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# Crimes & Illness: The Psychological & Criminal Defects Derived from the Architectural & Spatial Design in Public Housing Projects

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CRIMES AND ILLNESS:  
THE PSYCHOLOGICAL AND CRIMINAL DEFECTS  
DERIVED FROM THE ARCHITECTURAL AND SPATIAL  
DESIGN IN PUBLIC HOUSING PROJECTS

A Thesis

Presented to

Western Kentucky University

Bowling Green, Kentucky

In Partial Fulfillment  
of the Requirements for the Degree  
Master of Public Service

by

David John Preece

March 1975



CRIMES AND ILLNESS:  
THE PSYCHOLOGICAL AND CRIMINAL DEFECTS  
DERIVED FROM THE ARCHITECTURAL AND SPATIAL  
DESIGN IN PUBLIC HOUSING PROJECTS

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CRIME AND MENTAL ILLNESS:  
THE PSYCHOLOGICAL AND CRIMINAL DEFECTS  
DRIVED FROM THE ARCHITECTURAL AND SPATIAL  
DESIGN OF PUBLIC HOUSING PROJECTS

David John Preece

March 1975

52 pages

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Masters of Public Service

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The architectural and spatial design and two public housing projects, Brownsville and Van Dyke, located in the Brownsville section of Brooklyn, New York, were tested to determine their effects upon the crime rates and mental illness. While keeping the socio-economic factors under limited control, a data comparison approach was used to illuminate any difference in the crime and mental illness rates between the two projects. A significant difference in the crime rates was noticed between them with the Van Dyke Houses having a higher crime rate. Since Van Dyke also had a significantly higher percentage of mental illness than compared to Brownsville Houses, a correlation between the sense of residential security and mental health was drawn. In conclusion, the architectural and spatial design was found to be an important influence in crime deterrence in public housing as well as the cultivation of mental health of the project's occupants.



## CHAPTER I

### INTRODUCTION

"We shape our buildings, and afterwards our buildings shape us."

Sir Winston Churchill

Violent crimes have been increasing at an alarming rate in large American cities at a time when efforts have been made to provide a "sterile, safe" housing environment for the lower income population. Certain kinds of spatial and architectural design have favored the clandestine activities of criminals and promoted mental illness among the occupants. Rainwater (1966, pp. 23-31) identified security as the most important need to be satisfied by a residence. Because of feelings of insecurity about their environment, residents often have adopted negative and defeatist views of themselves. Creation of a secure residential environment may be one of the meaningful forms of social rehabilitation available to the family and the society. Rainwater comments (p. 25):

In the lower class, there are a great many real threats to security ...The threatening world of the lower class comes to be absorbed into a world view which generalizes the belief that the environment is threatening more than it is rewarding - that rewards reflect the infrequent working of good luck and that danger is endemic.

For people of lower-income, a home into which one can retreat from an insecure world is not easy to come by.



### Purpose of Study

Several studies have been done in an attempt to determine whether the design and form of past housing projects have been related to urban violence and whether violence can be controlled or prevented by planning the physical environment. This study compares the Van Dyke and Brownsville housing projects, located across the street from each other in the Brownsville section of Brooklyn, New York, to show how criminal and psychological defects have derived from architectural and spatial design.

The remaining section in Chapter I deals with the manner in which crime is interrelated with architecture. In Chapter II, the resume' of literature notes how architectural and spatial design affect the individual's mental health. The study area in Chapter III describes the architectural and spatial environment at the Brownsville and Van Dyke houses. In Chapter IV, the problem and results deal with the aspect of what was studied at the two projects and the observation obtained. Finally, the discussion and conclusion found in Chapter V deal primarily with an explanation of the results of the study and suggestions for future actions.

### Urban Crime

In studying the types, patterns, and locations of crimes in the lower-income residential areas throughout the major metropolitan areas, the New York University for Security Design in Urban Residential Areas concluded that the architectural and spatial design of the urban residential areas has been the most cogent ally the criminal has had in his victimization of society. Despite this current repercussion, professional planners, architects, and urban designers apparently have paid little attention to the criminal

torment imposed upon the urban dweller by the architectural design.

A summary of available findings on violence in the metropolitan areas shows how they have been pertinent to the architectural design and form. According to the 1967 Uniform Crime Report, the characteristics of persons who have most frequently committed violent crimes have been the same as those of the population group residing in central cities of large metropolitan areas. It was reported that the arrest rate for the major violent offenses was about eight times greater in cities with populations of 250,000 or more than in those with populations of 10,000 and 25,000 and ten times greater than in rural areas. It was also reported that six cities of more than one million population, representing about 12 percent of the population of all reporting areas, contributed about 33 percent of all major violent crimes reported; whereas twenty-six cities of 500,000 or more populations contributed nearly half of all major violent crimes reported.

Taking another approach to the situation, the 1968 National Opinion Research Study for the President's Crime Commission noted that the probability of being a victim of forcible rape, robbery, and aggravated assault has been many times greater for the following: central city residents than for suburban residents; people twenty to twenty-nine years of age than for people of older ages; males than for females; blacks than for whites; and finally, poor than for the affluent populations. In a survey taken in Chicago, Morris (1970) concluded that the chances of criminal assaults for a black ghetto dweller were 1 in 77, whereas the odds were 1 to 10,000 for an upper-middle-class suburbanite.



Architecture and Crime

In his research, Argon (1973, p. 243) commented on the correlation between building form and social behavior:

When Stuyvesant Village (a housing project) was constructed in New York, replacing a slum neighborhood, the crime rate rose substantially.

Newman (1972, pp. 22-38) analyzed several physical characteristics that reinforced criminal behavior in the low-income housing projects which suffered high crime rates.

First, he noted that criminal infested housing projects have been usually very large, have accommodated over a thousand families, and have consisted of high-rise apartments over seven stories in height. Second, Newman discussed how the project's site also promoted criminal activity. The sites were consolidated from four to six city blocks, into one superblock. The closing off of streets removed the security or surveillance which had been present in the form of prominent paths for concentrated pedestrian and vehicular movement. Hence, it eliminated the zone of residents' territorial commitments as well as the allowance for continual surveillance by police in passing cars.

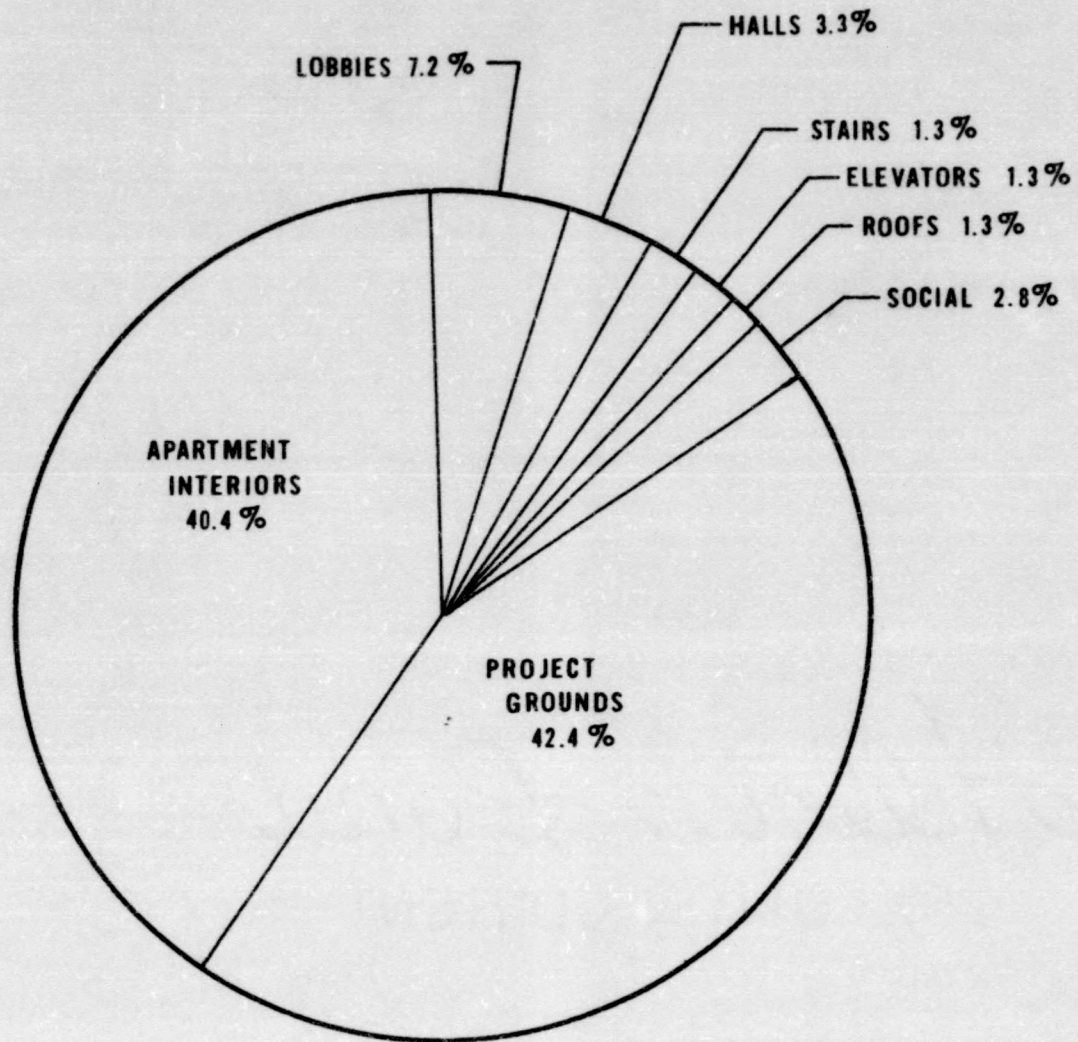
The third physical characteristic that had reinforced criminal behavior has been the lack of surveillance of the interior areas within the projects' buildings. The housing project was usually designed with a single lobby facing the interior grounds of the development. The lobby contained a mailbox area and a waiting space for two to four elevators. The double-loaded corridor consisted of a long central hall with apartments lined up on both sides and the elevator bank located at the center. There were also two to four sets of fire emergency stairways provided for each building.



In a high-rise housing project, the only secure space has been the interior of the apartment; whereas everything else has been declared a "no-man's land," since it has been neither public nor private. The lobby, stairs, elevators, and corridors have been left open and accessible to everyone. Unlike the well populated and continually surveyed public streets, interior areas have been used sparingly and have become a netherworld of fear and crimes.

In response to the projects' criminal pastureland, Jacobs (1961, pp. 29-54) contended that the surveillance, provided by the casual passerby on foot or in a car, has been one of the most effective deterrents against criminal activity. She also said that housing projects' superblocks had become prime breeding grounds of juvenile delinquency.

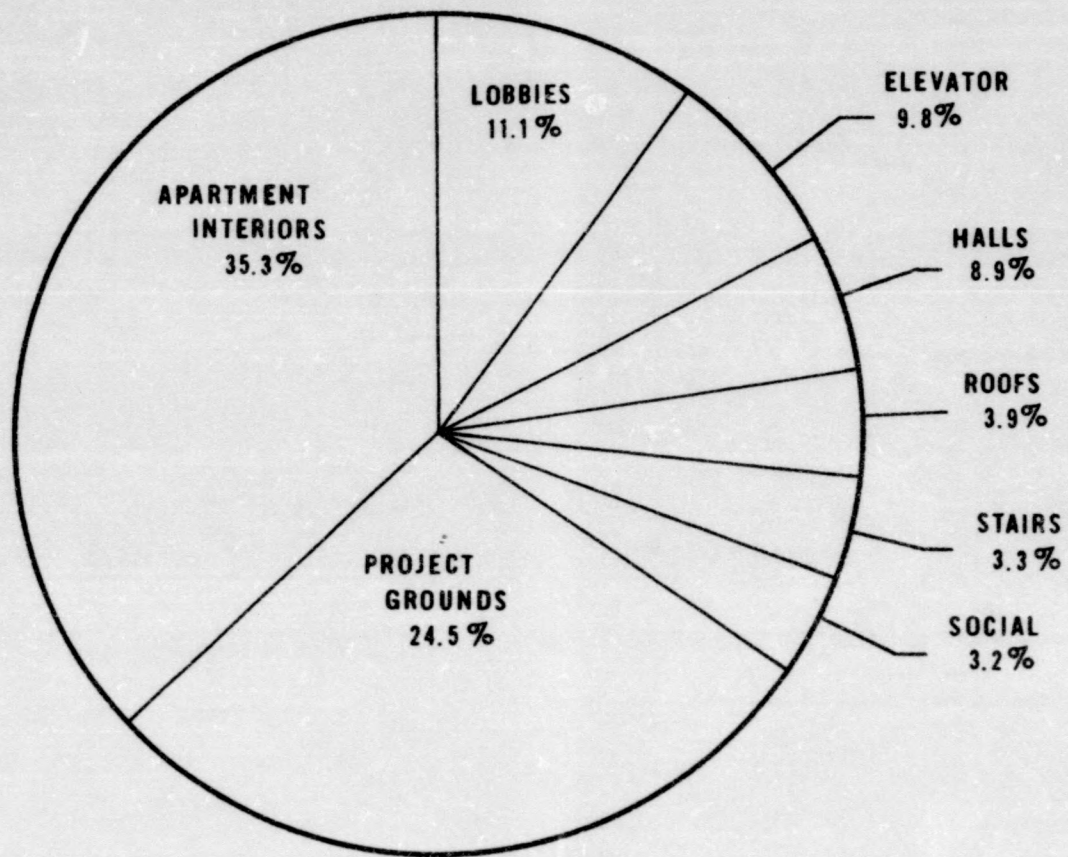
According to the 1969 New York City Housing Authority Police data, a relationship of height to crime was analyzed in terms of location in the housing project. Figures 1, 2, and 3 show the places of occurrence of crimes in buildings of different heights. The data also reveal that thirty-one percent of all robberies in New York City housing projects had occurred in elevators. The victims were moved under a threat of force to an apartment or, in the case of rape, to the sealed-off fire stairs or roof landings where traffic and observation have been rare. The limited visibility of lobby entrances has been found to contribute to twelve percent of all robberies committed in the housing projects. Fourteen percent of all robberies have been committed in the fire stairs and the secondary stairs. This has been due to the multitude of fire stairs required in servicing large, double-loaded corridors. The past fire codes have required stairwells to be de-



**FIGURE 1**

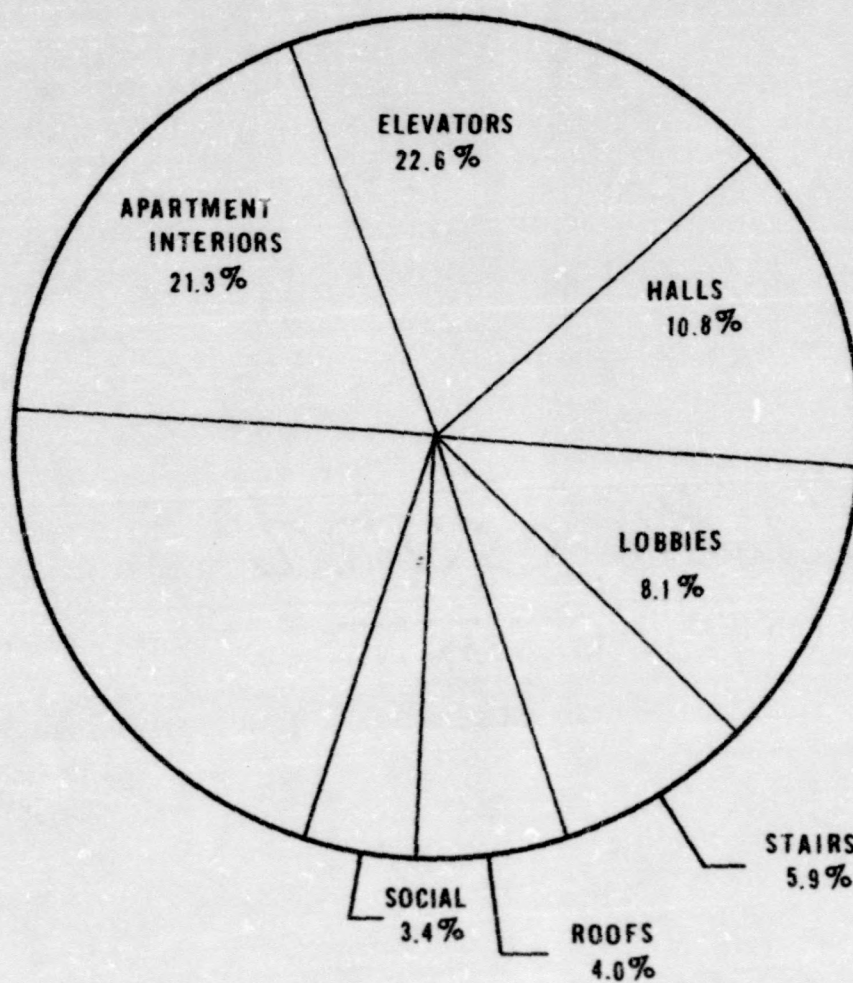
**PLACE OF OCCURRENCE OF CRIME  
IN THREE STORY BUILDINGS  
(BASED ON 1969 NEW YORK CITY HOUSING  
AUTHORITY POLICE DATA)**





**FIGURE 2**  
**PLACE OF OCCURRENCE OF CRIMES**  
**IN SIX AND SEVEN STORIES BUILDINGS**  
**(BASED ON 1969 NEW YORK CITY HOUSING**  
**AUTHORITY POLICE DATA)**





**FIGURE 3**

PLACE OF OCCURRENCE OF CRIMES  
IN BUILDINGS OF THIRTEEN STORIES AND ABOVE  
(BASED ON 1969 NEW YORK CITY HOUSING  
AUTHORITY POLICY DATA)

Despite historical precedent, professional planners, and architects in the United States have paid little attention to violence. The crime committed, states Doxiadis (1973, p. 205), has been the failure of the architects and planners to use the feedback from past housing projects wherein they have created an environmental structure which does not take into account the needs of the people who live in them. Thus the developers are guilty of what Doxiadis calls "criminal negligence" since they have the necessary knowledge of what is causing the victimization of project areas but continue to ignore the malignant distress of their occupants.

It has been proven that an increased police force or "fire-power" has not been the answer for the crime facing the urban American. A police force operating without community consent, direction, and control has been a wasted effort. Thus it has become more an irritant than deterrent.

Since joint action has become essential to the survival of lower-income inhabitants, emphasis has been placed on the means for reconstructing the residential environment. They have become livable, both physically and mentally, controlled not by police but by a community of people sharing a common terrain. The different forms of community participation have been used to create identity between the occupants and physical features.

Through community participation, individuals and social groups have been able to contribute constructively; thus it has attributed positive behavior traits to their home as well as toward their communities. Since architectural design has been utilized to make the physical layout of a housing project a shared extension on the private realms of the occupants, the means of controlling crime has had other desirable effects on human



signed as vertical concrete boxes with few or no windows.

The New York Housing Authority concluded in its police data for 1969 that crime rate had been found to increase proportionally with building height as well as the project size. When the two characteristics were coupled, the probability of crime increased to the extent that it was possible to correlate a high crime rate for projects of excessive heights and size.

#### Architecture and the Prevention of Crime

Throughout history, urban populations have been exposed to violence. There has been little uniform historical evidence about the relationship between architectural design and form of the urban housing environment with mental illness and violent crime. Gold (1970, pp. 9-11) has made some generalizations between the past and the present. He first noted that the level of urban violence has not been the same throughout the history of western civilization; whereas during some periods, urban violence has been so wide-spread that protection was exceptionally important in the design and form of the housing environment. Gold noted that historically there have been two environmental approaches to crime control:

1. Arrangement of urban form and activity. Most people in most societies have opposed violence. The arrangement of urban form and activity suggested that when enough people who disapproved of crime were brought together, their presence generally deterred crime.
2. Use of protective devices. These have included all physical devices for the safety or protection for people and property, such as walls, moats, doors, and particularly door locks and entryways designs. They were widely used to control access to space, that is, to seal off or insulate particular areas from trespass.

behavior. Architectural and spatial design have not only controlled crime but also have furthered social contacts among residents of a building. It has brought the occupants of housing projects closer together and has increased positive social cohesion.

The time has come to go back to the basic needs of man. Architecture and planning have made it possible for both the inhabitant and the stranger to know that an area is under constant surveillance. The occupants dictate the activity taking place within the area and who its users are to be. Any intruder will be made to anticipate that his presence will be under question and subject to challenge by the occupants, so that a possible criminal can be deterred from even contemplating entry.

Defensible space and design have returned to the productive use of the public areas by the residents. Newman (1972, p. 9) discussed how the four elements of physical design, acting both individually and in concert, have contributed to the creation of a secure environment. The four ways are:

1. The territorial definition of space in developments reflecting the areas influence of the inhabitants. This works by subdividing the residential environment into zones toward which adjacent residents easily adopt proprietary attitudes.
2. The positioning of apartment windows to allow residents to naturally survey the exterior and interior areas of their living environment.
3. The adoption of building forms and idioms which voids the stigma of peculiarity that allows others to perceive the vulnerability and isolation of the inhabitants.
4. The enhancement of safety by locating the residential developments in functionally sympathetic urban areas immediately adjacent to activities that do not provide a continued threat.

Through the deduction that a lack of defensible space has had an effect



upon the occupants behavior, this study compares the Brownsville and Van Dyke housing projects in an effort to test whether their architectural and spatial designs have effected their occupants mental health.

### Economics and Public Housing

In many of the larger metropolitan areas, the Federal Urban Renewal Program was the last effort to save the commercial investment in the urban core from its dispersal into suburbia. The program required the large scale clearance of slums surrounding the central business district. Urban renewal emerged from the New Deal's efforts to improve the housing condition through slum clearance and public housing. The unstated goal of the urban renewal program was to coax new commercial businesses and upper-income housing back to the cities by increasing the attractiveness of the urban surroundings. The destruction of densely occupied, semi-deteriorated urban slums cleared for the necessary amount of land needed for new businesses and upper-income housing. Gans (1959, pp. 15-25) observed the results of the urban renewal program in Boston:

Meanwhile, other areas which have older, more deteriorated and even harmful housing have a lower priority for renewal because of the lack of interest among potential development or other powerful interest groups.

Thus it created the need to replace housing for lower-income citizens. It was realized that if the new, low-income housing was built at five to ten times the density of the old urban residential structures, the poor could be housed on "small, out-of-the-way" portions of the cleared land, usually at the periphery of remaining ghettos.

Schorr (1963, p. 110) presents a brief history of public housing. He noted that in the 1930's public housing was intended for families who vol-

untarily sought to improve their housing but could not afford private rents. In the 1940's the program was redirected to provide housing for war workers. Following the Housing Act of 1949, public housing was oriented again to poor families. The Housing Act of 1949 gave priority to families who had the most urgent housing need and to those displaced by urban renewal. By concluding the history of public housing, Salisbury (1958, pp. 73-88) noted that public housing has become the site of new ghettos and a place where the conditions of a sterotypical slum have been recreated.

Housing developers made no reference to previous traditions and knowledge, and no attempt at understanding the range of needs to be answered in human habitat. Levy and Visotsky (1969, pp. 257-258) criticized the past urban renewal program for ignoring the cultural and ethnic variations in reconstructing neighborhoods. They concluded that the urban renewal approach has had two effects: created neighborhoods into which the persons dislocated could not return; and destroyed the cultural and ethnic variations.

Newman (1972, p. 25) noted that high-rise housing projects were the result of a set of circumstances: land cost driven up by land speculation; commercial zoning increased by city planning commissions so as to provide more housing; pressed housing officials; harried Federal mortgage financiers; and indifferent architects. He remarked:

The evolution of the high-rise housing projects was conceived by anxious developers, who had followed only the barest thread of rationalism: the search for the most economical solution - a way of housing the most within the least.

Considering the needs of low-income families, there has been no rationalism to the design of most high-rise public housing developments other than the narrow dictates of investment economics.

Bettelheim (1972, p. 46) remarked about the economics of public housing:



During the last few years we've heard a lot about the long hot summer, what it does to the project dwellers, and what they are apt to do, because of it, to communities. But we still don't air-condition our housing, though we do that in all newly-built private apartment buildings, including much of student housing. A careful cost analysis might prove that given expenses for police, riot damage, the cost of arrest and trial, it would be cheaper to air-condition these buildings. If we could assign a negative dollar value to human misery and a positive one to human comfort and a satisfying life, then not to air-condition these buildings would be penny foolish.

Since the majority of architects and developers have made economics the central issue in past housing projects, human needs that can not be given a monetary value have been ignored.

In a study concerning the Pruitt-Igoe housing project in St. Louis, Missouri, McCue (1973, pp. 322-324) noted the demand for high-rises by the federal formula for adjusting density to land value. Federal objections to what were considered needless amenities caused other revisions of both concept and physical disposition of the housing units. They were small economies, such as the elimination of wall paint in the general circulation areas. There was a large economy which consisted in lining up the buildings in six rows that followed the east-west pattern of vacated existing utilities. However, once they were built, they proved to be dangerous to the mental and physical health of their inhabitants, and they were costly to maintain. The economic argument which led to their initial construction was reversed: the money saved by eliminating defensible space in the housing project was surpassed by the social cost borne by the inhabitants.

In its architectural and spatial design, Pruitt-Igoe housing project symbolizes a typical example of the national housing policy whose single goal is to provide housing for low-income families, with little knowledge about or concern for the development of a community and neighborhood. Unlike

slum neighborhoods, with their littered streets and alleys, Pruitt-Igoe provided no semi-private space and facilities around which neighboring relations might develop. In lower and working class neighborhoods, the littered alleys, streets, sidewalks, and backyards have provided the ecological basis around which informal networks of friends and community-protection may develop. Without such semi-public space and facilities, the development of such networks can not be created. The resulting decay of the community has been seen in the frequent and escalating conflict between neighbors, the fears of and vulnerability to the human dangers in the environment, and the withdrawal into the single family dwelling unit, the last line of defense. In Yancey's study (1971, p. 3), an occupant commented:

They are selfish. I've got no friends here. There's none of this door-to-door coffee business of being friends here or anything like that. Down here, if you are sick, you just go to the hospital. There are no friends to help. I don't think my neighbors would help me and I wouldn't ask them to anyway. I don't have trouble with my neighbors because I never visit them. The rule of the game down here is "go for yourself."

The sense of security and control that is found in other working and lower-class neighborhoods has not been present in most housing projects.



## CHAPTER II

### RESUME' OF LITERATURE

#### Architecture and Mental Illness

In his study, Newman (1972, p. 1) made an observation about public housing and its impact on the inhabitants behavior.

We have become strangers sharing the largest collective habitat in human history. Because of the size and density of our newly evolving urban megalopoli, we have become more dependent on each other and more vulnerable to aberrant behavior than we have ever been before.

Kates (1966, pp. 24-25) remarked that the challenges of the architect have been to create a design that fulfills some function and also proclaims symbolically some deeper meaning in the architectural and spatial arrangement. The tension between the need to house specific human activities and to create symbolic meanings has not been an equitable one. The attention of developers has been directed to the functional purpose of the total design, not to the behavioral consequences of their work.

Parr (1965, pp. 71-85) noted the tension in the case of functional architecture:

From the day man first laid one stone upon another the purpose of building has been to shelter us against the weather, protect us against enemies and dangers, and shield us from the terrors that dwell in the anonymous darkness and distance beyond. To calm our fears and make us feel secure in our surroundings is no longer a purpose of architecture. The proper aim is to glorify, and thereby reinforce our anxieties, instead of trying to ease our tensions by the design of our milieu.

French (1963, pp. 39-55) has distinguished the two ways of classifying an environment. "Objective environment" included all of the identifiable

physical and social factors present, which also included the total structured-space environment. The "psychological environment" consisted of those aspects of the objective environment which a given person has come in contact with and which have affected his perceptions and responses; thus it has conditioned the individual's state of mental health or illness. The architectural and spatial design have constituted a major element in the "psychological environment," since they have exerted a profound effect on the emotional well-being of the people experiencing them. In response to this, Osmond (1966, p. 99) noted how the usage of ambiguous space where size, shape, extent, and purposes have not been clearly defined has produced feelings of insecurity and even panic among those who are unfamiliar with them.

Moller (1968, pp. 15-18) explored the meaning of structured space and architecture design, and showed its relationship to human personality as well as mental health. He noted how the influence of architectural and spatial design can effect the behavior of individuals who have experienced them. First, he explained that there has been a continuous reaction on the part of each individual to the enclosed spaces.

Second, Moller explained that structured space has played a role in conditioning interpersonal and family relationships. Thus it has been within this intimate context of interpersonal or family relationship that the seeds of neurosis or of alienation have taken root in the individual psyche.

The third way architectural and spatial design have affected the individual's mental health has been in conditioning of extra familial contacts, community interactions, and group association patterns. Finally, Moller noted the pervasive role which the architecture has performed in the area of status determination. The awareness of the spatial characteristics of the housing



environment has been essential in the determination of the relationship it has had upon human emotions as well as individual and group behavior. Dewry (1934, pp. 23-28) expressed this point:

As the developing growth of an individual from birth to maturity is the result of the interaction of organism with surroundings, so culture is the product not of efforts of men put forth in a void or just and cumulative interaction with environment.

Another factor of the interaction between man and structured space has been in the area of perception. Ittelson (1960, p. 6) defined perception as that part of the process of living which each individual from his own particular view has created a world of his experiences. The impact which spatial and architectural design has had upon an individual's world has been conditioned in many ways by that individual's psychological state and his prior experience.

Leighton (1959, pp. 17-22) argued that behavior cannot be viewed as an isolated element in the human system but rather as a dynamic relationship between the physical being of an individual to the world around him. Leighton's theory of behavior formation stresses the importance of environment influence to the total life of man. His theory follows that the architectural and spatial environment of public housing projects has exerted a direct and significant influence on the molding and stabilizing or disrupting of the individual's behavior.

By gaining insights into the process of interaction between the human behavior and its structured environment, it has been necessary to review the factors involved in shaping of mental health or illness. Borel (1954, pp. 105-108) pointed out that a basic need of man is security and that a person, who has achieved mental health is defined as one who has achieved his goal. Borel has linked this striving for security with man's drive to control his en-

vironment.

The housing environment has also had an effect on the mental health of projects' occupants. Rainwater (1962, pp. 23-31) commented on the meaning of housing:

Men live in a world which presents them with many threats to their security as well as with opportunities for gratification of their needs. Housing as an element of material culture has as its prime purpose the provision of shelter which is protection from potentially damaging or unpleasant trauma or other stimuli.

The occupants of low-income housing projects have been aware of the danger and crime that surrounds them. Since the occupants have had no choice but to live in the housing projects, they have had to adapt to their hostile environment. Jacobs (1961, p. 400) noted:

Relatively few people enter low-income projects by the free choice; rather, they have been thrown out of their previous neighborhoods to make way for "urban renewal" or highways and, especially if they are colored and therefore subject to housing indisiscrimination, they have had no other choice.

Inevitably, the adaptation has caused some detrimental effects on the occupants interpersonal relationships, their own behavior, and their attitudes toward life. Even though man is highly adaptable and can adjust to extremely undesirable conditions, Dubos (1968, pp. 138-154) commented that such adjustments often have long-range indirect effects that have been deleterious.

Yancey (1971, pp. 3-21) declared that the architectural design of housing projects has had an effect on the informal social networks. Without the provision of semi-public space and facilities around which informal networks might have developed, occupants of housing projects have not had the social support, protection, and informal social control. In his study, Munford (1970, pp. 414-435) attacked the architecture of past housing



projects because they are inimical to the development of human potentialities.

He comments:

If man had originally inhabited a world as blankly uniform as a high-rise housing project, as featureless as a parking lot, as destitute of life as an automated factory, it is doubtful that he would have had a sufficiently varied experience to retain images, mold language, or acquire ideas.

Munford concluded that young people raised in a featureless environment and limited to a narrow range of life experiences have been crippled intellectually and emotionally.

#### Public Housing and Children

Cappon (1972, pp. 192-195) has commented on how housing projects have had adverse effects on mental and social health of children:

I saw numerous children who had been kinetically deprived by not being allowed to run around and stamp their feet for fear of noise, of the neighbors and of the management ...And kinetic deprivation is the worse of the perceptual, exploratory kinds for a young child, leaving legacies of lethargy or restlessness, anti-social acting out or withdrawal, depersonalization of psychopathy.

He also concluded that young children living in high density areas have been more socially isolated from their neighborhood and activities.

For children, all mental health is created or destroyed in the home. The way the child has perceived the architectural and spatial design of his home environment, as well as the amount of security generated from it, has determined not only the child's behavior but also his outlook on life. The important factors of personality and behavior are formed in infancy and childhood. Bettelheim (1972, p. 41) noted that even the best parent has not been able to shelter his preschool child against the traumatization which has come from the surroundings of the public housing projects. It has been so severe that one can only wonder that the children have not later suf-

ferred even more severe pathology than they actually have. Bettelheim commented:

The result that the child, from an early age on, even if he or his own family is sound, is never-the-less witnessing at close quarters what is most traumatic in terms of his personality development: fights within families, physical assaults even mutilations, criminality, gang warfare and all types of sexual perversion, and the consequence of dope addiction. All of this and more goes on daily in most public housing projects.

Since public housing projects have been an accumulation of poor, mentally disturbed, insecure, and utterly desperate people, the residents' attitude has given the children an indelible image of hopelessness. In Coles' study (1967, p. 48) a parent from a housing project commented:

By the time my children are already to begin school, never mind graduate, they're tired...No one says that when kids have to live in buildings like this, and when they have to live in projects like this, that it's not the end before they can even start.

Except for the most fortunate and sturdy, public housing children have assumed defeat from the start.

#### Public Housing and Mental Illness

In public housing, the individual has found it difficult to feel secure or to feel at all in control of his environment; therefore he has been impelled toward irrationality and illusion to gain a sense of predictability and hope of control. The frustration of an occupant's goal for security encountered day after day in an attempt to adapt to his housing environment could produce a hidden state of anxiety that would make it impossible for him ever to achieve mental health. In his study of mental illness in housing projects Bettelheim (1972, p. 36) also commented on the lack of identity found in housing projects:



A man's home is his castle. It's supposed to give us the feeling of that there inside it, at least, we're the master. The high-rise by its overpowering size, cheats us of what a home should provide. It makes us feel puny although it should make us feel big. It makes us want to assert being master in some other way.

Bettelheim noted that psychologically there have been reasons why anger has been vented against housing projects. He made a further comment concerning the problem (pp. 36-37).

It begins with getting even with the building. By defiling it, we try to imprint it with our superiority, but often things don't stop there. We're goaded to assert our virility by overpowering human beings too, to begin ridding ourselves of all the feelings of smallness accumulated in the years we were growing up. The same vastness of the building also makes for anonymity within it. This is another reason to make ourself known in and out of the building by cowing others with our violence.

Kubie (1957, pp. 83-87) underlined the balance between the states of mental health and illness and suggested that architectural forces have altered both the matured forms of behavior and its individual. It has also altered the social consequences that have resulted from it. Some of the architectural forces that have formulated an individual behavior have been: 1. the establishment of order; 2. the fostering of inhibiting of a sense of self-betterment; 3. the control of privacy as well as interaction with others; and finally 4. the control of social interactions on a larger scale.

Maslow (1954, pp. 89-108) noted that the chief principal of organization in human motivation of life has been the arrangement of needs in a hierarchy of less or greater priority. In his study, Maslow placed first the need for love, affection, and belonging. He concluded that in cases where these needs have been hindered, behavior forms of maladjustment as well as more severe

psychopathology would exist. Next he ranked the needs for self-respect or self-esteem as well as for the esteem of others. By thwarting these needs, it has produced feeling of inferiority, of weakness, and of helplessness, and these feelings have given rise to either basic discouragement or neurotic trends.

The final need is self-actualization, where Maslow (p. 91) stated "what man can be, he must be." By conceiving architecture as an agent or a catalyst, some architects and planners have been able to make possible reduction of frustrations, tensions, and insecurity. They have also aided in fostering emotional stability, improving personal motivation, and social interaction.

#### Insecurity and Mental Illness

Rainwater (1966, pp. 27-32) commented that there were three interpersonal consequences of living in an environment characterized by human and nonhuman sources of danger. The first relates to the need to form satisfying interpersonal relationships, the second is the need to exercise responsibility as a family member, and the third is the need to formulate an explanation for the unpleasant state of affairs in the residents' world. He made the remark:

The physical consequences are fairly obvious in connection with the nonhuman threats and the threats of violence from others. They are real and they are ever present: One can become the victim of injury, incapacitation, illness, and death from both nonhuman and human sources. Even the physical consequences of the symbolic violence of hostility, shaming, and exploitation can be great if they lead one to retaliate in a physical way and in turn be damaged. Similarly there are physical consequences to being caught up in alternatives such as participation in alcohol and drug subcultures.

Hollingshead (1961) found that the lower economic groups have not only been isolated from organized community activity but also have been resigned



to a life of frustration. Together with the combination of degrading sub-standard living conditions and segregation from the rest of the urban society, the occupants of housing projects have had a higher percentage of mental illness. Hollingshead and Redlich (1958, pp. 115-120) concluded that a definite association exists between class positions and housing environment and being a psychiatric patient; thus they have found that the greater amount of insecurity has led to a greater percentage of mental patients in the population.

Myers and Roberts (1959, p. 250) discovered that there has been a connection between the psychiatric disorders experienced by the lower economic groups and their isolation from the community institution. They concluded that most lower-income mental patients have been reared in a housing environment where there was little or no love, affection, and stability. The patients have felt neglected and rejected all their lives and their continued frustrations in satisfying their emotional needs, and exploitation, has led to a distrust of others. The reaction of the low-income individuals to these stresses and frustrations more frequently has taken on the form of anti-social behavior, violence, and aggression as well as hostility or other psychosomatic symptoms. In his study, Ransford (1968, pp. 581-591) noted that isolated individuals have been more prone to extremism. He has found that housing isolation has been strongly associated with a willingness to use violence when occupants have felt powerless to determine their density under the existing conditions.

Moller (1968, pp. 62-63) argued that the most fundamental problem has been the lack of motivation and that the poor motivation of the occupants of housing projects has been directly related to the quality of their living

environment. He commented that:

Of what use is education opportunity, or a necessarily limited economic subsidy, if the people to whom they are offered are not well-motivated, if their self-esteem and their sense of possibility have been held to a minimum by their immediate environment--the frustrating and degrading living spaces in which their lives are passed, and the isolation of these living spaces from the rest of their city. An individual will not seek to learn, to create, to work for self-betterment, for his children or for the community, unless he has some sense of his own worth and dignity, some conviction of the possibility of success. It is precisely the well-designed architectural environment, which is designed to interact with human beings and to assist them in fulfilling their emotional as well as their physical needs--which can best awaken this self-esteem and sense of possibility and foster their growth.

Coles (1966, pp. 49-50) pointed out the consequences, in terms of low self-esteem and motivation, of living one's life in a public housing project. He noted that even though housing has not been everything for the poor, it has played a very significant part on their daily trouble. Coles also commented that public housing has not answered the needs of its occupants because they have not been able to find the space, light, security, reliability, solidity, and support that a decent home and neighborhood could have provided. Bettelheim also made a comment concerning the matter (1972, p. 37):

Spatial arrangements are part of how society speaks to the individual. To him they represent society's view of him and all those who are expected to use them. Society creates them in the shape of what it thinks will be best for him, or at least is good enough for him.

A more dismal view of man cannot be imagined than the one that has inspired the public housing projects.



## CHAPTER III

### STUDY AREA

#### New York City Housing Projects

Since 1936 the New York City Housing Authority has employed almost every conceivable housing type and project site plan. Its projects range in physical characteristics from two-story row houses to thirty-story high-rise apartments. Prior to 1954, the majority of housing projects were composed of walk-up apartments (three to six-stories) with elevator service to a few taller buildings. The average projects are spread over as many as sixty-five acres.

In an attempt to analyze the relationship of architectural design in public housing to crime and mental illness, this study compares two physically different housing projects located in the same crime rated district in the New York City Housing Authority jurisdiction. Both projects are almost identical in overall size, density, and population characteristics.

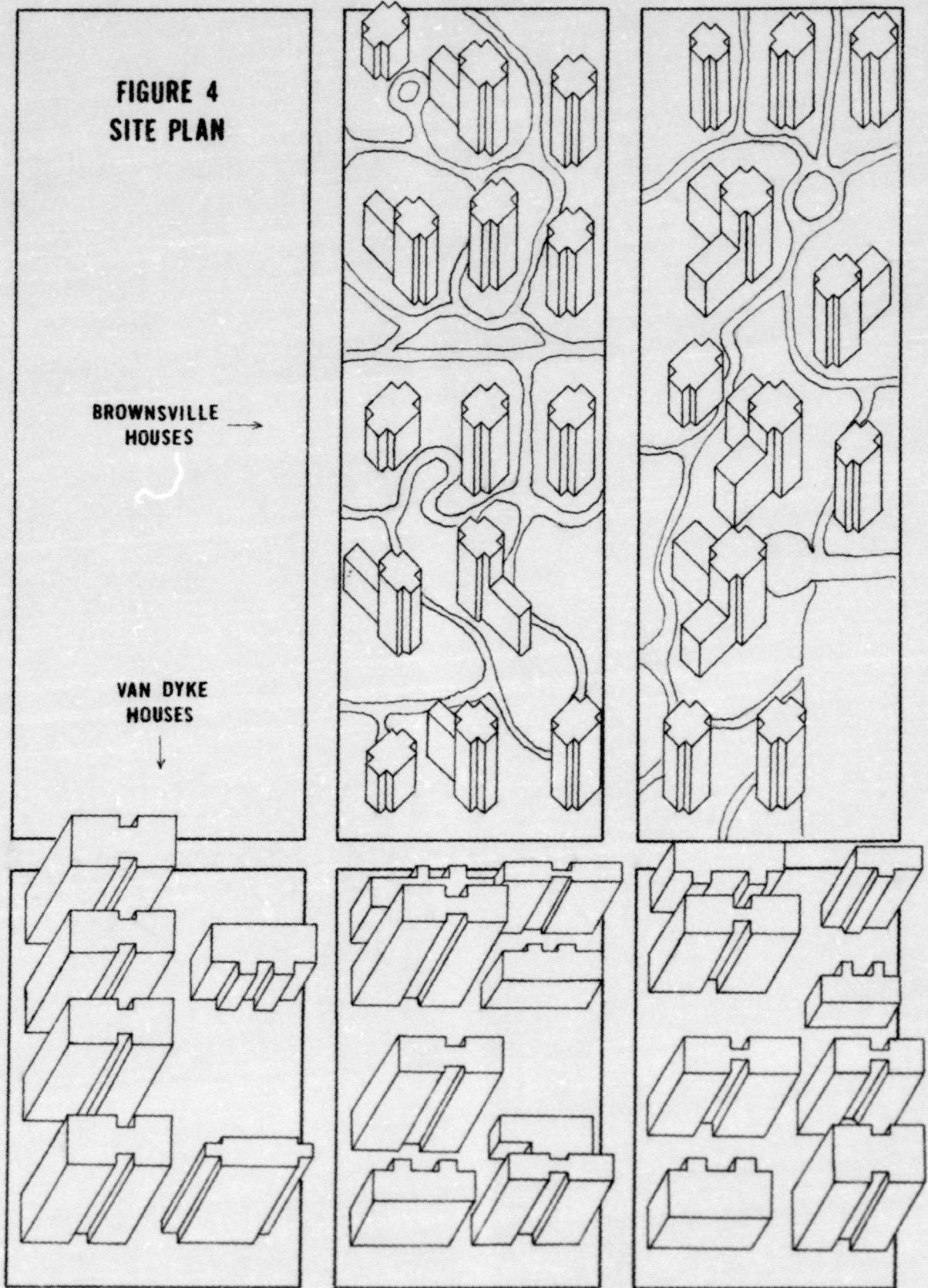
#### Architectural Contrast in Public Housing

The architectural contrast in Brooklyn is illustrated by the two differing types of low-income housing projects: the high-rise towers of Van Dyke Houses and the low-rise buildings of Brownsville Houses. Figure 4 illustrates the difference between the two housing projects. By dividing the two projects, Stone Avenue has created a physical boundary which discourages the residents of Van Dyke and Brownsville from intermingling. Thus

**FIGURE 4  
SITE PLAN**

**BROWNSVILLE  
HOUSES** →

**VAN DYKE  
HOUSES**  
↓





it has created two separate communities.

Upon reviewing the objective data on the physical characteristics of Van Dyke and Brownsville Houses, both projects reveal two pronounced comparisons. The projects had almost identical characteristics in size, each housed approximately 6,000 persons. The two projects are designed for exactly the same density: 288 persons per acre.

The physical differences of Van Dyke and Brownsville are found in the architecture of the buildings and the percentage of ground-level space they occupy. Brownsville is comprised of low, walk-up and elevator buildings, three to six stories high. The Van Dyke project houses 87 percent of its occupants in high-rise slabs, of thirteen to fourteen stories. The two projects are identical in density population, income, race, and other characteristics except for crime and mental illness.

#### The Brownsville Houses

The Brownville housing project was built in 1948. It has given the appearance of a smaller project because of the disposition of units in small, scattered clusters of buildings. The architecture and spatial design of the buildings were used to divide the project into smaller, more manageable zones. Through the design and planning, the activities that took place in the small project spaces adjoining buildings had become the business of the neighboring residents who had assumed the leading roles in monitoring and policing the area.

The emphasis on space division also carried over the architectural design of the building interiors of the Brownsville Houses. The individual buildings were three and six-story structures with six families sharing a

floor. The architects of Brownsville divided the floor into vestibules which were shared by three families each. In the six-story building, elevators stop at odd floors, requiring the occupants of the even floors to walk up or down one flight, using an open stairwell around which apartment doors are clustered (Figure 5).

At the ground level, the building lobby leads up a short flight of stairs to several apartments that maintain surveillance over activity in the entrance. The buildings disposition at Brownsville have created triangular buffer areas (Figure 6).

#### The Van Dyke Houses

By contrast, the Van Dyke project, built in 1956, is composed of thirteen to fourteen-story buildings. Through the means of its design, each of the buildings at Van Dyke is spatially separated as well as isolated from the central grounds and its neighbors. Because of the spatial distance and their positioning, there has been no effective surveillance or monitoring of activity on the Van Dyke project grounds. Since none of the buildings at Van Dyke can be entered from the public street, its entrance has required the tenants to leave the public street and walk onto the projects paths. Thus it has eliminated the street and sidewalk surveillance by auto, pedestrians, and police.

The floors of the high-rise buildings were designed to accomodate eight families. Elevators stop in the middle of the double-loaded corridors and the occupants reach their apartments by walking down a deadend hall. Figure 7 shows the ground floor plan of the Van Dyke Houses. Whereas the low-rises of the Brownsville project employ the idea of defensible space,



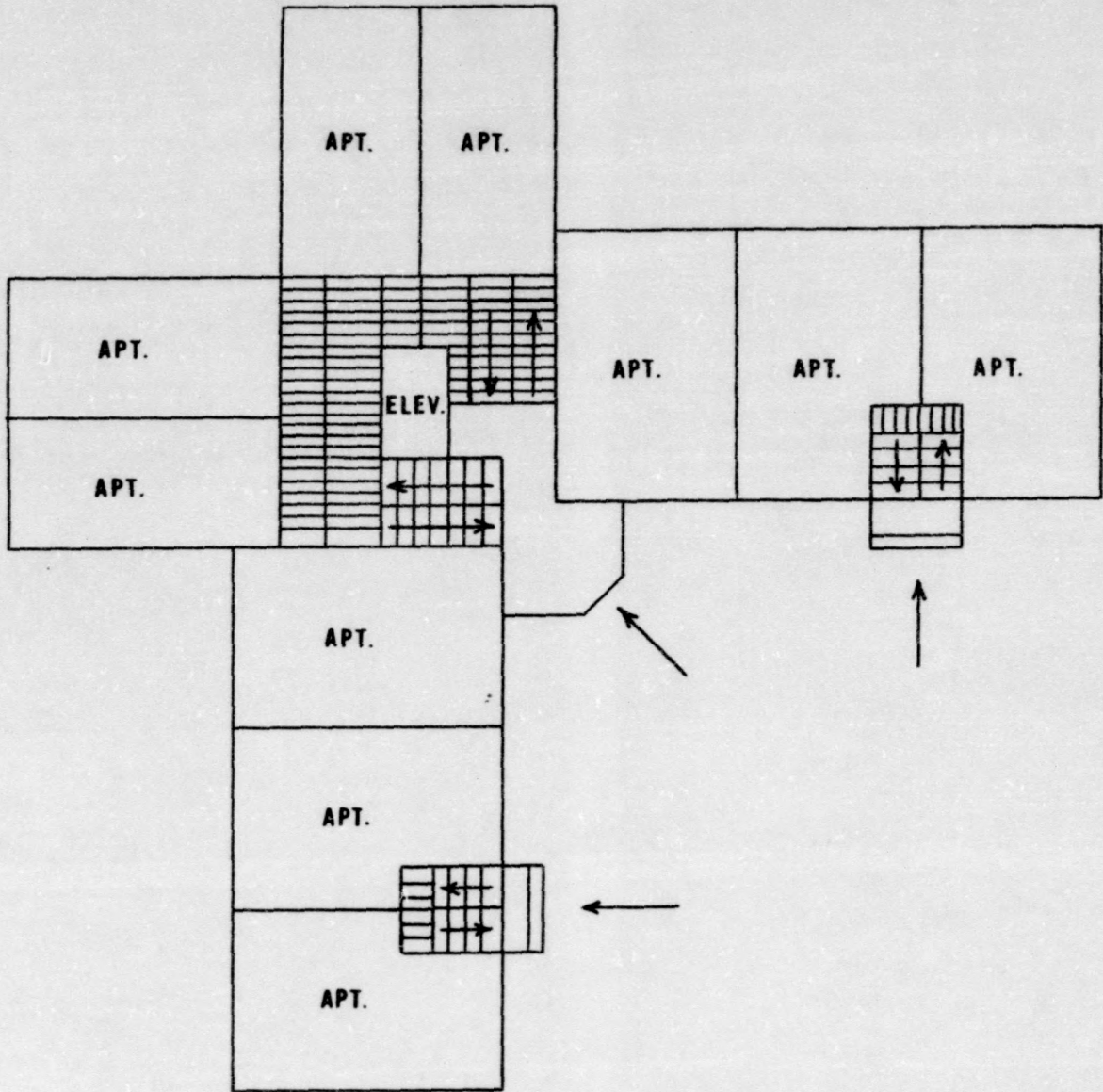
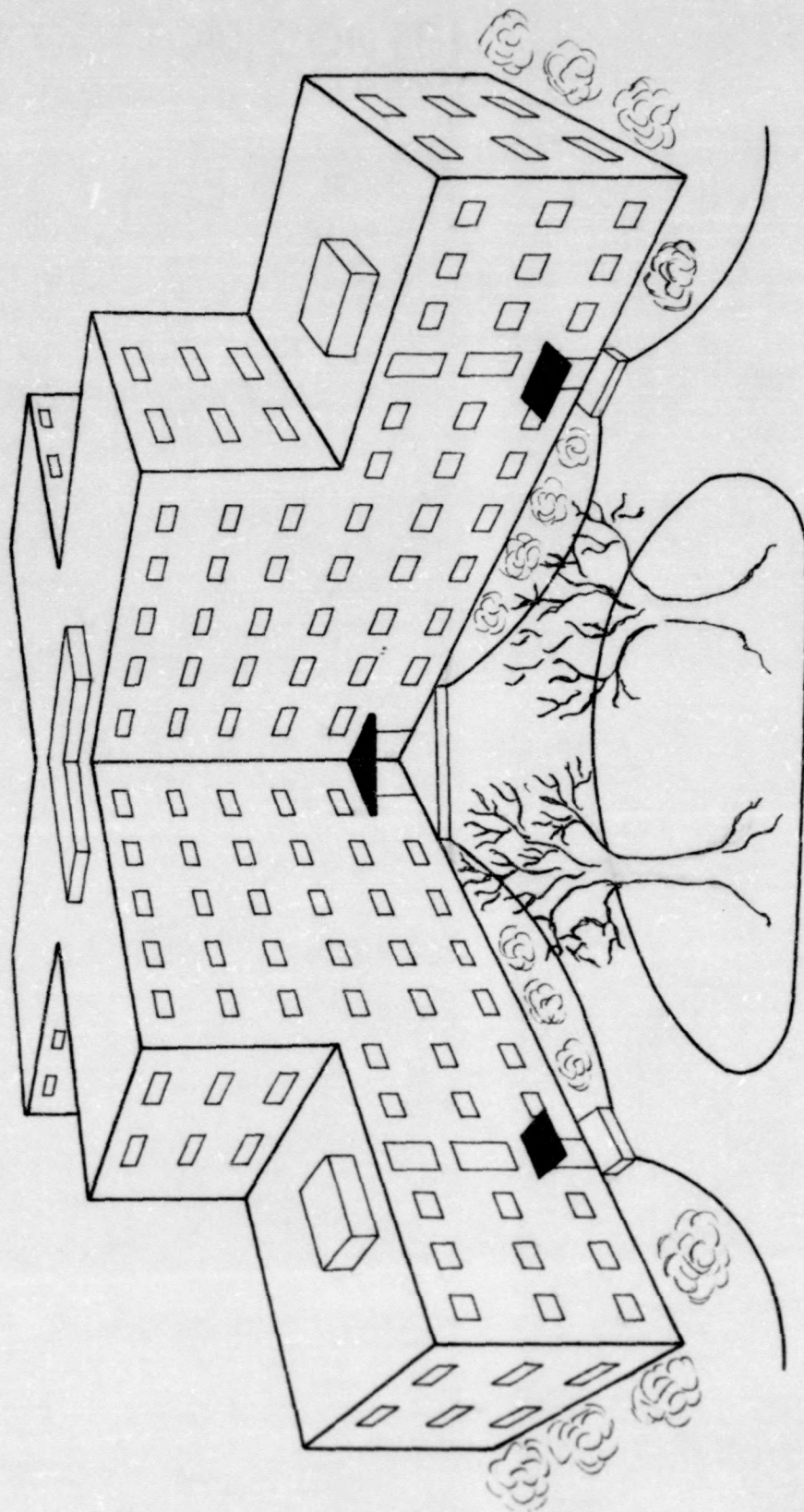


FIGURE 5

GROUND FLOOR PLAN  
OF  
BROWNSVILLE HOUSES



**FIGURE 6**  
THE BUILDINGS DISPOSITION AT BROWNSVILLE HOUSES



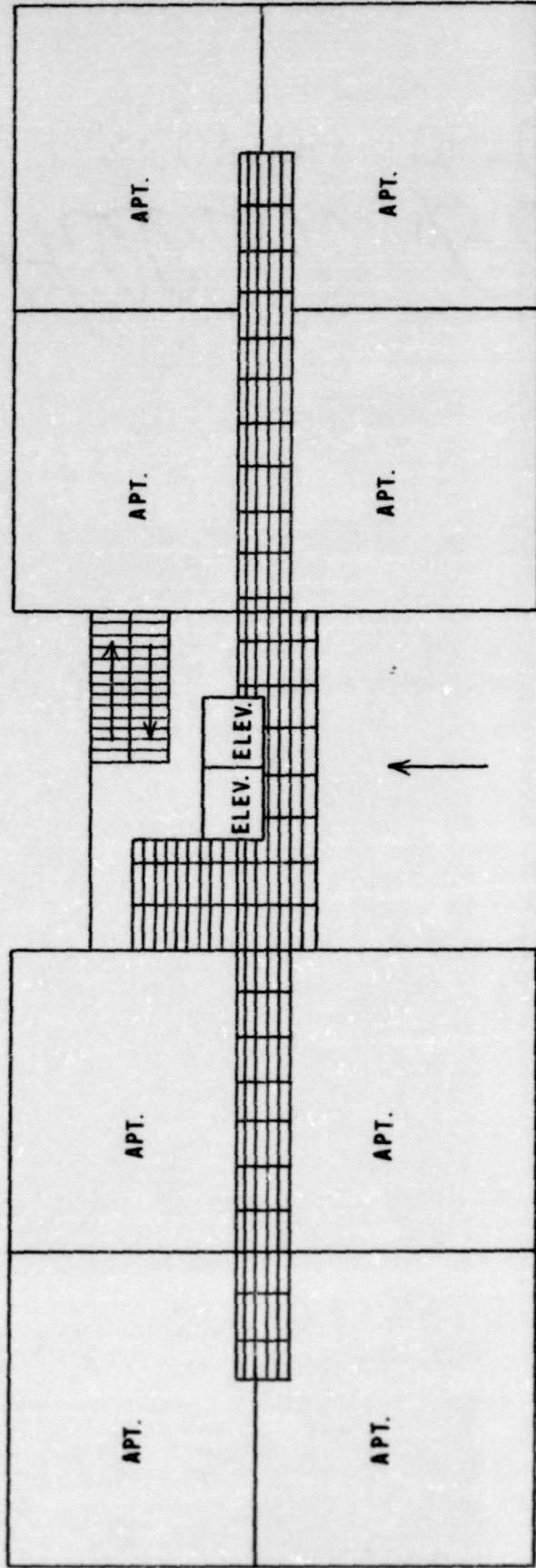


FIGURE 7

GROUND FLOOR OF VAN DYKE HOUSES

to a certain extent, the developers of the Van Dyke Houses seem to have avoided the defensible space concept in the design and construction of the project.



## CHAPTER IV

### THE PROBLEM

#### Significant Factors and Their Collection

The task is to use the data comparison approach to examine the effects of architectural and spatial design upon the rates of crime and mental illness. Since mental illness and crime are each caused by many factors, any attempt to accurately define the relationship between the two presents a fundamental problem. Limiting oneself to a study of the architectural and spatial design required an understanding of the role of certain non-physical factors as well. Also, finding an effective solution to the problem necessitates both a consideration of all available data and the use of the statistical comparison testing approach to illuminate specific physical characteristics.

The New York City Housing Authority Police have recorded complete and accurate information concerning every criminal offense committed in its housing projects. While the recorded crimes have been classified as to the place of occurrence--such as apartment, hallway, lobby, and grounds--such data were not obtainable for exclusive purposes. Nevertheless, the New York City Housing Authority has supplied a list of physical characteristics believed to be crucial to crime and mental illness: the total size of the project in area, the number of buildings in the project, the height of the complex, the percentage of the building-coverage, the floor area ration, the average number of rooms per apartment, and the density of people in the

project.

It should be noted, however, that certain non-physical factors also have significant effects upon crime and mental illness rates--for instance, tenant characteristics. Consequently, it is essential to place the tenant characteristics factor under limited control, so that any difference in crime rates is due to physical differences, not to variations in tenant characteristics.

The New York City Housing Authority has maintained detailed data on all the families residing at Brownsville, Van Dyke, and the other projects in its jurisdiction. This study concerns the following aspects: total populations of each project, average family size, number of minors, percent of black families, percent of white families, percent of Puerto Rican families, average gross income of families, average number of years living in the projects, percent of broken families, percent of families on welfare, the number of children in grades 1-6, percent of families with two wage earners, and the number of children in grades 7-12.

The mental health data was collected from the Community Mental Health program of the Brownsville section of Brooklyn, New York. The major objective of the Community Mental Health program has been to provide professional advice and treatment to all those seeking it. The program which is dependent entirely upon voluntary admittance has been effective in the dianosis of mental disorders and in providing best psychoanalysis and mental help available. The Brookdale Hospital and the Brownsville Ocean Hill Community Mental Health Clinic are the institutions responsible for the mental welfare of the occupants of the Brownsville and the Van Dyke Houses. The writer limits this particular study to the following: total admittance of patients seeking



psychiatric help, reported cases of mental disturbances, reported cases of alcoholism and drug addiction, and reported cases of juvenile delinquency.

## RESULTS

### Tenant Statistics

The tenants of Brownsville and Van Dyke houses rate similarly on overall socio-economic status, family stability, ethnic, racial, and family composition. Tables 1 and 2 reveal this point.

TABLE 1

### 1968 Tenant Statistics

Characteristic	Van Dyke	Brownsville
Total populations	6,380	5,342
Average family size	4.0	4.1
Number of minors	3,656	3,108
Percent of black families	78.2%	84.5%
Percent of white families	7.0%	3.1%
Percent of Puerto Rican families	14.8%	12.4%
Average gross income	\$4,758	\$4,918
Percent on welfare	22.9%	23.9%
Percent broken families	26.8%	29.5%
Average number of years in project	8.1	8.9
Percent of families with two wage earners	12.8%	12.6%
Number of children in grades 1-6	1,053	1,008
Number of children in grade 7-12	310	249

Source: 1968 New York City Housing Authority Records

TABLE 2

1970 Tenant Statistics

Characteristic	Van Dyke	Brownsville
Total population	6,289	5,246
Average family size	4.0	4.0
Number of minors	3,648	3,065
Percent of black families	80.5%	85.9%
Percent of white families	4.3%	2.1%
Percent of Puerto Rican families	15.2%	12.0%
Average gross income	\$5,321	\$5,196
Percent on welfare	35.7%	35.8%
Percent broken families	34.7%	37.1%
Average number of years in project	9.1	9.6
Percent of families with two wage earners	10.9	9.4
Number of children in grades 1-6	946	976
Number of children in grades 7-12	166	51

Source: 1970 New York City Housing Authority Records

Physical Characteristics

By analyzing the physical characteristics of Brownsville and Van Dyke, the two projects reveal several striking parallels. Both projects are identical in size, each housing approximately 6,000 persons. Brownsville and Van Dyke houses are designed to meet the same density: 288 persons per acre. The major differences have arisen from the composition of buildings and the percentage of ground-level space the projects occupy. Table 3 notes the comparison of the architectural and spatial characteristics between the two projects.



TABLE 3

Physical Design and Population Density

Physical Measure	Van Dyke	Brownsville
Total size	22.35 acres	19.16 acres
Number of buildings	23	27
Building height	14	6 story with 3 story wings
Building coverage	16.6%	23.0%
Floor area ratio	1.49	1.39
Average number of rooms per apartment	4.62	4.69
Density	288 persons	287 persons

Source: New York City Housing Authority Project Physical Design  
Statistics and Measurement

Criminal Comparison

According to the New York City Housing Authority Police data, crime and vandalism have always been major problems at both Van Dyke and Brownsville houses. Through a comparison of 1968 crime incident rates, Van Dyke Houses are found to have 27 percent more total crime incidents, 220 percent more robberies, 37 percent more felonies, misdemeanors, and offenses, and 54 percent more malicious vandalism than Brownsville. The 1970 crime incident rates show that Van Dyke Houses have 53 percent more total crime incidents, 51 percent more total cases of felonies, misdemeanors, and offenses, 255 percent more robberies, and 47 percent more incidents of malicious vandalism than the Brownsville Houses. Tables 4 and 5 point out the comparison.

TABLE 4

1968 Crime Incidents  
Per Thousand Population

Crime Incidents	Van Dyke	Brownsville
Total incidents	188.73	149.06
Total felonies, misdemeanors, and offenses	67.71	49.42
Number of robberies	14.42	4.49
Number of malicious vandalism	8.15	5.34
Source: 1968 New York City Housing Authority Police Records		

TABLE 5

1970 Crime Incidents  
Per Thousand Population

Crime Incidents	Van Dyke	Brownsville
Total incidents	235.65	154.21
Total felonies, misdemeanors, and offenses	85.71	56.61
Number of robberies	18.29	5.15
Number of malicious vandalism	10.34	7.05
Source: 1970 New York City Housing Authority Police Records		



Mental Illness Diagnoses

Upon viewing the data obtained from the Community Mental Health program, vast differences are noticed between the mental health of the occupants of Brownsville and those of Van Dyke. Through the 1971 mental illness data, Van Dyke housing project has 150 percent more total admittance of patients seeking psychiatric help, 158 percent more cases of mental disturbance, 496 percent more reported cases of alcoholism and drug addiction, and 83 percent more cases of juvenile delinquency than Brownsville. Table 6 illustrates the comparison.

TABLE 6

1971 Mental Illness Cases  
Per Thousand Population

Mental Illness	Van Dyke	Brownsville
Total admittance of patients seeking psychiatric help	58.51	23.45
Reported cases of mental illness	10.34	4.00
Reported cases of alcoholism and drug addiction	27.99	4.68
Reported cases of juvenile delinquency	21.31	11.63
Source: 1971 Community Mental Health Program Statistics		

## CHAPTER V

### DISCUSSION

#### Summary and Conclusion

This study reveals several significant findings about the architectural and spatial design of the Brownsville and the Van Dyke houses and its effects upon their occupants:

1. The major physical differences between the two projects are the composition of the buildings (height and natural surveillance opportunities) and the amount of ground-level space the projects occupy.
2. The Van Dyke Houses have cultivated a vast increase in the amount of crime incidents as compared to that of the Brownsville Houses. Van Dyke Houses have had 40 percent more total crime incidents; 44 percent more felonies, misdemeanors, and offenses; 236 percent more robberies; and 51 percent more incidents of malicious vandalism than did the Brownsville Houses.
3. The inhabitants of the Van Dyke Houses had a significantly larger number of reported cases of mental illness than those residing in the Brownsville Houses. The Van Dyke housing project houses 150 percent more patients seeking psychiatric help, 158 percent more cases of reported mental disturbances, 496 percent more cases of alcoholism and drug addiction, and 83 percent more cases of juvenile delinquency than did Brownsville.

From an analysis of the statistical comparison of the Brownsville and Van Dyke houses, and upon visiting the sites, two observations can be made:



1. Through architectural and spatial design, a territorial definition and a sense of community protection can be translated into responsibility for ensuring a secure and productive residence.

2. The combination of architectural and spatial features does have a profound effect upon the emotional states, and thus the mental health, of human beings.

With regard to the Brownsville project, its physical design reveals that the latent territoriality and its occupants' sense of community protection have been translated into responsibility for securing a safe and productive residence. The physical design of the Brownsville housing project has contributed a sense of security to its occupants and consequently has cultivated their mental health. The advocacy of territorial definition created from surveillance opportunities is to allow a citizen to achieve control of his environment for the activities he wishes to pursue within it, thus making him instrumental in preventing others from destroying his habitat. On the other hand, the disparity generated from the architecture of the Van Dyke Houses has produced a negative behavior in its occupants and has eroded any residential faith in the effectiveness of community prevention of crime.

Upon viewing the physical characteristics of the two projects, one is immediately aware of the difference in building height. The height of the Van Dyke project is 14 stories compared to the 6 stories of Brownsville. There are other architectural features of the double-loaded corridor of Van Dyke Houses which also play a vital role in this study. The Van Dyke project, which is composed of high-rise, double-loaded corridor buildings, has been proven more vulnerable to criminal activity than its walk-up counterpart, the Brownsville Houses.

Physical features such as natural surveillance over the buildings' semi-public interiors can not be concretely measured. Thus it should be noted that there is no single architectural feature in public housing responsible for the difference in crime rates between Brownsville and Van Dyke. It is rather a collective habitat that destroys the sense of residential security and weakens the occupants' resistance to mental illness.

To conclude that the data comparison provides final and definitive proof of the influence of physical design upon mental illness is unjustifiable. Likewise, it is misleading to assume that the difference in crime and mental illness can be explained wholly by variations in tenant characteristics. Whereas statistics alone can not sufficiently prove that crime and mental illness rates are directly related to structure, they highly suggest such a relationship. Those fundamental structural differences between Brownsville and Van Dyke, coupled with the wide disparity in crime and mental illness, indicate that architectural and spatial design may have far-reaching social effects.

By the late 1960's housing officials realized that certain building types have had disastrous effects on the behavior of their lower-income occupants and have since issued a series of guidelines designed to minimize crime and mental illness. By the 1968 Federal Housing Act, for instance, the government forbade low-income families with children to live in high-rise apartment complexes. Instead, such families were to be housed in walk-up buildings no higher than three stories. Apparently, however, the act has not been enforced in the New York City area.

It is most feasible to design a multi-family housing complex with a



common street entrance and as few units as possible. Housing projects built with a land-density ratio of 50 units and less per acre--Brownsville Houses, for example--tend to be of the walk-up type. Conversely, developments with a land-density exceeding 50 units per acre--Van Dyke and Pruitt-Igoe, for example--are likely to be high-rise. In New York City, the majority of housing projects which have been built with a density ratio over 50 units per acre are high-rise elevator, and double-loaded corridor buildings. Newman's study (1972) demonstrates that there exists a correlation between density and crime, the pattern of which is not visible until a density of 50 units per acre has been obtained. Once this point is reached, the crime rate increases proportionately with density. The crime rate does not have to correlate specifically with density; but since density dictates building height and type, it is logical to assume that there is a significant correlation between crime rate and physical prodigies of high density.

The definition and assignment of territorial areas to groups of inhabitants has been found to operate most effectively when occupants have been given visual control of a defined area. Surveillance improvements will provide positive effects in rendering the environment secure for peaceful activities and in reducing irrational fears and anxieties in inhabitants. If public housing residents feel an area to be safe, they will make more frequent use of it. Since most crime in public housing occurs in the visually-deprived, semi-public interiors of buildings (the lobbies, halls, elevators, and fire stairs), it is wise to equip staircases and corridors with plenty of windows to ensure that all public and semi-public spaces and paths come under continual and natural observation by the residents. Such surveillance

opportunities act as crime deterrents and reduce residential anxieties, creating an overall image of a safe environment.

The goal of architectural and spatial design in public housing projects should be to create inevitable interactions of structured space and man in meaningful and beneficial patterns. The design should permit an interaction which would contribute to the occupant's mental health rather than to his insecurity and frustration.

In their studies, Gold (1970) and Newman (1972) have concerned themselves primarily with the criminal derivation of architecture, whereas Rainwater (1968) and Bettelheim's (1972) studies have dealt with the mental illness aspect of housing. In this study, however, an attempt is made to combine both philosophies and to prove that there is a correlation between sense of security and mental health. The construction of environment conducive to psychological security can enable the urban dweller to attain a delicate equilibrium between a dangerous isolation from other persons and an equally dangerous loss of individualism. One shortcoming of this study bears mention. Whereas the two housing projects are in the same crime-rated district, no data are available to reveal variations in crime inside that district. Such data might show that the crime rate in the general area on one side of Stone Avenue is significantly different from the rate in the general area on the other side. If that is true, the difference in crime in the two projects might result from conditions in the area surrounding the projects and not from architectural designs. Further research would be necessary to clarify this point. More empirical and psychological studies are needed to test the effects resulting from spatial and architectural design. But these studies will be worthless unless im-



plemented by administered action. Housing administrators and planners must realize that their callous and inhuman decisions might have adverse and far-reaching effects upon generations of lower-income families. Regardless of the individual's income bracket, he is still a human being with needs of residential security which must be met.

An individual's first enclosure, the home, is experienced as a symbolic mother. Like the actual mother, the home environment can be good or overpowering--one that envelops us with comfort and security, or rejects us with neglect and indifference. Bettelheim (1972, p. 47) remarked:

The weaker we feel as a person in society at large, the more profoundly we must know we are welcome and safe in our home.

One must feel that his home is relatively secure or the very foundation of our civilization comes under trial.

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