HABITABLE WALL AS A DESIGN STRATEGY FOR ENCLAVE HOUSING:
A PROPOSAL FOR AN URBAN RESIDENTIAL ARCHITECTURE

by

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B.Sc., Columbia University, 1977

Submitted to the Department of Architecture
in partial fulfillment of the requirements for the degree of

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ABSTRACT

The concern of this study is to evaluate a design strategy for urban housing which seeks to
foster a sense of community and at the same time resolves the problem of continuity and interface
with the existing urban fabric, and to explore its applicability to modern cities.

When a habitable wall (housing block) is used to enclose a positive space for communal and
private uses, the resulting entity is considered a housing enclave. Instead of being a self-contained
precinct, such an enclave is viewed as a typical unit which recurs to build up city districts. This
type of design promises restful garden spaces inside as a complement to the active street spaces
outside. The habitable wall, being the boundary between these two kinds of spaces, are expected to
enrich them with character and unite them together thus the inside and the outside become a complete
experience.

The first chapter gives an overview of the types of habitable wall and housing enclaves and
includes a brief comparison with other forms of residential design. The second chapter contains an
analysis of three projects: Spangen, Eigen Haard and Byker. The focus is on the internal life and
the external image of these enclaves and the potential of the habitable wall in fulfilling the
domestic and urbanistic expectations. Chapter three examines the important devices for design
development in strengthening or mitigating these schemes. The final chapter concludes the findings
and explores the potential of enclave housing as a prototype for modern cities.

Thesis Suprevisor: Stanford Anderson

Title: Professor of History and Architecture
This thesis is the result of four months of hard work. Although it was painful at times, I consider this experience the most rewarding one in my academic life. At this point, I would like to acknowledge those people who took a sincere interest in my education and provided moral support when it was needed: Stanford Anderson - who was inspiring, helpful and critical throughout and is the best possible thesis advisor; Donald Grinberg, Nancy Stieber and Jenny Young - who gave me valuable guidance and criticism; Teck Neo Choo and Michael Leaf - who provided a continual source of inspiration and nutrition; Mark Crosley and Pablo Molestina - who provided stimulating exchanges. I am particularly grateful to my friend Yuen Hoi Lee who spent his Christmas vacation typing up this thesis.
TO MY PARENTS
PREFACE

The motivation for this study comes from my interest in the contemporary discussion on urban architecture in general, and in the changing attitudes towards urban housing in particular.

This study echoes the widespread reaction to the isolation of towers and slabs, and the renewed concern with urban space, sense of community and continuity of the urban fabric. The central theme of this study is that urban residential buildings, being the most extensive single element in the city, should form a continuous texture which defines and organizes the open spaces in a positive way.

Habitable Wall as a Design Strategy is worth exploring as it responds to the social requirements of housing and the proper nature of urban space. A habitable wall (linear housing block) implies a horizontal organization. It fills the site, maintains the continuity of the street, and encloses geometrically finite internal spaces. The resulting entity, called an enclave, is a residential module which provides the immediacy of contact between neighbor and neighbor, dwelling and street, dwelling and private open space, and the proximity of each dwelling to communal open space.
The module may be repeated, varied and combined to form neighborhood groupings and to build up city districts. It is felt that only through a continuous web of contacts an individual may establish a meaningful relationship with his sustaining environment.
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CHAPTER ONE: INTRODUCTION
1.1 WHEN DOES A BUILDING BECOME A WALL?

A building can only be defined as a wall in relation to the spaces it helps to define, enclose, divide or protect.

Very often, a monumental building may attain the effect of a wall. The palace of Versailles (a collection of many buildings), with its facade stretching over a quarter of a mile long, forms an impressive wall to screen the immense garden from the town. The main facade of the palace faces the garden and the town is actually an appendage to the court. While explaining the design concept of the Boston City Hall, architect Gerhard Kallmann also described this building as a wall with an adequate physical presence to hold up the huge plaza and a noble character to honor the citizens. Contrary to Versailles, the City Hall faces the center of the city and it serves

2. From a lecture given at M.I.T., Fall, 1981.
Sometimes, even a domestic building may have the characteristic of a wall. Many of the Palladio's villas act as dividers between the public and private worlds. Their entrance facades and garden facades are given distinctly different formal treatment which in turn influence the character of the spaces they try to define. Corbusier's Villa Stein also has very distinct and planar facades which give strong definition to the spaces immediately in front of them.

In certain cases, a building only becomes a wall when it is combined with other buildings or space defining devices such as hedges, trees and ground forms. A good example is the Palazzo del Senatore in Rome. This building becomes one of the three walls which contain the Capitol
Buildings as Objects?

Fig. 1 Capitol Square, Rome
(S. E. Rasmussen)

Square. But if it exists by itself, it is very much an object. (This building is almost cubical. It has very little directionality.) The Boston City Hall also has the same ambiguity.

Of course, there are many buildings which definitely do not wish to be walls. One can count numerous examples such as the Pyramids, Boulee's Cenotaph (project), Temple of Heaven, Tempietto, Ledoux's Shelter for the Rural Guards (project), Fuller's Geodesic Dome, Utzon's Sydney Opera House and Saarinen's Yale Hockey Rink. By comparing these examples with the ones mentioned in the previous paragraphs, the reader may be able to deduce that a building can only become a wall if it has one or more of its sides being vertical and planar with a recognizable facade and is well connected to the ground.

To an urban dweller, perhaps the most
familiar kind of wall is the street wall made of many houses with individual facades. A good example is found in Boston's Back Bay. The street wall here is characterised by handsomely detailed row houses which obey certain rules such as a standard size of bays and a common margin within which bay windows, porches and steps are placed. Similarly, the Amsterdam canal houses also form street walls with flat facades anchored on party walls and wood beam floors. Their steep gable ends form striking silhouettes against the sky.

Another kind of street wall which is common in European cities is one made up of many houses with uniform facades framing public squares and gardens. One of the most well known examples is the Place Royale in Paris with a square surrounded by thirty eight houses united on the ground level by an arcade. 3 There are also many English
examples of street walls which define open spaces and at the same time become parts of the continuous fabric. The city of Bath offers a series of three marvelous examples of this type. The Royal circus is the most containing of the three. The Royal Crescent is a half oval forming an impressive frame for an open lawn. Lansdowne Crescent is the most open in form with its Serpentine windings following the contours of the site.  

1.2 DEFINITION OF A HABITABLE WALL

From the previous discussion, the reader might get a clear idea of the conditions in which particular kinds of buildings can become walls. But, what about habitable walls? Strictly speaking, all buildings which can protect us from the weather can be lived in and thus habitable. The
adjective 'habitable' is used here to add a social dimension: meaning physically accommodating and expressive of human activities. Hence 'habitable' is a qualitative term which does not correspond to a specific building type. However, we must restrict its application to residential buildings for the purpose of this thesis since its subject matter is housing designs. Finally, the exact meaning of a habitable wall may become more comprehensible by using an example of a non-habitable habitable wall: Aldo Rossi's apartment block for the Gallaratese district of Milan.

In respect to the specific definition of a habitable wall, most of the examples mentioned in the previous section belong to this category. (This includes the residential street walls as well as single domestic buildings) To further limit the scope of this study, only one particular
type of habitable wall is going to be examined in detail, namely the continuous wall formed by a single housing block which defines the street spaces (public) as well as contains internal open spaces (more private).

1.3 HABITABLE WALL IN THE SERVICE OF ENCLAVE HOUSING

When a habitable wall is used to enclose or protect a territory in such a way that both the form of this territory and the way the wall addresses to it help to create a positive environment for social contact, relaxation and recreation, the resulting entity is considered a housing enclave. This implies that the internal open spaces bounded by the wall are private spaces, in opposition to the public street spaces external to the wall. Therefore, the residential squares and crescents discussed before are not enclaves because those
spaces are continuation of the street spaces.

The term enclave usually gives the image of an inward-looking precinct such as a monastic compound. But, the kind of enclaves being proposed here are not self-contained housing islands. On the contrary, the habitable wall is expected to give closure to an internal space as well as to the street space. Hence the boundary of such an enclave is integral with the urban fabric. And it is expected that an enclave can be a typical unit which recurs to build up city districts.

The potential contribution of this kind of design is the creation of quiet, peaceful and intimate garden spaces as a complement to the active, exciting and open street spaces. The habitable wall, being the boundary between these two kinds of spaces, must enrich them with appropriate character. Therefore, the importance of
being 'habitable' can never be overstated. In addition, the habitable wall must have openings in order to establish the outside-inside relationship since only an opening can make us experience the inside as a complement to the outside. 5

Of course, enclave type housing is nothing new. It was very popular in Europe in the early part of the twentieth century. The simplest kind of enclave is a city block with a continuous perimeter habitable wall enclosing an open space in the center. In Amsterdam, an entire residential district (Amsterdam South) is made up with this kind of 'mini-enclaves'. In general, the enclave quality is more pronounced when there is an internal focus such as a communal space or a community building. Sometimes, even if the communal space is reduced to the form of pedestrian paths, the form of the internal space itself and its

positive relationship with the habitable wall can make it a pleasant environment for possible social interaction. Examples of this minimal type are the enclaves designed by Gratama and Versteeg on Kiewit Straat\(^6\) (Fig. 7. Note the large windows and balconies opening to the internal space).

The Socialist Superblocks\(^7\) in Vienna must be among the largest and most elaborate of the perimeter type housing enclaves. These are apartment complexes with plenty of communal spaces and community facilities such as schools, swimming pool and gymnasium. For example, Karl Marx Hof is a very long enclave (over eight city blocks in length) housing 1500 families and including kindergarten. A wide range of variation can be seen in the series of enclaves around the periphery of Vienna.\(^8\) Some of these are completely enclosed by habitable walls, while others have

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Fig. 8 Karl Marx Hof (Bauer)

Fig. 9 Fuchsenfeld (Bauer)
garden spaces revealed to the street.

The housing enclave concept is also adopted in many new towns and planned communities in England and in the United States. One type of English example of particular interest is the large block with buildings on the periphery as well as on a cul-de-sac indented into the center of the block. The advantage of this type is the possibility to have communal spaces as well as quiet 'dwelling streets' inside the block. This seems to be a good strategy for large blocks as it can create interesting alternative dwelling types and avoid excessive open spaces in the center.

In this country, many outstanding examples of enclave housing can be found in New York City. (Most of these are garden apartments built in the twenties.) One notable example is Sunnyside
Gardens designed by Clarence Stein and Henry Wright. This housing development offers several variation on the same theme. The earliest enclave in simply organized around a block with open spaces in the center and partially open to the street. The second type defines a long city block into a series of interconnected quadrangles which increases the privacy of these spaces and visually breaks down the block into smaller units. The last type is small garden courts opening off the street. This is similar to the cul-de-sac idea except that the dwelling streets are now replaced with common greens. These garden spaces seem to have adequate enclosure and at the same time give some interest to the street edge. The dwelling types at Sunnyside are two-storey row houses (mostly single and two family, some three-family) and four-storey apartment blocks (only in the

Fig. 11 An Inner Court of Sunnyside (Stein)

Fig. 13 Blocks built in 1926 and 1927 (Stein)

Fig. 12 Site Plan of Sunnyside (Stein)
earliest enclave). A typical Sunnyside internal space has a communal green surrounded by private gardens.

The advantage of this type of planning can best be appreciated by a comparison with other kinds of design. Long before the First World War, the English architect and planner Raymond Unwin published a pamphlet *Nothing Gained by Overcrowding* which showed that large blocks with central common are actually more economical than the usual rows of tenement houses due to the savings in street-pavement and utilities. The tenements, with narrow back-to-back rear yards, have a complete distinction of front and back such that the character of the open spaces in between rows of buildings encourage nothing more than utilitarian functions. The collection of rear yards, being totally cut off from public view, sometimes become

a health hazard in low income neighborhoods as they are always cluttered with all kinds of refuse.

A more contemporary housing type we can examine is slabs often found in subsidized housing estates. The typical slabs are elevator structures about six to twelve storey high, with units placed along continuous central or external corridors. In many English housing estates, slabs are often seen randomly disposed in an immense communal park or they are placed with their ends facing the street. (See Fig. 14 Estate in Leeds) In this type of design, the required density is fulfilled by the height of the buildings resulting in plenty of open spaces on the ground. However, the lack of enclosure and physical definition usually render them useless and the street as a traditional place for social contact is destroyed by this kind of organization.
Another modern prototype that can provide contrast to the enclave design is the towers or point blocks epitomized by Corbusier's "Voisin" plan for Paris.12 These point blocks alone, being non-directional, are completely incapable of providing any closure for the street or private outdoor spaces. However, if a tower were combined with linear blocks of lowrises forming an enclave, it could create a powerful sense of territory. This strategy is marvelously illustrated in the composition of the Piazza di San Marco. The same concept is also being exploited in the design of the Peabody Terrace complex by Jose Luis Sert. In this case, even a high-rise can become a habitable wall defining communal spaces.

From this brief comparison, it is clear that habitable wall as a design strategy for enclave housing has some potential that is worth exploring.

12. Corbusier, The City of Tomorrow, Chapter XV.
(or rediscovering). This thesis chooses to study three housing designs in detail: Eigen Haard (referring to the triangular block in the Spaarn-dammer district of Amsterdam designed by Michel de Klerk for the housing society Eigen Haard in 1917), Spangen (referring to the block in the Spangen district of Rotterdam designed by Michel Brinkman in 1919), and Byker (completely redeveloped residential community in Newcastle upon Tyne designed and planned by Ralph Erskine in 1969-1979). Two of these (Eigen Haard and Spangen) are perimeter type mini-enclaves (city block size) as this is felt to be a more important generic prototype, while the third one is a large enclave (district size) partially protected by a boundary habitable wall. This last one is treated more like an exceptional case which serves to demonstrate the potential upper limit of the habitable wall stra-
Designs from the Netherlands and England are selected for examination because these two countries have (or had) placed public housing as their national priorities resulting in an impressive volume of work. Furthermore, the perimeter habitable wall can be considered an European phenomenon. 13 In this country, street walls are often found in commercial district as continuity becomes a necessity, whereas free-standing single family houses still dominate the residential scene in most cities. In high density area, the amenity normally associated with free standing houses (such as privacy and the possibility of having large open spaces around the house) are lost as the space in between houses would be too narrow to use and to maintain privacy. Each house is isolated and yet close to the next one. It has

been observed that these houses have difficulty in achieving an interesting visual quality because they always suffer from restless repetition.\textsuperscript{14} Therefore, it is useful to learn from some of the outstanding European prototypes and explore their applicability to the American cities.

It is noteworthy that each of these three designs embodies a high ideal shared by the architect, the government officials and the citizens, and nourished by the favorable political climate at that point in history. They represent those rare incidences when the collective dream for a truly humane living environment for the working class could be realized.

\textsuperscript{14} Lynch, \textit{Site Planning}, p. 317.
Fig. 16  Eigen Haard - "De Klerk has captured the enchantment of the secret and mysterious places we longed for as children and has evoked them again here for those who must live in the workaday adult world."  - Helen Searing
(Drawing by de Klerk)
Fig. 17 Spangen - "A large metaphor of the house of our day-dreams, with corners, and garrets and places that cannot be forgotten." - Donald Grinberg  (Drawing by Brinkman)
Fig. 18  Byker - "A place to be homesick for, a place to come home to."
- Alison Ravetz
(Drawing by Erskine)
CHAPTER TWO: HABITABLE WALL AS A DESIGN STRATEGY
2.1 GENERAL CHARACTERISTIC OF A CONTINUOUS WALL

A continuous habitable wall refers to one that is not fragmented by structural elements such as party walls and is therefore read as a single housing block.

Since the three projects selected for examination happen to have curtain walls (mostly masonry) as their skin, the discussion here will be focused on the characteristic of a habitable wall with a continuous building envelope. Such a continuous habitable wall may be considered an extension of the street wall made of row houses. However, the whole may not equal the sum of parts. A continuous wall has some properties that are quite unique.

Compared to the street wall of row houses modulated by party walls, a continuous wall is seen as a long and clean canvas giving the
designer plenty of freedom to arrange the repetitive elements (such as windows and doorways) in creating a composition. Instead of being a collage of individual decisions, a well designed continuous wall can express a collective image and create visual interest. At the other end of the scale, however, a continuous wall may be rather lifeless with only repetitive elements and no structural modulation.

Due to its basically planar quality, a continuous wall tends to make strong and sometimes defensive boundary. At the street level, great efforts must be made to create territories which can support the overlapping of public and private activities. Also, the absence of structural modulation allows the relative independence of the facades which can then be articulated differently. Therefore, the public (external) and
Fig. 19 Housing on Spaarndammerplantsoen by de Klerk  (Drawing by de Klerk)
private (internal) faces of a continuous wall can assume very different character.

A continuous wall also has its preferred system of circulation. Its length and horizontality call for a multiple points of entry. For the sake of clarity and convenience, its vertical transport should be located near the points of entry. At the upper levels, the units disposed along the length of the wall can be served with a linear path which may be single or double loaded. It is a common practice that vertical transport (elevators and stairs) takes the form of cores placed at intervals along the horizontal path. It is also possible to have stairs ascending diagonally along the length of the wall thus forming an integral system with the horizontal path. One good example of this type is Aalto's Baker House at M.I.T..
The selection of Spangen, Eigen Haard and Byker intends to demonstrate a range of attitudes in applying the habitable wall strategy. In analyzing these projects, the first question is how they respond to the site. This includes the site coverage and building orientation, the continuity of the urban fabric and the relation to surrounding buildings. Then we can examine the character of the habitable wall in relation to the quality of the street space. Finally, two important issues which are central to the question of enclave quality will be discussed: the character of the internal space and the relationship between the inside and the outside.

2.2 SPANGEN: THE QUINTESSENTIAL ENCLAVE

Spangen is a district of low-income housing commissioned by the municipal housing authority of
Rotterdam. The projects here are mostly perimeter type housing enclaves that are typically bleak and anonymous on the street but open to garden spaces within. This rather private garden area is augmented in the neighborhood by parks and public spaces that open to the canals.15

Michiel Brinkman (1873-1925) designed an unique project in this area under the auspices of Ir. Plate who held a position of authority in the Municipal Services of Rotterdam.16 This project (1919-1921) is a large rectangular block (about 470 x 260 feet) completely enclosed by a four-storey high perimeter habitable wall containing 274 dwellings. (Two flats with two duplexes over served by a continuous gallery.) Its external form is largely a rectangular ring despite the fact that one of its long sides (on Spaansche-Bocht) does follow the slight curve of a small

Fig. 20 A street in the Spangen District (Sherwood)

15. Sherwood, Modern Housing Prototype, p. 100.

Fig. 21 Two Flats (Ground and First Floor) with Two Duplexes Above (Sherwood)

Fig. 22 Site Plan (Grinberg)
Fig. 23 Axonometric (Sherwood)
On three sides of the rectangle, the street wall is uniform and sober and is similar to the surrounding buildings. Since there are no private entrances opening to the street, the facade is left with never-ending rows of windows. As a result, the basic organization of the units is barely discernible from the outside. Only the communal stairways which lead to the second floor gallery are open to the street. Being cut off from the activities in the court and the gallery, these stairways are not 'defensible spaces' and are heavily vandalized. Therefore, they do not help to enliven either the street or the court.

There is one portal on each side to provide pedestrian and vehicular access to the interior court. (Vehicular access was intended to service the central laundry and washroom block.) There
Fig. 25 Central Communal Block (Architecture Museum, Amsterdam)
is a multiple points of entry from the court directly to the dwellings on the ground and first floor. The duplex units on the second floor are served by a continuous gallery in the inside of the block.

The internal space of Spangen is divided into two courtyards by a central transverse wing and further defined into smaller spaces by wings projecting from the perimeter. The ground is taken up by tiny private plots and communal green spaces as well as a network of pedestrian paths. Originally, there were stone garden seats and tables for conversation and informal gathering. The lively character of the courtyards is further enhanced by the continuous access gallery which is a well used communal balcony for both adults and children.

The interior facade of Spangen, with windows
and doorways, private balconies as well as a communal one supported by concrete braces, is revealed to the outside on one end of the rectangle. (Potgieters-Straat) This is a most welcome change; the oppressiveness of the dull and opaque street walls typical of this district has been alleviated. The decision to designate this particular side as the inviting front entrance seems arbitrary, but it does create an external identity for this enclave and contribute to the life of this particular street. It is a good example that one has to create some interest to the surrounding even when the surrounding is boring and anonymous.

Despite this one incident of contradiction of rules, Spangen is still very much an introvert. The sense of enclosure of the internal space, and the intense treatment of its boundaries (the floor
Fig. 27 Inside Face of Habitable Wall (Architecture Museum, Amsterdam)
and the walls) speak the essence of interior. With all the dwellings opening on to it, this space is an outdoor living room in every sense of the term. The perimeter wall clearly separates the inside from the outside. It mainstains the street system as a public continuum, integral with the urban fabric as a whole, but it does not try to enrich the street spaces with activities, penetration and an overall residential character.

2.3 EIGEN HAARD AND THE BUILDINGS OF THE AMSTERDAM SOUTH: THE URBANISTIC VERSION

Between 1914 and 1920, three blocks of buildings by Michel de Klerk (1884-1923) were built at the Spaarndammerbuurt, a residential district for workers in the northwest part of Amsterdam. The earliest block was designed for
the contractors, Hille and Kamphuys; the two later ones, for the housing association, Eigen Haard (meaning one's own hearth). (See fig. 28) The subject of interest here is the third, triangular block on Zaanstraat, Hembrugstraat and Oostzaanstraat, designed in 1917-1918, and erected in 1920. (Henceforth Eigen Haard)

This project is a perimeter habitable wall which encircles the whole site except for the portion on Oostzaanstraat occupied by a school. It includes one hundred and two dwelling units, a post office, and a small meeting house for the housing association. The structural system is similar to Spangen's, with floor joists anchored on inner bearing walls, leaving the facades free. The material is brick and tile thus maintaining the continuity with the surrounding buildings.
Fig. 29 Site Plan  
(Architecture Museum, Amsterdam)
Fig. 30  Dwelling Types and Elevation on Oostzaan Straat (Berlage et al.)
At Eigen Haard, de Klerk has demonstrated his remarkable talent in understanding and enhancing the nature of the site and transforming the constraint into a positive force for his design. Bordered by a busy street on one side and the railroad track on the other, Eigen Haard was intended to be seen by a moving observer. Its overall horizontal rhythm is accentuated at the apex by the reduction of building height and the parallel bands of windows and roofs. At the same time, the horizontal perimeter is punctuated by vertical accents which culminate in the towering steeple at the base of the triangle.

At this end of the block, the perimeter wall curves in to form an indented urban space complementing the oval entrance garden to Zaanhof across Hembrugstraat. This space also acts as a fore-
court for the steeple and together they form a satisfying climax and termination for the movement through the center of Zaanhof. Perhaps this steeple was meant to be seen from afar and observed by the people coming in and leaving Amsterdam, hence the lowering of building height at the apex.

The accommodation of the post office at the blunted apex seems appropriate as its public function deserves a prominent position and it does not need a garden in the back. The small roundish tower serves as a marker celebrating the meeting of two streets and relating 'the ship' (Eigen Haard's popular name) with de Klerk's two earlier housing blocks on Spaarndammer Plantsoen thereby creating an exciting urban complex. This tower and the steeple in the back are seen as symbols of the civic and religious functions which in
the past defined a city.\textsuperscript{19}

The outward looking character of Eigen Haard has been assured as the dwellings are entered directly from the street. Each of these entries typically serves two units on each floor, and vertical circulation is expressed on the outside by slanted windows punctuating the continuous wall. The wall surface is consistently treated as an expressive envelope with window frames flush with the wall plane. Its curtain effect is further exaggerated by the unconventional brick pattern at the base which seems to defy gravity.

De Klerk has the reputation of being a 'facade architect'. And indeed, both the plastic modelling and surface ornamentation of Eigen Haard are much more opulent on the exterior. However, de Klerk has demonstrated his skill in handling

space in the design of the small court behind the Post Office. One enters this space through a parabolic arch on Oostzaanstraat and immediately finds oneself in a picturesque setting with a fairytale cottage, small gardens and oriels hanging down from the roofs. This is a ceremonial space for the small meeting house as well as an entrance court for a number of units. The sense of enclosure and the domestic character of the buildings give a strong feeling of an intimate interior, whereas the steeple in the distance indicates the space beyond. Helen Searing felt that this reminded her of symbolist literature and of the lost dream-worlds of childhood. 20 Perhaps this is what the Roman called 'The Spirit of Place'. 21

Charming as it is, this interior court has more symbolic meanings than practical ones. Since
there is no pedestrian path through the enclave, most of the tenants have to go out to the street in order to reach this space. The rest of the internal space is taken up by private gardens and a school yard. If there could be a larger space shared by the tenants, the collective image created by de Klerk's architecture would take on a deeper meaning.

Contrary to Spangen, Eigen Haard is more successful in enriching the street spaces than in creating an interior court. This habitable wall not only maintains the continuity of the urban fabric, it constantly reacts to the surrounding and enhances the character of the place. One can envision this type of mini-enclave being a typical unit which recurs to build up city districts. In fact, this happened in Amsterdam in the turn of the century, and particularly in the residential
The Amsterdam South region was being developed about the same time as de Klerk was working on the Spaarndammer housing. Based on H. P. Berlage's Plan South of 1915, the perimeter block was accepted as the generic prototype in this new district. The consistent application of this typical unit gives this area a distinct character, but it is also closely related to the morphology of the old city. The traditional canal houses in Amsterdam are tightly packed around city blocks with their party walls perpendicular to the streets. Their flat facades do form street walls as mentioned in the first chapter, and sometimes courtyards and private gardens are found in the center of the blocks. This idea was simply being picked up and slightly transformed in the perimeter blocks of the Plan South.

These perimeter blocks form a wide range of housing enclaves. In general, their enclave quality is more pronounced when their internal spaces are large enough to provide for communal uses and community facilities. However, the enclaves here are rarely as introverted as Spangen. Being an exponent of Camillo Sitte's concepts of designing cities according to the artistic principles, Berlage believed that large unified building complexes ought to define and enrich exterior spaces. In the first version (1904) of Plan South, Berlage had hoped to establish fixed pictorial views by using buildings to close the vistas at the ends of open streets and by furnishing building contours with indented, oblique, and curved lines. Some of these features still persisted in his final version of 1915, although the overall plan is much less


Fig. 34  Berlage's Amsterdam South Extension Plan, 1915 (Helen Searing)

Fig. 35  A Dramatic Corner (Designed by P. Kramer) in Amsterdam South (Helen Searing)
picturesque.

The regular layout and the unified blocks of the final plan gives a more monumental character. A contemporary commentator J. H. W. Leliman warned, however, that "while 'blokbouw' impresses by monumental application, it can be tedious if consistently executed with sober means."\(^{25}\) This was understood and many talented architects were hired to build up parts of the Amsterdam South. De Klerk and other architects of the Amsterdam School\(^ {26}\) became responsible for some of the most outstanding buildings in this district.

One of the most notable neighborhood groupings in this area is Takbuurt which is a rectangular parcel originally designated for a hospital. The site plan of this area is designed by de Klerk and other selected architects. It demonstrates the potential of the perimeter walls in defining


\(^{26}\) Frank, Michel de Klerk (1884-1923), An Architect of the Amsterdam School, Chapter 1.
streets and framing public squares as well as enclosing private and communal spaces. De Klerk's understanding of architectural composition is evident in his housing designs for a portion of the De Dageraad complex. Typically, his habitable walls along the streets are continuous and flowing (see fig. 36) whereas the ones fronting the squares are more static and they look like individual houses holding hands with each other (see fig. 38). In this complex, de Klerk and P. L. Kramer (another major figure of the Amsterdam School) have exploited the power of the continuous wall to create a rich variety of visual experiences and a strong sense of place. In this dramatic ensemble, the buildings have a stage-like effect and they seem to be in constant dialogue with each other.
VEREENIGINGSBOUW IN ZUID BY HET NOORDER AMSTELKANAAL.

SCHAAL 1 : 1000.

Fig. 37 Takbuurt with De Dageraad Complex Framing P. L. Tak Straat (Fraenkel)
Fig. 38 De Dageraad on Henriette-Ronner Plein (Grinberg)
2.4 BYKER: THE MINI-CITY AS AN ENCLAVE

Byker is an inner-city area in Newcastle upon Tyne. It has been redeveloped over the past decade with a strong emphasis on the retention of the community and the involvement of the residents.27

Originally Byker was a tiny settlement just outside of Newcastle. It was being swallowed up when the city grew in the early nineteenth century due to the prosperity produced by coal and heavy industry. As a result of this growth, row upon row of terraced houses were built to meet the demand for housing. Each of these houses contained two small flats, one over the other. Many large families of the workers were housed in these cramped dwellings.

In the early sixties, a bold approach was taken by the City in developing a compre-
The information in this paragraph is from The Byker Redevelopment.

Two factors unique to Byker seem to be important in determining the distinct character of this project and in uniting this mini-city together as a tightly knitted enclave. First, there was the proposed motorway which was to run along the northern border of the site and the Housing Committee agreed that a barrier should be built to protect the area of housing from traffic noise. Secondly, both the City Council...
Fig. 41 Site Plan
(Architectural Record)
and the architect were committed to maintain the valued traditions and characteristics of the neighborhood and to re-house the existing residents of Byker without breaking family ties. These two factors lead us to the questions of physical boundary and internal continuity which are essential in the concept of enclave housing.

In response to the first condition, an enormous habitable wall (over three thousand foot long) was built to enclose a major portion of this redevelopment area. This wall is solid and massive on the north side (cladded in brick), open and light on the south side (cladded in pale grey asbestos sheeting except the base is cladded in brick). The structure of Byker Wall consists of concrete strip foundations to each pour-in-place cross-wall with ground beams to support external walls. Precast cantilever brackets for

Fig. 42 Byker Wall from the outside (John Storey)

Fig. 43 South Elevation and Section Through Proposed Motorway (Global Architecture)
Fig. 44 Site Plan (Arkitektkontor)
balconies and access decks are built into cross-walls.30

The most striking characteristic of Byker Wall is its serpentine form. This series of curves which appears to be totally arbitrary at first sight, is actually carefully controlled to create useful spaces. The Wall curves out to form crescents on the south side (inside) and curves in to provide parking spaces on the north side (outside). These crescents give appropriate setting for existing landmarks and they are also activity nodes where major pedestrian paths go through.

The change in plan is complemented with a change in section. The crescents are defined by eight-story high blocks. These vertical accents occur at intervals and are connected by five-storey sections forming crescendi and diminuendi
Fig. 45 Crescent at Raby Gate  (Global Architecture)
Fig. 46 Shipley Walk
(Global Architecture)
Fig. 47 Section Diagram and Floor Plans of Byker Wall (Global Architecture)
with the topographic changes. At the two ends, the wall comes down to three and four-story tail blocks respectively and trails off into the low rises.

Byker Wall has a circulation system very similar to Spangen's. It is penetrated by portals at intervals. Unfortunately, they are rather under-expressed and they become serious wind tunnels in bad weather. From the south side, there are individual entries to the maisonettes on the ground floor. The upper floor duplex units are served by horizontal access galleries at the fourth and seventh levels and they are connected to the ground by elevators and impersonal fire stairs.

On the whole, Byker Wall gives form and identity to a working class district. From the inside, it works like the wall of a medieval town
Fig. 48 Site Plan (Architectural Review)
Key: * Shields Road Shopping area
which heightens the intensity of experience by limiting and concentrating the urban activities. From the outside, the novelty of the serpentine form helps to camouflage the huge scale and gives a clear and interesting image.

Like Spangen, Byker also suffers from its self-containment and fails to maintain a positive relation with the rest of the city. There is a lively shopping street (Shields Road) running parallel to Byker Wall yet the wall completely ignores its existence. At present, there is a large stretch of empty space formed by the unbuilt (not to be built) motorway and the moat of parking lots. One has to travel about two hundred yards across this no-man's land to go shopping on Shields Road.

What Byker Wall has demonstrated are the power and problems of a continuous habitable wall
which is also a single aspect building taken to a huge scale. Despite Erskine's great design effort, this monumental wall still acts as a barrier which cuts off a district from the rest of the city.

City districts are very different from new towns for they must depend on the city for economic and social stimulation. When Old Byker prospered in the nineteenth century its inhabitants made their living in the shipyards and heavy industries of Tyneside. The nature of their work helped to establish a strong social tie among the residents. As a result, the community was rather self-contained. Now the declining heavy industries are being replaced by modern light industries and office work and the resident's occupation has become more diversified. Hence, their dependence on the city is much greater.
It may be the architect's intention to maintain the community spirit of Byker by preserving its physical independence, but his goal has been pursued at the expense of the valuable connection with the city.

It seems clear that Byker Wall is hardly recommendable as a general urban design strategy. Instead of being a useful boundary or edge that helps to concentrate the activities in an area and preserve its integrity, it becomes an undesirable barrier. According to Kevin Lynch, strong edges are not necessarily impenetrable, they can be seams uniting different territories.31

While strong edges may be helpful in defining city districts, the facts of any communities really lie in their internal continuity, overlapping of uses and social integration. Although Byker Wall becomes the most visible landmark in

this community, the majority of the population are housed in low-rises. Indeed, some residents tried to urge visitors not to judge Byker by Byker Wall. 32

The low-rises (mostly two-storey houses) are arranged in twelve 'neighborhoods', both defined and linked by the major pedestrian routes. Typically, the houses are in terraced arrangements on the steeper slopes, and in courtyard groupings on flatter sites. There is a wide range of communal spaces ranging from large public parks to small courtyards associated with small groups of houses. A variety of color and materials distinguishes each neighborhood grouping, and the landscaped walkways unite them together.

In creating a strong sense of community, the participative design process also played an important role. At an early stage, Erskine

32. From user interviews conducted in August, 1981.
collaborated with a local architect Vernon Gracie and they set up an office on the site in an existing funeral home. They kept an open door policy thereby inviting residents to voice their problems and raise questions about the new development. Although the residents did not actually design their houses, the whole process of consultation and debate has activated the people as they went through the trauma of demolition and rebirth. The method of forward allocation of homes has ensured that friendly neighbors can stay together thus preserving existing social ties. At present, the physical condition of Byker is remarkably well maintained with little sign of vandalization. This seems to indicate that even a quasi-participation (or user consultation) can make people feel respected. Although this process involves more public relation than actual
participation, it is certainly a big step toward more humane public housing.
CHAPTER THREE: DEVICES FOR DESIGN DEVELOPMENT
In the previous discussion, the potential and limitation of a continuous habitable wall as a design strategy have been examined. This chapter is devoted to a detail study of the design devices used in Eigen Haard, Spangen and Byker to strengthen or mitigate these schemes. The discussion will be focused on the consideration given to the comfort, freedom and identity of the individual and the provision for communal facilities, shared spaces and a collective image for the inhabitants in a multiple dwelling building. These devices are grouped under the two categories 'Intensification of the Collective' and 'Design for the Individual' for clarity of argument. It is assumed that the collective and the individual always co-exist and inseparable in reality and, after all, the collective is made up of many individuals.
3.1 INTENSIFICATION OF THE COLLECTIVE

Communal Spaces

By definition, communal spaces are associated with a community. In relation to urban living, the meaning of a community ranges from an entire city, a district, a few blocks, a building complex, to a few people living together sharing some common interest or belief. Perhaps the simplest way to define a community is that its members must perceive it as such. And the communal spaces of a community are places where people can share their collective concerns and give one another mutual support.

In the level of the city, there are many communities of special-interest. People with similar interests and concerns about particular problems may get together, regardless of where

34. For the consideration of the city as a neighborhood, see Jane Jacobs, The Death and Life of Great American Cities, p. 117-119.
they live. Very often, the communal spaces of these communities are found in both public and private places. For example, meetings of various societies and clubs can be conducted in churches, private houses or school buildings. However, when there are special concerns of universal importance and imminency, they must be publicized in order to obtain mass support. Thus we find the city streets and squares logical places for political rallies and demonstration. This feeling of unity shows itself at happier times too. Moments of national celebration and religious festival see parades, bazaars and open-air concerts happening in the city's communal spaces.

When we consider 'geographical communities' made up of a few blocks up to the size of a districts, we see people getting together because of common interest combined with proximity, as
well as concerns with their locality. Thus we find community gatherings in the form of knitting classes, ball games, and anti-street-crime seminars. All kinds of formal and informal meetings take place in community buildings, playgrounds, small parks and streets; they serve many purposes including education, recreation, social contact and local politics.

A housing enclave of city block scale is a small geographical community. At this scale, people may be on friendly terms because they live close to one another and they share some common concerns with their immediate surrounding. There is a Chinese saying that distant relatives are not as good as close neighbors. It is true that friendly neighbors can give us support and help in our everyday lives. This is particularly evident in low-income working class neighborhoods.
as people seem to have more to share when they have less to own. Therefore, communal spaces are important features in these mini-communities; they should foster neighborly feeling through social contact and shared responsibility and engender a sense of belonging.

The inclusion of communal spaces in high density housing designs has many practical functions. First, communal spaces can provide recreation facilities and greenery for the enjoyment of the inhabitants. This is especially important to the upper floor dwellers who might not have any private outdoor spaces. The relatively large area of communal spaces can let in ample amount of light and fresh air for the dwellings in the surrounding and they provide views for the private outdoor spaces on their peripheries. They can also be planted with trees to serve as buffer
Hierarchy of Open Space:
Outdoors, people always try to find a spot where they can have their backs protected, looking out toward some larger opening, beyond the space immediately in front of them. - Alexander

between individual gardens thus to preserve privacy.

Adequate amount of internal open spaces is very important in perimeter wall designs because they are completely surrounded by buildings. The internal space of Eigen Haard is well-proportioned in terms of the amount of open space versus the building height, and the articulation of the wall also enhance the quality of this private interior. The whole architectural setting seems to cry out for a communal space in the center of the block. But instead, this court is completely subdivided with the center portion used as a school playground. As a result, the visual unity of this space is destroyed by the high partition walls (about seven feet) and the private gardens on the periphery are reduced to the humble existence of rear yards without a view into a larger space.
Fig. 51 Eigen Haard: Unit Types (Drawing by de Klerk)
Courtyards which Live:
Courtyards which are pleasant to be in always seem to have "loopholes" which allow you to see beyond them into some larger, further space.

- Alexander

Apparently the building program determines the character of a place as much as the architecture does. In the case of Eigen Haard, the heart of this residential enclave is taken over by non-residential use. This is a loss that cannot be readily compensated.

Unlike the interior of Eigen Haard which is sub-divided with very definite use in mind, the interior of Spangen is a remarkable combination of public and private territories. First, the rectangular space is defined by projecting wings to form a series of small courts. These courts are never completely enclosed therefore one can always look out to some other spaces beyond. There are small private gardens as well as communal green spaces in this large outdoor living room. But the real communal spaces are the paved pedestrian paths where people walk
Fig. 52  Ground and second floor plan of Spangen (Sherwood)
Fig. 53 Pedestrian Path in Spangen (Architecture Museum, Amsterdam)
their dogs and children have their ball games.

The problem of designing communal spaces becomes more complex when the site and population get larger. At Byker, where the site coverage is about 200 acres and the total population is approximately 10,000, it is no longer reasonable to have one big centrally located communal space. Instead, several communal parks are placed at different locale to serve the nearby neighborhood groupings. (There is a total of 12 groupings.) There are also smaller communal spaces within these groupings. (See Kendal Area) The scale of Byker community is such that it can be considered a miniature city and the streets and squares are in fact its most important communal spaces. Like that of a city, the 'design idea' of Byker cannot be represented by a single landmark. The essence of Byker is found in the intricate system of small
Fig. 54 Kendal Area of Byker (Arkitektkontor)
Fig. 55 A small Communal Space (Arkitektkontor)
Public Buildings As Landmarks

Public buildings play an important role in a residential district. Municipal buildings, such as train stations and fire houses, provide essential services for its operation; institutions, such as schools and libraries, are important for the education and development of the citizens. Very often, public buildings are used for social gatherings and community activities thus encourage neighborly feeling and a sense of belonging. By association with their functions, public buildings are felt to be symbols of collective identity. This can be further reinforced through their architectural expression. As a result, public buildings can become highly legible landmarks giving visual interest to a residential area.
However, the incorporation of public buildings in a residential design is no easy matter. On one hand, these atypical elements want to be unique and prominent. On the other hand, they have to be sympathetic to the scale and overall character of the typical buildings (residential). For a good example of how this can be done, we must look at de Klerk's design of the post office of Eigen Haard.

First, the post office is placed at the most prominent position on the site. It is housed in the blunted apex with dwelling units above, and this 'head' is distinguished from the rest of the building by a reduction in height and the presence of the enveloping roofs. Thus the public character of the post office is paradoxically reflected in its domestic form. The tower also acts as a marker pinning the post office on the ground and
Fig. 56  The Tower of the Post Office
(Helen Searing)

Fig. 57  View of Post Office on Zaanstraat
(Helen Searing)
commanding attention from all directions. But in spite of its remarkable quality, the post office is never perceived as a singular object. The continuity of building material and technique and the accentuation of the horizontal rhythms make this symbolic bow of 'the ship' a logical culmination of the themes developed throughout this perimeter wall design.

While the post office of Eigen Haard clearly serves the public as well as the inhabitants of this housing enclave, the single communal block of Spangen only caters to the needs of its residents. This structure (containing baths, laundry and children's house originally) is placed at the geometrical center of the block. No wonder Spangen has been described as a metaphor of a big house\textsuperscript{37} where one finds the bathroom and the laundry in the center with a suite of rooms around

\textsuperscript{37} Bakema, "House for 270 families - Spangen", English Text Forum 5, 60/61.
them. Being taller and more massive than the housing wings, this communal block certainly acts like a common family space in this complex. It also forms a strong visual focus which is necessary for the formal layout of the court.

So far, we have seen two different ways of incorporating a public (or communal) element in a small housing enclave. If the design encompasses an entire residential district, such as Byker, then there is a need for many public buildings serving various purposes. In Byker, most of the existing public buildings are preserved and new ones are created. They are placed at the important nodal points of the pedestrian network whereby they serve their immediate neighborhood groupings and encourage cross use in the district. The old buildings, such as the stone church of St. Michael, as well as the flagstone
Fig. 58 Sketch by Ralph Erskine  (Global Architecture)
and granite pavers salvaged from Old Byker, enrich the overall experience of the new community and evoke a sense of history.

Street In The Air

'Strrets in the air' generally refer to the access galleries (single-loaded, with or without cover) found in apartment buildings. (It is not clear why double-loaded corridors are rarely considered streets.) Besides its obvious circulation function, the basic motivation for creating such a street must be to recreate the amenity and excitement of a conventional street for the benefit of the upper floor dwellers and, at the same time, eliminate some of the inherent danger associated with a conventional street. The earliest appearance of this idea in housing design was probably in the 'rues interieures' proposed by
Charles Fourier for his utopian community: the phalanstery.38

According to Benevolo's interpretation, the rue interieures are three-story glassed-in streets which provide 'protected, warm and elegant communication with all parts of the building.'39

This may have been the first conscious attempt to use the street gallery as a device for communication and to improve the relation of the inhabitants. Whether Fourier's concept was known to Brinkman (when he designed the gallery of Spangen) is unclear, but he certainly created something similar in spirit. His gallery is open to the sky. It is a terrace opening directly off the apartments which may be used as a children's play space, conversation area and for bicycle storage. (Originally vendors could bring their goods up to the gallery via freight elevators but it is no


Fig. 60 Spangen's Gallery (Architecture Museum)
Fig. 61 Gallery - A Communal Balcony (Architecture Museum)
longer feasible economically.) The simultaneous use of the same space for movement and for an outdoor living room is very unusual. When the gallery idea was used again in many of the modern housing estates in Germany and England, only the circulation function was retained. 40

The success of the Spangen gallery may be explained as follows. First, the dwellings open out on to this communal space directly thus to ensure its being used constantly. Secondly, its width is adequate to support a variety of use without causing mutual annoyance among the inhabitants. It can also be a pleasant sun deck in warm weather. And more importantly, the 'essential double-sidedness', 41 of a street has been taken into consideration. This gallery, although being one-sided technically, is low enough to maintain a virtual continuity with the ground plane. Hence

40. See John Graham's M. Arch. thesis (M.I.T.) for a comparison of gallery-access buildings.

the gallery dwellers can communicate with their friends on the ground or take delight in watching the activities below. This can perhaps explain why most galleries in medium and high-rises do not work as their displacement from the ground is too great to establish any kind of meaningful relationship.

Among contemporary examples of gallery-access buildings, Byker Wall seems to be an outstanding achievement. Like the one in Spangen, the galleries of Byker have dwellings opening directly on to them and they also work as communal balconies. These galleries, occurring at the fourth and seventh levels generally, (there are galleries at the third level of tail blocks and link blocks) are covered with transparent corrugated plastic roofs supported by wooden posts. There is a wooden bench with a flower box in front
of each of the dwelling entrances and there are many flower boxes placed on the wooden balustrades. The intensity of this framework system helps to counter the fear of being high up in the air (although it looks precarious from the outside). The crescent form is also a marvelous device to compensate for the discontinuity from the ground as the inhabitants can relate to the people on the other side of the same gallery and watch the activities on the next gallery three levels below.

Besides having technical and social functions which have been discussed in this section, a continuous gallery also gives visual unity and formal interest to the habitable wall. When a gallery is used in the interior of an enclave design, it has similar effect as the balconies and boxes of a theater which give an embracing
feeling to heighten the sense of 'togetherness.'

Monumentality and Symbolism

'Monumental' and 'symbolic' are two favourite adjectives used by critics to describe de Klerk's work. These qualitative terms usually carry different meaning depending on the context. In describing architecture, 'monumental' is sometimes taken to mean grand or huge, and, at other times, it represents an enduring quality and significance. Referring to de Klerk's first Eigen Haard housing block in Spaarndammerbuurt, Helen Searing describes it as monumental because it has been conceived as a totality from the start and is different from the conventional Dutch dwellings which form a succession of small units added up to achieve a large whole. This quality seems relevant in this discussion as it conveys the

43. For detail account of the criticism evoked by de Klerk's Spaarndammerbuurt housing, see Susanne Frank's Ph.D. dissertation, p. 176-196.

meaning and scale of a continuous habitable wall with multiple dwellings.

In this respect, perhaps the most noteworthy achievement of de Klerk is his ability to transform the most mundane elements, such as stairway windows, into an architectural event that both unifies the composition and distinguishes the identity of the dwellings. In his first block on the Spaarndammerplantsoen (1913), the stairhall bays, with their parabolic heads and tiny eyes, look like some gigantic but friendly creatures. Similar kind of anthropomorphism is also found in Eigen Haard, although it is now expressed in a more subtle manner. (See Zaanstraat facade) These whimsical features are never nightmarish. In fact, they are always wonderfully light-hearted. One cannot help smiling when encountering the barrel oriel on the corner of Zaanstraat and
Fig. 63 First Block of Housing on Spaarndammerplantsoen by de Klerk (Architecture Museum)
Hembrugustratt. This outright humour is very rare in any architecture.

If it is possible to draw an analogy between architecture and music, the music of the Romantic Era, marked by the organic development of themes and individualistic expression, is perhaps the counterpart of de Klerk's architecture. Ralph Erkine's work, on the other hand, is full of improvisation in syncopated rhythms best described as the Jazz of architectural compositions.

Despite its formal exuberence, Eigen Haard is well structured and clearly readable as a combination of individual parts. Compared to Eigen Haard, the organization of Byker Wall is much more complex, with interlocking duplex units served by two access galleries. As a result, the dwelling units are not easily discernible. On its 'outside' face, Erskine seems to have deliberately
Fig. 64 The North Face of Byker Wall  (Global Architecture)
hidden the identity of the units by an apparently random disposition of bathroom and kitchen windows and brightly colored ventilator covers. This may have been an effective device to create a collective image and, at the same time, gives the wall an impressionistic and therefore less formidable quality.

The two faces of Byker seems to symbolize the old and the new. On its north face, the gigantic patterns of dark and lighter color local brick are curiously suggestive of medieval half-timber construction. The south facade, with its colorful wooden framework, reminds one immediately of the cheerful ski lodges and alpine cablecars which are the symbols of wholesome modern life. Perhaps, it is the intention of this anglo-swedish architect to pay a public tribute to the English tradition while reserving the private face of

Byker Wall for the fulfillment of his scandinavian dream. In any case, Byker is a piece of multivalent, architecture which will happily invite many different ways of interpretation.

3.2 DESIGN FOR THE INDIVIDUAL

The Dwelling

Some of the merits of the multiple dwelling in the form of a habitable wall have been demonstrated (the most important of which are the ability to create useful urban spaces and the possibility to develop a sense of community) in the earlier discussions. When it comes to the design of dwelling units, however, the habitable wall seems to present certain restrictions that are challenging to the designer.

Firstly, the depth of the units are limited
since in most cases they can only get light from two sides. As a result, the living spaces have to be placed on one side or another, perhaps with bathrooms and closets in the middle. Secondly, it takes great effort to design low cost units which have some of the desirable qualities of private houses such as spaciousness, flexibility and level changes, and at the same time can be repeated and varied many times to form a continuous whole. In the case of a gallery-access design, the width of units must also be restricted such that a gallery can serve as many units as possible for economic reason.

At first sight, Eigen Haard seems to give the inhabitants plenty of choices as it boasts a rich variety of unit plans. But, a closer look will reveal that this variety is in fact a concomitance of the complex external form and
the units are obviously fitted into the designed envelope rather than derived from the particular needs of the users or the response to the special views and orientation.

The consequence of this design method is that some units end up having very peculiar shapes and impractical layout. (See type Ja and Ka) Another shortcoming of Eigen Haard is that some of the private gardens are residual in form and tenuously related to the units. Therefore, these gardens cannot function as the extension of indoor living spaces. (In most units, overlapping of indoor and outdoor spaces are discouraged as the bedrooms are placed on the garden side.)

While the design of Eigen Haard seems to be from the exterior to the interior, that of Spangen must be the other way around. In this project, the creation of ideal dwelling units appears to be
Fig. 65 Partial Ground Plan of Eigen Haard (Architecture Museum, Amsterdam)
Fig. 66 Spangen: Elevation showing the Gallery Revealed to one side (Berlage et al.)

Fig. 67 Spangen: Unit Types (Berlage et al.)
the top priority. Each unit consists of two rectangular modules, one contains the kitchen, livingroom and toilet, the other has three bedrooms. These two modules are paired to form flats and stacked to form duplexes. This concept seems to be very advanced for its date as it foreshadows the invention of industrialized housing units. (Similar galleries can also be prefabricated.) The duplexes must have been a novel idea in mass housing as they even predate Corbusier's Ville Contemporaine (1922). 46

Although it lacks the delicate details and uniqueness of Eigen Haard, Spangen seems to be a much more comfortable place to live. Brinkman has made the optimum use of the space in creating very livable and practical dwelling units. It is significant that the kitchen always faces the garden or the gallery. This is a happy arrangement

as it enables the mother (or parents) to converse with the neighbor and watch the children playing outside while she is working in the kitchen. The two modules have neatly separated the semi-private and private zones within the dwelling unit. In the flats, these two zones are connected by a doorway, (there is no bedrooms opening directly onto the livingroom as is the case in Eigen Haard) whereas in the duplexes, they are connected by narrow stairs similar to those in traditional Dutch houses.

The placement of duplexes on the gallery is a good device because they take up only half the frontage when compared to that of flats and the usual complain about four-story walkups is eliminated as the users feel that they only have to ascend two levels. Also, the opening of apartments directly onto an outdoor space can achieve
through-ventilation which is important in high density living. Moreover, the bedrooms at the upper level can enjoy complete privacy and it is possible to have a private balcony overlooking the communal one. (In the case of Spangen, most of the original balconies have been converted to shower rooms since there was no private shower in Brinkman's scheme.)

Fifty years later, Brinkman's concept is still surprisingly useful, although the acceptable standard of low cost housing in most countries has been raised slightly. We can see that the organization of Byker Wall is quite similar to Spangen's and instead of two modules, we now have three for each dwelling unit. The overall square footage of the Byker unit is also more generous.

Like Brinkman, the designer of Byker also has similar kind of concern with the public and
private territories in a household. At Byker, the two quiet modules (containing bedrooms and living-room) are placed either above or below the gallery and the active one (kitchen and dining) is open to the gallery. This arrangement seems to encourage social contact as the inhabitants can leave their front doors open while doing their housework and the neighbor may feel comfortable to drop in to have tea and conversation. In fine weather, the inhabitants can also entertain their guests in the dining room opening to the gallery.

Apparently, duplex units are generally more pleasing as the level changes help to define different territories and they offer a more varied spatial experience. In section, the Byker units form interlocking Ls such that one gallery can serve three floors. This is an ingenious device although Erskine did not invent this concept.
Fig. 68 Diagram Showing Interlocking Units
(Global Architecture)

Fig. 69 Section and Plans of Byker Wall
(Global Architecture)
With the access gallery occurring only at the fourth and seventh levels, there is plenty of space on the habitable wall to allow for private balconies in addition to the communal one. These generous balconies enjoy a comfortable micro-climate due to the southern exposure of the Wall. Like the occupants of private theater boxes, the inhabitants of these balconies must have a special satisfaction of being up high in a private territory while watching the activities and the greenery below and enjoying the spectacular panorama of the Tyne valley.

Expression Of The Individual

Most people have great emotional attachment to their free-standing single family houses.
(especially in this country) eventhough they may be the run-of-the-mill suburban type. The possibility to identify one's own home from the street and the freedom to leave one's personal imprint on it must be very satisfying. Perhaps the sweet sense of home is really stronger when home is not only familiar but distinctive as well.47 Now, the question is how we can give people a sense of identity and freedom of expression in low cost high density housing usually designed for hundreds of families.

In order to express oneself, there must be an audience to whom one can communicate. It follows that a private domain, such as a house, must be visible from a public one, such as a street, in order to be appreciated. (Some people would purposely hide their houses from public view

for personal reasons but this attitude is considered exceptional.) In this respect, it is preferable to have private dwellings directly related to collective spaces. This is indeed the case in conventional row houses (open to the street) and also in most Dutch housing blocks (open to the street or court).

Helen Searing remarked that the customary proliferation of doorways on a Dutch street was because the Dutch disliked interior corridors. Their preference to have private entrances on the street may also be a reflection of their belief in human dignity associated with the equal sharing of the street frontage.

This concept is sympathetically illustrated by de Klerk at Eigen Haard through the personalized portal details which give a sense of individual identity rarely seen in mass housing. It is

also easy to recognize that each portal (consists of two to four doorways) serves the units on both sides as the forms and sizes of windows tell us their content (such as livingroom or kitchen) and their groupings make the dwelling units legible from the street.

In a less extravagant manner, Brinkman has employed similar devices in Spangen as the dwellings are entered directly from the court and more importantly from the communal gallery. On this street-in-the-air, the inhabitants can personalize their share of the habitable wall by applying ornaments and claim territory by placing their bicycles or baby carriages near the doorways.

The Spangen gallery works quite well on the whole, but it is still rather undifferentiated. This can explain why there is no permanent territorialization taking place. At Byker, Erskine has
gone further by first providing a recessed vestibule (raised by one step) for every two units and then building a permanent bench and flower box for each unit. These built-in personal belongings in turn create a margin wherein further territorialization can occur. This device is particularly useful in a narrow gallery (about 6'-0") which is otherwise easily reduced to just a circulation channel.

**Village Metaphor**

This section continues and overlaps the discussion in the previous one. We have learned that one way to encourage individual expression is to organize the dwellings such that personal imprint can be visible. But when we speak of user intervention at a deeper level (of growth and changes), we have to consider the problem of
architectural language. And this leads us to the concept of an urban village.

An urban village is not a real village. It refers to an urban community with certain characteristics that are comparable to those of a natural village (a small rural settlement developed over a long period of time). Among the many positive attributes of a natural village, two are particularly relevant to the question of user intervention, the first one being the sense of scale that is always related to the needs and feeling of a human being, and the second one is the use of a generative architectural language which is adaptive, additive and renewable. It seems that they are equally important but they are independent of each other. For example, a small but monolithic building does not encourage use interpretation, and a huge building often
overwhelms the users and convinces them that personal intervention has little impact. (See fig. 72 Robin Hood Gardens: a highly articulated monster.)

Eigen Haard, Spangen and Byker will make interesting comparisons as they appear to have adopted certain principles of village buildings and made references to some aspects of village life but they are totally different in appearance. Among these three examples, Eigen Haard makes the most literal formal reference to traditional (Dutch) villages. The use of traditional building materials (brick and tile) and the delicate details show the architect's respect for the Dutch craftsmanship and the variety of forms suggest the richness found in old settlements. The charm of a village is most vividly captured in the small court with the cottagy meeting house (which looks
Fig. 73  Eigen Haard: The Picturesque Setting  (Global Architecture)
like the little house at the top of a windmill) and small gardens in front.

Apparently, de Klerk has transformed and stylized village forms and incorporated them in his own architectural language. He has built-in the variety and richness in creating a sense of instant history. But Eigen Haard is like an ideal village somehow frozen at certain moment in time and is too picture perfect for significant user intervention. This perfection or completeness is further reinforced by the nature of the enveloping brick wall which delimits growth and changes.

The brick curtain wall is also used in Spangen but it is not treated as a sculptural envelope. In this scheme, the totality is formed by the logical disposition and repetition of standard modules. One can imagine some parts of the wall can be taken down and others added on.
The wide gallery also allows the possibility for extension of the dwellings. This gallery should be filled with pergolas and porches and seating alcoves. Indeed, it is very surprising that there is no evidence of such activities taking place.

Instead of making direct formal references to village buildings, Brinkman seems to have re-created some important aspects of village life. There is a sense of equality and dignity in the disposition of the individual units and there is a sense of community in the overall design. In addition, the garden spaces give the inhabitants a tiny bit of nature which is very refreshing in high density living. These also remind them of their relation to the land.

The conviction that people should live close to the land is even more strongly felt in the design of the Byker community. About 70% of the
total population is housed in low-rises (two-storey houses) with private gardens. (This includes all the families with children.) A tree bank was established and a plant choice encouraged tenants to take an active interest in their new gardens. Now, these well maintained gardens and lavish landscaping have won the reputation of being a walled garden for Byker.

Byker Wall, being the exception to the rule, (varies between five to eight-story high and over three thousand foot long) is dangerously close to being an overpowering structure. Fortunately, this habitable wall is redeemed by the great design efforts, especially on its South side. To use the architect's own words, the access galleries are there to give a 'cottage scale' to the building. They help to break down the sheer height of the wall and they unite a number of

49. Total population is about 10,000. From Erskine's Architectural and Planning Brief.
dwellings together to form 'linear villages' climbing up the south face of the cliff.

Among these three projects, Byker seems to represent the most conscious effort on the part of the designer to translate the quality of village life to an urban environment. In fact, this intention is clearly revealed in the architect's early sketches. (See fig. 74) The informality of this design, with a variety of forms within a consistent architectural language, gives the place a richness and harmony reminiscent of natural villages which take many years to develop.
Fig. 74  Byker: An Urban Village (Sketch by Erskine)
CHAPTER FOUR:
CONCLUSION
AND
DESIGN SUGGESTIONS
4.1 ENCLAVE QUALITY AND DEGREE OF PRIVACY

One of the hypotheses in this study is: an enclave creates private garden spaces inside and public street spaces outside, hence the squares and crescents do not count as enclaves as they are continuation of street spaces. What seems to emerge from this analysis is that there is a range of designs which have a recognizable enclave quality with various degrees of privacy.

We can divide our enclave examples into two basic categories. The first one (type A), represented by Spangen and Byker, is the court-access type where the internal space is used for primary access to most of the units. The second one (type B), represented by Eigen Haard and the typical perimeter blocks of Amsterdam South, is the street-access type where one enters each unit directly from the street and the internal space
is a back-yard space (communal or private). In type A, the internal space ought to be more continuous with the street spaces (hence more public) since both the tenants and visitors alike must use this space for access. Therefore, the uncomfortable feeling of intrusion should be avoided. In type B, the internal space may be used exclusively by the residents (hence more private); therefore the connection to the outside is not as crucial.

Apparently, the degree of privacy affects the quality of an enclave in a curious way. When an internal space is totally partitioned into individual gardens, it may have a high degree of privacy but a minimal enclave quality. For example, in the central court of Eigen Haard, the tenants can hardly see each other from their gardens. Each garden is screened by high walls
and consequently each inhabitant can only enjoy a tiny piece of the sky. Friendly association is limited to those who share a common entrance from the street. It is interesting to see that the enclave quality is most pronounced at the relatively public area of Eigen Haard, namely the small triangular space in front of the meeting house. Here, the gardens are defined by low walls and there is a path in between. This is the only place in the entire complex that one begins to feel a sense of 'togetherness' which speaks the essence of an enclave.

In general, the street-access type enclave may have a more private interior. However, some form of communal spaces must exist to facilitate communication and social contact. In the housing blocks designed by Gratama and Versteeg in Amsterdam (see page 19), the footpaths (simplest
form of communal space) both define and unite the private gardens, and the connection to the outside also adds more life to the interior. In this case, the footpaths are made for the use of the tenants and perhaps their friends from the neighborhood. The threshold is clearly articulated to discourage strangers.

A more public interior of a street-access enclave is found in Sunnyside Gardens (see page 23) where the courts are partially open to the street. (Fig. 76) Despite its openness, the interior court of Sunnyside seem to be a successful blend of semi-private and semi-public territories. The large common greens are cherished by the residents and are enjoyed by the people in the vicinity as well. This is a rare example of a common backyard which is also a neighborhood park.

In general, the court-access type has a more
intense enclave quality despite its inherently more public character. At the ground level, Spangen is much more penetrable than Eigen Haard, with pedestrian paths and vehicular access (originally intended to serve the central laundry block) going through the site. Yet the arrangement of the dwellings around the court creates a strong internal focus. This basic strategy is further strengthened with a series of design devices: centrally located communal block, street in the air, common green spaces and play terrace.

An extension of this type is the double-enclave which consists of a central court closed in by two rings of habitable walls. In most Dutch examples, the outer ring of housing is accessible from the street and the inner one from the court. Typically the central court is well connected to the street. In this kind of design, the peri-
Peripheral enclaves are very private, usually sub-divided into individual gardens; the central court is more public and is used as playgrounds or common green. Thus the most public area within a double enclave is in fact the center of communal life.

An example of this type is found in Gravenhage (Netherlands) designed by W. Greve and P. C. Albers. In the interior of this project, the sense of enclosure and the activities give a strong feeling of community. A more public interior of a double-enclave is seen in Zaanhof of Amsterdam. Its interior space is much larger, more penetrable, and it has limited vehicular traffic. This court is so public that the enclave quality is mitigated. Its overall effect is close to being a residential square. (Fig. 32)

So far, we have seen examples of housing
Fig. 77 Housing in Gravenhage
A Double Enclave
(Berlage et al.)
enclaves with various degrees of privacy and intensity of use, ranging from the most public Zaanhof to the most private Eigen Haard. There is an extraordinary example of an enclave type design which has a completely dead internal space. This is the Hellebo and Birkebo Elderly Housing Complex\(^{50}\) (in Elsinore, Denmark) which is a self-contained housing group far away from any town centers. The Hellebo complex is like a double-enclave in plan, with two chains of housing blocks enclosing a large space in the center. Yet both chains of housing are turned outwards such that the living spaces overlook the countryside. The internal space is a silent green with no sign of human habitation. It reminds one of the strange scenes in a Ingmar Bergman movie. This is an exceptional case of an isolated enclave with a 'captive audience', but there is no sign of

Fig. 78 Hellebo and Birkebo Complex (Mackay)
community life.

In summary, there is a range of designs that display an enclave quality of various levels of intensity. This quality depends on the internal continuity and overlapping of uses, the habitable character of the boundaries, the positive form of the internal space, as well as an adequate amount of enclosure and an appropriate level of privacy. These last two are closely related and they depend on the specific physical context and life-styles of the inhabitants. The court-access type designs generally make better enclaves as they have a natural tendency to draw people together. Their interior spaces tend to be more lively and relatively public. A sense of open public movement to the units is necessary.
4.2 HABITABLE WALL AS AN URBAN INTERFACE

Maintaining the street as an active public space of the city is a premise of this study. We have learned from Eigen Haard and Amsterdam South that the habitable wall has great urbanistic potential, and that the street-access type enclaves generally present little problem to the street. For low-rise housing, most units may have individual entry from the street, whereas in medium-rises, collective entry and vertical transport for the upper-floor dwellings are necessary. In addition, limited commercial activities such as a corner store may be helpful in enhancing the quality of the street space. Since this type of design is basically outward-looking, the communal facilities should be placed in the court to create an internal focus.

The court-access enclaves, as represented
by the archetype Spangen, are inherently more active in the interior. However, this model can be modified such that the habitable wall may contribute to the life of the street. In a dense urban area which can support commercial activities, the ground level may be utilized as shops and public institutions, while the housing units are accessible from the court. The infill project by Laurence Halprin for Penn Station South (New York)\(^5\) tries to maintain the continuity and active nature of the street by connecting the existing institutions with link blocks (shops on ground level with housing above). Almost every conceivable kind of activity is found in this superblock.

Another way of mitigating the Spangen model is to locate the collective entries and communal facilities at the gateway to the court such that

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Fig. 79 Housing Block with a Corner Store (Berlage et al.)

Fig. 80 Penn Station South Project (The Architect)
they can generate activities for both the street and the interior space. This device is particularly useful for medium-rise housing since the elevator lobbies can be located at the gates, while the ground floor dwellings have their principal entry from the court. The Cooper Square Housing (New York) by Roger Cumming is a nine- to fifteen-story scheme with activity-generating gateways at its corners. This may be a good solution for a high-density scheme which can support various recreational facilities in the interior.

It is also possible to combine street-access units with court-access ones to form variations. To use the Spangen model again, the ground level units may have individual entry from the street, while the upper level units are open to the gallery in the inside. In this case, the gallery

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Fig. 81 Cooper Square Housing (The Architect)

level may be unified with the garden court with open stairs. The degree of privacy in the court is not affected significantly since it is still used as principal access to some of the units.

The double-enclave idea offers yet another way to deal with the problem of urban interface. A contemporary version of this idea is seen in the Eleventh and Waverly Street Town Houses project in Philadelphia, designed by Louis Sauer. In this scheme, the street edge is maintained by conventional row houses while a central court is used to gain entry to the houses in the interior of the block. There is a pedestrian passage connecting the central court with the streets. Design elements such as level changes, paving materials, benches, planting, sculpture and fountains are employed to create a sequential experience through this small complex. The transition from public to
Fig. 82 Eleventh and Waverly Street Project (Progressive Architecture)
private territories is clearly articulated. Apparently, a sense of the threshold is a principal architectural theme in this design.

Besides maintaining the literal continuity of street spaces, the habitable wall should be sensitive to the overall scale and character of the surrounding buildings such that a visual continuity may be achieved. When a housing enclave encompasses an area of four or five city blocks in size, it may become too massive and self-contained and therefore unable to fit in the surrounding. The Socialist Superblocks in Vienna (see page 20) are examples of defensive enclaves that do not make very active street edges. These workers' citadels became Communist strongholds against the Nazis and had to be reduced by shelling by the army during the Fascist take-over in 1934.53 This kind of fortified enclaves may

53. Mackay, Multiple Family Housing, p. 16-18.
be justified by their political role, they tend to undermine the continuity of the city as a whole.

Normally, we do not design housing with the purpose of defense in mind. A massive barrier like Byker Wall is forgivable because it is a response to a highway. Erskine's effort is also admirable as the articulation of this wall must be the world's longest design exercise. Even its north face manages to give enough visual interest to a moving observer. (Presumably, no pedestrian is going to walk along it.)

Compared to Byker Wall, other enclave schemes dealing with similar problems are much less successful. Camden's Alexandra Road block by Neave Brown turns almost impenetrable backs on a railway. According to Reyner Banham, the quality of life across the track has deteriorated audibly
because of this defensive wall.  

Apparently, the stepped slabs are ineffective in containing spaces, hence they do not make very good walls. In this project, the central pedestrian path is so narrow that one feels like being in the bottom of a concrete canyon.

The stepped slabs are employed in many modern housing enclaves, even when there is no railroad track to turn against. In central London's New Brunswick Center by Patrick Hodgkinson, the central plaza seems excessively open and rather under-used. The stepped terrace idea is probably best applied to housing on a natural slope such as Siedlung Halen. In an urban context, this kind of design is usually too massive and too single-aspect. Furthermore, the use of the tremendous voids underneath the steps is still an open question.


55. See Mackay, Multiple Family Housing, p. 126-129.
In summary, the habitable wall strategy is capable of resolving the problem of continuity and interface with the existing urban fabric. While there is no precise way to determine its appropriate scale, this strategy is best applied to single city blocks as typical units. Superblocks may create interesting variations if handled with care. Megastructures are generally difficult to design and they tend to create scale problem and discontinuity in the surrounding.
I ARCHITECTURE, URBANISM AND HOUSING


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II EIGEN HAARD, SPANGEN AND DUTCH HOUSING


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III BYKER AND BRITISH HOUSING


