatively spacious communal rooms. Some of them were also intended for all residents of the building (e.g., the spacious lobbies in front of the elevators). Such were absent in PI!
The communal spaces were on the same level as the surrounding open spaces. There was generous visual contact to these as well as several exits. On the one hand, this allows good visual contact to the outside. And on the other hand, these open spaces are also directly and easily accessible. Both are well suited to reduce the degree of anonymity. The likelihood that one knows the other residents of that building, at least by sight, and can thus identify them, is distinctly higher.

Zoning of the ground floor area
Like at PI, the public zone reached to the building facade. Due to the shape of the building, it had a bit more semi-public character. Precisely, its characteristics laid between public and semi-public. Thus it was in a rather unstable position. It functions only as long as the residents themselves use this environment - i.e., appropriate their own living environment and, at least in part, interact socially with each other.
In this respect, the communal spaces on the ground floor are very helpful because they increase the frequency of interaction and make it more likely that the open spaces directly in front of them will also be appropriated by the residents. This would also make it their ″territory″, that is, a communal or semi-public area. This should still work well as long as the ground floor areas are often used by the residents themselves - i.e. primarily during the day. If these areas are less or hardly frequented by the residents, then they immediately become a classically public and largely anonymous zone.
There is no discernible transition to public space. From the outside perception, the entire area has a public character. It is freely accessible and everyone can stay there - including the areas under the buildings.
The public areas are thus partially covered - where the communal balconies are located above them. These were relatively hidden from view compared to the other public areas, which were very well visible from many sides. The communal rooms on the ground floor were visually closed to these very areas. So the windows were directed towards outside spaces (from where more sunlight could shine into the rooms). Consequently, (similar to PI) these weather-protected areas were precisely those that were also best ″protected″ from social control.

Plan sketch 5:
Ground floor area: red = public area, freely accessible from outside
AP (apartments); CR (communal rooms)



Ground floor apartments
They were located at almost the same level as the (semi-)public area all around. This proves to be a very unfavorable situation, especially from the perspective of the ground floor residents, when it comes to the sense of security or the impairment of privacy.
Access to the apartments is directly from the public area, which is another major weakness - not only in terms of safety, but also in terms of the willingness to go outside the apartment door. On the one hand, one is standing in the middle of a public traffic area. On the other hand, you don't know if and who is just there in front of the entrance door, what is going on there, etc. This is a classic example of loss of control, which has an even greater effect close to the zone that is characterized by the highest claim to privacy (one's own home). Not only does it affect well-being (accompanied by feelings of insecurity, discomfort), but above all it promotes withdrawal and seclusion behavior.
Such a setting works (from a residential psychology point of view) only if there is not a public but a semi-private or at least communal one located in front of the apartment door - as it is the case on the upper floors!

The "junction areas"
A characteristic of the building structure lies in the fact that the parts of the building were connected by open spaces. One can call them junction areas. The buildings and the apartments themselves were accessed via these junction areas. On the upper floors, these were designed as communal areas and were named in the plans "communal balconies".
On the first floor, several apartments, communal rooms, and stairwells were directly accessible (without an intermediate zone) from these central public junction areas.
Social control from the outside is limited by the building position, but not entirely hindered. Individual social control is still relatively possible.

Potential weak points
Consequently, these intermediate zones in the ground-floor represent potential weak points. They function for the long term only under the following conditions:
- if the zone has clear characteristics of a semi-public (or communal) zone
- if the residents use these areas, if there is some form of appropriation and interaction
- and if the residents feel responsible for this area
- if the level of anonymity is low and residents can distinguish, in most cases, who is a neighbor or an intruder.

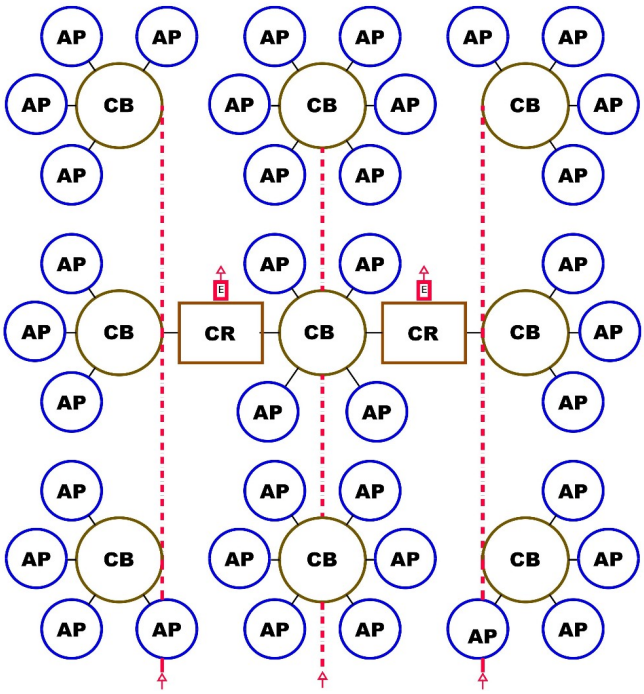
Once incidents occur that cause residents to spend less time outside, social control is reduced and the risk of incivilities increases. If these areas are largely avoided as sojourn areas, if the degree of interaction decreases and, in turn, the degree of anonymity increases, then the situation can quickly tip here as well. Then, too, a largely anonymous public space can emerge for which no one feels responsible anymore and which attracts illegal activities, as it were.
This actually happened for a while - with the typically self-reinforcing effects: Withdrawal of the residents leaves more free space for illegal activities; as a result, the residents withdraw even more; which in turn further increases the free space for vandalism or crime, etc.

Upper floors
The upper floors suggest that 3 floors each formed a subsystem (VVC): 2 standard floors plus an intermediate floor with communal rooms. So here again there are similarities to PI.
The middle of the 3 floors housed some communal rooms - primarily washing and drying rooms. Embedded in these was also the stop for the elevator. Obviously, the intention was to increase the frequency in these areas in order to increase the contacts among the residents as well. There were two such common areas on the middle floor. The residents thus had a certain choice. Above and below this middle floor were floors filled exclusively with apartments plus three of these communal balconies.

Communal balconies
One special characteristic of this project are the so-called communal balconies. In terms of their appearance, they are not really balconies in a common sense, but rather spacious circulation areas. Due to their width, they can be used not only as walkways, but in principle allow other different uses (e.g. stay, play, drying clothes, etc.).
These areas also allow the formation of (small) semi-private areas in front of the apartment entrances. To what extent this was allowed is not known. Experiences from other projects show that as soon as such areas are available, they are gradually appropriated by the residents: usually starting with a foot scraper, decorative objects, flower pot or the like, occasionally also a seat or bench, etc.
Since these areas are assigned to only 3-6 apartments each, they actually also bear a collectively private (=communal) character. They thus have a much more private character than, for example, the corridors at PI.
Due to the clear assignment of apartments to communal balconies, it can also be assumed that the degree of anonymity was relatively low here (at least on the upper 6 floors) and that social control still functioned to a large extent. That is a crucial point.

Vertical access axes (3 stairwells and 2 elevators)
The 5 vertical access routes were a potential weak point. The stairwells in particular proved to be low-control zones and potential anxiety areas.
They were all directly accessible from the outside. The public open space led up to the building entrances, which in turn were relatively low-control areas. So similar vulnerabilities to PI are apparent.
There was one advantage with this access system: To get to the apartments on the upper floors, one must always walk across one of the aforementioned communal balconies. This provides a small security buffer when it comes to burglary protection.

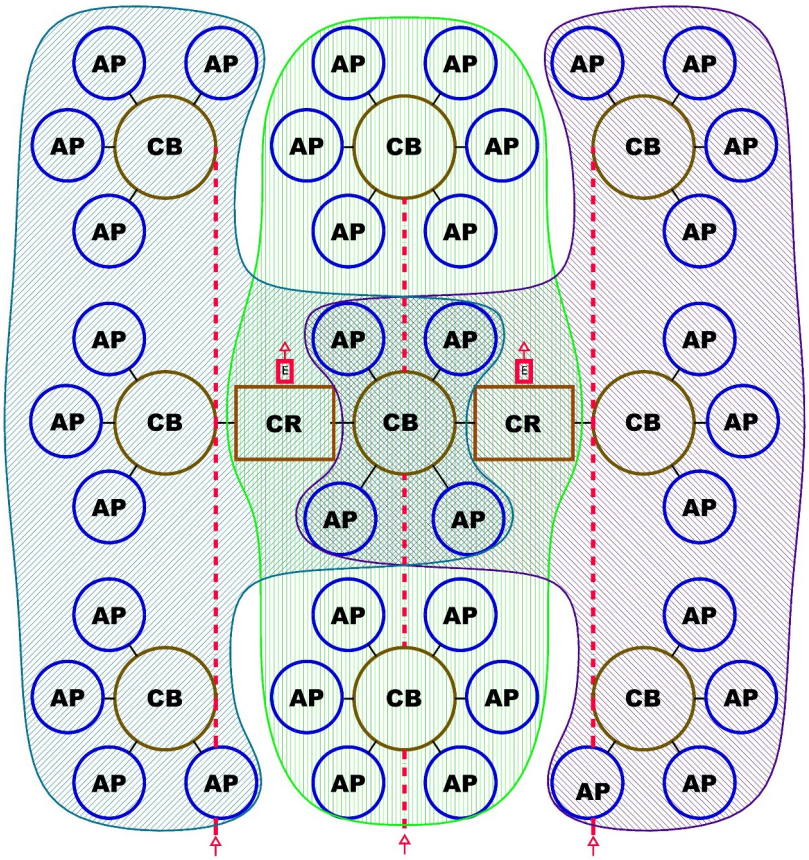
The overall system
Now we come to a central point and focus on the complex system of one of these building structures.
A building structure is composed of 3 subsystems, each with 3 floors.



Scheme 4: Schematic representation of a 3-story community with 38 apartments (AP) in total: consisting of 2 standard floors plus an intermediate floor with common rooms (CR) and elevator entry point (E); vertical access axes (stairwells) dashed in red.

That means also here, similar to PI, 3 floors each were combined to a VVC, but with 38 apartments each.
But now it gets a bit more complex: each VVC is in turn composed of 3 subgroups, which partly overlap: 2 side groups and

one middle group.
A side group consists of 11AP plus 4AP from the middle group plus 1 communal room (with laundry/drying rooms, etc.). The middle group consists of 16AP plus 2 communal rooms.
Each communal room thus forms at the same time a component of 2 subsystems (a middle group and a side group) and borders on 2 sides on communal balconies.



Scheme 5: VVC consisting of 3 subsystems: 2 side groups (shaded blue and purple) and a middle group (shaded green).
The small groups around each communal balcony (CB) are also clearly visible here.

Such a 3-floor community already appears very complex in itself. This is reinforced if one considers the entire building structure.
There are 5 vertical access axes: 3 stairwells and 2 elevators. This results in a complex network of connections across all 9 floors with 110 AP.

What does this mean?
Each subsystems consists of 15 or 16 AP each, with an estimated number of 30-60 residents. It can be expected that the residents of such a subsystem know each other, at least greet each other, and in some cases know each other by name. They meet on the communal balconies, in the communal rooms assigned to them or in the washing and drying rooms. They wait for the elevator in the same place, go in the same direction, use the same stairs, etc.
The residents of the opposite wing (the other ″side group″) are likely to see them much less often and probably don′t know all of them.
The residents of the middle group play a decisive role. Only they share common areas with the other two side groups. Only they are theoretically in a position to know - to identify - all the residents of a VVC. The 38 apartments suggest a resident population of approximately 90-150. This would be a relatively advantageous group size to be able to create a community.[5,6,7] This would also allow social control - in the sense of recognizing other residents - but only for the residents of the middle group. As soon as there are more vacancies or increased withdrawal behavior in this group, it could become problematic.

2.5. Discussion and Conclusions

The ground-floor zone certainly constitutes a major problem. Due to the unfavorable zoning, the easy accessibility and the partly uncontrolled areas with almost public character, this area proves to be predestined for the occurrence of incivilities of various kinds.
This is usually followed by increasing avoidance and withdrawal behavior by the residents - especially in the evening and at night. This in turn increases the scope for criminal activities. According to the reports, theft and even "looting" in particular were widespread at times.
The ground-floor apartments lend themselves to this. They can be easily controlled from the outside. The control needs of potential burglars are well fulfilled.
In addition, there are escape routes in different directions. All of them are easily visible from these junction areas, so that a thief has a free choice in which direction to escape.
Since the public zone extends right up to the apartment door, there is virtually free accessibility (even for burglars, thieves, drug dealers). The apartment entrances themselves are located in a relatively low-control area - especially in a phase in which the residents themselves increasingly avoid the outdoor areas or hardly step outside the apartment door.
As soon as the first apartments on the ground floor are vacant, the situation worsens dramatically. The areas become less and less controlled and a negative cycle begins. Since the main entrances to the building were also in these low-control areas, it can be assumed that the burglaries or thefts gradually spread to the upper floors. (Which, according to reports, they actually did.)
However, the higher up an intruder goes, the more often he has to pass through communal areas, the higher the risk for him to be discovered after all. This may not have deterred all burglars, but it did deter some. Only when vacancies are rising a lot the situation could tip in the upper floors as well. But it obviously didn't quite come to that.

The main differences between Vaughn and PI, from a residential psychological perspective, are as follows:

(1) The ground floor area around the building entrances has at least a rudimentary semi-public character at Vaughn. This is still far too underdeveloped, but could be significantly improved by relatively simple means. But it should have worked at least in phases during the day.
At PI, the areas were almost entirely public. Thus, it was common for strangers and numerous uninvited guests to stay there – at any time.

(2) The common areas in Vaughn often (especially on the upper floors) have a much more private character (collectively private). As a result, the immediate residents also feel more responsible for them or are less likely to give them up.
The communal areas or the access areas were also subdivided several times and more complex structured. It was much more difficult for intruders to survey the situation - i.e., their needs for control and protection were less easily met.
In PI, there was a large contiguous area inside with a semi-public character. In such an area, intruders feel significantly ″more comfortable″. Whereas in a communal or collectively private area they are immediately recognized and possibly confronted. This hardly ever happens in a semi-public zone - especially when the level of anonymity is already quite high.

(3) Semi-private areas: In Vaughn, semi-private areas were consistently possible in front of apartment entrance doors. With the exception of the ground floor apartments, these were always adjacent to common areas. In principle, this can be described as relatively favorable zoning. When you step outside your own apartment door, you are still on your own ″territory″, and a few steps further on you are in the collective private area. This significantly reduces the inhibition threshold to step outside the apartment. Interactions become more likely, appropriation processes are enhanced. All of this, in turn, has a beneficial effect on the willingness to exercise social control, it increases the emotional place attachment as well as the sense of security.
In PI, there were simply no semi-private areas. The semi-public space began immediately outside the apartment door. This increased the inhibition to go outside and also did not have a beneficial effect on safety feelings. It also contributed to the fact that the communal corridors and all the other circulation areas were even less frequented and that they became even more

anxiety spaces.

From the analysis, it can be concluded that, in addition to a few other ancillary aspects, especially items (2) and (3) were the primary factors that prevented Vaughn from failing completely and that it had been inhabited many times longer than PI.

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Photo 6: housing projects Pruitt-Igoe and Vaughn (Pruitt-Igoe_Vaughn.jpg)
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Photo 7: Vaughn Project, section from photo 6 (Vaughn-section.jpg)

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Plan sketch 3: VVC consisting of 3 floors
Plan sketch 4: lowest VVC with ground floor
Plan sketch 5: ground-floor area

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Scheme 4: 3-floor community
Scheme 5: 3-floor community with subsystems