

—CRIME PREVENTION—
THROUGH URBAN DESIGN

DEFENSIBLE SPACE

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DEFENSIBLE SPACE

The crime problems facing urban America will not be answered through increased police force or firepower. We are witnessing a breakdown of the social mechanisms that once kept crime in check and gave direction and support to police activity. The small-town environments, rural or urban, which once framed and enforced their own moral codes, have virtually disappeared. We have become strangers sharing the largest collective habitats 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.

In our society there are few instances of shared beliefs or values among physical neighbors. Although this heterogeneity may be intellectually desirable, it has crippled our ability to agree on the action required to maintain the social framework necessary to our continued survival. The very winds of liberation that have brought us this far may also have carried with them the seeds of our demise. It is clear to almost all researchers in crime prevention that the issue hinges on the inability of communities to come together in joint action. The physical environments

we have been building in our cities for the past twenty-five years actually prevent such amity and discourage the natural pursuit of a collective action.

The anonymous cities we have built, for maximum freedom and multiple choice, may have inadvertently succeeded in severely curtailing many of our previous options. Collective community action, once easy, is now cumbersome. But even in the absence of a community of minds, joint action has become essential to the survival of urban life in America. Police forces operating without community consent, direction, and control are a wasted effort—more irritant than deterrent. Means must be found for bringing neighbors together, if only for the limited purpose of ensuring survival of their collective milieu. Where the physical design of the living environment can be used for this purpose, it must be so exploited.

Over the past fifteen years, the crime problem in our urban metropolitan areas has become severe enough to prompt a major exodus of middle-income families to the suburbs. However, the results of 1971 crime survey statistics indicate that the crime problem is shifting to the outer reaches of the city.¹ The horizons of escape promised by suburbia and the barricaded inner city towers seem to be narrowing. The only recourse now appears to be total lockup and self-restriction of movement: a self-imposed curfew and police state.

This book is about an alternative, about a means for restructuring the residential environments of our cities so they can again become livable and controlled, controlled not by police but by a community of people sharing a common terrain.

Over the past three years, the New York University Project for Security Design in Urban Residential Areas has been studying the nature, pattern, and location of crime in urban residential areas across the country. Our conclusion is that the new physical form of the urban environment is possibly the most cogent ally the criminal has in his victimization of society. The concentration of population in large metropolitan areas has produced an urban form that makes hapless victims of its occupants.

The time has come to go back to first principles, to reexamine human habitat as it has evolved, to become attuned again to all the subtle devices invented over time and forgotten in our need and haste to house the many. For even within the widespread chaos of our cities, it is still possible to find isolated examples of working living environments which are crime-free, although at times located in the highest crime precincts of cities. Architectural design can make evident by the physical layout that an area is the shared extension of the private realms of a group of individuals. For one group to be able to set the norms of behavior and the nature of activity possible within a particular place, it is necessary that it have clear, unquestionable control over what can occur there. Design can make it possible for both inhabitant and stranger to perceive that an area is

under the undisputed influence of a particular group, that they dictate the activity taking place within it, and who its users are to be. This can be made so clearly evident that residents will not only feel confident, but that it is incumbent upon them to question the comings and goings of people to ensure the continued safety of the defined areas. Any intruder will be made to anticipate that his presence will be under question and open to challenge; so much so that a criminal can be deterred from even contemplating entry.

Defensible space is a model for residential environments which inhibits crime by creating the physical expression of a social fabric that defends itself. All the different elements which combine to make a defensible space have a common goal—an environment in which latent territoriality and sense of community in the inhabitants can be translated into responsibility for ensuring a safe, productive, and well-maintained living space. The potential criminal perceives such a space as controlled by its residents, leaving him an intruder easily recognized and dealt with. On the one hand this is target hardening—the traditional aim of security design as provided by locksmiths. But it must also be seen in another light. In middle-class neighborhoods, the responsibility for maintaining security has largely been relegated to the police. Upper-income neighborhoods—particularly those including high-rise apartment buildings—have supplemented police with doormen, a luxury not possible in other neighborhoods. There is serious self-deception in this posture. When people begin to protect themselves as individuals and not as a community, the battle against crime is effectively lost. The indifferent crowd witnessing a violent crime is by now an American cliché. The move of middle- and upper-class population into protective high-rises and other structures of isolation—as well guarded and as carefully differentiated from the surrounding human landscape as a military post—is just as clearly a retreat into indifference. The form of buildings and their arrangement can either discourage or encourage people to take an active part in policing while they go about their daily business. "Policing" is not intended to evoke a paranoid vision but refers to the oldest concept in the Western political tradition: the responsibility of each citizen to ensure the functioning of the *polis*.

"Defensible space" is a surrogate term for the range of mechanisms—real and symbolic barriers, strongly defined areas of influence, and improved opportunities for surveillance—that combine to bring an environment under the control of its residents. A *defensible space* is a living residential environment which can be employed by inhabitants for the enhancement of their lives, while providing security for their families, neighbors, and friends. The public areas of a multi-family residential environment devoid of defensible space can make the act of going from street to apartment equivalent to running the gauntlet. The fear and

uncertainty generated by living in such an environment can slowly eat away and eventually destroy the security and sanctity of the apartment unit itself. On the other hand, by grouping dwelling units to reinforce associations of mutual benefit; by delineating paths of movement; by defining areas of activity for particular users through their juxtaposition with internal living areas; and by providing for natural opportunities for visual surveillance, architects can create a clear understanding of the function of a space, and who its users are and ought to be. This, in turn, can lead residents of all income levels to adopt extremely potent territorial attitudes and policing measures, which act as strong deterrents to potential criminals.

The spatial layout of the multi-family dwelling, from the arrangement of the building grounds to the interior grouping of apartments, achieves defensible space when residents can easily perceive and control all activity taking place within it. It is not of course intended that residents take matters into their own hands and personally restrict intrusion. Rather, it is suggested that they employ a full range of encounter mechanisms to indicate their concerned observation of questionable activity and their control of the situation: offers of assistance to strangers in finding their way, as a means for determining their intent and the legitimacy of their presence; continued in-person surveillance and the threat of possible interference; questioning glances from windows; and finally, to be able to set up a situation which will stimulate residents to call the police and insist on their intervention. As we have seen too often lately, the ability of even secure middle-class Americans to intervene, if only by calling the police, is not something that can be depended on any longer. Similarly, self-initiated police intervention in ghetto areas meets at times with community disapproval, even when the community feels intervention is required. The defensible space environment extends the area of the residential unit into the street and within the area of felt responsibility of the dweller—of both low- and middle-income. By contrast, the resident living within large, apartment tower developments feels his responsibilities begin and end within the boundaries of his own apartment. He has learned to be detached even from what he sees outside his own window.

In our newly-created dense and anonymous residential environments, we may be raising generations of young people who are totally lacking in any experience of collective space, and by extension, of community rights and the shared values of society. In many ways, therefore, defensible space design also attempts to attack the root causes of crime. In the area of crime prevention, physical design has been traditionally relegated the role of *mechanical prevention*, leaving intact the structure of motivation and attitudes which eventually lead to the criminal event. Defensible space design, while it uses mechanical prevention, aims at formulating an architectural model of *corrective prevention*. Our

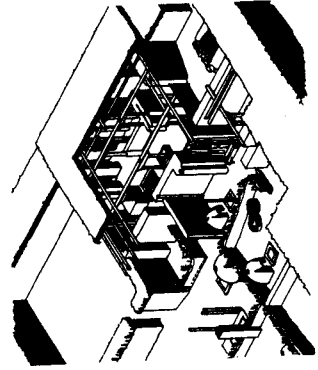
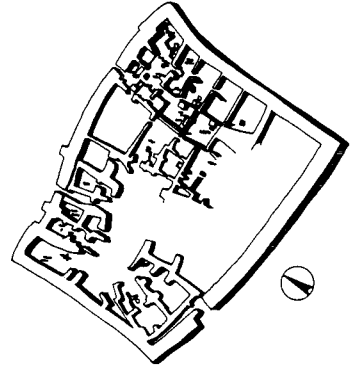


FIG. 1. Mud House in the African Sudan. The stoop symbolically defines the entry to the dwelling. It declares simply, but emphatically that this is where the territorial prerogatives of the tribe, defined by the compound, are overridden by the dictates of the members of the family unit. (Reprinted, by permission, from Joop Hardy, "Door and Window," in *Forum*, No. 8, 1960. Photo by Aldo Van Eyck.)

FIG. 2. Neolithic Settlement, Hacilar, Turkey. Excavation and reconstruction of extended family compound and individual house. There are two entries to the enclave, both of which lead to a central communal area shared by all dwellings. The entry to each family unit is then further defined by a smaller transitional court off the communal area. (Courtesy of The Hamlyn Group)

Excavation of extended family compound

House within family compound



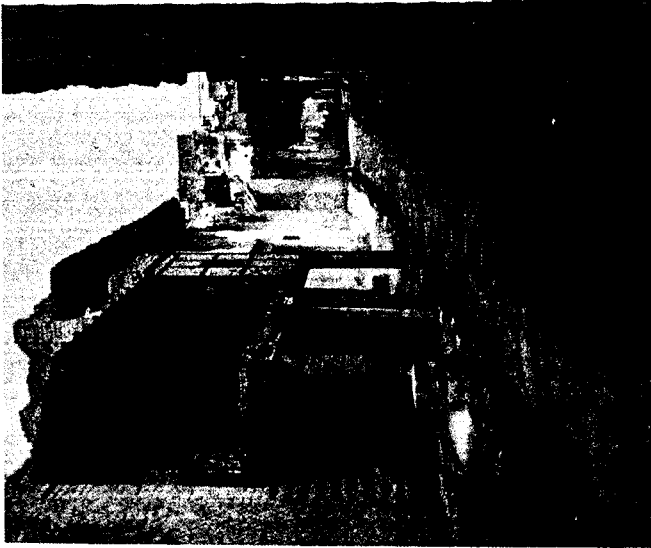


FIG. 3. Street in Herculaneum. Note stoop at entry to each house and positioning of windows to survey street entry. (Reprinted by permission from M. Grant, *Cities of Vesuvius*, p. 64. Photo by Werner Forman © 1971 by The Macmillan Company.)

present urban environments, created with such speed and determination, may be little more than the spawning grounds of criminal behavior.

In the evolution of human habitat over the past thousands of years, men in every culture have developed cogent devices to define the territorial realm of their dwellings. The nature and function of these mechanisms evolved slowly through change and adaptation during use. So long as human environment was built within a tradition, simply repeating previous forms ensured the preservation of past learned experience. With the breakdown of building tradition, through the rapid evolution of new techniques and the need to answer the pressing problem of accommodating higher densities, the simple repetition of past practice has become difficult, if not impossible. Unfortunately, the accumulated traditions inherent in the residential forms of the past were not held within the conscious verbal bank of human knowledge. In architectural history there is ample evidence of territorial definition and symbolization in the forms of previous residential environments. There is unfortunately no parallel evidence of their overt discussion. The tradition, grown over thousands of years in man's piecemeal search for a form of residence in an urban setting, has been lost.

In building the residential environments of twentieth-century cities, there was no reference to tradition, simply because the needs seemed so totally new and unlike any experience in the past. In our rush to provide housing for the urban immigrants and to accommodate our high population growth rates, we have been building *more* without really asking

FIG. 4. Street in Eighteenth-Century Dutch Town. Note how the realm of each dwelling unit is defined by the raised platform at the point where the entry meets the street. Windows further reinforce territorial claim by providing unmistakable surveillance from within the dwelling. (Photo by author)

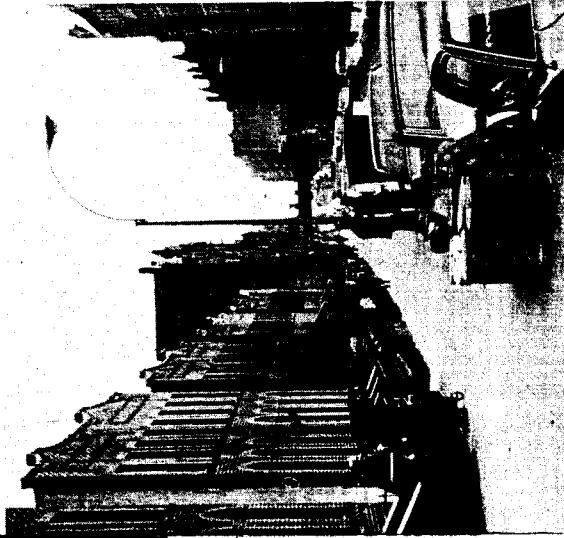


FIG. 5. Row-House Street typical of Nineteenth-Century American Cities. It contains the identical ingredients which define the dwellings' relationship to the street found in the Dutch town (fig. 4). (Photo by author)

what? The high-rise prototype, with its myriad of resident janitorial and security staff, worked well for upper-middle-income families with few children but cannot be simplistically transplanted, minus the accompanying staff and accouterments, for the use of large, low-income families. It is clear that we built without much thought and without much concern and are now stuck with the results. As will be shown in later chapters, poorly designed buildings and projects have crime rates as much as three times higher than those of adjacent projects housing socially identical residents at similar densities.

Considering the needs of low-income families, there is no rationalism to the design of most high-rise residential developments, other than the

The territorial definition of space in developments reflecting the areas of influence of the inhabitants. This works by subdividing the residential environment into zones toward which adjacent residents easily adopt proprietary attitudes.

The positioning of apartment windows to allow residents to naturally survey the exterior and interior public areas of their living environment.

The adoption of building forms and idioms which avoid the stigma of peculiarity that allows others to perceive the vulnerability and isolation of the inhabitants.

The enhancement of safety by locating residential developments in functionally sympathetic urban areas immediately adjacent to activities that do not provide continued threat.

Defensible space can be made to operate in an evolving hierarchy from level to level in the collective human habitat—to extend from apartment to street. It is a technique applicable to low-density row-house groupings as well as to developments composed of high-rise apartment buildings. The small cluster of apartments at each floor of a multi-story building is the first level beyond the apartment unit where occupants can be made to extend the realm of their homes and responsibilities. The

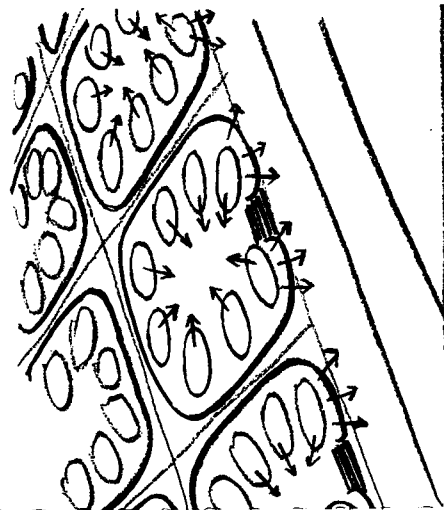


FIG. 7. Defensible Space. Schematic sketch illustrating territorial definition reinforced with surveillance opportunities (arrows).

FIG. 8. Hierarchy of Defensible Space. Schematic diagram illustrating evolving hierarchy of defensible space from public to private. Arrows indicate entries at different levels of the hierarchy.

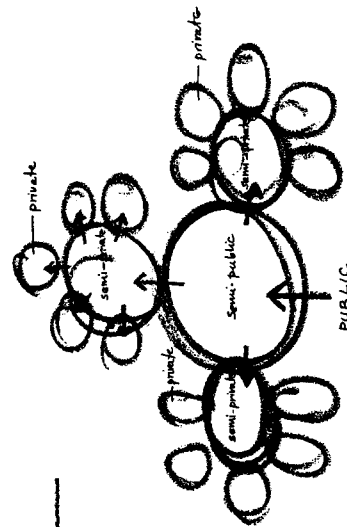


FIG. 6. Pruitt-Igoe, St. Louis, Missouri. View of vandalism to windows of public access galleries serving upper levels of the buildings. (Photo by Bob Williams)

narrow dictates of investment economics. Once built, they prove dangerous to live in and costly to maintain. The economic argument which led to their initial construction is reversed exactly. Their cost of operation is surpassed only by the social costs borne by the inhabitants. High-rise apartment developments are a new genre, with us little more than a hundred years. As a means for housing low- and middle-income American families, most date back to the early fifties. They are not the result of a careful application of the knowledge employed in housing the few, transferred to the problems of housing the many. Their form evolved in response to pressures for higher densities, with no reference to previous traditions and no attempt at understanding the range of need to be answered in human habitat. Beyond an occasionally successful composition, there is little evidence of any genius and now, in this period of high crime rates, they have become containers for the victimization of their inhabitants. This book presents an alternative—housing of medium density which through its physical design enables residents to control their living environment rather than become its victims.

Defensible space design returns to the productive use of residents the public areas beyond the doors of individual apartments: the hallways, lobbies, grounds, and surrounding streets—areas which are now beyond the control of inhabitants. Four elements of physical design, acting both individually and in concert, contribute to the creation of secure environments.

"self-help." The designs catalyze the natural impulses of residents, rather than forcing them to surrender their shared social responsibilities to any formal authority, whether police, management, security guards, or doormen. In a sense, this study takes its place as a partner in the political movements calling for the return of participation and control to the local level. However, it must be said that the ideas in this book, when initially presented to police, housing officials, and tenants often met with disbelief. Residents who live in hourly terror pointed at their scarred steel-plated doors and suggested that the author was wonderfully naive. Police officers—turning their attention from bands of teen-agers and addicts who do not appear to seriously weigh the consequences of being caught—pointed out the high costs of physical modification compared to increased police manpower. Ghetto leaders and social scientists have challenged us in our belief that crime, born of a poverty of means, opportunity, education, and representation, could be prevented architecturally.

Some of this skepticism is well-founded—particularly that of a low-income resident who does not believe physical change is likely to occur, regardless of the new-found knowledge. However, the skepticism is based on the assumption that a particular building prototype and project design represents the only available solution to a particular set of density and cost restraints. Most people do not know that different residential building prototypes are available to do the same job. The 150 New York families trapped in apartments that open onto the double-loaded corridors of a seventeen-story high-rise building—whose elevators, fire stairs, hallways, and roofs are freely roamed and ruled by criminals—find it hard to believe that the project across the street, composed of three- to six-

FIG. 10. Aerial Photo of two adjacent projects of equal density. The one in the foreground consists mostly of walk-ups; the other mostly of high-rises. (Courtesy of New York City Housing Authority)

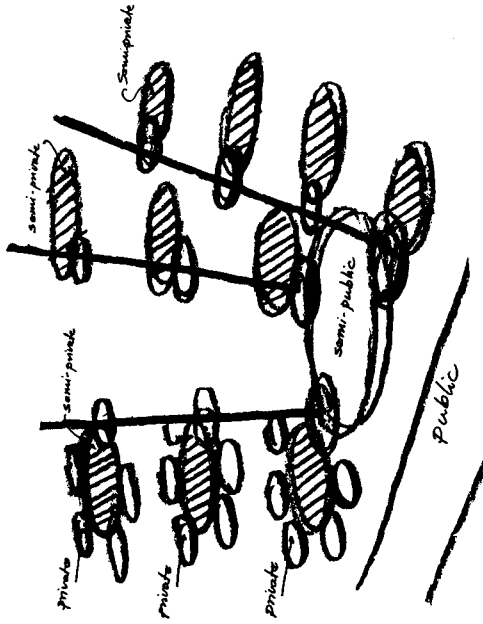
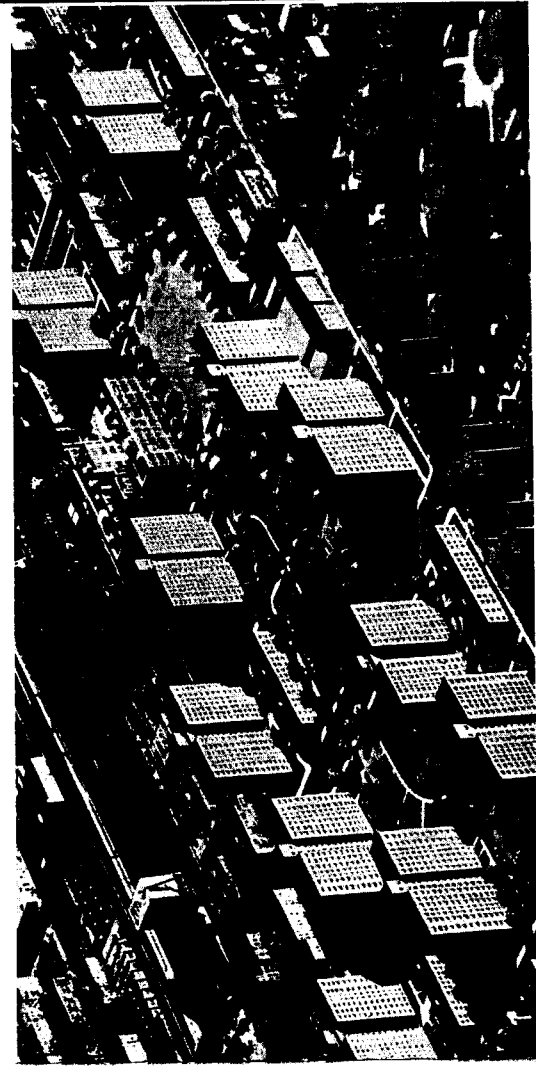


FIG. 9. Defensible space hierarchy in multi-level dwelling.

second level is the common entry and circulation paths within their buildings. The third level is the clustering of buildings which define a project's grounds and its entry. The final level in the hierarchy occurs when the housing development stakes its claim on surrounding urban streets.

In our examination of developments in every major city in the country, an effort was made to study the housing of all income groups for the purpose of comparison. A variety of study techniques were employed, including interviews with inhabitants, project managers, and police who serve these developments. Where recorded data on crime, vandalism, and maintenance costs was available, it was incorporated into the analysis. In New York City the analysis has been most extensive and detailed. The New York City Housing Authority is responsible for 150,000 units of public housing located in its five boroughs. This represents approximately 19 percent of all public housing in the country. The Housing Authority keeps computerized files on all its tenants, their incomes, the ages of each of the members of a family, their backgrounds, etc. In addition, the Housing Authority has its own sixteen-hundred-man police force who in turn keeps data on the occurrence and reporting of crime. The unique aspect of the Housing Authority Police data is that it also pinpoints the place of the crime. Specific buildings and interior locations are recorded along with the nature of the crime, victim, and offender. This resource allows us to consider the function of every physical variable and its effect on crime.

The results of our findings from three years of study apply to residential design for most income groups. In all instances, the physical mechanisms suggested to create safety and improve upkeep are tools of

story buildings in which two to three families share a hallway and six to twelve an entrance, actually accommodate people at the same densities and could be built at the same cost. The families in the seventeen-story building are continually aware of the fact that they are the constant prey of criminals and are equally aware that things are a lot better across the street. They find it incomprehensible that both projects house families at equal densities, and that the design differences between the two projects are predominantly the result of the whims of each designer. Examples of adjacent housing projects which differ dramatically in their crime vulnerability are detailed in subsequent chapters. It seems unforgivable that high-rise projects would have been designed to make their inhabitants so vulnerable, when projects across the street were able to avoid these problems simply by not creating them in the first place.

Society may have contributed to the victimization of project residents by setting off their dwellings, stigmatizing them with ugliness; saying with every status symbol available in the architectural language of our culture, that living *here* is falling short of the human state. However, architecture is not just a matter of style, image, and comfort. Architecture can create encounter and prevent it. Certain kinds of space and spatial layout favor the clandestine activities of criminals. An architect, armed with some understanding of the structure of criminal encounter, can simply avoid providing the space which supports it. In discussing our tenant surveys with police, they were surprised to discover that residents of alternate building prototypes have radically different attitudes toward representatives of formal authority, and policemen in particular. These varying attitudes are strongly reflected in the varying rates of reported crime. In the two adjacent projects already mentioned, residents with identical social characteristics hold quite different views of the police. In one high-rise project—a labyrinthine profusion of corridors, fire stairs, and exits—police report great difficulty in locating apartments, to say nothing of pursuing criminals. Officers responding to calls meet tenant indifference if not open hostility. It is not uncommon for tenants to angrily attempt to drive off police responding with well-intentioned assistance. Tenants are skeptical of police effectiveness and fearful of police officers and of police intentions. Records show that only very serious crimes are brought to police attention. A comparison of tenant interviews with police reports shows that only one crime in four is ever reported. The obverse is true as well. In anonymous, crime-ridden high-rises, police officers—whether out of fear or because they respond negatively to the apparent anonymity of the environment—are often dictatorial, arbitrary, and unrespecting of the tenants' rights and needs.

Yet across the street in a development mixing walk-ups and low, elevator buildings, the same policemen behave like polite, conscientious civil servants. Tenants respond positively. Police move easily and familiarly

through the project, and tenant-police relations are much better. Tenants in these buildings not only report more of the crimes they are involved in or witness, they make a practice of reporting loitering strangers and potentially threatening situations. In interviews, their trust in the efficacy of police intervention was found to be stronger, possibly not unrelated to their ability to keep police in hand in their own buildings.

The adoption of defensible space design in new building or the modification of existing buildings may well pay for itself in terms of the increased level of police efficiency. Although police expenditures are unlikely to go down in the near future, new projects constructed along defensible space guidelines can help curb an otherwise necessary expansion of police control and budget. If we are ever to lower the expenditures and profile of police in our cities, it will be through measures such as these. In federally supported housing, security personnel—always considered a luxury by the Federal Housing Administration—are increasingly expensive and difficult to support from overextended city and housing authority budgets. In New York it has been demonstrated that because of fringe benefits and time off, making one additional patrolman evident costs the equivalent of the annual salary of ten policemen.² The cost of security personnel is beginning to compete with the cost of building maintenance, while the effectiveness of increased manpower is in serious question.

The root causes of inner city and ghetto crime lie deep in the social structure of our nation. Criminal and victim alike come from that strata of the population without the power of choice. In the United States, the correlation of criminal and victim with poverty is unmistakable.³ To both, access to institutions which lead out of their condition has been denied. Our social and educational systems have not adapted to admit the minority groups who largely make up this population. In a disturbing percentage of the inner city and ghetto population, the one institution normally most resistant to social disruption, the family, is crumbling. Lee Rainwater, in his article "Fear and the House-as-Haven," about his study of Pruitt-Igoue, defines security as the most important need to be satisfied in a residence for low-income groups.⁴ Feelings of insecurity about one's residential environment often lead to the adoption of a negative and defeatist view of oneself, to ambivalence about job finding, and to expressions of general impotence in the capacity to cope with the outside world. The secure residential environment—understood by a resident as a haven and interpreted by outsiders as the expression of the inhabitants' egos—may be one of the most meaningful forms of social rehabilitation available to the family and to society. The way in which community attitudes toward security and insecurity act as social causes is still to be studied. Children who live in high-rise buildings seem to have a poorly developed perception of individual privacy and little understanding of territory.

There may be evidence that the physical form of a residential environment plays a significant role in shaping the perception of children and in making them cognizant of the existence of zones of influence and, therefore, the rights of others.

It is difficult to isolate the various mechanisms which have been producing the high crime rates we are presently experiencing in our urban core areas. Some contributory causes can be assumed: the concentration of the disadvantaged in these areas; the attraction of criminals to an urban environment which is at the same time increasingly anonymous and de-creasingly self-protective; and the evolution of an urban physical form and residential environment which encourages and fosters criminal behavior. The poor are most vulnerable to crime in any setting. But in anonymous buildings which facilitate their victimization, we have the makings of a situation of crisis proportions.

No one has met these problems with conscious solutions. The poor are unable to choose alternatives. Low-middle-income populations that have not succumbed to apathy have fled. The exercise of choice in the housing market has glutted the suburbs with newly transplanted families, who at times feel cut off from the social life of their original neighborhoods, from the convenience of place of work, shopping, entertainment, and friends—but are safe. How quickly suburbs will slide into the same insecurity that plagues the city is open to speculation. For the time, suburban families have avoided the problem for themselves. The problem remains, however, and evasion has its social costs.

Some middle-class families have not fled to the outskirts, but have withdrawn into high-rise security-guarded fortresses of semiluxury. This introversion and intentional isolation inevitably occurs at the expense of adjacent surroundings. But mental and physical withdrawal from the social order and its problems has at least three dangerous attending characteristics. First is the indifference to the problem once it has been evaded. Second—and this follows on the first—is the relegation of the problem of security, the traditional responsibility of the citizenry, to formally designated authority. It is no doubt impossible to imagine a modern city without a functioning police force, although their advent is as little distant as the introduction of the "Bobbies" of London in 1840. But the function of police has traditionally been to apprehend criminals. Fear of apprehension and ensuing speedy prosecution is, of course, a deterrent to criminal behavior. But police alone can in no major way create or foster security. Society, in the persons of citizens, must adopt this function. An apathetic, detached citizenry far too often limits its participation to bitter criticism of police for not accomplishing work which rightly must be undertaken by the citizenry itself. The well-off citizen, by isolating himself in a secure fortress, by restricting his own ventures into the streets, and by demanding that authority assume all responsibility for

ensuring the safety of streets, has effectively set the stage for the defeat of his own demands. The street, without the continued presence of the citizen, will never be made to function safely for him. Without the continued presence, focused demand, and responsible overview of the citizen, the police become lackadaisical, their commitments distorted, and they fall easy prey to corruption.

The third characteristic of withdrawal from urban life is the resultant physical design of the buildings of our cities. To provide security by means of a guard or doorman requires that entry to a building complex be restricted to one location. This usually means walling off a two- to ten-acre housing complex from the surrounding neighborhood. By this action, thousands of feet of street are removed from all forms of social and visual contact. A natural mechanism providing safety to our streets has been sacrificed to insure the security of the residents of the walled-off complex.

On the other hand, it is possible to design a multi-family housing complex in which as low a number of units as possible share a common entry off the street. Designers can position units, windows, and entries, and prescribe paths of movement and areas of activity so as to provide inhabitants with continuous natural surveillance of the street and project grounds. The street comes under surveillance from the building, the building entries and lobbies under the surveillance of the street. As with the fortress, this design also provides security. But instead of relegating the responsibility to others, it is assumed by the residents in the natural flow of their everyday activities. Moreover, the building complex and the residents are integrated into the community. The complex protects the street as well as itself. The street life helps, in turn, to protect the complex. Instead of being an act of withdrawal, this design reinforces residents in their expression of concern for their own domain and for the streets and activity areas to which it is tied. In this way, residents do not achieve internal security at the expense of the surrounding area, but by insuring that the surrounding area is equally secure. Their concerns are in harmony with those of the community. This is defensible space design.

For urban residential settings, for low- and moderate-income populations in particular, defensible space design is imperative. In many cases, withdrawal is not an option open to them. Four million people live in federally subsidized low-middle-income housing. For them there is effectively no choice to exercise on the housing market. The same factionalizing of our society which is expressed in middle- and upper-class withdrawal has, moreover, infected the design and structure of their environment. The stigma of poverty and minority group membership has been stamped onto public housing. It has been made to appear as different as possible from its surroundings; it has been marked off as clearly as if by quarantine. It is not our concern here to unravel the social forces which

have influenced the architectural form and symbolism of contemporary low-income America, but to offer an alternate model of design. Because of the location of their residences, because of their social position, and because of the design of their housing, the poor are the most consistently victimized of our urban population.⁵

Even those who have fled the old neighborhoods often find they have purchased a transitory security. Thinking they left the victims behind, they have often designed themselves into a victimization which, if it has not yet arrived, is nonetheless on the way. In September 1970, a fifty-thousand-unit housing development, built privately for cooperative ownership, was completed in an outlying area of the Bronx, New York. It was occupied almost overnight, predominantly by an older middle-class population fleeing an adjacent area of the Bronx only a few miles away. Many see that their new homes and environment are inferior to the area they have abandoned. Their apartments are smaller, shopping is inconvenient and expensive, television provides most of the available enter-

FIG. 11. Aerial view of Co-op City. (Courtesy of Skyviews Survey Inc.)



FIG. 12. Map of Upper Manhattan and The Bronx, locating Co-op City, Grand Concourse, Fordham Road, and Pelham Parkway.

tainment. They have left behind them friends and institutions—a way of life.

Many of these deficiencies will be remedied as the project is completed and the area becomes more heavily populated. Yet the new residents spend little time complaining. In a sense they are pleased with the costs and faults. These are, after all, a small and necessary price to pay for what they most crave—security. They have escaped from a once-friendly environment, which had come to terrify them. Muggings, burglaries, and assaults had made life in their “old neighborhood” impossible for a generation of elders. In a random interview, almost all those questioned admitted that in their abandoned neighborhood they had long ago stopped going out in the evening. All had either experienced robberies or had close friends who had. This is no new story. What is fascinating

and fearful is the way this population chose to solve its problems. They fled *en masse* and segregated themselves within a new middle-class ghetto—an isolation of their own making, one which fits their image of the social order. In Co-op City they live among their own kind—45 percent of the adult population is over 50, 65 percent is Jewish, and the average wage earner makes between seven and ten thousand dollars a year.⁶ Once a heterogeneous, gregarious, active, and culturally involved community, the new residents of Co-op City now are segregated by income and ethnicity and only desire to breathe more easily. Those who fled to this haven would be shocked to know that the buildings and residential settings they now occupy are much less defensible than those they abandoned. The onslaught of only a small percentage of the criminals they fled is all that would be required to make their dream world evaporate.

Co-op City works now because it is far from the site of crime. But, how long before the project is recognized as vulnerable—before the criminal extends his range and mobility? The developers of Co-op City recognized that by ensuring a uniform middle-class population they could ensure a low crime rate. So long as all the families in Co-op City are exclusively white, middle-class, and elderly, the crime rate will stay down. The appearance of anyone else sends out a danger signal as obviously as an alarm bell. But already there are young families moving into Co-op City—black families, Puerto Rican families—seeking the same security and using the same means to achieve it. As the population becomes mixed, the success of this strategy will diminish.

An important principle of defensible space design is that subdivision allows residents to distinguish neighbor from intruder. In Co-op City this is accomplished not through design but by isolating a large, uniform population. Unfortunately, this is only a temporary respite for a small, privileged segment of the population. It employs statistics and segregation as weapons for keeping out those who are already the chief victims of crime—the poor. It will not work for very long, and it is repellent by virtue of the racism and prejudice it practices. It will not, in any way, contribute to the redemption of our cities.

The lesson to be learned from Co-op City is that crime control can be achieved by creating a situation in which it is possible for the potential victim to recognize in advance the potential criminal. A criminal will rarely commit a crime in a building in which he knows he will be easily recognized. Design can facilitate the process of recognition. Rather than the device of uniformity of population, such a design enables a varied and mixed population to know and control its own territory, to distinguish who (in an apparently complex and anonymous urban space) is neighbor and who intruder, and to do this at the level of the building as well as at the individual and communal level.

Subtle difficulties arise in attempting to improve the security of low-income, as compared with middle-income housing; these are mainly a function of the social characteristics of the resident populations. The social characteristics of the middle class greatly facilitate the task of providing them with a secure environment. Middle-class people have developed a refined sense of property and ownership; they have a measure of self-confidence and pride in their personal capabilities. Their everyday experiences reinforce their social competence; they can retain some control over the forces that shape their lives; and they recognize alternatives among which they can choose. These positive social controls give them a feeling of potency in protecting and enforcing their rights within a defined sphere of influence; for instance, they are well-practiced in their demand for and use of police protection.

Security design for a low-income population is very difficult. This is not only because of the economic restraints on cost and the higher concentration of criminal and victim. Daily social experience reinforces among the poor the sense of their own impotence and removes to a level of fantasy the thought of altering or improving the conditions of their lives. Closed out of the game financially, politically, educationally, and in virtually every other way, those among the poor who have not accepted the image of their own impotence are rare. In this light it may be unrealistic to expect an individual to assume positive social attitudes and influence in one sphere of his life—his family and residential environment—when he has learned clearly and consistently in the other facets of his existence that he has no such power.

Defensible space, it may be charged, is middle-class thinking. The poor have their own culture. They don't want the peaceful, secure, dull life of the middle class. They don't want property. They don't want the values middle-class society wishes to foist upon them. Violence, it is contended, is part of their culture. So, apparently, is communality. They don't want walls, whether real ones, or the ones you place in their minds by the design of space.

This romantic view of the poor is without foundation. Interviews with hundreds of low-income housing residents reveal that most hold the goals and aspirations of the middle class. The desire for security is not limited to the middle class. The desire for a living environment over which one has personal control is part and parcel of the desire for a life which one controls. The creation of communities able to keep themselves free of crime—and to keep their members from becoming criminals—is the task of every society. Anonymous, stigmatized high-rise projects are neither the work of nature, nor the free choice of their inhabitants. They do, however, prove to be important contributors to crime. If it is "middle class" to wish to escape this fate, then the overwhelming majority of

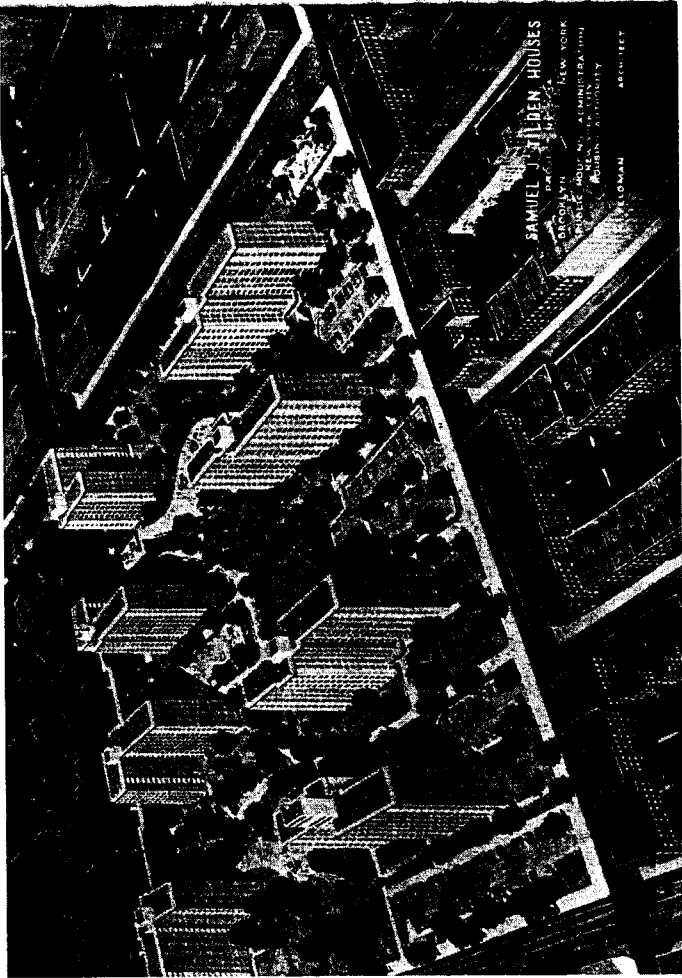


FIG. 13. Aerial Perspective of Tilden Houses in Brooklyn, New York. (Courtesy of New York City Housing Authority)

lower-class people hold middle-class goals and aspirations which are very dear to them.

NOTES

1. The total number of crimes reported in the first nine months of 1971, as compared with the same period in 1970, indicates that crime rose nearly three times as fast in suburban areas as in cities with populations over one million—11 percent as compared with 4 percent. Overall, crime in the suburbs rose nearly twice as fast as in the nation as a whole (*Uniform Crime Report*, Federal Bureau of Investigation, as reported in the *New York Times*, 30 January, 1972, p. 1).
2. *New York City Criminal Justice Coordinating Council Report* (New York, 1971), p. 34.
3. *To Establish Justice, to Insure Domestic Tranquility: Final Report of the National Commission on the Causes & Prevention of Violence* (New York: Bantam Books, 1970), pp. 20-21.

4. Lee Rainwater, "Fear and the House-as-Haven in the Lower Class," *AJP Journal* 32 (January 1966):23.

5. *To Establish Justice*, p. 24.

6. Jane Krause, "Co-op City: Beauty or the Beast?" (Paper, New York University Graduate School of Public Administration, January 1972 [from an interview with Don Phillips, quoting in-house publication, "Projection Completion," of the Office of Cooperative Education, Co-op City, Bronx, N.Y., December 16, 1971]).

fession as a "double-loaded corridor." The elevator bank is located at the center of this corridor.

To furnish sufficient exits in fire emergencies, two, and occasionally four sets of emergency stairwells are provided, running the full height of the building. Sometimes two sets of stairs are grouped together behind the elevators in what is called a scissors-stair configuration; at other times the emergency stairs are located at the ends of the corridors. (Location requirements are determined by local building codes.) Every set of stairs requires its own exit at the ground level. One or two exits may be allowed to be located within the lobby. A high-rise tower, depending on its size, will have from one to four exits in addition to the main entry.

What has just been described will no doubt be seen as a common enough phenomenon, well within the experience of most urbanites. The only difference between a low-income and a high-income development is the presence of fences and guards in the upper-income project, or a doorman provided for each of its buildings. These slight but expensive additions, however, are what make the one a workable habitat and the other not. The same urban high-rise residential developments for low- and

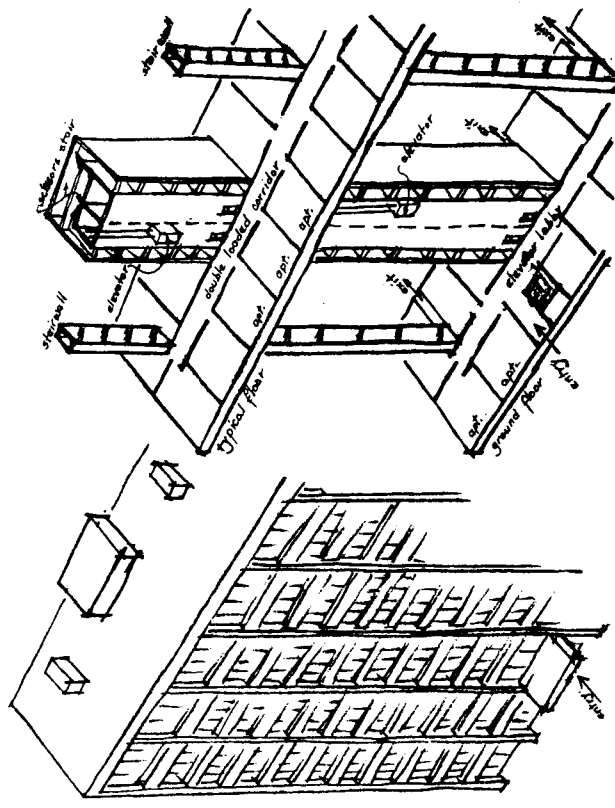


FIG. 14. Typical Double-Loaded Corridor Apartment Building. The view at left is of an apartment building as it is typically seen. At right the building is seen in an x-ray view to illustrate how the horizontal and vertical circulation elements are disposed.

2 THE PROBLEM

Before embarking on a detailed discussion of how the various characteristics of building design and project layout combine to produce a defensible space environment, it would be useful to examine the general design characteristics of typical housing projects suffering high crime rates. There are five or six physical characteristics that reinforce criminal behavior, and these occur both in developments built for low- and middle-income occupancy. The projects are usually very large, accommodating over a thousand families, and consist of high-rise apartment towers over seven stories in height. The sites are usually an assembly of what was previously four to six separate city blocks, amalgamated into one giant superblock, closed to city traffic. The buildings are positioned on the site in a rather free compositional fashion. The grounds are designed as one continuous space, moving freely among the buildings and open to the surrounding streets. In the detailed site design, there is seldom any attempt at differentiating the grounds so as to make portions relate to a particular building or cluster of buildings.

The buildings themselves are commonly slab or cruciform towers, housing from 150 to 500 families. They are generally designed with a single lobby which faces onto the interior grounds of the development. The lobby itself contains a mailbox area and a waiting space for a bank of two to four elevators. A typical floor consists of a long central corridor with apartments lining both sides, which is designated in the building pro-

middle-income families, devoid of the doormen, guards, and resident superintendents, become pastures for criminals.

The following pages explain just how each of these common physical characteristics facilitates the victimization of the development's inhabitants. While many of these architectural forms were produced in response to economic dictates, many others are the unfortunate by-products of well-intentioned architectural and planning philosophy.

Middle- and upper-income families who choose to live in high-rise buildings in cities, rather than in single family suburban houses, are able to compensate in a variety of ways not open to the poor, they get away for vacations, send the kids to camp or recreation clubs, and take off by subway or car to the large regional parks serving the city. Most of these options are simply beyond the means of low-income families. Knowledgeable planners and architects, aware of the needs but limited resources of low-income children, and inheriting the decision of the urban renewal and housing agencies to build housing at high densities, find they have two choices open to them: to build walk-up apartments so densely packed together as to have limited land left free of building; or to build high-rise elevator apartment buildings and thereby free a large portion of the project grounds for the required open space and recreation. The second alternate has always been seen as holding more promise. To most planners, recreation and open space are still reckoned in terms of the square footage of available grounds. This notion, coupled with the inherited imagery of the model for the future ideal city pictured by Le Corbusier in his *Ville Radieuse*, and mastered in architectural school, inevitably produce a decision in favor of the high-rise in an open setting.

It was difficult, of course, for the well-intentioned planners to predict that the grounds and recreation space they provided would seldom see use; that the towers they built to create open space would prove too dangerous to send children through alone; that the gap separating apartment from playground would never be bridged.

Another pet concept of the planner was to contribute to the undoing of these housing developments: the notion of the automobile-free superblock. Whenever a site consisting of four to six blocks of existing urban fabric was assembled, it was taken for granted that in the new plan the intervening streets would be closed off. The closing of streets produces more ground which can then be used in the calculation of density and so produces more housing units for a particular site—and more open space. This thinking is erroneous on three accounts.

Firstly, as the plan will be built at the same density regardless of the size of the site, there will be no net increase in open space resulting from street closing. Secondly, had the streets not been closed, the amount of building which could have been accommodated on the site would have been appreciably less, and the streets would still have been there to pro-

vide space and light between buildings—and a very useful form of recreation space for all age groups. Lastly, and most significantly, streets provide security in the form of prominent paths for concentrated pedestrian and vehicular movement; windows and doorways, when facing streets, extend the zone of residents' territorial commitments and allow for the continual casual surveillance by police in passing cars. Jane Jacobs in her *Death and Life of Great American Cities* contends that the surveillance provided by the casual passerby on foot or in a car is important as a deterrent to criminal activity.

Streets also provide security according to the positioning of a building's entry lobby relative to the street. In large superblock housing projects, the interior grounds are usually left open and are freely accessible from the street. More often than not, the planners face the lobby entries of buildings onto the interior grounds. An inhabitant returning home must leave the public street and wind his way through the undefined and anonymous grounds of the project to reach the front door of his building. He would have been much safer had been able to go directly from street to front door, and safer still if the front door and lobby of his building faced directly onto the street. When lobby crime and elevator muggings in housing projects whose building entries face the street were compared with those whose building entries face the interior grounds, the differences were found to be significant.

In apartment towers, the forced disassociation of the life in the apartments from the play and recreation activity areas of the project grounds below, is a further contributory to the anonymity and potential danger of these spaces. Their lack of security results eventually in total nonuse and accompanying withdrawal, all of which serves to make them more dangerous still.

It is the apartment tower itself, however, that is the real and final villain of the piece. It is inconceivable that one genius alone could have been responsible for its creation. High-rise, elevator-serviced, double-loaded corridor apartment buildings for the use of low- and middle-income families have proven disastrous. Their provision in many cases is the result of a set of circumstances now common to most inner city developments: land costs driven up by land speculation; zoning increased by city planning departments so as to provide more housing; pressed housing officials; harried Federal mortgage financiers; and indifferent architects. No one person would have dared so much. The evolution of this building prototype could only have been conceived by a group of anxious men following the barest thread of rationalism: the search for the most economical solution; a way of housing the most within the least.

The high-rise apartment tower is primarily a by-product of the need to build at higher densities to justify inflated land costs. Where, at under sixty units to the acre, a variety of building prototypes are still available

for use by a housing designer, once seventy-five units per acre is reached, the high-rise slab becomes about the only option open. Crime rate has been found to increase almost proportionately with building height, as illustrated by figure 15.

Project size has also been found to affect crime rate. If the two variables of building heights and project size are coupled, the probability of crime increases to the extent that it is possible to guarantee a higher crime rate in virtually all projects of excessive height and size. In New York City, 95 percent of the Housing Authority's projects greater than six stories in height and larger than a thousand units in size have higher crime rates per thousand population than those which are both smaller and lower.

In a high-rise, double-loaded corridor apartment tower, the only defensible space is the interior of the apartment itself; everything else is a "no-man's-land," neither public nor private. The lobby, stairs, elevators, and corridors are open and accessible to everyone. But unlike the well-peopled and continually surveyed public streets, these interior areas are sparsely used and impossible to survey; they become a nether world of fear and crime.

The investigation of the relationship between building height and crime was begun with the basic hypothesis that a positive correlation exists between the two; that as building height increases, so does crime. Recognizing the fact that height alone was not the reason for such a connection, we took into account the various other factors that usually attend high buildings: a larger number of apartment units and people using a single lobby, entry, and elevators, with resulting anonymity; more interior public space hidden from view and so on.

From the computer tapes of the New York City Housing Authority Police, the 1969 crime records for 100 projects were examined. These projects were selected to meet the following criteria: (1) buildings throughout an individual project had to be of uniform building type, and (2) the project had to be seen as a separate entity from the surrounding community. Projects were divided into two groups, those with buildings six stories or less, and those with buildings seven stories or greater. In addition, these projects were divided by size, those under 1000 units and those greater than 1000 units. Population can be substituted for units to indicate project size. An examination of data revealed a linear correlation between the two, allowing such interchangeability. The crime rate for a project was found by taking the total number of felonies, misdemeanors, and offenses occurring in 1969 and dividing it by the project population. An analysis of variance was performed on the subsequent data, and the results are shown in table 1.

FIG. 15. Felony rate by building height, with population, project, and neighborhood characteristics. Based on New York City Housing Authority Police data for 1969.

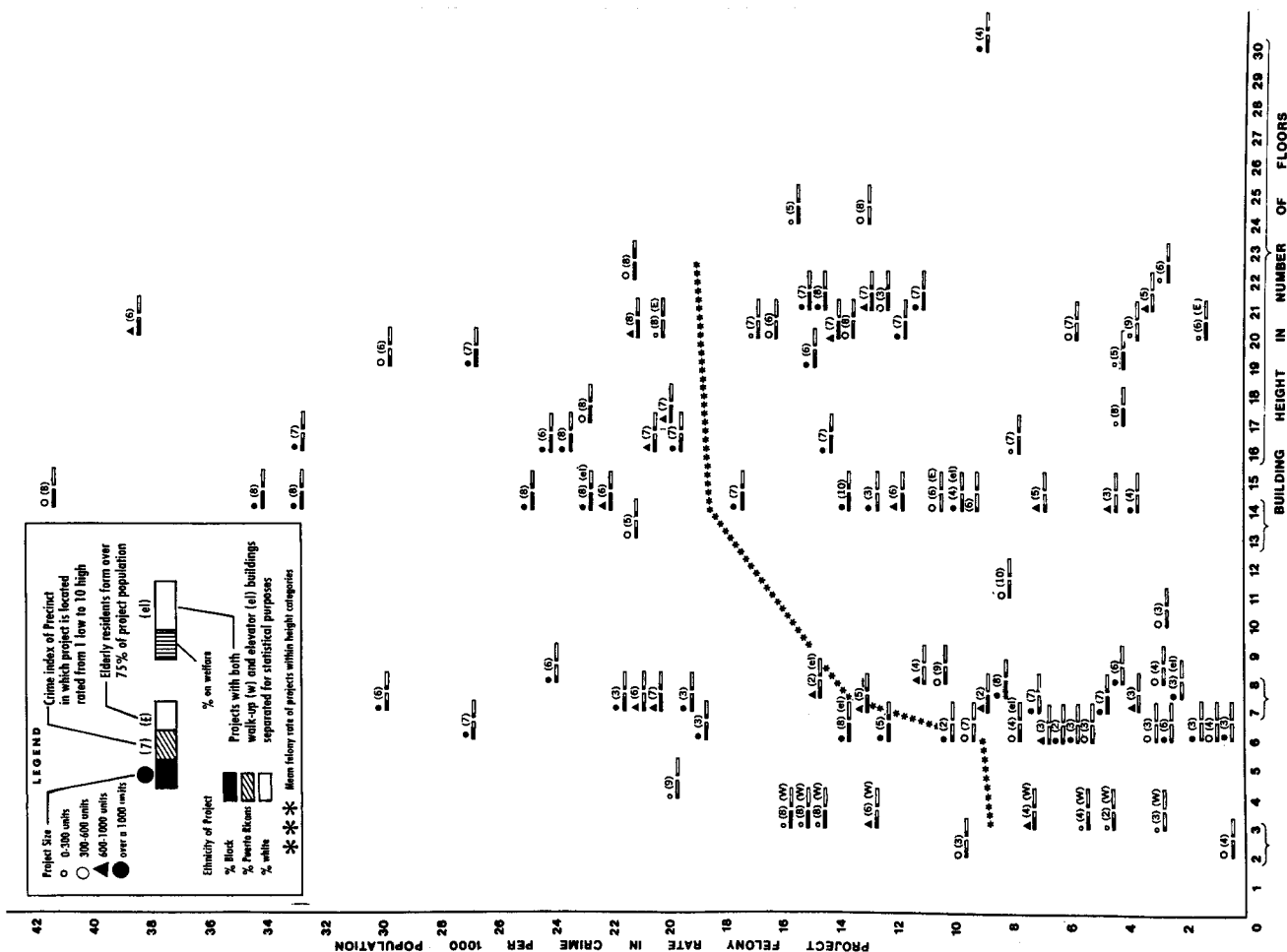


TABLE 1
Project Size and Building Height versus Crime

BUILDING HEIGHT			
	<i>Equal to or Less Than 6 Stories</i>	<i>Greater Than 6 Stories</i>	
Project Size	Equal to or Less Than 1000 Units	$\left\{ \begin{array}{l} N = 8 \\ M = 47 \\ SD = 25 \end{array} \right.$	$\left\{ \begin{array}{l} N = 47 \\ M = 51 \\ SD = 23 \end{array} \right.$
	Greater Than 1000 Units	$\left\{ \begin{array}{l} N = 11 \\ M = 45 \\ SD = 26 \end{array} \right.$	$\left\{ \begin{array}{l} N = 34 \\ M = 67 \\ SD = 24 \end{array} \right.$

NOTE: N = number of cases; M = mean number of crimes per thousand; SD = standard deviation

The apparent effect of building height on crime is quite evident. In both project size categories, the mean or average crime rate jumps significantly when one compares low buildings with higher buildings. But what is most interesting is the fact that in buildings of six stories or less, the project size or total number of units does not really make much difference. In fact, projects of 1000 units, but under six stories in height, have a lower crime rate than smaller-sized projects of similar height. In terms of our hypothesis, larger projects encourage crime by fostering feelings of anonymity, isolation, irresponsibility, lack of identity with surroundings, etc. Our evidence indicates that low buildings seem to offset what one may assume to be a factor conducive to high crime rates. In the higher buildings, a significant increase in average crime rate is seen when one compares the smaller-size project category with the larger. The fact that projects greater than 1000 units, with buildings of seven or more stories, have the highest rate, indicates that it is not large size alone, but large size in combination with higher buildings that contributes to a more criminally active situation. It seems that one can still maintain high density (size) and not encounter higher crime rates, as long as building height remains low.

Total felonies were compiled for all qualifying projects over a period of one year, including those exterior crimes that occurred near a building as well as interior building crimes. When this data, in the form of a ratio of crimes (felonies) per thousand population, was arranged in five

building-height categories and examined, a dramatic increase occurred: from a mean of 8.8 for three-story buildings, the rate rose to 20.2 for buildings sixteen stories and over. The reason the rate of increase appears to level off in buildings over thirteen stories in height is that burglaries of apartments occur most frequently in ground-floor apartments, (four times as often) and in top-floor apartments (two times as often). The higher the building, the proportionally fewer ground-floor and top-floor apartments, and hence fewer burglaries per apartment occur. Another factor that might explain the apparent leveling off is the unwillingness of criminals to repeatedly "hit" the same building (see figure 15).

Robbery (muggings) occurring in interior public spaces (elevator, hallway, and stairs) was investigated, and once again this data was examined by building height (see figure 16). From a rate of 2.6 per 1000 people for six-story buildings, crime rose to a high of 11.5 per 1000 people for buildings with nineteen or more floors.

The relationship of height to crime was also analyzed in terms of location, that is what percentage of a project's crime occurs in the interior public spaces, as opposed to the grounds and apartments. The results strongly supported the crime rate data. High-rise projects not only experience a higher rate of crime within the buildings, but a greater proportion of the crime occurs in the interior public spaces of these buildings as compared with lower buildings. Table 2, Location of Crime—All Projects, was compiled from the 1969 data of the New York City Housing Authority Police. This data encompasses 150,000 units of public housing in the five boroughs of New York. For our purposes, it constitutes a dossier on the nature and location of crime in housing projects.

Unlike other police departments, the New York City Housing Authority Police keep records localizing the place of occurrence of a crime committed within a project. Crimes ranging from serious felonies to minor misdemeanors are all recorded, and complaints are noted, even when they have not led to apprehensions or arrests. Police reports also separate

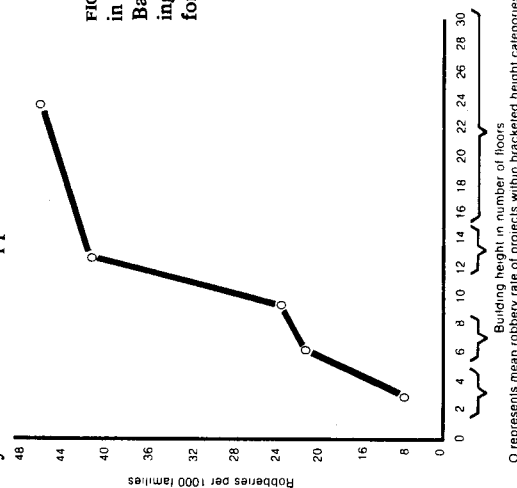


FIG. 16. Frequency of robberies in buildings of different heights. Based on New York City Housing Authority Police statistics for 1969.

O represents mean robbery rate of projects within bracketed height categories

Location of Crime—All Projects*

TABLE 2

General Space Category	Exact Location	Total Crime	Total FMO's†	Total Felonies	Bur- glary	Mur- der	Rape	Rob- bery	Lin- gering	Mailbox (all incl.)	Mischief (all incl.)	Drugs Malicious	
Interior Private Space	Apartment	21680	5692	2321	54	2087	7	16	62	29	22	195	2561
Interior Public Space	Lobby	9746	4103	682	18	7		591	3321	2267	207	828	
	Elevator	5451	2165	1549	10	1		13	1490	58		12	537
	Stairway	4572	2129	347	14		1	14	286	1460	1	230	1568
	Hallway	7379	2419	817	40	3	1	5	718	1720	6	185	1263
	Roof and Landing	1395	396	72	3	3		39	7	446	3	210	143
	Other Inside	3894	1351	319	14	197	2	73	309		4	80	777
	Subtotal	32437	12563	3786	99	211	2	73	3165	7314	2281	924	5116
	Social Facility	1639	610	227	2	213		3	32		1	5	271
Non-Tenant Space	Commercial Facility	285	144	55		38		15		11	1	1	41
	Subtotal	1924	754	282	21	251		18	43		2	6	

Exterior Project Space	Project Grounds	15031	4649	1990	107	3	2	8	1419	719	7	660	432
Exterior Nonproject Space	Contiguous to Project	763	358	229	11		1		175	4		67	3
	Off-Project and Other	24	7	3		2			1	1	1	1	
	Subtotal	787	365	232	11	2	1		176	5		68	4
	Total	71859	24023	8611	273	2554	12	97	4840	8110	2312	1853	8425

* All incidents reported to NYCHA Police in 1969, excluding intrahousehold incidents.
† Felonies, misdemeanors, and offenses.

crimes committed on project grounds from those committed inside buildings and within apartments proper. Because place of occurrence is significant information to the Housing Authority, we have been able to learn where the recurring danger areas in housing projects and buildings are, and to measure the extent to which physical design is a statistically significant contributing factor in the frequency of occurrences.

Perhaps the most revealing fact is that of all recorded crime taking place in housing projects, 79 percent occurs within the buildings proper. This includes nearly all categories of serious crime: robbery (muggings), burglary, larceny, rape, and felonious assault and leads to the inevitable conclusion that the buildings themselves, rather than the project grounds, are the most unsafe areas. It follows, too, that a criminal probably perceives that the interior public areas of buildings are where his victims are most vulnerable, and where the possibility of his being seen or apprehended is minimal. Statistics on apprehension reveal that proportionally more than twice as many criminals are caught committing crimes on project grounds than are caught committing crimes within buildings (see table 3).

TABLE 3
Apprehension by Location

Robbery	Percent Apprehended Same Day
Apartment	3.2
Lobby	5.8
Elevator	1.9
Stairway	2.4
Hall	3.6
Grounds	7.6
	3.4 Percent Average

Much of the free-wheeling accessibility to the interior areas of public housing may be the result of the Federal policy that states that projects, by law and tradition, are open to all members of the urban community. The interior of project buildings and grounds suffer the unique distinction of being public in nature and yet hidden from public view. Consequently, they are unable to benefit from the continual surveillance to which the public areas of our cities are normally subject (see figure 17). The numbers in figure 17 and table 2 further reinforce this conclusion.

Three-story buildings have limited interior public spaces com-

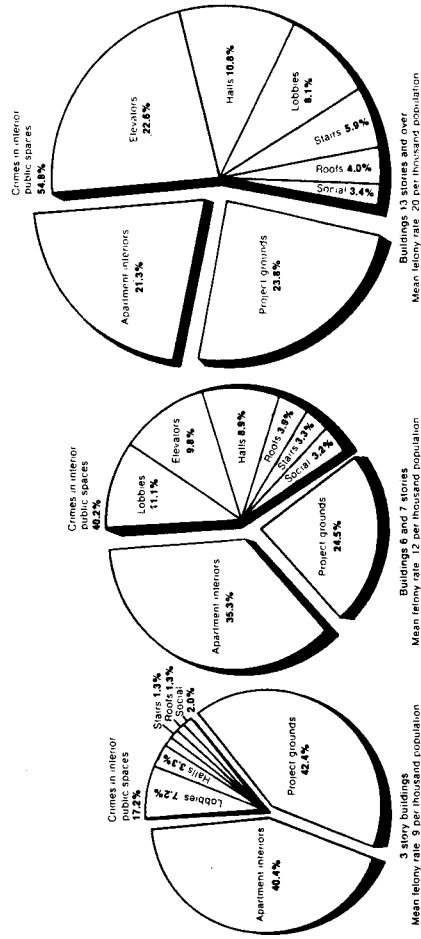


FIG. 17. Place of Occurrence of Crimes in Buildings of Different Heights. Based on New York City Housing Authority Police 1969 data (felonies).

pared with six- and seven-story buildings and buildings thirteen stories and over. Note that in the pie chart for the highest category of buildings almost 55 percent of the project crime takes place in these interior common spaces. This diminishes to 40 percent for six- and seven-story buildings, and to 17 percent for the three-story walk-ups. Muggings form 95 percent of crimes committed in the interior public areas where burglaries form 90 percent of apartment interior crime. Note that not only does the area of location change, but the total number of felonies in each category goes from nine per thousand in three-story buildings to twenty per thousand in buildings thirteen stories and over.

The specific area within a high-rise building that is most vulnerable—the elevator—is a prime example of an area lacking surveillance. Thirty-one percent of all robberies (muggings) in all housing projects occur within elevators. The victim may then be moved at the threat of force to the apartment, or in the case of rape, to the sealed-off fire stairs or roof landings, where traffic and observation are rare (see table 2).

Evidence indicates that those spaces which people must use on a continuing basis to get from the public area outside the project to the safety of the interior of the apartment are particularly dangerous if screened from natural observation and from formal patrol. In this light, the elevator is a space public in nature but totally screened from all

observation. For the interval of the ride, it provides the optimum situation for a criminal and is so understood by the tenants.

Entrance lobbies are not much safer and account for 12 percent of all robberies. This is very often the result of the peculiar design convolutions of the lobby layout. The elevator bank is usually required to be located at the center of the corridor of the typical apartment floor. In answering this requirement, architects sometimes have difficulty resolving the positioning of elevators at the ground level. It is not uncommon for them to produce circuitous passageways and hidden double turns in linking up the entry-lobby to the elevators. These configurations produce screened-off elevator waiting areas and mailbox positions hidden from direct street view. As previously mentioned, the limited visibility of lobby entrances has been found to contribute to high crime rates.

There is still another problem area worth singling out for special discussion: the fire stairs and secondary exits. Because of the multitude of fire stairs required in servicing large, double-loaded corridors, and because the fire code requires they be designed as vertical concrete boxes with little or no windows, they are continually used by criminals as places to waylay or bring victims. More importantly (and this is not a phenomenon which appears in the statistics) the profusion of fire stairs and exits, plus the difficulty of keeping activities within them under surveillance, makes pursuit of a criminal next to impossible. There are so many potential evasion routes open, and so many different possible exits, that it would take a contingent of policemen to apprehend a criminal, even if they knew for sure that he was within a particular building. More important than apprehension, however, is the fact that a criminal casing a scene will perceive at a glance the number of escape options open to him and realize his risks are minimal. A building, through its basic design, can make evident to criminals either that they will be seen everywhere they go and have only one avenue of escape, or, as in the case of the double-loaded corridor, high-rise, elevator building that they will be out of sight continually and have a virtual maze in which to hide and escape. Most public housing projects built in the fifties are identical to the physical format already described, with a few additional aggregates to provide a final *coup de grace*. They are totally devoid of any embellishments or amenities which might give the buildings or site a sense of scale or humanity, and they are located in the highest crime areas of our cities.

The distinctive form of high-rise, publicly assisted housing is immediately recognizable. The barren, red-brick towers stand out as prominent landmarks in all our cities—well-built monuments to a halfhearted attempt at benevolence. It would be unjust, however, to suggest that the politicians, bureaucrats, planners, and architects responsible for these projects were callous or maliciously motivated. The end result of their efforts may now appear inadequate and irrational, but they were well-

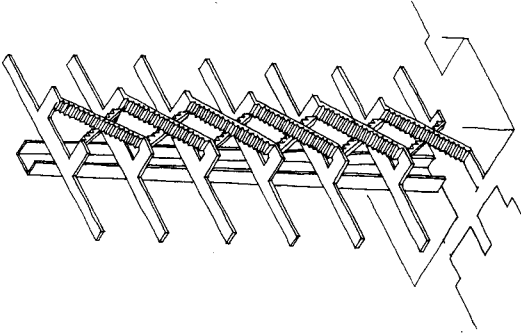


FIG. 18. Exploded view showing function and location of "scissors fire stairwell"

The physical arrangement of the scissors stairway is rather complex: two separate landings, accessible from the hallway, are located in the same position on every floor of a building. Each landing is joined by straight-run stairs to the "opposite" landings on the floors just above and just below, such that access to the next higher or lower floor is possible via either of the two landings on a floor. The total pattern is such that adjacent floors are connected by two straight-run stairs which form a criss-cross or "x" pattern (hence the name scissors stairs).

Each of the two landings on a floor forms a part of one of the separated stair systems that comprise a total scissors stair. The circulation pattern in a scissors stair might be described as that of two "squared" spiral stairways, intertwined around one another but not connected to each other. Two persons can enter the two landings on a floor at the same time and descend the stair system at the same rate, without seeing or hearing each other: there is a fire wall between each. Each pair of "criss-cross" stairs, and the two landings at each floor are unconnected, and one must leave the stairway and walk along the hall to reach the other landing.

Unfortunately, the process of development, from a project's inception to its completion, involves a series of low-level, compartmentalized decisions which may each represent the best solution to a particularized problem, but together produce a very banal and bleak reality.

The location of low-income housing projects does not help appreciably. The Report of the President's Commission on Law Enforcement and Administration of Justice, 1968, in attempting to understand the nature of the current crime problem, was able to isolate the prevalence of crime and found it to be concentrated in inner city areas.

Of 2,780,015 offenses known to the police in 1965—these were index crimes—some two million occurred in cities, more than half a million occurred in suburbs, and about 170,000 occurred in rural areas.¹

back to town. The successes of urban renewal, seen twenty years later, are modest indeed. However, the testing of the notion required a commitment to the grand-scale destruction of low-income tenements in every major American city.

Our purpose is not to discuss the merits or faults of the Federal Urban Renewal Program, but only to recognize its contribution to our heritage of large, high-rise, low-income housing projects. The destruction of densely occupied, semideteriorated urban ghettos to create cleared land for new business and middle-income housing, in turn, created the need for replacement housing for the poor. The question was where to put this housing? The middle-class communities in other areas of the cities would have none of it. Beyond the occasional availability of peripheral urban sites adjacent to and previously zoned for industry, the only other large-scale land available was the cleared urban renewal land itself, deep in the inner city. However, embarking on a program of filling up this land with new housing to replace what was being torn down to create new land for commerce would not have been too sensible. It was then realized that if the new, low-income housing was built at five to ten times the density of the old, the poor could be housed on small, out-of-the-way, portions of the cleared land, usually at the periphery of remaining ghettos.

The fact that large, low-income families had never been placed in high-rise elevator buildings before, in this or any other country, did not deter the solution seekers. For one thing, there was evidence of some middle-income families successfully living in high-rise buildings. For another, placing federally sponsored housing of high density on urban renewal land insured that a higher price per acre could be paid by a city's housing agency to a city's urban renewal agency. This would show as an important plus in the accounting ledger of the renewal agency which, meanwhile, was finding that the rest of its newly freed land was not selling too well. These accounting procedures were, of course, the flimsiest of self-deceptions—an instance only of one agency of government charging another agency of government high prices so as to show a paper profit.

Current renewal and housing programs are claimed to be more enlightened. The Model Cities Program was heralded as a federal effort that would give more community input and guidance to renewal. It was intended to provide additional funds for allied social programs that would supplement old deficiencies. There is little to look at in what is being accomplished that gives much evidence of this. New federal housing programs, Turnkey, 235, 236, and state financing efforts, were all intended to replace or expand on public housing and 221D3 efforts. Their major accomplishment, however, has been the reorganization of financing procedures. Despite the HUD guidelines, new financial and organizational opportunities, the old design mistakes continue to be built. The excuse that no other options are available is still accepted. Even some of the inspired low-middle-income

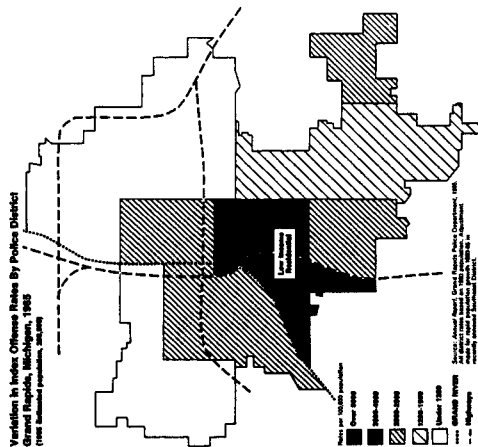


FIG. 19. Variation in index offense rates by police district in Grand Rapids, Michigan, 1965. (Courtesy of U.S. Government Printing Office)

Crime rates in American cities tend to be highest in the city center and decrease in relationship to the distance from the center. This typical distribution of crime rates is found even in medium sized cities such as the city of Grand Rapids, Michigan.²

Too often public housing is seen as housing of last resort. It is the result of a Federal program which came into full flower in the fifties and which committed the government to the responsibility of providing adequate housing for the poor and the aged who could not afford it. That we should have donned this mantle of responsibility thirty to a hundred years after other Western countries is only a small additional testament to our late blooming as a welfare state. In many respects, the decision to house the poor and the old together in large public housing ghettos followed naturally. For one thing, no middle-class community really wanted the poor around. A housing program committed to the use of many, small, in-fill sites located in middle-class neighborhoods was, and still is, unthinkable. Large sites at the periphery of existing urban ghettos were the only solution in the past and are likely to remain the only solution.

To a significant degree, the large numbers to be housed were the by-product of another form of belated Federal enlightenment—the Urban Renewal Program. In many of our older cities this last-ditch effort to save commercial investment in the urban core from its dispersal into suburbia required the large-scale clearance of slums bordering the central business districts. The hope was to coax new business and middle-class housing

housing programs are proving failures because they bring people together in environments which do not allow them to exercise their proprietary inclinations and concerns.

In the following pages, a comparison is made of two housing projects which are identical in every respect except the physical. One has three times the robbery rate of the other. This comparison will serve to give the reader an overview not only of how physical design characteristics operate independently, but of how they combine to produce a safe or unsafe environment.

There are many factors contributing to crime rates in housing projects other than the physical characteristics of the buildings and the nature of their grouping. Housing developments are often located in high crime precincts, and New York City Housing Authority Police statistics indicate that a housing development's crime rate usually reflects the crime rate of the surrounding community. Similarly, but for very different reasons, the greater the percentage of elderly in a project, and the greater the percentage of teen-agers, the greater the crime rate. The elderly tend to be easily victimized and so suffer a greater number of crimes than members of middle-aged families.³ As long as records on crime rates have been kept, they have shown that the ages between twelve and twenty are the most prone to crime. Projects with more teen-agers therefore tend to have more crime.

In attempting to isolate the significance of physical design alone in affecting crime rate, it is necessary to take into account the effect of these other factors and endeavor to weigh them out. There are various statistical techniques available for doing this. Analysis of Variance and Multiple Regression Analysis are two techniques which have been employed and

are discussed at length in Appendix B. Still another method, Comparison of Coupled Projects, was commonly used in our study and of all three; it is perhaps the one most graphically comprehensible.

Statistical comparison of coupled projects involves finding two housing projects in which all the variables which could affect the crime rate are identical, except for the projects' physical design characteristics. For a start, both projects have to be located within the same crime-rated area. Similarly, the percentage of teen-agers and elderly persons living in the two projects should not vary significantly. For true comparison to be made, a list must be compiled of all factors which are known to affect crime rate, along with those factors which many believe should affect crime rate. Comparisons must be made of the ages of tenants, their incomes, the number of years living in the project, the number of broken families or families without a male head of house, the number of families on welfare, the percentage white, black, Puerto Rican and so on. It was important that two additional physical characteristics, other than location, be kept identical: the project size (number of acres) and the housing density (number of persons per acre). It was considered likely that these last two variables might have an important contributing effect on a project's crime rate.

Coupled projects meeting all of the necessary characteristics proved scarce and difficult to locate, but a few were found. As an example of the method employed in making comparisons and as an illustration of significant findings, the Brownsville and Van Dyke projects in New York City will be discussed and explored in detail.

• A Tale of Two Projects

Brownsville and Van Dyke are strikingly different in physical design, while housing comparatively identical populations in size and social characteristics. The high-rise towers at Van Dyke are almost totally devoid of defensible space qualities, while the buildings at Brownsville are comparatively well-endowed with such qualities. It should be mentioned, even before beginning the comparison, the Brownsville, the better of the two projects, is still far away from answering all defensible space design directives.

Review of the objective data on the physical characteristics of the two projects reveals many striking parallels. The projects are almost identical in size, each housing approximately 6,000 persons, and are designed at exactly the same density: 288 persons per acre. Major differences arise in the composition of buildings and the percentage of ground-level space they occupy. Brownsville buildings cover 23 percent of the available land, whereas Van Dyke buildings cover only 16.6 percent of the total land

FIG. 20. Comparison of Van Dyke Houses and Brownsville Houses. Van Dyke Houses (left) and Brownsville Houses (right) are located across the street from one another in the Brownsville section of Brooklyn. Both projects are almost identical in overall size, density, and population characteristics. (Photo by author)



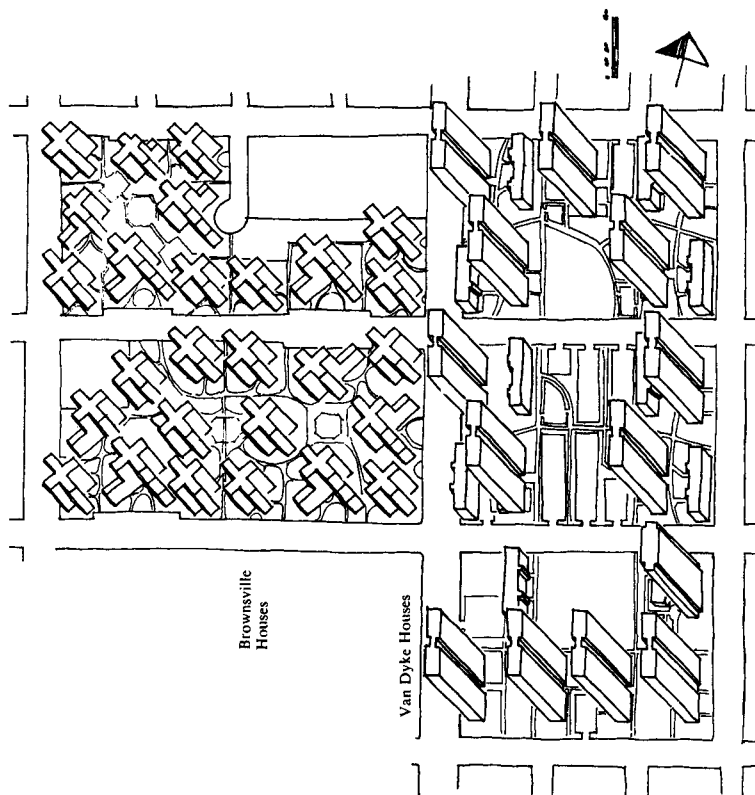


FIG. 21. Site plan of Brownsville and Van Dyke Houses

area—including nine, three-story buildings which occupy a large percentage of space but house only 24 percent of the total project population. In addition, the two projects differ in design (see figure 21) in that Brownsville is comprised of low, walk-up and elevator buildings, three to six stories, while the latter is comprised of a mix of three-story buildings and fourteen-story high-rise slabs (87 percent of the apartment units at Van Dyke are located in the high-rise slabs). The two projects are located across the street from one another and share the same Housing Authority police and New York City police services.

Differences in physical design of the Brownsville and Van Dyke projects are apparent even to the casual observer. Van Dyke Houses has the appearance of a large, monolithic project. The most dominant buildings are the thirteen, fourteen-story slabs. In less evidence are the nine, three-story structures. Each of the buildings at Van Dyke sits independently on the site, with large open spaces separating it from its neighbors. At the center of the project is a single, large open area, used for a Parks

FIG. 22. Central Grounds of Van Dyke Houses. The buildings were intentionally designed tall so as to free the grounds for recreation, but the grounds go unused because they are anonymous and too distant to allow supervision from the typical apartment. (Photo by author)

FIG. 23. Entrance to Van Dyke Houses. Entrance to fourteen-story buildings is dissociated from the street, making casual surveillance by autos, pedestrians, and police impossible. Lobby areas are considered dangerous by residents, especially at night. (Photo by author)

Department playground and for automobile parking. By means of its design, this large open area has been distinctly separated from and is unrelated to the surrounding buildings.

None of the buildings at Van Dyke may be entered directly from the public street. Entrance requires that tenants leave the public street and walk onto project paths that wind into internal project areas, blind to street surveillance. The only areas of the project grounds which relate somewhat to buildings are the small seating areas in the channel of space between the double row of buildings. The functional entrance to the high-rise buildings is a small door shared by 112 to 136 families. This door is located directly off the project paths, with no gradation or distinction indicated by the design of the grounds in front of the building lobby.

Two low-speed elevators carry families to their living floors in each of the high-rise buildings. Elevators are placed directly opposite the build-

ing entrances, as mandated by the Housing Authority, to improve surveillance from the outside. Full benefit is not derived from this arrangement, however, since entrances face the interior of the project rather than the street.

The housing floors of the high-rise buildings are each occupied by eight families. The elevator stops in the middle of the corridor, and the apartment units are reached by walking left or right down a dead-end corridor with apartments positioned on both sides (a double-loaded corridor).

In contrast, Brownsville Houses presents the appearance of being a smaller project, due to the disposition of units in smaller and more diverse clusters of buildings. It might be said that the buildings and the way in which they were placed on the site has been used to divide the project into smaller, more manageable zones. The ground areas have been humanized through their relationship with the individual residential buildings. Activities that take place in small project spaces adjoining buildings have become the business of the neighboring residents, who assume a leading role in monitoring them.

All residents and police who have been interviewed at Brownsville perceive the project as smaller and more stable than Van Dyke. All intruders, including police and interviewers, feel more cautious about invading the privacy of residents at Brownsville. By contrast, their attitude toward the invasion of the interior corridors at Van Dyke is callous and indifferent.

This emphasis on space division carries over into the design of the building interiors of Brownsville Houses. Individual buildings are three- and six-story structures with six families sharing a floor. The floor is

FIG. 24. Brownsville Houses. Oblique view shows dense coverage and subdivision of grounds into areas defined by and associated with buildings. Each wing of the six-story buildings contains three apartments on a floor clustered around a common vestibule. (Photo by author)

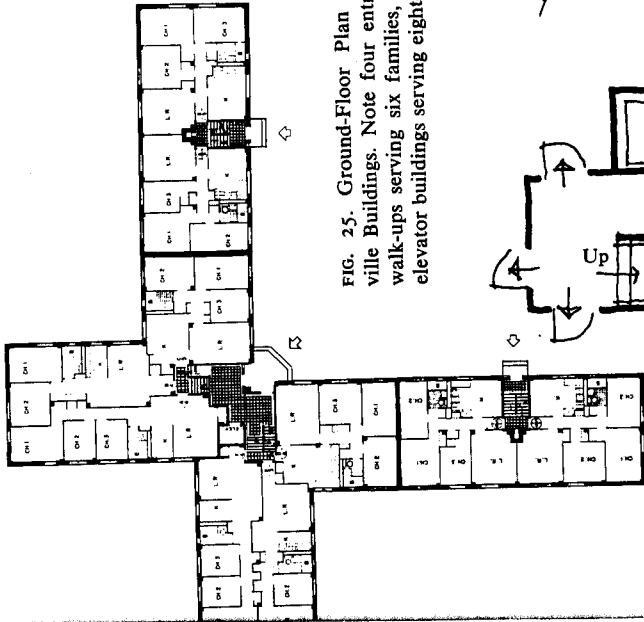
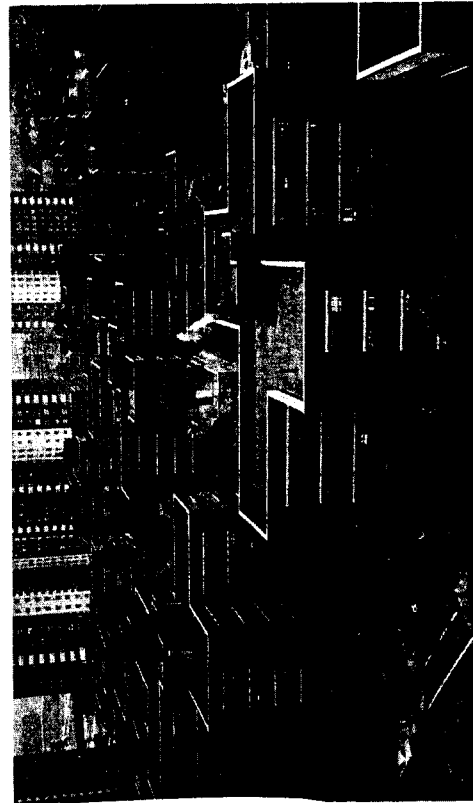


FIG. 25. Ground-Floor Plan of Brownsville Buildings. Note four entries—two to walk-ups serving six families, and two to elevator buildings serving eighteen families.

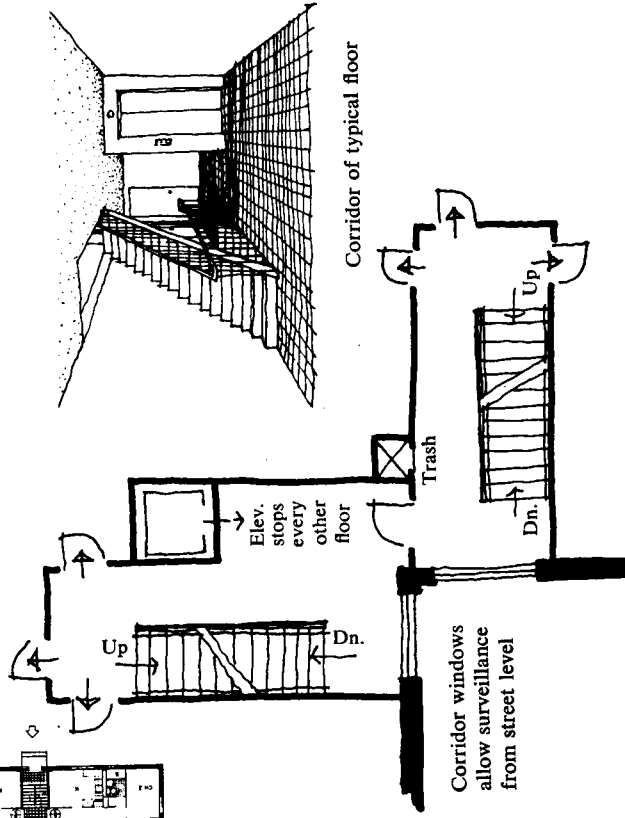


FIG. 26. View of Interior Corridor of Brownsville Houses. Corridor plans show clustering of apartment entries around open stairwells.

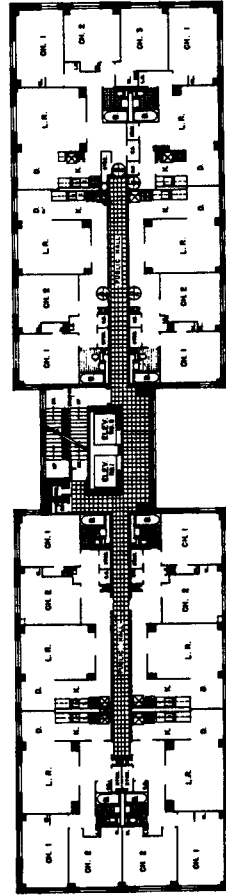


FIG. 27. Floor Plan of Van Dyke Houses. Floor plan shows the location of elevator and scissors fire stairs with respect to the individual apartments on a typical floor in Van Dyke high-rise buildings. This separation occurs on all floors.

further divided, by an unlocked swinging door, into two vestibules shared by three families each. In the six-story buildings there is an elevator which stops at odd floors, requiring residents of upper stories to walk up or down one flight, using an open stairwell around which apartment doors are clustered. Vertical communication among families is assured by this relationship of elevators to apartments, and also by the presence of open stairwells connecting the floors.

At the ground level, the building lobby leads up a short flight of stairs to several apartments that maintain surveillance over activity in this small entryway. On all floors, tenants have been found to maintain auditory surveillance over activity taking place in the halls by the device of keeping their doors slightly ajar. These features of the building have allowed occupants to extend their territorial prerogatives into building corridors, hallways, and stairs. Those mothers of young children at Brownsville who allow their children the freedom to play on landings and up and down the stairwells monitor their play from within the apartment. A mere interruption in the din of children at play was found to bring mothers to their doors as surely as a loud scream.

By contrast, most young children at Van Dyke are not allowed to play in the corridors outside their apartments. The halls of Van Dyke and other high-rise buildings are designed solely for their corridor function and are inhospitable to the fantasy-play of children. In addition, too many families utilize a typical high-rise hall for a mother to comfortably leave her child there unsupervised. For the same reason, mothers are reluctant to leave their door ajar for surveillance—too many people, including strangers and guests of neighbors, wander through the Van Dyke halls unchecked and unquestioned. Finally, to give children real freedom in the use of the building would require their using the elevator or fire stairs to gain access to other floors. But both these areas are frightening and would take the children out of the surveillance zone of the mother and other tenants. The elevator cab is sealed by a heavy metal door that cannot be opened manually. The fire stairwells are designed to seal floors in the event of a fire. A by-product of their fireproofing is that noises within the stairwells cannot be heard in the corridors outside. Criminals often force their victims into these areas because the soundproofing feature and low frequency of use make the detection of a crime in progress almost impossible.

The sense of propriety which is apparent in the way tenants of Brownsville Houses use their halls to monitor and maintain surveillance over children and strangers appears to have carried over to the grounds adjacent to building entrances. Because of the unique construction of the buildings, there are areas on the ground level just outside the front door of the building where parents can allow their children to play, while maintaining contact with them through their kitchen windows. Interviews

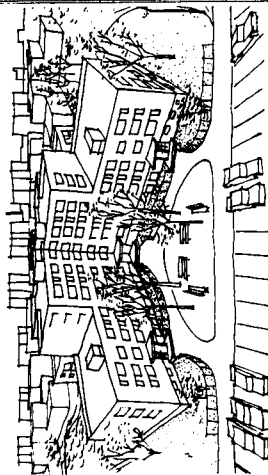


FIG. 28. Brownsville Houses from Street. The buildings dispositions at Brownsville create triangular buffer areas which are used for play, sitting, and parking. These areas are easily observed from the street and from apartment windows. Entry to buildings is typically from the street through these buffer zones. Residents regard these areas as an extension of their own buildings and maintain active surveillance over them. (Photo by author)

have revealed that the range of spaces into which young children are permitted to roam is greater in Brownsville than in Van Dyke.

Finally, where entries to Van Dyke high-rise buildings serve 130 families, Brownsville buildings are entered through different doors, each serving a small number of families (nine to thirteen). The ground area adjacent to these entries has been developed for use by adults, and for play by young children. Parents feel confident about allowing their children to play in these clearly circumscribed zones. Frequently, these entry areas are located just off the public street, and serve to set off the building from the street itself by acting as an intervening buffer area. The placement of entrances just off the street avoids the dangers created at Van Dyke: forcing tenants to walk along blind interior project paths to get to their buildings.

Inspection of tables 4 and 5, reveals that the tenants of Brownsville and Van Dyke are rated similarly on overall indexes of socio-economic status, family stability, and ethnic, racial, and family composition. It is also clear that these rough similarities are consistent from year to year. Comparison of demographic data over the period 1962 to 1969 (see Appendix B) reveals few exceptions to this overall pattern of identity between the projects.

It was a widely held belief that many so-called "problem families," displaced by the Model Cities renewal programs, were among recent move-ins to Van Dyke. Many people drew an immediate correlation between the higher crime rate at Van Dyke and this change in population.

TABLE 4
Tenant Statistics

Characteristic	Van Dyke	Brownsville
Total population	6,420	5,390
Average family size	4.0	4.0
Number of minors	3,618 (57.5%)	3,047 (57.8%)
Percent families black	79.1%	85.0%
Percent families white	5.6%	2.6%
Percent families Puerto Rican	15.3%	12.4%
Average gross income	\$4,997	\$5,056
Percent on welfare	28.8%	29.7%
Percent broken families	29.5%	31.7%
Average number of years in project	8.5	9.0
Percent of families with two wage earners	12.2%	11.0
Number of children in grades 1-6	839	904

SOURCE: New York City Housing Authority Records, 1968.

TABLE 5
A Comparison of 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	13-14 story	6-story with some 3-story wings
Coverage	9-3 story	23.0
Floor area ratio	16.6	23.0
Average number of rooms per apartment	1.49	1.39
Density	4.62	4.69
Year completed	288 persons/acre 1955 (one building added in 1964)	287 persons/acre 1947

SOURCE: New York City Housing Authority Project Physical Design Statistics.

Information was therefore obtained on a representative sample of families who have moved into the two projects over the past three years. Sample data on one of every five move-ins reveal no striking differences in the social characteristics of residents in both projects.

The total number of move-ins in the past three years in any case constituted fewer than 5 percent of the project population in both Van Dyke and Brownsville. To blame problems of the Van Dyke project on a small number of "bad seeds" is clearly gratuitous. However, to insure that these mean figures were not misleading, frequency distributions were plotted for each variable which permitted such treatment. For example, the frequency of each family size varying from one to fifteen was plotted separately for Brownsville and Van Dyke and reveals no apparent reason to doubt the representativeness of these summary statistics (see Appendix B).

Crime and vandalism are major problems at both Van Dyke and Brownsville Houses. The problem has become serious over the past ten years, with the decline of the old Brooklyn community and the failure to create renewal opportunities. The area surrounding both projects is severely blighted; store owners conduct business in plexiglass booths to protect themselves from addicts. The local library requires two armed guards on duty at all times. The local hospital claims it records fifteen teen-age deaths per month due to overdoses of drugs.

Table 6 presents data on major categories of crime for both projects as collected by housing police. Data are presented on specific crimes, including robbery, possession of drugs, and loitering. A comparison of 1969 crime incident rates (see table 6) and maintenance rates (see table 7) for the two projects was quite revealing. In summary, Van Dyke Homes was found to have 50 percent more total crime incidents, with over three and one-half times as many robberies (384 percent), and

TABLE 6
Comparison of Crime Incidents

Crime Incidents	Van Dyke	Brownsville
Total incidents	1,189	790
Total felonies, misdemeanors, and offenses	432	264
Number of robberies	92	24
Number of malicious mischief	52	28

SOURCE: New York City Housing Authority Police Records, 1969.

TABLE 7
Comparison of Maintenance

Maintenance	Van Dyke (constructed 1955)	Brownsville (constructed 1947)
Number of maintenance jobs of any sort (work tickets) 4/70	3,301	2,376
Number of maintenance jobs, excluding glass repair	2,643	1,651
Number of nonglass jobs per unit	1.47	1.16
Number of full-time maintenance staff	9	7
Number of elevator breakdowns per month	280	110

SOURCE: New York City Housing Authority Project Managers' bookkeeping records.

64 percent more felonies, misdemeanors, and offenses than Brownsville. Another measure of security can be understood from examination of the rate of decline of facilities. Even though Brownsville Houses is an older project, beginning to suffer from natural decay, Van Dyke annually required a total of 39 percent more maintenance work. It is interesting to note that the average outlay of time and funds for upkeep of Van Dyke is significantly higher than that of Brownsville. Not only is there less need of repair at Brownsville, but tenants themselves play a greater role in seeing to the cleanliness of buildings either through insistence on the upkeep of janitorial services or by individual effort.

One of the most striking differences between the two projects concerns elevator breakdowns. The far greater number of breakdowns at Van Dyke is primarily a function of more intensive use. However, more breakdowns are due to vandalism at Van Dyke than at Brownsville. This form of vandalism is especially diagnostic, showing that adolescents who tamper with Van Dyke elevators do not have a sense of identity with the people they inconvenience.

As a measure of tenant satisfaction, Brownsville Houses, with smaller room sizes in similarly designated apartment units, has a lower rate of move-outs than Van Dyke Houses. To avoid historical accident and subsequently limited conclusion, results were tabulated annually over an eight-year period, including sampling of move-ins to the two projects. These data have provided additional confirmation of the differences in crime and vandalism between the projects that cannot be assigned to differences in their tenant populations. These are discussed at greater length in Appendix B.

It is unwarranted to conclude that this data provide final and definitive proof of the influence of physical design variables on crime and vandalism. It is equally misleading to assume, as management officials

initially did, that the differences can be explained away by variations in tenant characteristics in the two projects. The project manager assumed that Van Dyke Houses had a larger number of broken families and that these families had a larger number of children than those at Brownsville. The statistics do not bear out this assumption, but the image described by the manager and other public officials suggests the extent of the problem and may in turn contribute to it.

There are some elementary differences in the physical construct of the projects which may contribute to the disparity of image held by officials. Police officers revealed that they found Van Dyke Houses far more difficult to patrol. To monitor activity in the enclosed fire stairs requires that a patrolman take the elevator to the upper floor and then walk down to the ground level, alternating at each floor between the two independent fire-stair columns.

Police express pessimism about their value at Van Dyke Houses. About Brownsville they are much more optimistic and, in subtle ways, respond to complaints with more vigor and concern. All these factors produce a significant positive effect in Brownsville. At Van Dyke the negative factors of anonymity, police pessimism, pessimism about police, and tenant feelings of ambiguity about strangers (caused by large numbers of families sharing one entrance) conspire to progressively erode any residual faith in the effectiveness of community or official response to crime.

In summary, it seems unmistakable that physical design plays a very significant role in crime rate. It should also be kept in mind that the defensible space qualities inherent in the Brownsville design are there, for the most part, by accident. From a critical, defensible space viewpoint, Brownsville is far from perfect. The comparison of the crime and vandalism rates in the two projects was made using gross crime data on both projects. Twenty-three percent of the apartments at Van Dyke consist of three-story walk-up buildings serving a small number of families. It is likely that comparative data on crime rates in the low buildings versus the towers at Van Dyke would reveal significant differences. This would make the comparison of crime rates between Van Dyke and Brownsville even more startling.

• Four Characteristics of Defensible Space

The following three chapters describe in detail how different features of the physical design of housing reinforce inhabitants in their ability to control their environment. There is always a danger in categorical subdivision in that it may suggest that any one of the mechanisms can operate independently. Whereas some are independent, others are rendered almost meaningless if used alone. As an example, the definition and as-

segment of territorial areas to groups of inhabitants has been found to operate most effectively where occupants have also been given visual control of the defined area. Equally, improving visual surveillance opportunities may be a pointless task if the resident is viewing activity taking place in an area he does not identify with. Therefore, in the discussion of each defensible space mechanism, continuous cross-reference will be made to other categories where the two act in tandem or symbiotically.

Many of the housing projects described in the following chapters as significant accomplishments in "defensible space" design were born of a different historical era. For a variety of reasons—some economic, some social, some relating to evolving building and fire codes—they would be difficult to reproduce today. However, the same social and psychological benefits could be achieved through the use of contemporary physical and electronic means.

The four major categories created for the discussion of defensible space in the following chapters are:

1. The capacity of the physical environment to create perceived zones of territorial influence: mechanisms for the subdivision and articulation of areas of the residential environment intended to reinforce inhabitants in their ability to assume territorial attitudes and prerogatives. (Chapter 3)
2. The capacity of physical design to provide surveillance opportunities for residents and their agents: mechanisms for improving the capacity of residents to casually and continually survey the nonprivate areas of their living environment, indoor and out. (Chapter 4)
3. The capacity of design to influence the perception of a project's uniqueness, isolation, and stigma: mechanisms which neutralize the symbolic stigma of the form of housing projects, reducing the image of isolation, and the apparent vulnerability of inhabitants. (Chapter 5)
4. The influence of geographical juxtaposition with "safe zones" on the security of adjacent areas: mechanisms of juxtaposition—the effect of location of a residential environment within a particular urban setting or adjacent to a "safe" or "unsafe" activity area. (Chapter 5)

NOTES

1. The President's Commission on Law Enforcement and Administration of Justice, *The Challenge of Crime in a Free Society* (New York: E. P. Dutton, 1968), pp. 66–67.
2. *Ibid.*, pp. 130–132.
3. The elderly are 9.7 percent of all tenants in New York City Housing Authority projects, but experience 29.9 percent of all the robberies and 19.6 percent of all felonies, misdemeanors, and offenses. Source: New York City Housing Authority Police, 1969.

3

TERRITORIALITY

- *The Capacity of the Physical Environment to Create Perceived Zones of Territorial Influences*

TERRITORIAL DEFINITION

Historically the intactness of the family living unit and the territorial zone of the cluster of family units has always been given architectural expression. The single-family house set on its own piece of land, isolated from its neighbor by as little as six feet, has been the traditional expression of arrival in most every Western culture. It is the symbolic token of having a stake in the social system; it is deeply rooted in notions of proprietorship and belonging to the establishment. To many it represents the reaching of maturity and the achievement of success and potency. In certain cities and states in our nation, home ownership brings with it special rights and responsibilities which relate to participation in legal processes, and the opportunity to reinforce existing societal values. In our interviews with public housing tenants, we have found that expression of territorial feelings correspond strongly with a concern for the maintenance of law and belief in the possibility of its enforcement.

By its very nature, the single-family house is its own statement of territorial claim. It has defined ownership by the very act of its positioning on an integral piece of land buffered from neighbors and public street by intervening grounds. At times the buffer is reinforced by symbolic shrubs or fences, and in other cultures by high walls and gates. The

sphere of influence of particular groups of occupants. It is further possible to structure this subdivision hierarchically so that at the level of housing projects, the grounds are subdivided into building clusters, and at the level of the apartment units, three or four apartments share a commonly defined entry area.

We have found that such physical subdivisions, if clearly defined and related to access paths, amenities, and entries, encourage occupants to adopt proprietary attitudes and to exert potent territorial prerogatives which serve as natural and significant deterrents to crime.

The following pages define the various mechanisms which can be employed to break down high-density residential agglomerations into territorial, subdivided, and identifiable subunits. These mechanisms succeed in providing both resident and outsider with a perceptible statement of individual and group concern over areas of buildings and grounds. More importantly, in so doing, they allow occupants to develop a heightened sense of responsibility toward care of the environment and control of its penetration by outsiders.

MECHANISMS FOR THE SUBDIVISION OF HOUSING DEVELOPMENTS TO DEFINE THE ZONES OF INFLUENCE OF PARTICULAR BUILDINGS

SITE DESIGN

It is our hypothesis that high-rise buildings, sited so that the grounds around them are defined and related to particular buildings, serve to create a territorially restricted area. These defined areas, outside otherwise anonymous high-rise towers, strongly indicate to residents and

FIG. 30. Jerry-built Row Housing, The Bronx, New York, circa 1965. (Photo by author)



FIG. 29. Semidetached Housing, The Bronx, New York, circa 1930s. The integrity of the single-family unit is still very much intact: the defined front walk, porch, and lawn and the fenced-off rear yards. (Photo by author)

positioning of lights and windows which look out upon the buffering grounds also act to reinforce this claim.

As one moves to denser and denser agglomerations—to row houses, walk-up flats and high-rise apartments—opportunity for individual and collective efforts at defining territory become increasingly difficult.

The pathetic jerry-built row-house grouping (see figure 30), for all its anonymity, bears testimony to the depth of the need to pursue the life style and gain the social status of the territorially intact single-family house. But what of the apartment unit embedded somewhere in a 300-family high-rise building on a thirty-acre project site? What recourse have its occupants? What avenues exist for self-assertion, or opportunities for an even limited form of collective identification or territorial association?

At present, most families living in an apartment building experience the space outside their apartment unit doors as distinctly public; in effect they relegate responsibility for all activity outside the immediate confines of their apartments to public authority. The question is whether there are physical mechanisms which can be employed to extend the boundaries of these private realms: to subdivide the public space outside the private apartment unit so that larger dominions come under the sphere of influence and responsibility of the apartment dweller.

Examination of some better functioning housing developments indicate that through exterior site planning and interior building design, it is possible for an architect to subdivide a high-density project so that occupants and outsiders will perceive various portions of it as being under the

strangers alike that the grounds, and hence the building, are for the private use of residents. This definition of grounds can be made to occur naturally when high-rise apartments are built on vest-pocket sites, that is small sites surrounded by the medium-density fabric of the existing city. It should be noted that a single high-rise building perceived as a unit defined by its exterior walls is itself a form of subdivision and territorial identification. Reinforced with symbolically defined grounds, and with sufficient space around it to be recognized as an entity, it can become a potent form of territorial expression.

Breukelen Houses in New York, a medium-density project built in 1952, is an excellent example of such grounds differentiation. The buildings are L-shaped and are positioned so as to touch the street at the two extreme points of the "L." The area enclosed by the right angle is defined as a semiprivate territory onto which two to four entries to the building open. The use of this area for recreation, through the provision of play equipment for young children and seating areas for adults, reinforces its territorial restriction. The location of such activities in this area facilitates its recognition as an extension of the semiprivate building zone of residents. The fact that children play and adults sit in these areas serves to increase residents' concern with the activity taking place there. Inter-

FIG. 31. Site Plan of Breukelen Houses, Brooklyn, New York. Built in 1952, consisting of a mix of three- and seven-story buildings. Contains 1,595 apartments at a density of 21.3 dwelling units per acre.

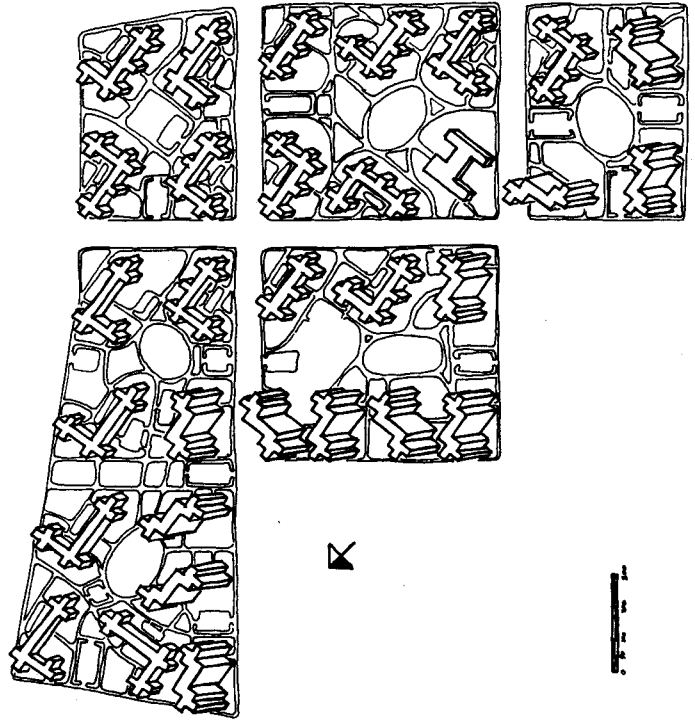


FIG. 32. Street View of Breukelen Houses. The L-shaped block forms a play and sitting area, creating a buffer zone for the four separate entries within the one building block. (Photo by author)

views show that residents know most other building residents who share this space with them. Strangers are easily recognized, and their activity comes under observation and immediate questioning. Building residents have no right, under the laws governing public housing, to evict anyone from these grounds; but at Breukelen they go to great lengths to assure themselves that strangers represent no threat. If not so assured, they readily call Housing Management or the police.

Entry to all buildings at Breukelen is through these semiprivate zones, which for the most part face directly onto existing city streets. Al-

FIG. 33. View of the Interior Grounds at Breukelen. The interior grounds were designed to be open to public access from surrounding streets. They do not relate to particular buildings and house few defined activities. Residents view these interior areas as the most dangerous in the project. (Photo by author)



though the grouping of these L-shaped buildings partially seals off the interior grounds of the project from neighboring streets, this has not been done with conviction sufficient to achieve territorial integrity; the interior grounds at Breukelen remain open and accessible from many directions. In interviews, residents have identified these interior grounds as the most dangerous of the project. Had the interior grounds been fenced off from all access other than from the buildings proper, their success as grounds for resident use might have been greater.

As a means of implementing their policy that project grounds contribute to the amenity of neighboring communities as well as their own, housing authorities prefer to keep them open. The result is that these areas are seldom used either by residents or by the surrounding community.

In contrast to the subdivision and territorial definitions in Breukelen are most of the now typical examples of high-rise public housing. The early fifties produced a series of large-scale projects across the country. Born of that period were Pruitt-Igoue in St. Louis, Columbus Homes in Newark, Van Dyke in New York, and Rosen Houses in Philadelphia. Every city has its own claim to notoriety. It was common practice, in developing the site plan for these projects, for the architects to close off the existing streets in the four to twelve blocks they acquired, thus freeing additional grounds to be turned into either recreation areas or off-street parking. It was common, too, in the design of these superblocks, to position the high-rise towers freely, with little attempt at assigning particular areas of grounds for the use of specific buildings. The Pruitt-Igoue project in St. Louis consists of large high-rise slabs sited on grounds intentionally left open for use by both the resident population and the surrounding community. Each building is entered directly from the public grounds, onto which the elevator doors open. As a result, areas which should be recognized as territorially restricted have remained public in nature.

A stark remedy to the problems created by high-rise towers being scattered randomly on project grounds occurred by chance at Pruitt-Igoue in St. Louis. During one of the many salvaging operations attempted in the series of crises it has faced, an endeavor was made to provide some new play equipment and seating areas adjacent to one building. For the period of construction, the area around one building was fenced off (except for a gate opposite the building entry) to reduce the pilferage of materials and to prevent accidents. Residents of this building subsequently asked that the fence be left in place. They found that incidents of crime and vandalism had been reduced significantly during the six-month construction period. Two years later, the fence is still there; the crime and vandalism rate in this building is 80 percent below the Pruitt-Igoue norm. This building, like others in Pruitt-Igoue, has no security guard. It is the only building in which residents themselves have begun to show

FIG. 34. Site Plan of Pruitt-Igoue, St. Louis, Missouri. Built in 1955; eleven-story buildings; 2,764 apartments; fifty dwelling units per acre. This drawing illustrates the marked contrast between project buildings and surrounding residential community.

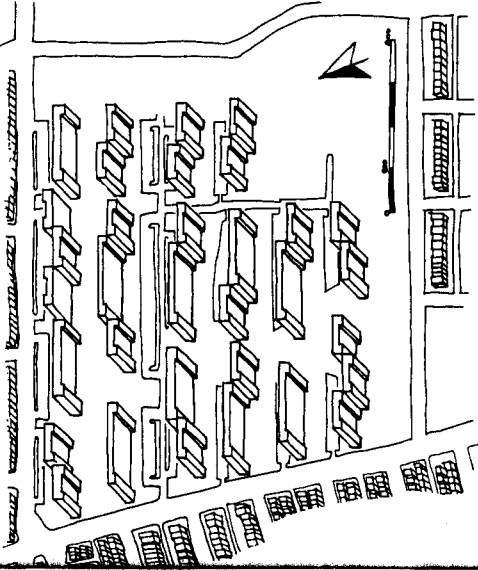


FIG. 35. View of Grounds and Building Entries at Pruitt-Igoue. Photo illustrates vast open spaces between buildings devoted primarily to large parking areas. Building entries are visible in background. (Photo by Bob Williams)

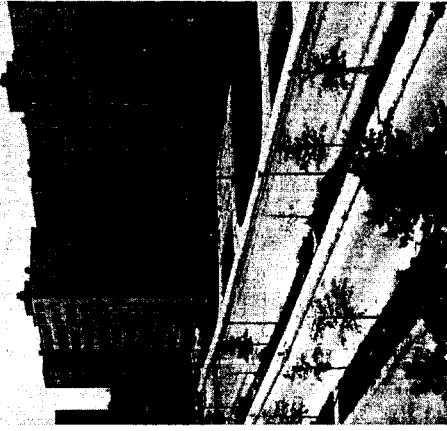


FIG. 36. View of Retained Construction Fence and Breezeway Entry at Pruitt-Igoue. Note residents sitting in the breezeway and making use of this now semiprivate defined space. The gate is locked with only tenants of this building having keys. (Photo by author)



FIG. 37. Pruitt-Igoe gallery area, as seen in 1951 artist's rendering. (Drawing by the architect)

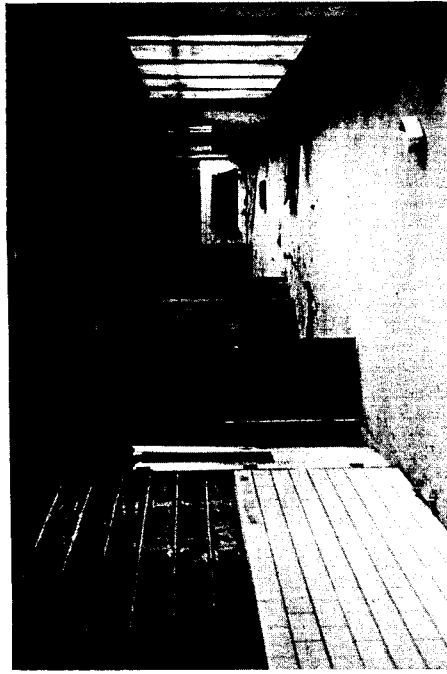
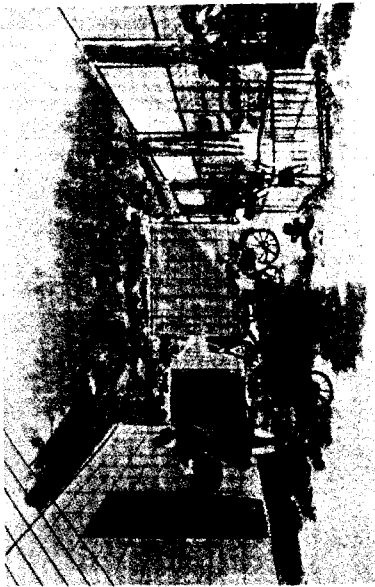


FIG. 38. Actual View of Pruitt-Igoe Gallery Area. View of what was intended by the architects to be highly-used public gallery (see fig. 37). These corridors are not juxtaposed with apartment units and so are feared by residents and unused. The open doors lead to what were once laundry rooms. (Photo by author)

signs of concern about the maintenance of the interior: picking up litter, sweeping the corridors, and replacing light bulbs. The vacancy rate in this building varies from 2 percent to 5 percent, in contrast with the overall vacancy rate for Pruitt-Igoe of 70 percent.

This is an extreme example of territorial definition and is certainly not one which we are advocating. But its accomplishments are significant in the light of the Pruitt-Igoe failure. The question to be asked is how does one initially achieve thoughtful building groupings rather than having to resort to barbed-wire fences and locks after the fact.



FIG. 39. Public Gallery in Fenced-in Pruitt-Igoe Building. Although vandalism has been curbed by restricting access to this building, the galleries are still not used as gathering and sitting areas because they are dissociated from apartment unit entries. The exit sign marks the elevator area. (Photo by Bob Williams)

THE COMPOSITIONAL VERSUS THE ORGANIC APPROACH

Examination of the design methodologies employed by architects of Breukelen and Pruitt-Igoe reveals two fundamentally different approaches, each with its own accompanying evaluative criteria for successful design. The design approach which produces projects in the Pruitt-Igoe mold has its root in a "compositional" commitment and orientation: the architect was concerned with each building as a complete, separate, and formal entity, exclusive of any consideration of the functional use of grounds or the relationship of a building to the ground area it might share with other buildings. It is almost as if the architect assumed the role of a sculptor and saw the grounds of the project as nothing more than a surface on which he was endeavoring to arrange a series of vertical elements into a compositionally pleasing whole. Little effort was expended in developing relationships between buildings and ground activities; in fact, separation was most desired. Success in building disposition was thought to be achieved through strict adherence to compositional dictates; therefore concern with function on the part of the designer would only serve to muddy this design approach. Only when the composition of buildings was completed were access paths, play equipment, and seating areas located to serve the buildings.

This compositional approach to the form and positioning of buildings has serious repercussions when one confronts the problem of apartment unit design and location within the building proper. In this approach, the primary concern in the disposition of individual apartment units within the building is the effect the individual unit will have in giving form to the building as seen from the outside. The relationship of individual units to one another and the provision of functionally useful and shared space at each level become secondary considerations.

The design approach which produces a territorially intact project,

as exemplified by Breukelen Houses, begins by viewing buildings and grounds as an organically interrelated whole. In this approach, a major design concern is the way in which buildings themselves serve to define and break up the grounds on which they sit. The relationship of building entrances to territorially defined grounds, and of vertical access systems to entry areas, also receive primary consideration in the site plan. The disposition of the apartment units follows organically the results of the initial site plan and is directed at framing relationships between units and creating areas of shared entry, much as the building itself defines the use of the ground on which it sits.

STREET DESIGN

In a similar way, it is possible to subdivide the existing fabric of city streets in order to create territorially defined blocks and areas. We have learned of instances in which associations of private homeowners have restricted parts of the city street system for predominant use by residents of a single block. The two instances we will discuss here—the St. Louis private streets and St. Marks Avenue in Brooklyn—do not totally restrict vehicular access, but rather interrupt the existing geometric traffic pattern and so discourage easy vehicular through-access by requiring intentionally circuitous movement. It is important to note that in both instances vehicles were not excluded but rather their movement restricted. This is an important distinction in that vehicular access provides a form of continuous natural surveillance, as well as an opportunity for formal patrol by a policing authority.

The St. Louis private street system was a device initially developed by wealthy residents occupying large single-family houses at the periphery of municipal St. Louis. The residents contracted with the city to take on the responsibility of road and street-light maintenance for a slight rebate of city taxes. Through this arrangement they gained the right of closing a one- to two-block stretch of street at either end. Access was provided from the central cross streets.

We have not yet measured the full success of this endeavor in reducing crime, vandalism, and maintenance costs. It is also a high-income area, and the resources available for the upkeep of the street and its general welfare makes an objective analysis difficult. However, five years ago, residents of an adjacent middle-income neighborhood formed a street association and closed their streets in the same way. These residents feel that there has been an appreciable reduction in crime. Most importantly, however, the residents claim that their street is now used very differently: children play in the central roadway; most everyone claims to know, or at least recognize people up and down the block; strangers to the street are greeted by questioning glances and a cacophony of barking dogs.

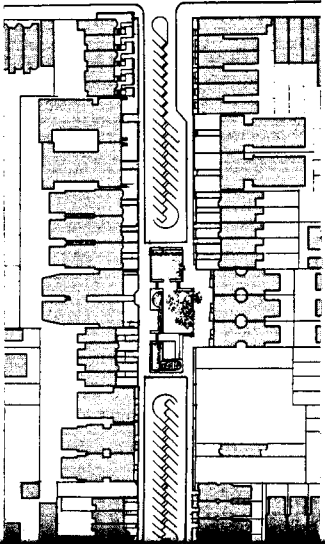


FIG. 40. Site Plan of Saint Marks Avenue, New York City. Plan shows modifications to vehicular circulation and parking and provision of play and sitting areas.



FIG. 41. Pedestrian Area, St. Marks Avenue. View of play equipment and parking area. The rear portion of the street is not open to through-traffic. The only visible sign of vandalism is the broken concrete piling which was hit by a city sanitation truck. (Photo by author)

Modifications to St. Marks Avenue in the Bedford-Stuyvesant section of Brooklyn, New York, completed only one and a half years ago, involve no major street closings. The street has been shaped to slow traffic, and symbolic portals have been located at each end. A portion of the central area of the street has been completely closed to traffic and has been turned into a play and communal area. Residents claim that street crime has been almost eliminated, that their residences are burglarized much less frequently, and that drug addicts noticeably avoid the area. On their own initiative, residents have begun to plant gardens and define the areas immediately adjacent to their houses. Concern for the maintenance and safety of the street appears to be universally shared by residents. Every Saturday morning a different group of residents gather to give the street a thorough cleaning.

MECHANISMS FOR CREATING BOUNDARIES WHICH DEFINE A HIERARCHY OF INCREASINGLY PRIVATE ZONES—FROM PUBLIC STREET TO PRIVATE APARTMENT

SYMBOLIC VERSUS REAL BARRIERS

There is a language of symbols which has come to be recognized as instrumental in defining boundaries or a claim to territory. These boundary definers are interruptions in the sequence of movement along access paths and serve to create perceptible zones of transition from public to private spaces. Many of these symbols have been mentioned in our previous discussion of the mechanisms for defining territory or zones of influence. Some represent real barriers: U-shaped buildings, high walls and fences, and locked gates and doors. Others are symbolic barriers only: open gateways, light standards, a short run of steps, planting, and changes in the texture of the walking surface. Both serve a common purpose: to inform that one is passing from a space which is public where one's presence is not questioned through a barrier to a space which is private and where one's presence requires justification.

These symbolic barriers are also found to be identified by residents as boundary lines in defining areas of comparative safety. Because they force an outsider to the realization that he is intruding on semiprivate domain, symbolic barriers prove very effective in restricting behavior within the defined space to that which residents find acceptable. For example, almost any type of behavior can occur on a city street: loitering, dancing to a transistor radio, leaning against cars, and begging. Within the confines of an area, defined if only by a change in surface texture or grade level, the range of possible behavior is greatly reduced. It is, in fact, limited to what residents have defined as the norm. All other behavior is incongruous and is so understood and dealt with. An intruder who does not know the rule system, or hesitates in making his intentions clear, is easily spotted as not belonging. He arouses suspicion which leads to the circumvention of his activities.

Different from symbolic zone definers, real barriers have the further capacity of requiring that prior to entry, intruders possess a key, a card, or some other means of indicating their belonging. That is, access to a residence through a real barrier is by the approval of its occupants only, whether in person, through their agent, or by electronic signal. The success of the symbolic versus real barrier in restricting entry hinges on four conditions: (1) the capacity of the intruder to read the symbols for their intended meaning; (2) the evident capacity of the inhabitants of the



FIG. 42. Community use of St. Marks Avenue. (Photo by Bob Williams)



FIG. 43. Parking Area, St. Marks Avenue. View of St. Marks Avenue showing solution to parking which frees other half of street from all traffic. (Photo by author)

Interviews with inhabitants and with the president of the block association found expressions of a new cohesiveness among the people living on the street and a parallel active interest in the maintenance of physical surroundings and in social activities. The staying power of these attitudes and activities remains to be measured over a longer period of time.

internally defined space, or their agent, to maintain controls and reinforce symbolic space definition through surveillance; (3) the capacity of the internally defined space to require that the intruder make obvious his intentions—that is, the space must have a low tolerance for ambiguous use; and (4) the capacity of the inhabitants or their agent to challenge the presence of the intruder and to take appropriate subsequent action if need be. It is obvious that these conditions work in concert, and that a successful symbolic barrier is one that provides the greatest likelihood of all of these components being present. By employing a combination of symbolic barriers, we have found it possible to indicate that one is crossing a series of boundaries in the transition from public access paths and spaces to sequentially more private areas, without employing literal barriers to define the spaces along the route.

When moving through a sequence of territorially defined areas—from project grounds to dwelling unit cluster—one experiences these symbolic barriers and portals as a matter of course. Behavior and expectations are changed accordingly, even without the sharp divisions created by locked gates and doors. These tools for symbolically restricting space usage assume particular importance in the case of projects which simply do not allow themselves to be subdivided into territorially intact zones. Where it is still the intent to make space obey semiprivate rules and to fall under the influence and control of tenants, symbolic elements along paths of access can serve this function without actually prohibiting entry.

The opportunities for the use of real and symbolic barriers to define zones of transition are many. They occur in moving from public street to the semipublic grounds of the project; in the transition from outdoors to indoors; and finally in the transition from the semipublic space of a building lobby to the corridors of each floor. The use of literal barriers, e.g., locks, gates, and electronic interview systems, must be viewed as one component of a hierarchy of means of defining space which also includes a wide range of suggestive and persuasive symbolic elements.

A good example of a housing project which employs symbols to define boundaries, or zones of transition, but does not literally delimit specific territorial areas, is First Houses, located in a relatively high-crime area in the Lower East Side in New York City.

Figure 45 shows the low walls and entry portals to the project set four feet back from the line of the street. This four-foot setback of sidewalk defines the first step in the transition from public to private. The walls and portals then define the semiprivate nature of the project interior. Further territorial restrictions are symbolized by the steps and porch shared by both of the five-story buildings. The design of the building interiors continues to reinforce this symbolic system, indicating a progression to more private space through the use of stairs and landings, leading

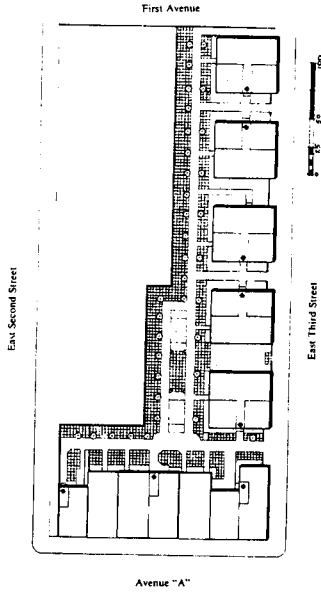


FIG. 44. Site plan of First Houses. (Courtesy of New York City Housing Authority)



FIG. 45. First Houses, Manhattan. View showing relation of entrances to street. Note the large number of symbolic barriers: walls, piers, stoops, hedges. The courtyard area serves as a symbolic transition zone and barrier to the project grounds beyond. The defining zones are reinforced with many opportunities for visual surveillance. Note that there are bars on ground-floor windows facing the street, but not on windows facing the court. (Photo by author)

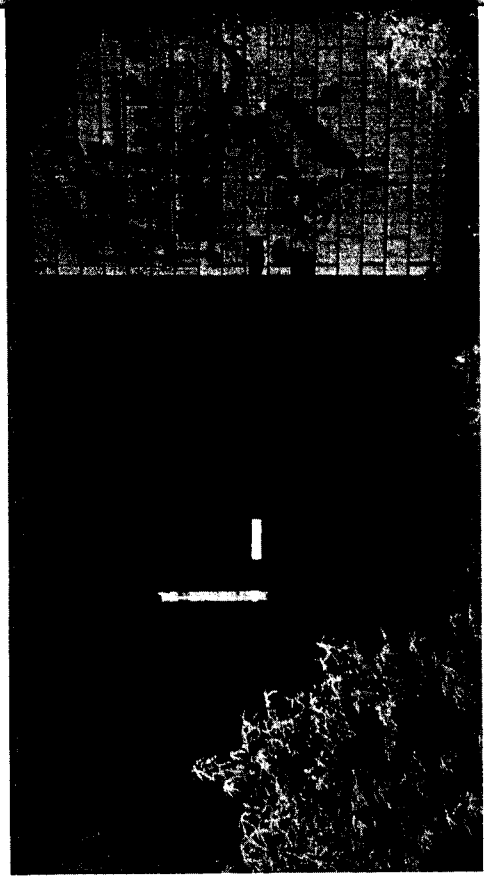
eventually to the apartment proper. Figure 45 also shows two elderly residents of the project who have chosen to move their lounge chairs onto the semipublic portion of the public sidewalk. The feeling of security they display is evidence of how well these symbolic indicators can work to enhance the sense of safety.

What ingredients are responsible for making the presence of strangers obvious in a zone which is private? The decisive element is the degree of ambiguous behavior a zone will tolerate. As was briefly mentioned, intensely public streets are places which will tolerate a wide variety of behavior: people can choose to walk by, stand and chat, sit on

the hood of a car; in some neighborhoods singing, dancing, screaming, and soliloquizing are common street activities that are not challenged. This activity, which is accepted by residents if it takes place on adjacent sidewalks, is rejected when carried beyond the symbolic portals of First Houses into the defined semipublic space of the project. This is a space that is merely an extension of the public sidewalk but here such behavior is perceived by residents and public actors as intolerable. Within this defined zone, activity must have an acceptable purpose or intent; if it is unusual, it is dangerous. While no attempt is made to question the presence of, or to identify, individuals on a public sidewalk, individuals within a territorially restricted zone are required to efficiently pursue a goal or purpose; lingering becomes a privilege available only to recognized residents following proscribed rituals.

It is noteworthy that buildings which consistently have the highest crime and vandalism rates: Pruitt-Igoue in St. Louis, Columbus Houses in Newark, and Van Dyke in New York, have little in the way of these transitional differentiating elements, either literal or symbolic. For the most part, public space in these projects flows uninterrupted from the bordering streets onto the project grounds; from the lobby and corridors of a high-rise building right up to the door of the individual apartment unit. The Pruitt-Igoue project in St. Louis is perhaps the most notorious example of this phenomenon, and its present state of devastation bears full witness to the potential seriousness of breakdowns in the social system resulting from the spatial design of high-rise buildings.

FIG. 46. Breezeway at Pruitt-Igoue, St. Louis. Typically vandalized breezeway entry to a high-rise building. Destruction of public areas around mailboxes, elevators, and stairwells at Pruitt-Igoue is systematic and complete. (Photo by author)



MECHANISMS FOR THE SUBDIVISION OF BUILDING INTERIORS TO DEFINE THE ZONES OF INFLUENCE OF CLUSTERS OF APARTMENT UNITS

When economic considerations become the paramount criteria in high-rise building design, the result is usually the production of high-rise slab buildings in which many individual apartment units are served by long, double-loaded corridors. The physical configuration of this corridor results in an overwhelmingly large and anonymous public space, devoid of opportunities for the assumption of territorial prerogatives which subdivision would provide.

Alternatively, the interiors of high-density buildings can be designed so that peculiar groupings of units and shared, vertical-access stairs provide the opportunity for inhabitants to develop territorial concern for the space immediately adjacent to their dwellings. A good example is the interior stair system and corridor at Breukelen. The L-shaped buildings at Breukelen are subdivided to allow each building two to five entries, each serving from six to nine families. This subdivision has created an entire network of small social groups whose members cooperate to maintain a mutually beneficial environment. The lobby and stair area of each entry is understood by the families who share it to be their corporate responsibility. Our interviews show that residents can all recognize one another, although the extent of their relationships varies from nodding acquaintance to fast friendship.

At each floor of an entry level, two to four families share a common corridor area. The doors to the apartment units are grouped around this common corridor, and access to it from the stairwell is screened by a

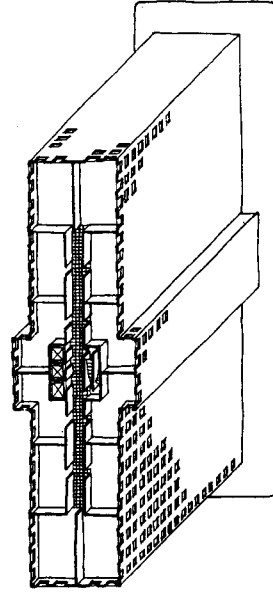


FIG. 47. Double-Loaded Corridor Apartment Building. Exploded view of a typical floor of a high-rise double-loaded corridor building. Note position of elevator and scissors stairwell.

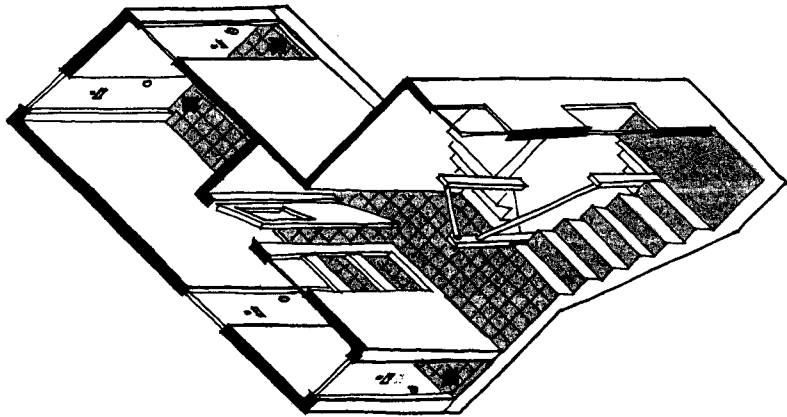


FIG. 48. Interior Corridor at Breukelen Houses. Common corridor shared by four apartments in Breukelen Houses, a walk-up apartment building. The corridor follows this configuration so as to provide the necessary separation from the access stairs to meet fire codes.

glazed partition to satisfy fire regulations. The net effect is that the residents of the floor have adopted the corridor as a collective extension of their dwelling units. Management informs us that although the tenants are not required to maintain this area, they see that it is kept scrupulously clean and well lighted. Further subtlety appears in the design of the seven-story units at Breukelen. The entrance lobby is two steps lower than the corridor serving the ground-floor apartments. These steps serve to differentiate the more public lobby from the semiprivate corridor on the ground floor serving two to four families.

It is probable that neither these steps nor the glass partitions previously mentioned are the result of a conscious attempt on the part of the architects to define territorial zones within the building. Each was built in response to other demands: the wired-glass partition is a form of fire wall, isolating the stairwell. The three-step transition from the common lobby area to the ground floor apartments is a device often used to raise the windows of these apartments eight feet above the outside grounds to discourage burglaries. Both, however, are perceived by tenants as building components which clearly define zones within their building. Very young children are permitted to play in the common corridor and are

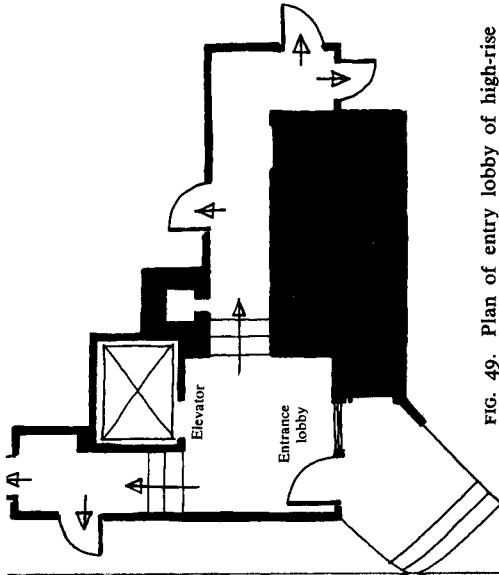


FIG. 49. Plan of entry lobby of high-rise (seven-story) buildings at Breukelen.

FIG. 50. Entry Lobby at Breukelen. View of entrance lobby showing a portion of the elevator door and the two steps which separate the lobby from the corridor serving the ground-floor units. (Photo by author)

cautioned not to go beyond the steps or outside the glass wall. As in Brownsville Houses, the doors to the apartments are usually kept slightly ajar in order to allow the mothers to monitor the activity in these spaces. The screening of strangers in these spaces and, by extension, in the more public lobby and stairwell is an additional beneficial result.

In order to measure the extent to which crime rates increased with the number of families sharing a hallway, the total number of felonies, misdemeanors, offenses, and lingering crimes committed in hallways was compared for every housing project in New York City. Examination of the results, as seen in figure 51, reveals that smaller halls (defined as those with two-five apartments) have a much lower crime rate average than larger corridors.

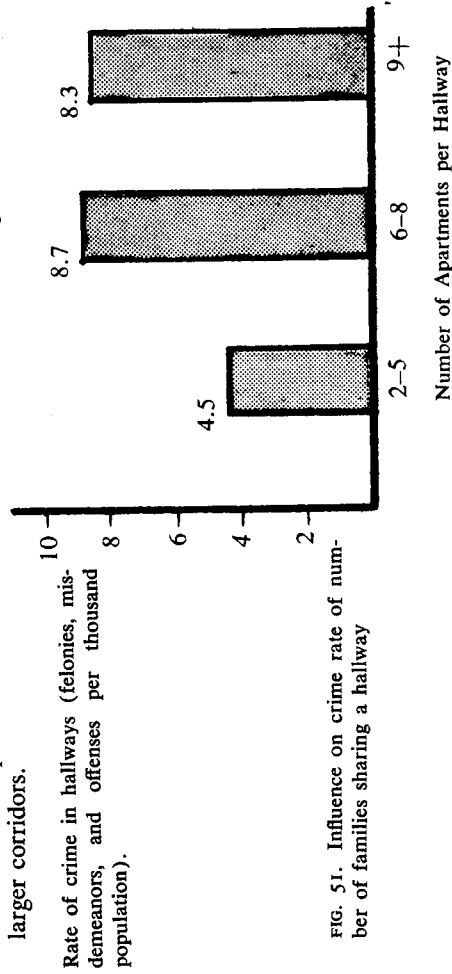


FIG. 51. Influence on crime rate of number of families sharing a hallway

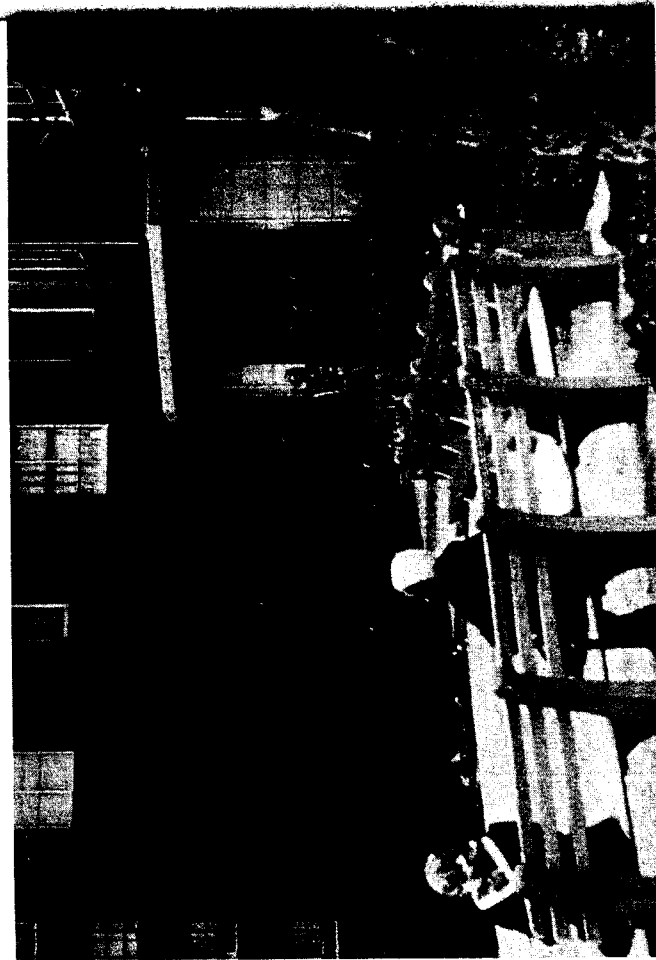
THE INCORPORATION OF AMENITIES AND FACILITIES WITHIN DEFINED ZONES OF INFLUENCE WHICH ANSWER TO OCCUPANTS' NEEDS

The subdivision of areas within housing projects to define the zones of influence of groups of residents receives significant reinforcement as defensible space if facilities directed to the needs of intended sharers are located within these zones.

Our observations have shown that very young children (ages two to five), when playing out-of-doors, limit their field of play to the area immediately adjacent to the entry door of the apartment buildings. If these entry courts are further enhanced by play equipment and surrounded by benches, the areas will become an important focal point and screening device for the use of building residents. Breukelen Houses is a particularly good example of a project with building entry areas that are reinforced by the incorporation of amenities.

The location within territorially assigned grounds of amenities such as play and sitting areas, washer-dryer facilities, and automobile repair facilities will tend to give an area a higher intensity of use and further support any initial claim of territory. The presence of residents involved in various activities, individual or communal—children at play, women chatting or doing a wash, or men talking over the best way to tackle a

FIG. 52. Entry Buffer Area at Breukelen. View of entry to seven-story buildings—sitting and play area create semiprivate transitional zones which are further strengthened by sloped walk leading to entry doors. (Photo by author)



faulty carburetor—brings these areas under casual surveillance by concerned members of the family and further reinforces its defensible space attributes. If these areas are juxtaposed to building entrances, then still another means has been created for facilitating the screening of possible intruders.

THE SIGNIFICANCE OF "NUMBER" IN THE SUBDIVISION OF BUILDINGS AND PROJECTS

Reducing the number of apartment units grouped together to share a collectively defined territory, and limiting the number of buildings that comprise a housing project, are extremely important factors in the successful creation of defensible space (see table 8).

At various scales of subdivision—from number of apartments per hallway, apartment units per building, and number of buildings per project—there appears to be a rule which says that the lower the number, the better. We are by no means certain that we can identify the magical number beyond which the grouping of units at each of the identified scales becomes critical. We have, however, been able to find various situations where a specific number has proven quite effective.

In the design of walk-up buildings there is usually no economic conflict in choosing to either design the building as a single entity (running a central corridor down the full length of it—positioning stairs every hundred feet or so as fire codes dictate) or to distinctly subdivide the building mass internally so that stairs serve only a limited number of units. There are economies in both designs. In the second case, each stair serves only a small number of families (two to four at each level) and a maximum

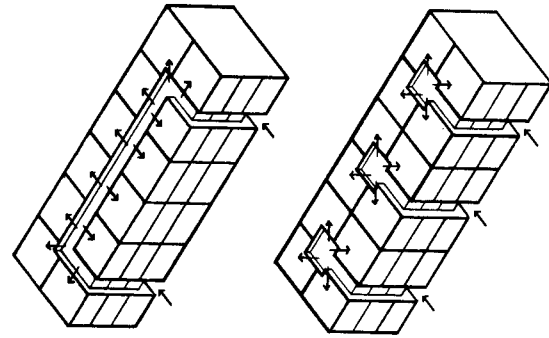


FIG. 53. Alternate designs and access arrangements for three-story walk-ups. Both buildings were designed within the same three-dimensional envelopes, but their internal subdivisions produce radically different environments.

A. All thirty-six units in the building are accessible from the two entries and the double-loaded corridors. Twelve units share a hallway at each level.

B. Each of the three separated entries serves its own twelve units. Only four units share a hallway at each level. Residents are easily able to extend their territorial claims to include the hallways and the entry to their particular sub-building.

TABLE 8
Project Size and Building Type versus Crime

	BUILDING TYPE	
	Point Block	Double-Loaded Corridor
Project Size { 1000 Units or Less	{ N = 6 M = 54 SD = 31	{ N = 41 M = 51 SD = 22
Project Size { More Than 1000 Units	{ N = 4 M = 72 SD = 15	{ N = 30 M = 66 SD = 25

NOTE: N = number of cases examined; M = mean, crimes per thousand; SD = standard deviation

In studying the effect of size on crime, projects were divided into two groups: those with 1000 units or more, and those under 1000 units. It was hypothesized that larger projects would most likely experience higher rates of crime, due to their impersonality as perceived by both tenants and potential criminals and that residents of large projects would be less likely to be able to identify fellow tenants or develop associations of mutual benefit. Such isolation breeds anonymity and alienation—two factors that make projects attractive to criminals.

When a two-way analysis of variance was performed on project size and building type, those projects that were under 1000 apartment units in size had a significantly lower crime rate in both of the building types examined than those of over 1000 units. There was no statistically significant interaction between type and size.

of six to twelve families for the full three stories, rather than connecting to a common corridor that serves all units at each level. In the former instance, there are many entries to the building, each serving a limited number of families.

We have found that where buildings have been subdivided in the second fashion, residents have adopted a very clear proprietary attitude toward what they can identify as their sub-building, its internal corridor, landings, stairwells, entry, lobby, and the grounds immediately outside the entry door. Brownsville Houses and Breukelen Houses in Brooklyn are examples of this phenomenon. The St. Francis Square development discussed in chapter 7 is an example of a three-story slab building divided into independent vertical subunits.

Two operating mechanisms make "number" significant.

The capacity for people to distinguish or recognize by sight the members of the families sharing a building and entry with them. The lower the number, the more quickly and easily this capacity is established.

The value of a facility shared with others decreases with the number of people involved in the sharing. We have found that an outside play and sitting area, if it is intended for the exclusive use of twelve families, has greater significance for each family than a larger area shared by proportionately more families.

These two mechanisms operating in concert seem to play a very important role in facilitating residents' adoption of territorial attitudes and prerogatives.

Elevator apartment buildings, unlike walk-ups, do not readily allow themselves to be subdivided. Depending on the type of elevator employed, economics dictates a very specific ratio of apartments-per-floor to be serviced by each elevator. Buildings four to six stories in height can usually be served by an inexpensive hydraulic elevator. In such instances, one elevator can serve as few as four or five units per floor. High-rise buildings over seven stories in height, however, require expensive high-speed elevators, which economy dictates must serve a large number of apartments, both per building and per floor.

To reduce elevator waiting time and installation costs, it is common practice for two to six elevators serving a building to be grouped into a single bank. This practice of grouping improves the performance time of

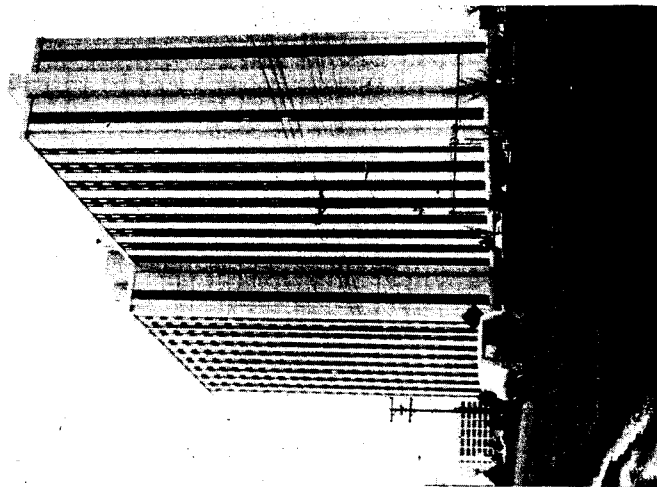
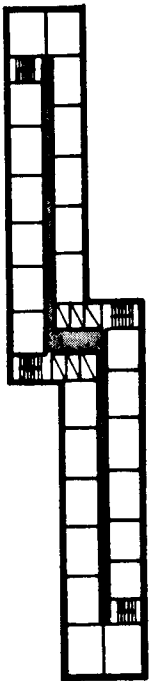
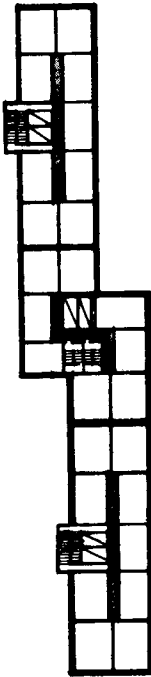


FIG. 54. The photograph shows a 540-unit housing project in Minneapolis (with one common lobby) following the plan of alternate A, shown in figure 54a. (Photo by author)

FIG. 54a. Alternate access and circulation plans for 520-unit high-rise building



A. Plan of a twenty-story building housing 520 families who share one entry lobby and a bank of six elevators



B. Assuming the building configuration is fixed by the site and the desire to hold the building's peripheral walls to a minimum, it is still possible to divide the building into three distinct segments. Each would have its own entry and two elevators serving 160 to 180 families. This plan requires additional sets of fire stairs but saves space by reducing the length of corridors.

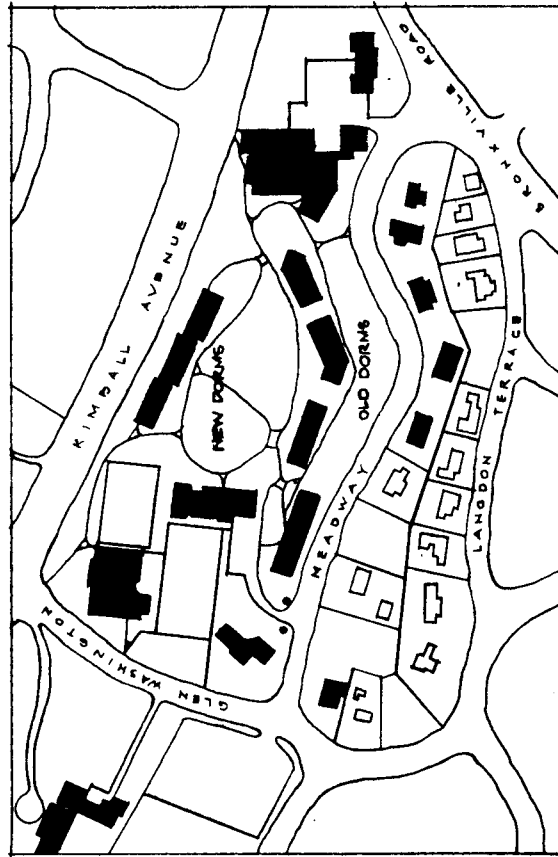


FIG. 55. Site Plan of Sarah Lawrence College, Bronxville, New York. Dormitories are situated on either side of the main campus commons. Old dorms: MacCracken, Lawrence, Titsworth, Gilbert. New dorms: Rothschild, Carrison, Taylor. (Courtesy of Sarah Lawrence College)

elevators, and produces in corridors 200 to 600 feet long, many with L- and T-shape configurations. Following the requirements of fire-safety codes, emergency stairs must be located every 150 feet along the corridor. The combination of frequent fire stairs and long corridors which serve as many as twenty to thirty apartments results in a highly anonymous interior public spaces. This can be remedied, at the expense of increased waiting time, by separating the elevators so that each serves only four to eight apartments per floor.

Perhaps the most fascinating example of the phenomenon of "number" at work was provided by a comparative analysis of two sets of dormitories situated on either side of the main campus commons at Sarah Lawrence college. Both sets of dormitories house approximately the same number of students. The one to the west is a new building, consisting of one long slab served by an interior, double-loaded corridor and four sets of stairs. On the eastern side of the Commons is the older set of dormitories, consisting of three detached buildings, each with its own internal hall and stairways. The three buildings are in the style of an old English manor. Each has two entrances and a small internal corridor. The entries are small and cramped, with narrow halls and stairs and low ceilings. The individual rooms in both old and new buildings are very small.

In interviews with students in both sets of buildings, and with student counselors, the following story emerged. Whereas there is a strong communal sense in each of the old buildings (called "houses"), it is nonexistent in the new buildings. Student residents in the new buildings have resisted any and all attempts by counselors and other students to shape them into social groups. Almost universally, they have adopted a loner's attitude, conducting their lives within the confines of their individual rooms, and seeming unconcerned with the other residents of the building.

The new building also suffers from a high incidence of vandalism and a general disregard, on the part of students, for the maintenance and cleanliness of corridors and furnishings provided in the common lounges. By contrast, students in the older set of dorms feel that they are very much members of an individual house, and that its property, furnishings, and image are theirs for their period of stay at the college. They form strong social entities which define norms or orders of behavior. As a result, the corridors and common areas in the older dorms are meticulously cared for by the students.

Two other problem areas facing most dormitory colleges across the country also trouble Sarah Lawrence. The way in which the two dormitories deal with them is very revealing. There is a much lower frequency of drug abuse and problems stemming from the occasional use of drugs in the individual houses than in the large dormitory. Student counselors explain this as being the result of (1) the greater ease with which strangers from outside the campus can frequent the new building, (2) the fact

dents are allowed to have occasional overnight guests. In some instances, this policy has resulted in boyfriends from the surrounding community using the opportunity to find a place to stay for longer stretches of time. Such guests have occasionally grown unruly, too dependent, or have otherwise proven to be a problem for a girl, and she has found it necessary to evict him. In the new dorms, a pattern has emerged wherein the rejected boy has simply moved down the corridor, or to another floor in the building, and thus succeeds in extending his stay for weeks at a time. By contrast, a boy evicted by a girl living in one of the older dormitories also finds himself evicted from the house and finds it extremely difficult to ingratiate his way into another such house. (The studies of Pruitt-Igoue and other similar large-scale projects housing welfare mothers identified a parallel phenomenon—a similar floating male population—among the Aid-to-Dependent-Children mothers.)

The reputation of the new dormitory building has now become legend at Sarah Lawrence, and every freshman scrambles to be rehoused elsewhere for her sophomore year. This has resulted in the new dorms being assigned primarily to unsuspecting freshmen—further aggravating the situation. So insurmountable are the problems of the new dormitory that the college has entered into negotiations with the State, under whose dormitory program the building was constructed, to persuade them to allow the college to purchase it back and turn it into classrooms and offices. It is now the intent of the college authorities to construct new dormitories similar in form to its more successful older buildings.

In summary, it should be pointed out that project sites containing only a few (two to four) high-rise buildings have been found to have appreciably lower crime rates than projects containing many buildings. It is possible that this is due to the radical reduction in the housing project image. It is improbable that residents are able to distinguish intruders more readily in a grouping of a few high-rise buildings than in one with many, but it is possible that intruders may feel that they can. In either case, there appears to be much less freedom of movement in the public spaces of the smaller high-rise projects. Unlike buildings in large developments, every building of a small grouping usually has an entrance directly off a public street. They more closely resemble middle-income high-rise developments and look more private and impenetrable.

FIG. 56. New Dormitories, Sarah Lawrence College. The new dorms are tied together in one long double-loaded slab structure, not unlike a motel. Students in the new dorms feel isolated without any sense of community. It is claimed by college counselors that the students easily fall into patterns of antisocial behavior. (Photo by author)



FIG. 57. Old Dormitories, Sarah Lawrence College. The old dorms are divided into separate buildings which resemble old manor houses. Students in each dorm have a strong sense of identity and communal responsibility. (Photo by author)

that girls in the new building feel they are isolated and on their own, and (3) lack of group moral pressure to respond to situations which get out of hand.

Since the adoption of a new open-door policy at the college, stu-

NATURAL SURVEILLANCE

- *The Capacity of Physical Design to Provide Surveillance Opportunities for Residents and their Agents*

SURVEILLANCE AND TERRITORIALITY

Improvements in surveillance capacity—the ability to observe the public areas of one's residential environment and to feel continually that one is under observation by other residents while on the grounds of projects and within the public areas of building interiors—can have a pronounced effect in securing the environment for peaceful activities. An additional benefit, of possibly greater import, is that surveillance has a demonstrable effect in reducing irrational fears and anxieties in inhabitants. This may have some self-fulfilling attributes in that residents, feeling that an area is secure, will make more frequent use of it and so further improve its security by providing the safety which comes with intensive use.

However, experience has shown that the ability to observe criminal activity will not, in and of itself, impel the observer to respond with assistance to the person or property being victimized. The decision to act will also depend on the presence of the following conditions:

The extent to which the observer has a developed sense of his personal and proprietary rights and is accustomed to defending them.

The extent to which the activity observed is understood to be occurring in an area within the sphere of influence of the observer.

Identification of the observed behavior as being abnormal to the area in which it occurs and therefore warranting response.

The observer's identification with either the victim or the property being vandalized or stolen.

The extent to which the observer feels he can effectively alter (by personal or collective response) the course of events being observed.

Physical means for furthering the development of proprietary feelings and extending the zone of identification were discussed under mechanisms for the definition of zones of territorial influence.

The Kitty Genovese incident, perhaps one of the most widely known examples in which the many observers of a crime were incapable of mounting an effective response, has been the subject of many studies, some involving in-depth interviews with witnesses. The common excuses given for inaction were that the victim was unknown to the observers, and that the incident occurred on a public street. These two factors, it seems, precluded intervention. This and other similar incidents happening in urban areas point out a serious breakdown in traditional social values and responsibilities.

The provision of surveillance should not be interpreted as a universal panacea for a complex problem. It is necessary to reinforce the point that the *effectiveness* of increased surveillance depends on whether the area under surveillance is identified by the observer as falling under his sphere of influence. Improved surveillance operates most effectively when linked with the territorial subdivision of residential areas, allowing the resident to observe those public areas which he considers to be part of his realm of ownership and hence responsibility. A further operating factor has also been introduced which will be more fully discussed later—the recognition of or identification (on the part of the observer) with the victim. This implies an ability to distinguish strangers and has been found to be closely related to the number of families sharing a particular defined area at each level of a development's subdivision. The unilateral success of surveillance capacities as a mechanism of crime control is, therefore, by no means implied.

The following set of mechanisms are directed to the design of the grounds and internal semipublic areas of housing developments to facilitate natural visual and auditory monitoring of activities taking place within them.

Most crime in housing occurs in the visually deprived semipublic interiors of buildings: the lobbies, halls, elevators, and fire stairs. However, it is possible, through the relative juxtaposition of apartment win-

dows with stairs and corridors, as well as with the outside, to ensure that all public and semiprivate spaces and paths come under continual and natural observation by the project's residents.

It is our hypothesis that the provision of such surveillance opportunities is a significant crime deterrent that markedly lessens the anxiety of inhabitants, and serves to create an overall image of a safe environment. Most important, this image is also perceived by the potential criminal, who is deterred from initial consideration of this area as an easy hit.

THE GLAZING, LIGHTING, AND POSITIONING OF NONPRIVATE AREAS AND ACCESS PATHS, IN BUILDINGS AND OUT, TO FACILITATE THEIR SURVEILLANCE BY RESIDENTS AND FORMAL AUTHORITIES. (ACCESS PATHS REFER TO VERTICAL PATHS AS WELL AS HORIZONTAL ONES AND INCLUDE STAIRS, ELEVATORS, CORRIDORS, AND LOBBIES, ALONG WITH THE MORE OBVIOUS OUTSIDE PATHS.)

EXTERNAL AREAS

Following the directives of early planning manuals, many housing projects have been intentionally designed to look inward on themselves, with the result that residents cannot view bordering streets. In medium-density, row-type housing projects, only the ends of buildings meet adjacent streets; their entrances and windows face the interior of the project. As a result, these bordering streets have been deprived of continual surveillance by residents and have proven unsafe to walk along—for both project residents and the members of the surrounding community. Residents often find that the nighttime journey from the bus stop to the project interior assumes harrowing proportions. Many project residents choose to remain at home rather than use these streets in the evening, further adding to the lack of path surveillance and to feelings of insecurity.

Formal motor patrol of the interior areas of these projects is made impossible. This difficulty has been somewhat overcome in New York City projects through the use of motor scooters by housing police. Nevertheless, the opportunity for the informal supervision provided by passing cars and pedestrians is lost. Similarly, it is impossible for city police to include the internal grounds of such projects in their normal routes.

The traditional row-house street is considered by both residents and police to be superior in design to the superblock configuration most often

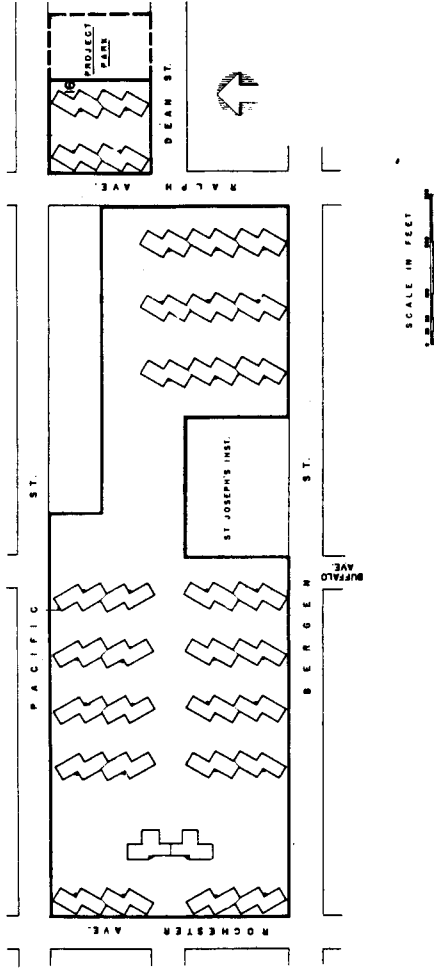


FIG. 58. Site Plan of Kingsborough Houses, Brooklyn, New York. Because the project buildings are oriented inward, the streets surrounding the project are considered unsafe. The activity along Pacific and Bergen streets cannot be observed by residents from their apartment windows.

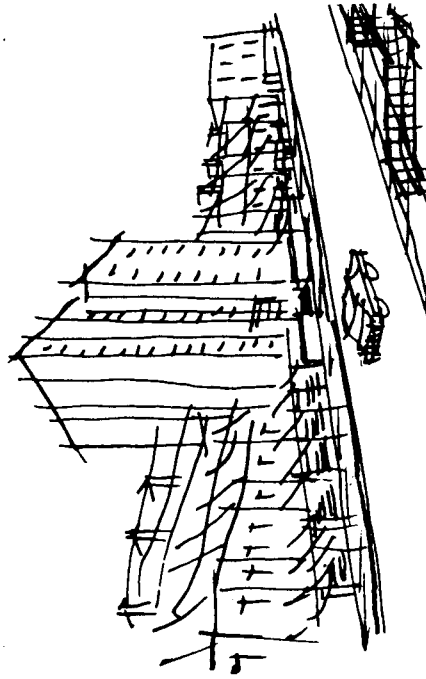


FIG. 59. View of a portion of a row-house street.

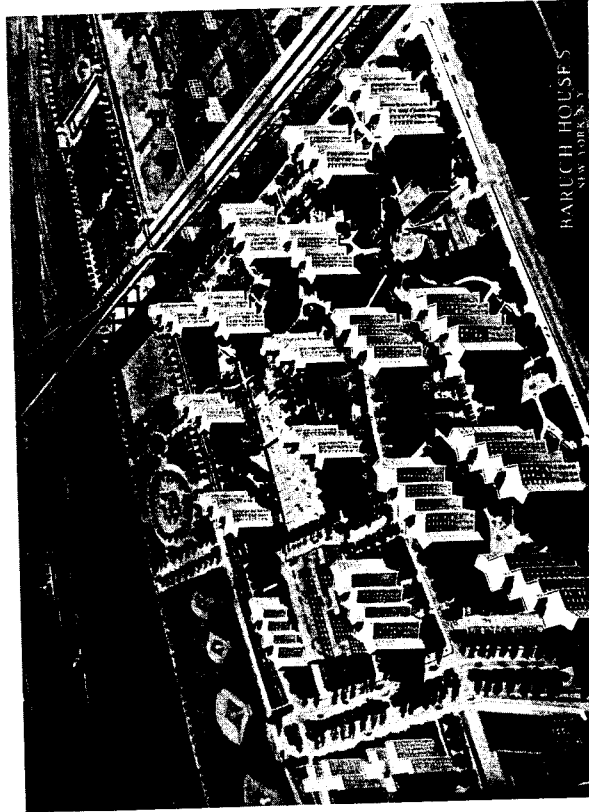
employed in medium- and high-density residential developments. The front entrances of the row-house units are easily surveyed by patrolling automobiles. Well-lit front-door paths, with individual lights over the entrances, allow cruising police to spot at a glance any peculiar activity taking place on a row-house street. The positioning of front entrances along the street provides them with continuous natural supervision by passersby;

the residents within their houses, in turn, provide these passersby with protective surveillance. The New York City Housing Authority Police consider projects with buildings having entrances facing the street superior to those with entrances facing the interior project grounds.

The random positioning of high-rise towers on housing sites has produced systems of access paths which are filled with sharp turns and blind corners. Circuitous paths of movement through the interior of large projects are a recurring complaint of residents, especially in projects where the main building entries face interior project grounds rather than public streets. Woodhill Estates in Cleveland, Baruch Houses in New York and Columbus Homes in Newark are examples. Winding access paths provide many opportunities for muggers to conceal themselves while awaiting the arrival of a victim. The circuitous access route to building entries is made even more dangerous by the common practice of positioning shrubs exactly at the turn in a path. Compositionally satisfying as this practice might be, such visual barriers provide natural hiding places and vantage points for potential criminals.

Regardless of how well-lit these areas are, residents express strong fears about turns in the path system connecting the street to the building lobby. This problem does not of course arise in the traditional row-house pattern where buildings are set back only a few yards from the street. Nor does it occur in projects such as Breukelen and Brownsville (discussed in chapters 2 and 3) where the entry is only slightly set back from the street. In these projects, residents are able to scan the terrain they are about to use; they move in a straight line from the relative safety of the

FIG. 60. Aerial view of Baruch Houses, New York. (Courtesy of New York City Housing Authority)



public street to what they can observe to be the relative safety of the well-lit lobby area in front of their building.

The design of such projects as Columbus Homes in Newark, Pruitt-Igoe in St. Louis and Baruch in New York requires residents to leave the comparative safety of the neighborhood street and enter the project grounds without knowing what lies ahead. Access to the building entry requires entering the project interior, circumnavigating a few corners, and finally approaching a point from which they are able to observe the lobby of their own apartment building.

To test the soundness of our theories on building location and its effect on crimes, existing New York City housing projects were divided into three categories:

Those with buildings facing and within fifty feet of the street.

Those with buildings facing and within fifty feet of the street and with good lobby visibility (large window area)—a subcategory of (1).

Those with less than 30 percent of the buildings facing and within fifty feet of the street.

The total number of felonies, misdemeanors, and offenses was calculated for all projects, as well as for those in the three categories, and a rate per thousand population was determined.

The lowest crime rates were recorded for the second category (optimum surveillance possible). The highest rates occurred in the third category, where most buildings had poor surveillance potential. Evidently, the orientation of a building to the street and the open design of its lobby have a direct effect on the attractiveness it possesses to criminal elements. A project with buildings facing and close to a street, with lobbies visible to passersby, is decidedly less likely to experience as much crime as one where these factors do not interplay. (See table 9.)

As a further test of the effect of visibility on crime rate, the same projects were divided into two groups according to type of lobby entry. Those projects with buildings having little or no definition were labeled "poor" and those with significant or precise entry definition were, labeled "good." (See figure 61 design criteria.)

In addition, the same projects were also divided into two groups, "good" and "bad" according to quality of lobby visibility, from the outside primary door. Those projects that fell into "good" design categories, for both entrance definition and visibility, were labeled "Category I"; those that qualified as "good" on only one design criterion formed Category II; and finally, those projects in which buildings were rated "poor" on both criteria were listed under Category III. Felonies, misdemeanors, and

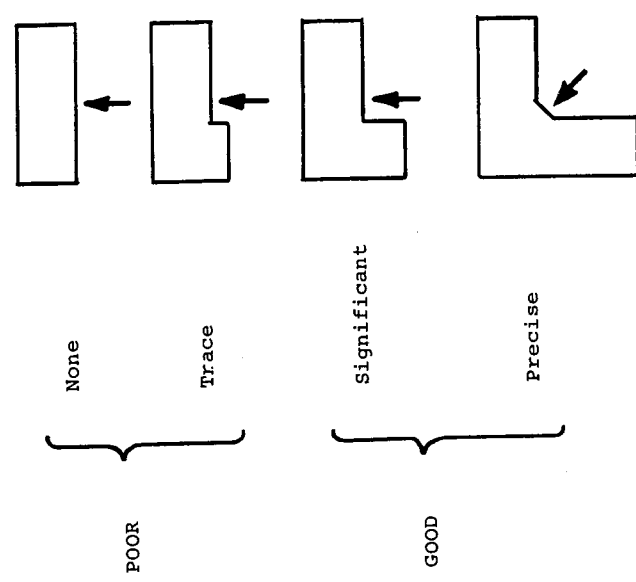


FIG. 61. Extent of definition of lobby entry as formed by shape of building.

TABLE 9
Surveillance (Building in Relation to Street)

FMO's* in Lobby	All Projects		
	(a) Projects Where All Buildings Are Facing and within 50 feet of Street	(b) Projects Where All Buildings Are Facing and within 50 feet of Street and Having Good Lobby Visibility	(c) Projects Where Less Than 30% of the Buildings are Facing and within 50 feet of Street
Rate per 1000 Population	7.5 (140 projects)	5.3 (22 projects)	4.4 (12 projects)
			9.7 (21 projects)

* Felonies, misdemeanors, and offenses.

offenses occurring in both lobbies and elevators were totaled for all projects concerned.
The results, shown in table 10, underline the importance of the effect of design on discouraging crime.

TABLE 10
Effect of Lobby Visibility and Entry Design
On Crime Rate

		Crime Rate (FMO's) per 1000 Population	
		Lobby	Elevator
Category I	good visibility/good entry definition	7.3	3.8
Category II	(a) { poor visibility/good entry definition	7.8	4.5
	or (b) { good visibility/poor entry definition		
Category III	poor visibility/poor entry definition	8.6	4.6

Category I projects, in which buildings were rated "good" on both counts, had a comparatively lower crime average. Category II had slightly higher crime rates. The highest rates were recorded for Category III, where both design factors were considered "poor."

When separate scores were calculated for both parts of Category II (see table 11), it was discovered that for both the elevator and lobby, crime rates were higher in buildings with poor visibility, clearly indicating that of the two design factors, visibility seems to be the determining one for crime rate and not entry definition.

TABLE 11
Breakdown of Category II

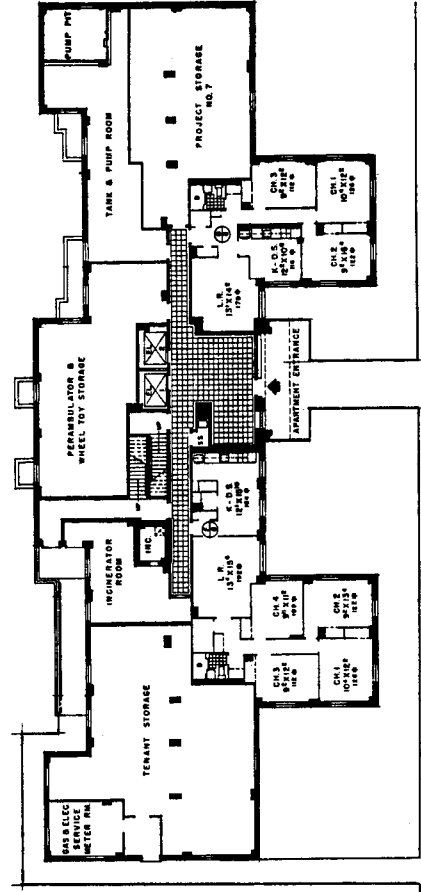
		Crime Rate (FMO's) per 1000 Population	
		Lobby	Elevator
Category II	(a) poor visibility/good entry definition	8.9	4.9
	(b) good visibility/poor entry definition	7.2	4.1

Lobby

Lobby design is easily provided with surveillance from outside a building, and it is possible and preferable to design the lobby so that internal activity—getting mail, waiting for the elevator, using the pram room, or, as the case may be, purse snatching or drug dealing—is observable from the streets and exterior grounds of the project. As an example of how poorly lobbies can be designed, the entrance of the Bronxdale Houses project in The Bronx, New York, requires one to make a double turn before reaching the elevator waiting area. Residents of Bronxdale are required to enter the building “blind” with no foreknowledge of what awaits them; once inside they are completely isolated from visual or auditory observation by persons within the apartment units or outside on the project grounds.

By contrast, the design of the lobby of Highbridge Gardens is clearly preferable. In these buildings, elevators are located directly opposite the entry doors which were designed as a part of a large window wall. Similarly, at Edenwald Houses in The Bronx, the lobby is glazed, well-lit, and open to visual observation from as far away as fifty yards. Figure 65 compares crime location in Bronxdale and Highbridge with an average of twenty projects. Where all-over crime rates are three-fourths the average at Bronxdale and two-thirds at Highbridge, lobby crime at Bronxdale is 52 percent higher than the average, while at Highbridge, it is 33 percent below the average.

FIG. 64. Ground-Floor Plan of Highbridge Houses. The elevator waiting area is located directly opposite the entry. Residents can screen the lobby before choosing to enter. While inside the lobby, they are under continuous surveillance by people using the outside paths.



A final indication of the relationship between visibility and crime was discovered when robberies occurring in elevators were examined (elevator robberies were the most numerous of the major crimes in 1969). The annual rate per thousand population for elevators judged not visible from outside the main entrance was 65 percent higher than for elevators that were visible (3.8 compared to 2.3).

INTERNAL AREAS

The internal areas of high-rise buildings contain many zones devoid of any opportunity for surveillance. Lobbies, elevators, hallways, and fire stairs are, by definition, public rather than private spaces and are intended for use by all building residents. Yet, these zones differ from other public areas, like city streets, in that they exist without benefit of continual observation by either patrolling officers, residents, or passersby. It would have been preferable to design all these internal public areas so that activities within them could be readily observed from outside the building.

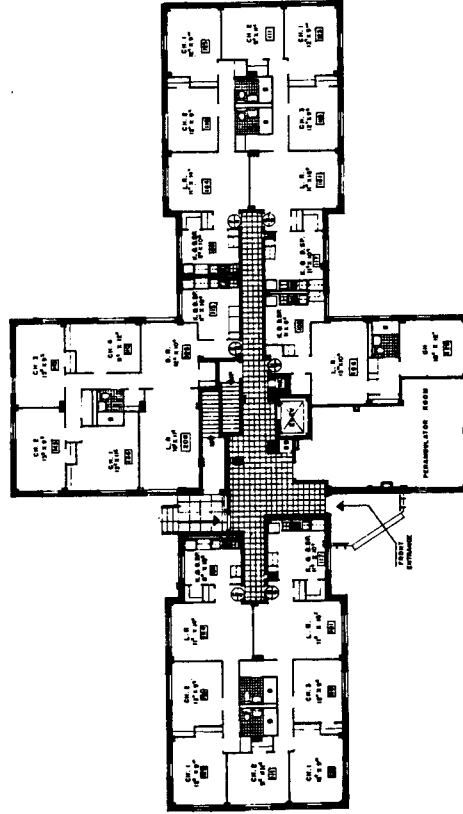


FIG. 62. Ground-Floor Plan of Bronxdale Houses, The Bronx, New York. Note that the elevator waiting area in the lobby is hidden from outside view. Residents must enter the building with no foreknowledge of what may be awaiting them. If molested, they are under no surveillance.



FIG. 63. Entry at Bronxdale. The elevator waiting area is around a bend in the lobby and is totally hidden from the view of someone entering the building. (Photo by author)

Due to fire code requirements, the stairs are virtually sealed off from heavily traversed areas of the buildings they serve. The stairwells are commonly constructed of concrete, with access provided through heavy, fireproof steel doors in which the only opening is a one-foot-square area of wired glass. This arrangement effectively precludes the possibility of visual or auditory monitoring of activity in the stairwells. Consequently, most residents rarely make use of the stairwell for entry and exit, thereby increasing its isolation.

A disproportionate amount of crime has been found to occur on these stairs. It is common practice for criminals to accost their victim in a more heavily used public area of the building—the lobby, elevator, or corridors—and then move him or her, by threat or force, to the sealed fire stairs. Not surprisingly, fire stairs are the area in which a high percentage of the rapes occur, and in which narcotics addicts congregate.

In older buildings and projects, fire stairs were constructed with glass areas larger than contemporary fire codes permit. For example, at Breukelen Houses the landing areas and a good portion of the stairs are surveyable both from the interior corridors and from the grounds and street. Large windows at the stair landings flood the internal stair with daylight. Users of these well-trafficked stairwells feel that they are under observation by other residents and that in an emergency they can call out to people in the street below.

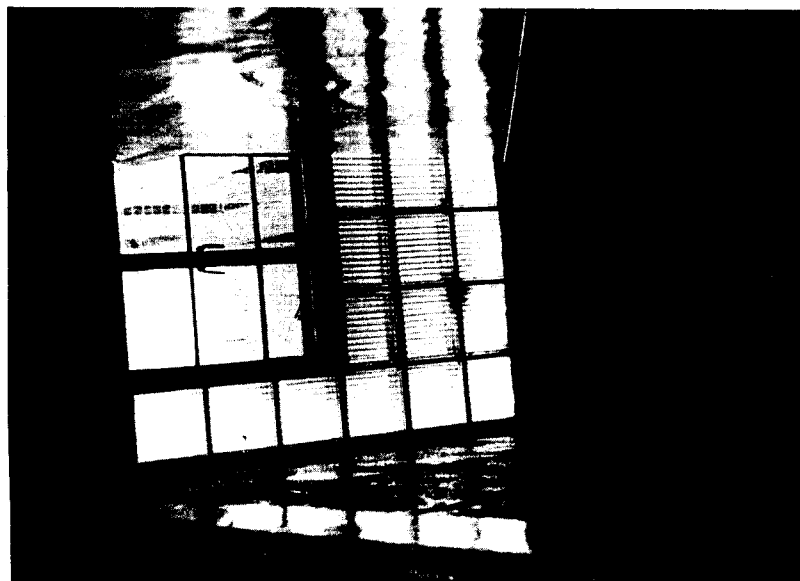


FIG. 67. View from Inside Scissors Stairs at Breukelen. Photo shows landing and end wall composed of glass-block window. This glazed end wall, and its positioning adjacent to the street and entry area to the apartment building, provide an important degree of contact between persons in the stair and those outside. It also facilitates police patrol of the stairs, providing an important degree of visual surveillance. A removed stairwell light is usually read as a danger signal by patrolling police and is investigated. (Photo by author)

CRIME* LOCATION PROFILE

SOURCE: N.Y.C.H.A.
POLICE STATISTICS—1970

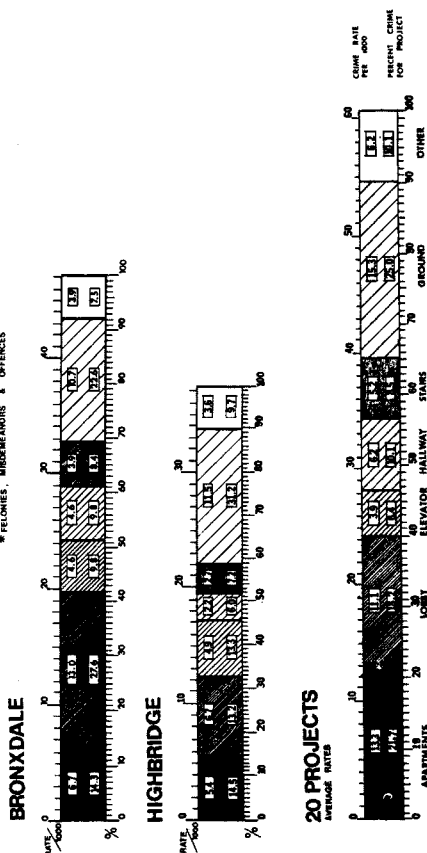


FIG. 65. Crime Location Profile for Bronx, Highbridge, and twenty average projects

Fire Stairs

Another area of high-rise buildings devoid of both visual and auditory surveillance opportunities is the fire stair system. Because of changes in fire code regulations, fire stairs in elevator buildings must be enclosed in fireproof wells. These regulations have resulted in the widespread adoption of the scissors-stair design. This solution has precipitated a wide range of allied problems.

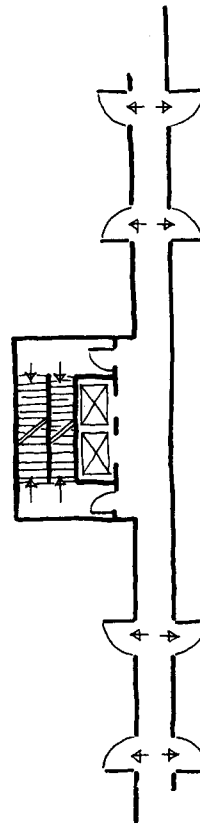
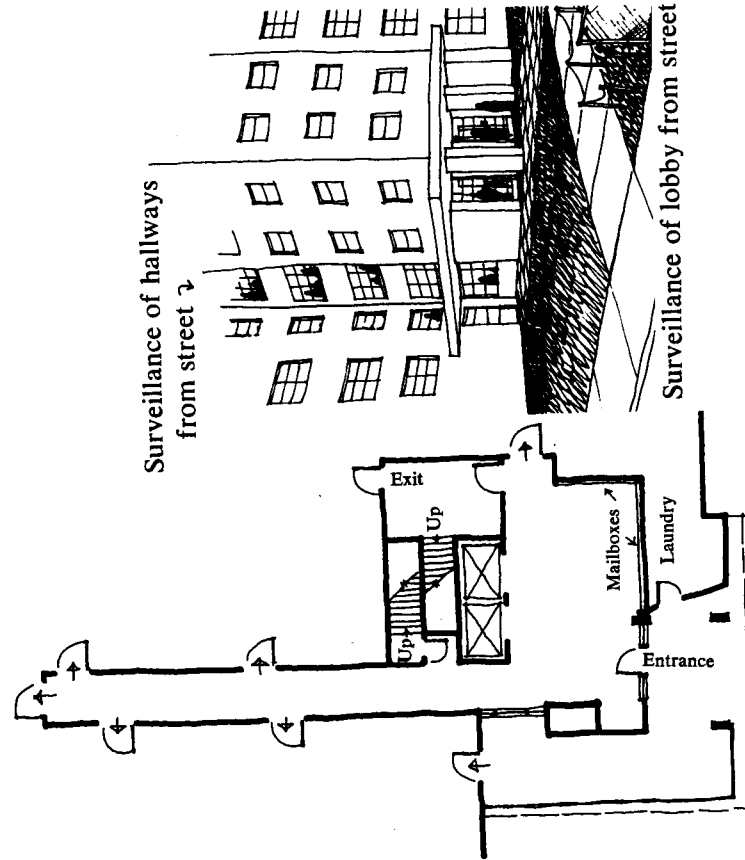


FIG. 66. Plan of Typical Floor, Double-Loaded Corridor Apartment Building. Scissors stairs positioned behind a bank of elevators in a double-loaded corridor building.

Effective formal police surveillance is a difficult task in high-rise buildings with scissors stairs. Housing police patrol the interior of a building of double-loaded corridor design by taking the elevator to the top floor and descending one fire stair after another, observing activity in the corridors at each floor level as they go down. In addition to being burdensome and boring this method is not particularly effective; it is difficult to see more than a few yards ahead, and it is impossible for a man to cover more than one stair at a time. Conversely, evading a patrolman is very easily done. A criminal can hear a patrolman coming three floors away, by the sound of his footsteps and the opening of doors at each level. Eluding pursuit by police is further facilitated by the double, scissors-stair configuration which produces an exit door on each side of the building. Police officers may be going down one of the staircases while the intruder slips down and out of the other.

Members of the staff of the Project for Security Design accompanied officers of the New York City Housing Authority Police in their nightly and daily patrols and witnessed the comparative ease of formal patrol of buildings which have features such as (1) windows in the fire-stair walls, (2) lobbies and mailbox areas that are well lit and easily viewed from the

FIG. 68. Tilden Houses, Brooklyn, New York. The positioning of windows at the end of the corridor on each floor and at the stairwell landings allows a patrolling officer on the street to observe activity in these public interior spaces.



street; and (3) elevator waiting areas at each floor which can be seen from the street below. These areas can be surveyed from the ground at a glance. Trouble spots in buildings can be pinpointed easily from the street. Someone moving down a set of stairs can be observed in progress. Dark landings resulting from smashed or unscrewed light bulbs provide a warning that some activity may be taking place there.

Tilden Houses illustrates the increased surveillance opportunities made possible by simple modification of what is otherwise a standard floor plan: windows were inserted at the end of the corridor on each floor and at each landing of the fire stair. As a result, the patrolling officer on the street can observe much of the activity in the public interior space of the building.

Roof landings (the last landing of the fire stair before exit onto the roof) have presented a similar surveillance problem, because they are used by addicts as a gathering place. At Brownsville Houses, two kinds of roof landings are employed: one set of landings is dark, and one has windows and is well lit. Drug addicts are seldom found in the second, but the first is the location of numerous arrests on narcotics charges.

THE JUXTAPOSITION OF ACTIVITY AREAS IN APARTMENT INTERIORS WITH EXTERIOR NONPRIVATE AREAS TO FACILITATE VISUAL SURVEILLANCE FROM WITHIN

Design that facilitates the surveillance of outside areas from within the apartment can be accomplished in many ways. This involves designing apartments so that people *within* them will naturally view the communally used paths, entries, play, and seating areas of a project during their normal household activities.

Breukelen Houses, discussed in the previous chapter, has employed this technique. The result is very little crime, or fear of crime, on its grounds. The architects of Breukelen located kitchen windows in each apartment so that they face the building entries, and then incorporated play areas and parking lots adjacent to these entries. As adult occupants spend a good portion of their time in the kitchen-dining area, they easily and naturally observe their children at play outside, while at the same time monitoring the comings and goings of residents and strangers.

Surveillance of the public areas of building interiors from the apartments can be provided for equally well. Apartment buildings of "single-loaded corridor" design provide ready opportunity for natural surveillance of their corridors from within the apartment. "Double-loaded corridors" are, by contrast, devoid of surveillance opportunity except where ten-

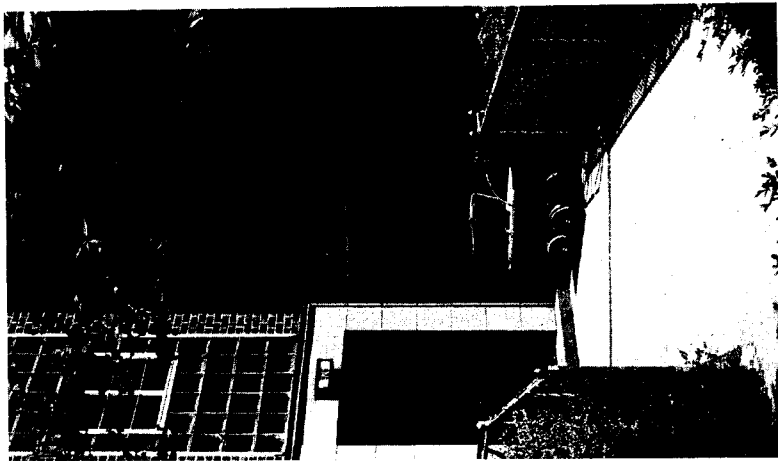


FIG. 69. Transitional Path at Breukelen Houses. View of the transitional path leading from the common play area of the buffer zone to one of the entries and stairwells within the L-shaped building. This area is considered to be sufficiently defined as semiprivate (serving only the nine families in the building) so that a baby can be left in a pram alone beside the entry. Note, however, that the kitchen windows of the apartment units on both sides of the entry and at each level are immediately adjacent to the entry and stairwell and look out upon this area. (Photo by author)

FIG. 70. Transitional Buffer and Parking Area at Breukelen. The transitional zones formed by the L-shaped buildings at Breukelen at times include parking. This combination of parking, seating, and play space adjacent to the multiple-entry buffer serves to create a well-peopled and well-watched-over semiprivate outside zone serving the apartment building. In this L-shaped building, five entries share a common buffer area and parking lot. Each entry, in turn, has its own transition zone leading from the common buffer area. (Photo by author)

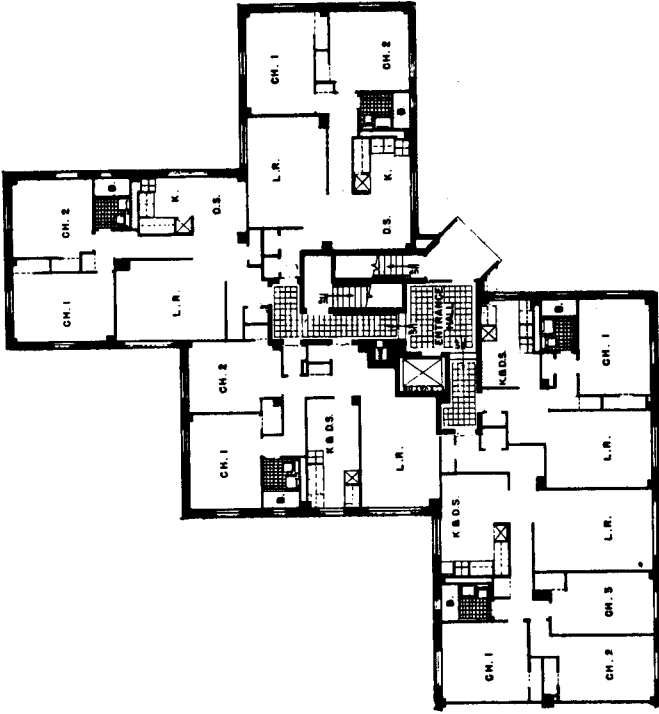
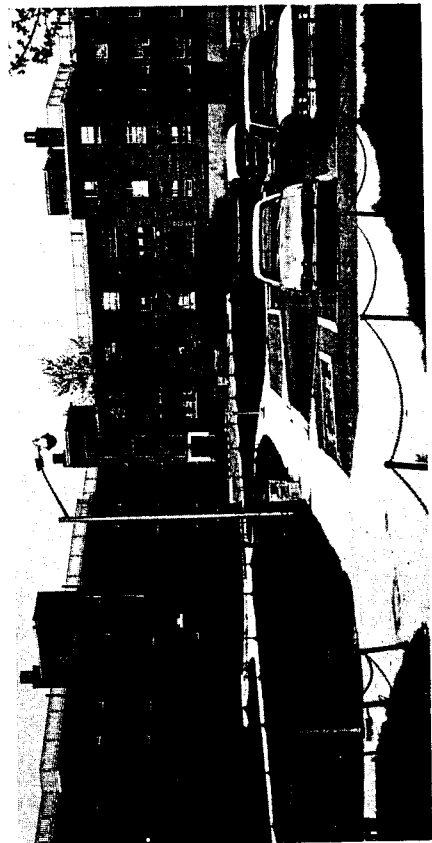


FIG. 71. Ground-Floor Plan of Breukelen Houses. The design of the apartment units facilitates surveillance. Kitchen windows face out on front entries, allowing parents to observe the movements of children and passersby.

ants choose to use the peepholes in their doors. As was described earlier, a double-loaded corridor denotes a building designed with apartment units positioned on either side of a central corridor; "single-loaded" corridor designates a building design in which apartment units are located exclusively on one side of the corridor and face an exterior wall which is glazed or, in mild climates, left open to the weather. The open corridor allows designers to locate windows in the apartment wall facing the corridor to achieve cross-ventilation of the apartment unit. The provision of windows allows as well for excellent surveillance opportunities. Cross-ventilation of units in a double-loaded corridor design is, of course, impossible. The setting of windows in the corridor wall is further precluded by fire regulations and the lack of privacy that would result from the close proximity of windows in the facing apartment.

An example of single-loaded corridor design in a public housing project is Stapleton Houses in Staten Island, New York. Here, the corridor approaching an apartment unit can be monitored by residents through both their kitchen-dining room and their living room windows. These cor-

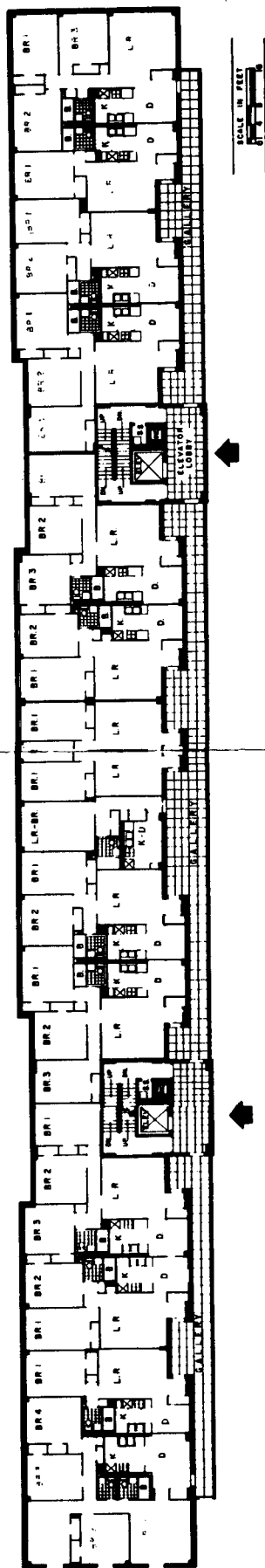
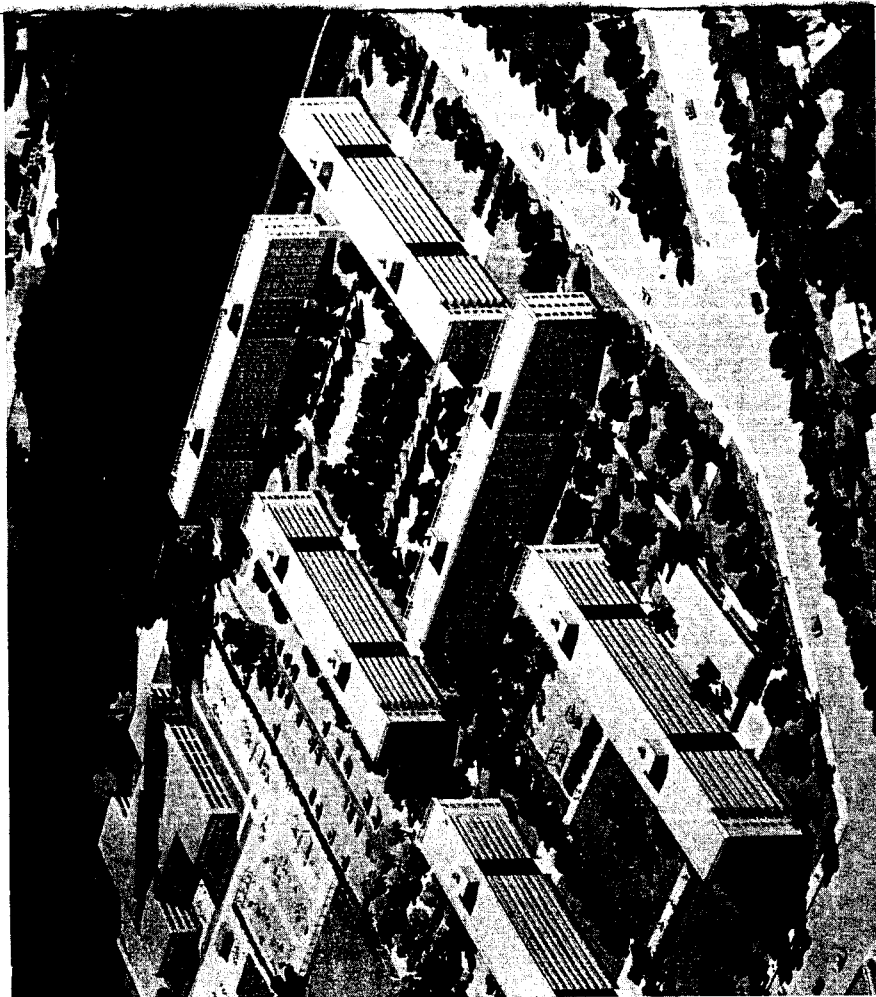


FIG. 72. Typical Floor Plan at Stapleton Houses, Staten Island, New York. Stapleton Houses serves as an example of a single-loaded corridor design. Apartment unit entries are on only one side of the corridor. Living room and kitchen-dining room windows open onto the corridor providing good surveillance opportunities. Note the recessed buffer zone defining the entries to apartment units.

FIG. 73. Aerial View of Stapleton Houses. The juxtaposition of building blocks allows the monitoring of the open corridor in one building by residents in the apartments of the other buildings. (Courtesy of New York City Housing Authority)



ridors also receive marginal monitoring from the bedroom windows of opposite buildings. The open-corridor window wall also facilitates effective police surveillance from the ground level. It is easy to understand, therefore, why the corridors of single-loaded buildings have almost no crime problems, whereas double-loaded corridors are responsible for some 20 percent of all crimes committed in the interiors of buildings.

Typical of the single-loaded corridor building design is a floor plan in which the elevators and fire stairs are located centrally. The open corridor runs from one end of the building to the other, through the central area which is usually enclosed. At least one apartment is located in this enclosed central space, opposite the elevators. These centrally-located apartments have no windows onto the corridors and no visual link to the other apartment entrances because of the two doors closing off the central interior space. Despite the fact that the apartments with windows provide an easy access for criminals, they are the least burglarized. Rather, the central apartments opposite the elevator, with no windows on the corridor, are the most consistently burglarized. In one such middle-income single-loaded corridor building in Manhattan, Columbus Towers, there has been a recent rash of burglaries—averaging four per month. All the apartments burglarized were those located within this central elevator area of the corridor, that is, those immediately opposite the elevators.

At Stapleton Houses, continual surveillance of the gallery corridors is provided through apartment windows: threats such as loitering strangers are detected quickly and reported to the Housing Authority police. By contrast, the entry lobbies of Stapleton Houses are not related to apartment units and suffer from poor visibility. These are the most littered areas of the buildings, suffer the most vandalism, and are where most of the crime occurs.

The typical floor plan at Stapleton also incorporates another design asset not common to single-loaded corridor layouts: the entry area to each of the apartments has been set back an additional four feet to create a small transitional zone separating the entry from the corridor proper. This semiprivate areas, coupled with the facility for continual surveillance activity, has resulted in residents' adoption of this corridor space as their

own. Visible assertion of their territorial prerogatives is seen by their placement of lounge chairs outside their doors in hot weather. What was officially designated by the Housing Authority as public space has been claimed as semiprivate by the tenants. Children play in these outside corridor spaces continually, and many leave their tricycles and other toys there overnight.

Housing Authority management is concerned that the pattern of corridor use at Stapleton Houses constitutes a breach of the rules of occupancy. The Authority quite painstakingly informs tenants that there is to be no loitering or other activity in the public areas of the building. Management is further troubled by tenants bickering over their conflicting claims to territory and boundaries in the outside gallery. Settling those arguments is apparently very time consuming. As a result, management continues to issue directives to prevent this occupation of the public corridor, emphasizing the fire hazard and nuisance of it all.

For all its nuisance value, however, territorial bickering has an important function in framing tenants' attitudes toward this space and its violation by intruders. Arguments over the minutiae of territorial boundaries are insignificant when weighted against the benefits accrued: tenants have assumed responsibility for the corridor's maintenance and policing and thereby insure its freedom from crime and vandalism.

Admittedly, the single-loaded corridor is more costly than the typical double-loaded layout, and this is a strong inhibiting factor to its general adoption in low-income housing. However, as we shall see in Chapter 6, in the discussion of Riverbend Houses, the problem is not without solution.

THE REDUCTION IN AMBIGUITY OF PUBLIC AND PRIVATE AREAS AND PATHS IN PROJECTS SO AS TO PROVIDE FOCUS AND MEANING TO SURVEILLANCE

The interior layout and organization of many housing projects is often very difficult to comprehend, particularly when long blocks of buildings are grouped together: interior corridors flow into one another through fire doors; fire stairs are positioned in leftover corners; exits and entrances to long, slab buildings are numerous and difficult to locate. Descending a scissors-type fire stair, positioned identically to its twin, is as likely to deposit one at the rear of the building as at the front. City and Housing Authority police, responding to calls in housing projects with which they are unfamiliar, find it difficult to distinguish one building from another, let alone find their way through the building to the right apartment. The locational simplicity provided by the address

system in the grid layout of streets is, by comparison, a much desired attribute.

CIRCULATION CONFUSION: FIRE STAIRS

As was discussed previously, many large high-rise buildings are required by law to have fire stairs no further than a hundred feet from any apartment. This regulation is commonly satisfied by the provision of a scissors stairs in a central location behind the elevator. Separate exits at the ground floor are also required, and it is quite common to have the second exit at the rear of the building, opposite the lobby entry. This practice results in an ambiguity of building layout, with tenants using front and rear entries interchangeably. Criminals evade pursuit simply by alternating fire stairs as they flee the building. There is only a 50 percent chance that a single pursuing officer will exit at the same side of the building as the criminal he is chasing.

A similar scissors-stair arrangement, with separate exits at the ground floor, is provided at Edenwald Houses. It was through an accident of design, however, that the architect was able to exit both the first and second fire stairs adjacent to the main entry. This modification enabled him to achieve three things.

Any person attempting to evade pursuit by using either fire stair would, regardless of which route he chose, exit at approximately the same point in front of the main building entrance.

Residents and visitors alike, regardless of which entry they choose, must use the same circulation paths and pass within view of the sitting area adjacent to the front door, thus becoming subject to the surveillance provided by this facility.

Much of the reason for using the fire stair as a more convenient route disappears when access doors to the fire stair and the main lobby are positioned adjacently.

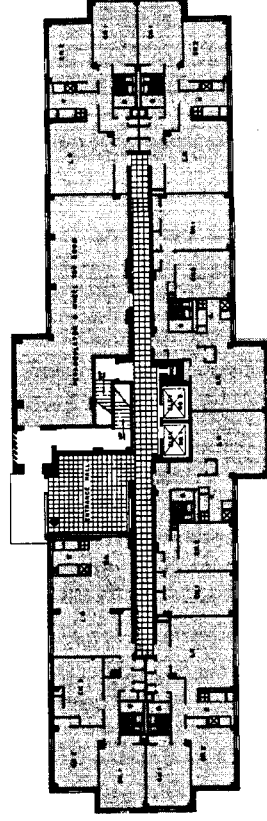


FIG. 74. Ground-floor plan at Edenwald Houses

As a result of this design, the fire exit remains predominantly unused as a secondary means of circulation at the ground level. Edenwald is consequently one of the few projects under the aegis of the New York City Housing Authority in which the security hardware on the emergency exit doors has not been destroyed.

Interviews with Edenwald residents indicate that the securing of the stairwell entrance at the ground level has greatly increased the security of the stairwell at upper levels of the building. The stairs, avoided as unsafe in other projects, are readily used for secondary vertical circulation and for visiting between floors.

Where the fire exit of a building is positioned on the side of the building opposite the main entrance, as in Highbridge, the opportunity it affords to leave a building and move directly toward one's destination becomes a convenience too useful to be resisted. Tenants have often resorted to jamming the latches, on these doors to provide easy access for themselves. However, this practice has had a detrimental side effect: the superintendents have fixed the doors to remain open rather than be continually repairing the latches. The permanently open fire door now provides an easy entrance point for criminals. The stairwell eventually comes to be recognized as a danger zone and falls into disuse by all, save intruders.

Buildings that are longer than the standard 100 to 150 feet (or come under other fire codes), such as those at Columbus Homes in

FIG. 75. Entry to Building at Highbridge Houses, New York. The large window wall at the building entry provides an excellent surveillance opportunity. Residents can see the lobby interior and elevator waiting area from the path outside the building. (Photo by author)



FIG. 76. Fire Exits at Highbridge Houses. The secondary exit at Highbridge is located at the opposite side of the building and is often jammed to stay open. Although at times this makes access to the building easier, it also creates an opportunity for vandals and criminals to enter and leave unobserved. Children rarely realize the potential danger of playing in such an unsupervised and unsafe area. (Photo by author)

Newark and Pruitt-Igoe in St. Louis, have additional sets of stairs which exit to the ground and are connected at every floor through the common double-loaded corridor. Ambiguity of building plan is even more rampant in such designs. The labyrinthine access routes and corridors make recognition of neighbors difficult to impossible; there are simply too many people coming and going. Consequently, residents express fear in using the interior corridors. The many access doors to fire stairs provide almost endless opportunities for intruders to make their way through the building and to surprise tenants at any point along the way. There is no way to tell where someone will appear or where he will exit.

LEGIBILITY OF THE PROJECT AS A WHOLE

Perhaps even more critical than functional ambiguities of building design are those ambiguities which are a consequence of the superblock concept common to large-scale government-supported low- and middle-income housing design.

blems of orientation in large high-rise projects may be as much a result of uniformity in their design as of their internal labyrinthine arrangements. All buildings are designed and positioned alike so that it is difficult to discern any differences. There is also no orderly, or ritual means of progression from street to home. The project looks the same from all angles; all facets of buildings echo the same form. Nothing is done to their apartments or windows can modify the appearance of their buildings so as to impart identity and individuality. Projects almost universally refer to buildings by the number given by the Housing Authority on the original site plan. Few know the location of buildings beyond their own or even of those immediately adjacent to theirs. When tenants have to describe a building or location to a policeman who does not know the building number or to a policeman who does not know the building number, they are forced to revert to primitive terms—"down that way," "at the side of the project." Use of city street names or street addresses as means of locating buildings in a superblock is usually impossible.

In conclusion we find that there are many aspects and facets to surveillance which contribute to the improvement of security. Stated simply, if there is a modicum of morality and accompanying social pressures in a community, opening up all activity in public spaces to natural supervision is a very powerful deterrent to criminal acts. An existing proof of this principle may be found in New Orleans, by a comparison of the Fishes and Guste Homes with St. Bernard Homes and Desire Homes. The Fishes and Guste Homes were built in 1965 and 1963, respectively, and follow the open court and corridor design. St. Bernard Homes and Desire Homes were built in 1942 and 1956, respectively, and the old double-loaded corridor designs. In New Orleans, after the Housing Authority began to build two- and three-story walk-ups with single corridors around open courts, accessible by open stairwells. The result: the virtual elimination of all robberies in the public areas of the project and the elimination of much of the burglarizing of apartments. The subdivision of housing projects into small, recognizable and controllable-at-a-glance enclaves is a further contributory to improving natural surveillance mechanism. Simultaneously, this subdivision serves to provide identity and territorial definition; gives focus, involvement, and commitment to the act of surveillance. In some housing developments where the surveillance of the activity of one's neighbors, outside their apartments, was possible, residents were found to be very familiar with everyone's comings and goings—and, occasionally, surprising. The overall effect, however, was to cement collective identity and responsibility—through these social pressures.

Those, however, who intentionally choose the anonymity and

unsupervised life of large apartment towers to pursue a life style distant from the social norms, the supervised environment is one to be shunned. For these, however, a secure environment may be quite a secondary concern. There is a probable correlation between those who seek anonymity and dissociation from physical neighbor and the young. Equally, family life and middle age probably correlates highly with expectations of neighbor obedience to a moral code—of whatever definition—as it also does with expectations of a secure existence.

With a little bit of searching everyone in this day and age should be able to find a living environment where one's neighbors share one's moral values, however antagonistic they may be to middle-class norms, but still share a common desire for ensuring a safe residential environment.