THE PSYCHOLOGICAL EFFECTS OF LIVING IN HIGH-RISE APARTMENTS IN THE UNITED STATES

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ABSTRACT

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High-rise residential development in the United States has shifted from a once predominantly government entity to one which is now basically private sector initiated and operated. Historically, high-rise apartment construction was done primarily by private developers to meet the needs of overcrowdedness in population in major cities. It should be noted that high-rise apartment living at this time was totally voluntary. One chose his/her type of housing according to affordability.

The federal government first became involved in providing public housing during World War II. The government entrance into the housing industry at this time was a response to the urgent need for providing workers' accommodation in the ship building industry.

Federal government participation in the housing industry grew as a result of such legislation as the Housing Act of 1937. The purpose of this act was to generate employment for unemployed construction workers and to provide housing for middle-class and working-class families who were experiencing hardships.

Beginning in the years between 1957 and 1968, United States public housing construction took on the production of high-rise apartment buildings for the first time. This period of public housing became known to many as "the era of the superblocks." Such cities as Chicago, New York, Detroit, Washington, St. Louis, Buffalo, Baltimore, Cleveland, Boston, Philadelphia, and Atlanta were hosts of the new public high-rise apartments. The United States public housing project remained vital (in terms of construction) until the early 1980s. Today, high-rise apartment building has been taken over basically again by private developers.

Psychological studies, reports, and research have produced inconclusive and mixed results in their efforts to document the well-being of occupants of high-rise apartments. Congruence does exist among researchers that children, the elderly, and families with children tend to be more victimized as a result of living in high-rise apartments. The chief complaint among parents and children living in high-rise apartments is a lack of supervision and communication between the apartments and the playground. The elderly tend to be more concerned about their impaired health and its effects on them in dealing with emergencies and overall safety.

Given the complexity of the differences in life styles, age compositions, household types, preferences, and taste, psychological research has discovered that high-rise apartments, whether publicly or privately built, must be done as a joint effort between the psychologist and the architect.

Prior to building any high-rise apartment structure, the psychologists must provide the architect with as much data as possible so that occupants' preferences, tastes, and life styles can be integrated into the design of the building prior to occupying it. The ultimate goal of high-rise construction is to build an environment which leads to social interaction among residents and accommodate a variety of life styles, while giving everyone a sense of control of his/her immediate surroundings.

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INTRODUCTION

High-rise residential facilities have always been a part of the American culture and heritage. Historically they serve the housing needs of residents in cities throughout the United States. Psychologists have reported a variety of effects of living in high-rises but with only a few common discoveries. Some of the most common discoveries are: (1) an individual's anxiety increases the higher he lives from the ground, (2) one increases his chance of respiratory problems (especially in young children), (3) one suffers from a sense of isolation (most so the elderly), and (4) the high-rise atmosphere is less friendly.

Recently, psychologists have attempted to identify one's level of satisfaction by linking the design of the high-rise building to the individual's perception and feelings. Thus, psychology researchers have changed their focus over time from associating crowding in high-rise buildings (which has no effect on satisfaction) to a more human/architectural design approach.

High-rise apartment living received some of its more negative publicity as a result of the federal government providing such housing types for low income residents. Not all of the high-rises built for lower- and moderate-income level families were failures. Inept architectural design without prior consideration of the

potential residents' desires has been stated as the primary reason for the failures.

Unfortunately, psychologists, social researchers, planners, and politicians have not been able to define consistent high-rise apartment features to justify the ultimate design. Levels of satisfaction of high-rise living fluctuates generally by age group, marital status, life style, and number of children. High-rise apartments in City A may be considered successful in terms of occupant satisfaction while at the same time occupants in City B with identical apartment facilities generate dissatisfaction.

Despite the discrepancies in psychology findings the future of high-rise apartments in the U.S. looks impressive. In 1977, the construction starts of 536,000 homes in multiunit structures (containing five dwellings or more) were authorized. This represented an increase of 27 percent of all housing construction and was an increase of 6 percent over 1975.[1] The United States is currently building at a rate of one and one-half times the demand of 416,000 units projected for the 1975-1980 period. It is estimated that between 1980 and 1990 an additional 3,670,000 units in multifamily apartments will have been built with a further increase of 3,350,000 units by the year 2000 (Joint Economic Committee, 1978:1). These projected figures of increase high-rise apartment productions arouse one's curiosity of how they will be built, designed, and arranged in space.

BODY OF EVIDENCE

Considerable attention has been given to the social, psychological, and cultural effects of occupying a high-rise apartment building. The increased use of such high-rise buildings has been in response to the need for more working space and shelter in highly urbanized areas. In addition, attention has mounted because of the criticisms associated with their construction. The attention area will be reviewed in the text of this paper. The primary focus of this paper will be a direct review of the human responses to living in high-rise residential buildings in the United States. Also, recommendations and suggestions will be given to problem areas. A major emphasis will be to review the social, psychological, life style, safety, and family make-up of residents living in high-rise buildings.

Psychological Impacts of High-Rise Living

There is much diversity among occupants of high-rise apartments in terms of satisfaction or dissatisfaction. Research literature has defined low-income residents, families with children, and the elderly to be the most negatively affected groups of high-rise occupants. Case studies will be reviewed to further explain the controversial definition of high-rise satisfaction and the good and ill psychological effects of it. The level of

satisfaction experienced by residents of high-rises ultimately depends on the situation at hand and the individual's perceived likes and dislikes of his environment.

Children Living in High-Rise Apartments

Research findings of the effects of children living in high-rises appear to be jejune and inconclusive. With respect to physical development and health, there is some evidence that young apartment children are somewhat less adept at certain playful activities than are their counterparts living in single family homes.[2] Studies of medical records (Darke and Darke, 1969) found that the incidence of respiratory diseases increased with height of the home.[3] Likewise, Fanning (1967) obtained similar results in a more carefully executed study of the health status of children of British army personnel stationed in Germany.[4]

With regard to mental health, the literature is replete with assertions regarding the negative effects of high-rise apartment living. For example, apartment children have been cited as being more aggressive because they cannot get back quickly to the safe shelter of their homes and, in order to survive, must learn to be tough. Young apartment children would be more nervous and bored and would develop a greater dependence on their parents who restrict their mobility because of the difficulty of supervising them outside the home. Older apartment children, on the other hand, would roam around freely and, through peer influence, would more likely become engaged in vandalism and other delinquent

behavior. These findings of children's behavior were evidence based on the personal experiences of observers in such professional roles as housing manager, child welfare worker, and psychiatrist.

The area of high-rise living influence on peer relations and friendship formation has been blurred by conclusions in literature. Some researchers believe that apartments inhibit spontaneous social interaction and limit the possibility of receiving friends at home (Gregoire (1971),[5] Jephcott (1971),[6] and Young (1976)[7]). Other researchers found the opposite behavior in that they failed to find any negative effects of high-rise apartment living on children's social interactions. For example, Farley (1977) found that children who had moved to high-rise apartments had more rather than fewer friends as compared to children who had moved to houses, although the difference had diminished one year after the move.

Children's play activities appeared to be one of the most easily defined characteristics of high-rise apartment living. The significance of easy parental supervision and easy access to the outdoor environment emerge as the two principal findings from numerous studies of children's play activities. Studies show that parents in high-rise apartments tend to take an all or nothing approach with respect to children's outdoor behavior. Either the parents relinquish care and let their children play outside anywhere they wish or they take the overprotective route of keeping them inside the apartment all the time. Children's age becomes a crucial factor with play habits. Research studies show that

younger children living in high-rise apartments played more frequently indoors as compared to children of the same age group living in walk-ups. Among older children, the situation was reversed; those living in the high-rise apartments spent more time outdoors.

This overview of findings in the literature is not exhaustive, but it suffices to indicate the diverse issues that have been investigated along the spectrum of possible influences of high-rise apartment living on children.

The Elderly Living in High-Rise Apartments

Research focusing on the psychological effects of the elderly living in high-rise apartments has produced information data but with complex implications. The level of well-being tends to rest on the link between the building's physical features, its outright design, and the social activities it offers. Overall it can be concluded that lower level or court residents experience a higher degree of satisfaction as compared to high-rise residents. Two case studies will be briefly reviewed to demonstrate this conclusion and highlight the major variables involved in designing elderly high-rise housing.

In the early 1970s the U.S. Department of Health, Education, and Welfare funded researchers at the Phildadelphia Geriatric Center to do a nationwide study of elderly people living in tall/high-rise buildings. The researchers found that high-rise living among the elderly residents did not have a major impact on their

morale and ability to make social contacts or participate in activities in or out of the building.[9] Despite the majority satisfaction among the elderly residents, many of the residents were dissatisfied because they were afraid of fire and uneasy that elevators would leave them stranded. The use of fireproof buildings was not enough to convince many elderly residents that their particular building was safe.

Many general concerns of the elderly were mentioned, such as the reduction of their physical strength which comes with age, health problems, hearing impairments, and the overall decline of the sensitivity of the five senses. These concerns will have to be considered more by architects and engineers in their designing and building of high-rise apartments to house the elderly.

Ann Sloan Devlin, an environmental psychologist in New London, Conn., conducted a study of the elderly living in high-rise apartments compared to low-rise dwelling units. The overall findings showed that both groups experienced moderate satisfaction in their respective domiciles.

The level of elderly satisfaction in the high-rises of 9 and 11 stories was based on the following factors: (1) understanding and organizing information, (2) avoiding confusion and disorientation, (3) environmental legibility, and (4) perception of safety and social interaction.[10] The interaction of these contributing factors (which will be discussed in more detail shortly) to the individual's level of satisfaction further complicates the design

picture for architects and engineers in addition to proper planning.

Elderly residents who participated in the study had the basic high-rise fear of building height, threat of fire, and concern about elevator mishap. Also, the elder residents cited dissatisfaction in the area of site arrangement and surveillance. Many of the negative findings in this area were related to the design variables of wayfinding, orientation, and knowledge of the environment. A chief site arrangement complaint was the improper location of entrances to the housing project area. The residents felt that the buildings were facing the wrong way and this orientation has negative ramifications in terms of crime prevention, the often-noted benefit of the elderly high-rise design. The areas were not considered "Defensible Space" as referred to by Oscar Newman and others.

Participants in the study were asked to give their perception of security of their buildings in relation to stress and design. Most respondents stated that they had fear of being assaulted in the building at night, particularly on the ground floor and in the laundry room. Also, at this time, the participants listed the other stresses of fear caused by elevator mishap, fear of fire, and building height. These phobias appear consistently throughout research literature, thus reinforcing the human response to tall buildings irrespective of the building's design, location, and architectural elegance.

Environmental awareness appears to be another problem of the elderly as they are placed in buildings with many floors of uniform design. Many of the elderly residents were guilty of putting their key in someone else's apartment door, thus failing the test of environmental legibility. This problem of disorientation derives from the confusion brought on by the lack of orienting codes and personalization of floors and doors.

Many respondents in this study did not appreciate the limited landscape and perceived lack of control offered by their building. Many respondents felt separated from nature and were not in control of their immediate environment. They did not have a special incentive or attraction to seek possession of the limited public space among the buildings. Therefore, they spent twice as much time inside their apartments as compared to residents of lower-rise units.

The participants in this study reversed the long held belief that high-rise residents were more likely to have greater difficulty in social relationships (McCarthy and Saegert (1977)). The high-rise residents demonstrated higher levels of satisfaction in terms of creating and promoting social activities, neighborliness, friendliness, and a greater level of community spirit.[11] All of these attributes were attainable because of the immense number of residents available in the high-rise to support social activities.

This study identifies a number of important concerns for designers of housing for the elderly as well as other populations.

First, architects and planners must be aware of the impact of design on human information-processing capabilities, as described here by the confusion of high-rise tenants trying to open someone else's apartment door, fears surrounding building height and elevator mishap, and threat of fire. Designers must also possess sensitivity to defensible space principles (i.e., proper location of buildings) to improve the security perception of the buildings.

Second, as nature continues to be perceived as an important role in resident satisfaction, landscaping should not be treated as the design concern of lowest priority. It may be possible that increased contact with nature could provide an extension of territoriality and sense of control over the environment.

The two aforementioned studies highlight some of the basic complexities involved with constructing high-rise residential facilities when there are great discrepancies between social and physical variables leading to the occupants' satisfaction or dissatisfaction. The challenge of designing the appropriate high-rise structure can be difficult, as evidenced by the two elderly studies just reviewed. The psychological factors of design quality, social interaction, and the environment will be further examined in light of other high-rise projects used to meet our housing demands in urban areas.

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Public high-rise residential facilities have been a major part of the housing market since the 1930s. Unlike many other sponsors of housing, public high-rise housing has received an

undeserved negative review from the public and professional critics because of many political and personal biases toward it. Despite the fact that only about 2.5 percent of the population lives in public high-rise housing, it has received undue negative publicity because of a few outright failures.

A celebrated example of such a project is the Pruitt-Igoe complex in St. Louis, Missouri. The inner city of St. Louis included extremely dilapidated slum areas which were replaced by the Pruitt-Igoe project in 1954. Almost 12,000 persons were relocated into 43 11-story high-rise structures covering 57 acres.[12] Initially integrated, the project rapidly became a black ghetto. Many of the black families were headed by women, many were unemployed and on welfare, many lacked formal education.

Pruitt-Igoe is considered one of the most investigated cases studied of the breakdown of social interaction and social support projects in high-rise public housing. From its inception, the project failed overwhelmingly to meet the social and psychological needs of its residents. Pruitt-Igoe became notorious for its rampant vandalism and constant sense of fear and distrust.

Yancey (1971), an architect, conducted a series of interviews with residents of Pruitt-Igoe in an effort to uncover why the project failed as a human habitat.[13] Yancey discovered that Pruitt-Igoe lacked the cohesion and mutual support that have been found to characterize many central city neighborhoods. In analyzing the cause of the breakdown in natural social support, Yancey

concluded that the physical design of the Pruitt-Igoe project had exerted an "atomizing" effect on the informal social networks that typify many inner city neighborhoods.[14] Yancey strongly criticized the philosophy behind Pruitt-Igoe's design that encouraged minimizing "wasted space," that is, semi-public space within the buildings that was outside of individual apartments.

Yancey, however, argued for a different design philosophy. He suggested that the designers of multi-family housing for low-income residents, rather than seeing the space between apartments as something to be avoided, should strive to provide an appropriate amount of space between dwelling units. At the core of the problem, he argued, was a lack of adequate "defensible space"--space that is characterized by a high level of social responsibility and personal safety. Yancey explained that defensible space is achieved when semi-public space between apartments is actively used by a large number of residents who assume some personal responsibility and interest in keeping the area safe. The defensible space notion is particularly compelling because it incorporates aspects of both social networks and personal control. He explained that such semi-public space and facilities would offer areas that smaller and identifiable groups of residents could organize with a sense of personal turf. He emphasized that designers should minimize space in the residential setting that belongs to no one, and foster the development of spaces between dwelling units over which groups of residents will share a feeling of informal control.[15]

One feature of high-rise public housing that produces dissatisfaction is the height of the building. A central problem with height involves the high-rise tenants' lack of control over their environment. In his interviews with residents of the Pruitt-Igoe complex, Yancey (1971) found that the architectural design of the building was such that as soon as the child left the confines of the apartment unit, he was out of mother's supervision and sight.

Oscar Newman (1972) has further developed the notion of defensible space in high-rise public housing environments, emphasizing that by improving the social functioning of public housing the level of crime in these settings can be significantly reduced.[16] Like Yancey, Newman's analysis of the social and psychological failure of public housing is related to the social network level. Newman explained that defensible space is a characteristic of housing environments that inhibit criminal activity by presenting a physical setting that gives the impression of an underlying social order that can defend itself. He proposed that central to defensible space is the natural surveillance as the ability of residents to observe the public areas of the residential environment while they are engaged in their daily activities.[17] Again, it is clear that natural surveillance depends on both the presence of a social network and the exercise of personal control.

Newman suggested that natural surveillance can be best achieved by designing the residential setting in such a way that people will naturally view the common paths, entry and lobby areas,

and outdoor areas in the residential environment. When natural surveillance is achieved, an intruder will perceive that his or her activities are under observation by residents, and that unlawful activity will be easily recognized and dealt with. He advanced a number of design criteria for achieving natural surveillance. For example, he recommended dividing corridor space within buildings into distinct zones, each with its own small cluster of apartments. He also proposed designing buildings so that their lobbies faced toward rather than away from the surrounding city streets, and including several apartments near the lobby area in order that their residents might oversee activity in the lobby area.[18] Jonathan Freedman shares similar feelings with Newman in that he advocates breaking up long corridors into separate units to provide residents with a feeling of protection and social interaction. Freedman, a psychologist, also feels that the way to have a safe, comfortable, and full life is to interact with neighbors, to know other people around you, and to be part of a community. Finally, Freedman feels that the design of the building will be the determining factors of the occupants' well-being.[19]

Newman provided evidence for his hypothesis about the role of defensible space in crime prevention in a comparison of housing projects across the street from each other in New York City that were matched in population characteristics relating to socio-economic status, family composition, and ethnic background. The high-rise Van Dyke project was totally devoid of defensible space

qualities while the low-rise building of the Brownsville project had comparatively more defensible space qualities. The high-rise apartments were found to have 50 percent more total crime incidents, including over three and one-half times as many robberies and 64 percent more felonies and misdemeanors than the low-rise apartments.[20] Despite the wide acceptance of Newman's Defensible Space design technique, it should be mentioned that the technique operates under two important assumptions: (1) it assumes that designed-in visual cues will be understood and adhered to by residents and strangers alike, and (2) it also assumes that residents and criminals are two separate populations. In reality, public housing residents frequently victimize their own neighbors.

Residential crowding has appeared in psychological literature as a key concern among researchers in identifying high-rise occupants' well-being. A particular social psychological problem in housing environments is residential crowding. Since many of the laboratory studies of personal control have involved stresses that are common in overcrowded residential environments, such as high levels of density and noise, community-oriented research and interventions involving personal control have focused heavily on residential crowding. Often, these interventions have been carried out in a setting that provides an analogue of the stressful condition of urban residential and high density student housing.

Research evidence has demonstrated that high levels of crowding in student housing designs that involve long double-loaded

corridors and common facilities shared by large numbers of residents, when coupled with an inability on the part of residents to effectively control their social contacts at the group level with other residents, has negative social contacts and psychological effects on residents' functioning (Baum and Valins (1977)).[21] Baum and Valins (1977) noted that the architectural design of a college dormitory can affect the residents' perception of crowding and consequently their patterns of interaction. Their hypothesis was that if the architectural design of the dormitory provided semi-private spaces, small group formation would be facilitated and the individual's ability to control unwanted social interaction would be strengthened. The investigators compared students living in a suite design (6 people, 2 in a room, share a bathroom and a lounge) versus a hall or corridor design (17 double-occupancy rooms share a central bathroom and an end hall lounge).[22]

Baum and Valins' findings indicated that residents of suite-designed housing, a design which included more semi-private space, experienced greater feelings of privacy , less sense of crowding, and less desire to avoid other hall residents. In contrast, the members of corridor design dormitories, with little or no provision of semi-private space, experienced more feelings of lack of privacy, more sense of crowding, and an increased desire to avoid other hall residents. In addition to residents' self reports, data from behavioral mapping provided evidence for social withdrawal by the corridor residents. Baum and Valins proposed that crowding is

experienced when high density inhibits individuals' ability to regulate the nature and frequency of their social interaction with others.[23]

Jonathan Freedman, a well-known psychologist, contends that crowding per se is less of a factor in generating negative effects in high density settings. Freedman argues that crowding is not usually arousing or harmful to people, but the response depends on the situation.[24] He believes that the effects of density depend entirely on the situation and on the people involved. Crowding is not always stressful and does not always produce harmful effects. The situation an individual is in can be intensified by the density level to produce either positive or negative responses. Freedman believes this theory holds true for high-density housing. He firmly believes that the density of housing will not be an important factor in rates of pathology, social or otherwise.

High-rise housing has been found according to Freedman to be free of crowding problems as livable habitats. Despite the critics' point of view of high-rise living, a great many people live in high-rise apartments and seem to function just fine. Freedman concludes by stating that neither high- nor low-density housing is better than the other, but each may be more suitable for some people and some situations.[25]

The previous discussion of the unsuccessful public high-rise apartment project (Pruitt-Igoe) is a prime example of the missing link between architects, public decision-makers, and occupants of

the units. The housing project stimulating enough interest in the housing research community to encourage other architects, social scientists, and policy-makers to examine the problem. It was evident that solutions designed to solve high-rise housing units can be applied in college and university residential settings.

Just as there are failure stories of high-rise apartments, there are many successful public high-rise projects. For example, 820 Belle Plaines, a subsidized high-rise project in Chicago, has been considered a success by its occupants despite critics' allegations of the high-rise environment. 830 Belle Plaines, which is located in the Uptown Community area in Chicago, is a 24-story, 256-unit project built in 1969.

The diverse make-up of 820 Belle Plaines tenants demonstrates the possibility of high-rise apartments to meet their needs adequately. The Uptown Community is the neighborhood entry for immigrants, and refugees from poverty-stricken areas. It also contains a good many middle-income families and is adjacent to the higher rent neighborhoods of Lakeview, Lincoln Park, and Edgebrook.[26] Overall, 50 percent of the tenants are Black, 25 percent Asian, and 25 percent white including Spanish Americans.[27]

Surveys were sent and interviews were conducted with 830 Belle Plaines tenants to solicit their opinions and feelings of their housing environment. Generally the responses were favorable and supportive of the high-rise apartments. Many tenants felt that the high-rise units gave them a better view of the city. Other

tenants rejected many planners' perspectives that high-rise units lead to isolation by discussing the many friends they have made as a result of living in the project.

Architectural critics tend to point to the lack of amenities in high-rises, especially outdoor space. The tenants agreed with the desire of having private outdoor space, but in reality jobs, they claim, are located in concentrated areas so that people must flock to them without much elbow room.[28] Presently, the time and cost required to commute to work from far away is considered too great for many of the tenants and therefore the high-rise structure which is clean and well-maintained is the best alternative.

Much tenant satisfaction was attributable to the low rents relative to the unsubsidized housing market. Some of the tenants were students remaining until the completion of studies. Others were renting only until they could save enough money to buy a home. Many tenants remained because of the cheap rent.

In summary, the 820 Belle Plaines high-rise complex proves contrary to popular notions currently in vogue in planning circles. Tenants can and do live happily in high-rises with diverse ethnic groups, with different income groups, and with children. Most important, they can provide good housing for a large number of low- and moderate-income families without the need for extensive community facilities or cash subsidies to tenants.

At least from the point of view of the dwellers, it provides satisfying, inexpensive housing without isolating people, depriving

them of spiritual comfort, or violating their rights as citizens. The satisfaction of residents described in the 820 Belle Plaines project shows how an individual's attitude effects his/her level of well-being regardless of the population make-up or the design of the building itself.

The survey findings in the 820 Belle Plaines project illustrate the need for designers and decision-makers to identify and incorporate human feelings, desires, lifestyles, and culture into high-rise structures as much as possible. Studies have shown that many people have been forced to live in high-rise apartments (especially public housing) because it is considered more economical and planners claim that it is the best alternative for using land. The lack of human cultural and lifestyle characteristics being incorporated to high-rise design has led to low levels of satisfaction among many residents.

The Mark Twain Village high-rise apartment complex, which is located in Chicago, demonstrates how a diverse group of residents use their environment irrespective of the building design to meet their needs. At the time of the study the housing project consisted of five 29-story buildings and two 31-story buildings constructed between 1963 and 1968.[29] There were 2,567 rental apartment units.

The majority of the tenants of Mark Twain Village are young single adults between the ages of 21-40; only 29 percent of all tenants are over forty coming either from suburban areas around

Chicago or from other parts of the country.[30] The young tenants are highly mobile and transients. Many are recent college graduates with jobs in professional, managerial, clerical, and sales positions. There are almost no families with children. The differentiating feature of this particular high-rise development is the self-selecting, age significant factor which attracted primarily young adults.

The most attractive factor of the housing complex for young people is the environment it provides them to meet people like themselves. It is evident that the young residents of Mark Twain Village perceived it as a place for social interaction and contact. Social interaction became the driving force and critical criterion for determining their level of satisfaction or dissatisfaction.

An interesting feature of Mark Twain Village apartments is the number and speed of the buildings' elevators. Each building is serviced by two passenger elevators. There are no lounges or informal gathering places, nor is there a recreation center. Thus, elevators, considered by most residents as public places, became the social meeting place for most tenants. The elevators traveled at a below-normal rate of speed, thus allowing its riders to start casual conversations. For Mark Twain Village, the elevator became an instrument for encouraging social interaction while at other projects it has a reputation as being a crime center.

Many residents expressed the need for semi-public space that would draw tenants. Given the socializing objective of many of the

residents, spacious gathering places may in fact, because of their sociofugal (factors that separate people) nature, actually inhibit interaction between tenants rather than facilitate it.[31] Also, if there are too many places to meet the population becomes too dispersed, thereby decreasing the little opportunity to meet. Therefore sociopetal (forces bringing people together) elevators, on the other hand, are good places to meet neighbors because they are small enclosed spaces.

Not everyone chooses Mark Twain Village for social reasons. The different groups of tenants have needs and expectations of the environment which actually conflict. Most of the young tenants were satisfied but the middle-aged residents tended to be concerned with the physical aspects of the environment. At Mark Twain Village it was discovered that those tenants who were most satisfied with the housing environment also had the most definite plans for moving within a year or two. On the other hand, those tenants with the most complaints about the physical condition of the apartments, the maintenance of the buildings, and the management tended to be the ones who had lived there for five to seven years and who did not plan to move in the foreseeable future.[32]

The high-satisfaction group generally included tenants who are single or young married couples. For this group living at Mark Twain Village is a stop-gap measure between child bearing and ownership of a home in the suburbs. Because many of these tenants are interested in the social environment which this housing offers

and do not plan to live here long, they tend not to be overly concerned with the physical features of the environment.

The low-satisfaction group, on the other hand, was composed of older, more stable tenants, many of whom had moved from houses with yards into a high-rise apartment with considerably less living space than they were accustomed to. This group was more apt to make the high-rise apartment their permanent home and to be concerned about the physical condition of the apartments as well as the surrounding area.

Comparing the younger, more transient to the older, more stable population, it was discovered that their differing attitudes extended to communal spaces such as lobbies, halls, elevators, and malls. The stable group, which is interested in making the apartment their home, treated communal spaces as an extension of their own living space. They become upset when people litter, when garbage accumulates in the garbage chute, or when flower beds are neglected. It is the long-term, older tenants who enumerate long lists of complaints about the physical condition of the project. Younger tenants, on the other hand, view such spaces purely as public space and rarely mention them as a source of dissatisfaction. Also, the physical design of apartments and the project as a whole were of little interest to the young. Since short-term residents are most interested in the sociofugal nature of the complex, they are also most sensitive to the architectural design features that bring people together. Older, more stable tenants, on the

contrary, are concerned with individual needs relating primarily to the design of their own apartments.[33]

In summary, the Mark Twain Village review has attempted to show that in order to know how high-rise buildings affect a group of people, one must first know something about that group. Age, social needs and expectations, stage in the family life cycle, and life style are all variables affecting the group's use of the housing environment and its satisfaction with it. Management policies and architectural design features that cater to the needs of one tenant group invariably do not satisfy the needs of the other.

The location of high-rise apartment complexes in declining central cities has been cited by many critics as the cause of their failure. Hallmark House, a 429-unit, 25-story apartment building in downtown Newark, New Jersey, has met the desires and needs of its tenants despite the general atmosphere of the city. The perceived safety and design of the building have persuaded researchers to call it the "defended neighborhood."[34]

Built in 1966, the building was planned as a small residential neighborhood, with its first floor devoted to shops and services such as a dry cleaner, a beauty salon, a self-service laundry, an attorney and a physician, etc. which draw the bulk of their clientele from residents. These amenities and accessories are part of the designer's overall scheme to develop a vertical neighborhood.

Site design and security precautions further reinforce the impression of Hallmark House as a small vertical neighborhood. The building and its ground fully occupy a small city block in Newark. While exit from the building is possible from three or four places, entry and access to the elevators and eventually to the residential apartment are limited to the main entrance. Access to the building is protected by a buzzer-intercom system and a watchman, and visitors are also visible to a switchboard operator. Hallmark House is not fully self-contained, but protective technology and building design have made it a more controlled setting than most conventional neighborhoods.[35] The Pruitt-Igoe housing project, which was discussed earlier, did not meet the defensible space requirements of safety and self-control as is present in the Hallmark House project.

The key factor attracting residents to Hallmark House is its combination of reasonable rent and convenient access to the outside world. Hallmark House is a building for persons of lower-middle/middle-class income status. In addition, the building is in close proximity of all of the local city agencies and departments, shopping centers, the city's major corporations, and transportation centers. Also, the housing site is less than fifteen minutes away by car from the Newark International Airport and the world.[36]

Surveys and informal interviews were conducted with Hallmark House residents to get their opinion of how they feel about their immediate residential environment and that of the city of Newark.

The survey results reflected an attachment of Hallmark's residents to their living environment and less to the community of Newark. Such questions and areas of inquiry that were given to the residents focused on their level of satisfaction in terms of attachment to the apartment complex, facility use, fear, and safety. The majority of residents have become attached to their defended neighborhood and preferred staying there, but if given an option would not stay in the City of Newark. Facility use of laundry, dry cleaner, etc. was relatively high among respondents. Fear and safety responses among residents were more varied depending on the time of day or the carryover effect of perceived crime rate in the city. Most Hallmark residents see crime increasing in the city (76.4 percent) but remaining constant near the building (a plurality 47.1 percent), most feel unsafe (51.4 percent) walking near Hallmark at night, but very or moderately safe (39.7 percent and 45.3 percent, respectively) doing so by day. Most residents (78.7 percent) are satisfied with building security.[37]

Measurement of resident satisfaction in the Hallmark study focused primarily on the comparison between the isolated housing complex and the general atmosphere of the City of Newark. Thus the study implies that location and the general quality of life in the city had significant influence on the well-being and perception of the Hallmark tenants. The findings in this particular Hallmark study were unique in comparison to other studies discussed earlier in that tenant satisfaction was not measured only in terms of the

building's design but extended further to the surrounding environment of the city. Thus the impact of the total environment of a high-rise apartment structure may be considered a contributing factor to residents' satisfaction, while making location and design of the structure two attributes that must be done simultaneously to generate the highest level of resident satisfaction.

It is apparent by now that high-rise residential satisfaction is a fluid process that varies according to an individual's perceived level of well-being and his/her preferred mode of living. Also, the ultimate high-rise environmental design depends on a cooperative and cohesive effort between architects, psychologists, and planners so that a balanced approach to decision-making can be achieved.

It should be noted that joint planning efforts of architects, social scientists, and planners are not always a harmonious process. Architects and psychologists have different backgrounds and perspectives as to what is considered the ideal environment for residents of high-rises. Architects tend to show a callous disregard for the fact that people must live in the environments they create. They become more interested in construction techniques or forms manipulation than in the people who live in their buildings. At other times, architects try to be sensitive to the needs of the prospective inhabitants. They rely on their own intuition and the unquestioned intuition of other architects' views of human nature.[38]

These intuitions can be painfully misleading for several reasons. The architect has a personal and cultural history that is often drastically different from those of the future inhabitants. White, university-trained, middle-class designers may not know the world of the person who lives in the public housing projects they design.[39] If the architect experiences a different perspective from the inhabitant, it is not always appropriate for the architect's intuition to serve as the basis for designing the inhabitant's residence. In addition, when a particular intuition is translated into a design and constructed, there is usually no evaluation of the social psychological success of the building. There is no systematic testing of particular ideas about the behavioral impact of design, and furthermore, the psychologist does not usually include any specific design implications of his work. Designers may have some notion that what they are reading is relevant to their work, but they receive little help from the psychological source in translating the behavioral findings into design.

Many roadblocks in the way to successful collaboration arise because the architect and the psychologist come from two cultures that differ in many ways. For example, scientists are usually truth seekers at a leisurely pace. They are oriented toward the testing of abstract general concepts, while working architects are involved with a specific, concrete set of problems unique to their current project--thereby creating two different orientations that do not mesh easily.

This difference poses a problem for psychologists. If they exercise their judgment and go beyond their data to suggest some concrete designs that they have not tested, they may satisfy the architect, but they run the risk of offending their colleagues and perhaps some of their own values.[41] At the same time, if they delay making any design suggestions until they are sure of themselves by rigorous scientific standards, they will never be able to be useful within a designer's normal time framework. As a result, the psychological and architectural professions present practitioners with different reinforcement strategies that dictate different sorts of work if professional advancement is to be forthcoming.

In order for an environment to be successful, the architect must provide some way for the inhabitants to manage their space to conform to their needs. People will act on the environment to bring it into line with their life styles whether the architect likes it or not. Therefore the issue for the architect becomes how to make the environment as responsible as possible. In the case of high-density living arrangements, the architect must provide individuals with the ability to manage their social interaction rate.

Just as there are discrepancies between architects and psychologists in formulating design techniques for high-rise residents, the same conflict occurs between planners and architects. Collectively planners and architects have evaluated the quality of residential facilities by looking at physical structure of dwelling

size, the availability of electricity and plumbing, etc. without giving sufficient attention to residential environments in satisfying human needs.

Historically, architects and planners have assumed that their background and training have adequately prepared them to judge the quality of housing and residential neighborhoods.[41] Very little, if any, attention was paid to the feelings of the neighborhood's residents in making these judgments. Research studies illustrate that while there is some agreement among the two groups in assessing certain attributes of the environment, large gaps in belief as to what constitutes residential quality exist between residents on the one hand and environmental designers on the other.

This distinction clearly demonstrates the fallibility of urban planners and architects in judging residential quality and admittedly in making decisions which take these judgments into account. Yet the very nature of urban planners and architects as an elitist group of experts, and their lack of any emotional involvement with the residential environments they judge, suggest that total agreement between their assessment and those of the people they design for may be extremely difficult to achieve.[42]

Architects and planners can perhaps narrow the gap between what they believe constitutes a quality residence setting and the feelings and behaviors of the people for whom they design by trying harder to better identify human needs as much as possible. It should be noted that an individual generally faces a problem in his

residential environment whenever an individual's image of a preferred environment does not match his actual environment. The problem one faces does not necessarily mean that a person's present situation is bad; it simply means that the existing environment is not as good as it could be.[43]

It is apparent from research studies that man experiences exposure to an external environment which has various levels of influence on the individual's well-being and must be responded to by architects and planners in residential design. In terms of the physical environment there is little question that urban man is being exposed to noise, air pollution, traffic congestion, and crowding. Given the opportunity, most individuals would tend to move away permanently from such conditions.

In terms of the socio-cultural environment, man is often confronted with too many unrewarding social contacts, particularly when exposed to large numbers of people in urban settings. Another element of socio-cultural environment external to the individual is the crime and violence which is so pervasive in many urban areas. To the extent that man does not have or cannot create some form of protection or defense for himself he is faced with a problem situation.

The psychological environment, internal to man, generates problems when a preferred way of behavior does not equate the actual behavior at a given time. Some people have strong affiliation needs which can be provided by the proper residential

environment. There is also the psychological need for individuals to have a high evaluation of themselves, for self-respect, and for having the respect of others.

To summarize, a number of problem situations stemming from the various environments that man encounters can give rise to several needs. These include: the need to escape temporarily from the physical stresses of the urban environment; the need to experience nature; the need for privacy; the need for security and safety for self and family; and the needs for social recognition and status. This list is not exhaustive of the many complex variables that planners and architects must attempt to address in designing high-rise residential units. This list includes factors affecting residents' well-being which are beyond the immediate design area of a high-rise building but still have contributing influence. Speculation would assume that the environment setting of a high-rise residential building plays a significant role in determining the tenants' level of satisfaction.

In the planning of new residential environments, it is clearly recognized that open space (if possible) including parkland is an integral part of the building complex. However, if buildings are planned at very high densities and in locations potentially susceptible to environmental stressors, then the amount and kinds of open space to be provided become critical decisions for the architect and planner. As these conditions intensify, and as new research demonstrates their impact on outcomes ranging from mental

and physical illness to increasing demands for outdoor recreation, it will become more evident to the architect concerned with planning residential environments that other factors and systems besides housing must be programmed into the design process.

There is another external factor, management, which if done properly can be used to enhance the environmental quality of the high-rise complex. Management of the high-rise building becomes important in helping promote tenant satisfaction by responding positively to their needs.

Management of high-rise buildings has as its primary objective the provision of efficient services so that human activity can function at its optimum level. Human activity will be defined in relation to what is and what is not permissible in the best common interest of a particular population density. There are many different management methods used in the United States which have different effects on the responsible representation of the occupant of high-rise buildings. One type, management by an institutional owner, who owns and manages the buildings, may only be concerned about the purpose of being in business. He does not respond diligently to various cost control impacts as does a building owner.

A second method of management, Fee Management Organization, is growing rapidly in the United States as buildings grow higher. The method is characterized by a third party (a professional management company) coming in to manage the high-rise structure.

Thus, professional property management training is a growing profession in the United States.

A third method of management which is used in different parts of the United States is the In-House Management approach. The developer is responsible for both building and managing a high-rise structure in-house from its inception through the life of the structure.[45]

This ultimate decree of efficiency acceptable to occupants depends on responsible management. Management will vary when it comes to choosing a style to accommodate the various needs and complaints of occupants. Some managers choose to alter established rules which were based on prior covenants. Normally, boards elected by the owners (for condominiums) hire fee management groups which are responsible for operational purposes but the board may make changes in policy at will.

In rental tenant buildings, complaints are not responded to as often by management. It is only after continuous effort and massive tenant participation that a complaint receives the attention of management. It may be safe to speculate that the more responsive management is to tenant complaints the less likely one would be encouraged to involve himself/herself in vandalistic action within the building or its surroundings.

SUMMARY

Research studies on the psychological effects of living in high-rise apartments have produced mixed and inconclusive results. Generally the level of human satisfaction has been shown to be moderate. The elderly and children have been found to be the most victimized of all high-rise tenant groups. The elderly fear increases as one's health declines, and emergencies occur in high-rise apartments. The elderly's chief concern becomes centered on security mechanisms in the event of trauma. As for children, they immediately lose contact with parents the higher up they live within a high-rise building. At the same time parental anxiety increases the greater the separation from the child.

The overall determinants of the level of satisfaction among high-rise tenants depends on a combination of factors such as the location of the high-rise structure, the design features of the building, one's lifestyle, one's personal needs, and the building's management style. There is an underlying connection of linking these factors into high-rise construction to the extent that they reflect human needs, promote social interaction, and ultimately establish a sense of environmental control among the tenants.

Research studies suggest that the built high-rise environment can provide higher levels of resident satisfaction with a better coordinated planning effort between architects, planners, and

psychologists. Unfortunately, there is not always a unified attempt by these professionals in designing and locating high-rise residential sites. Unique training styles and overall level of expertise come in conflict among these groups. In the future, planners, architects, and psychologists, as well as other social scientists, will be required to formulate a more cooperative network among themselves to ultimately build high-rises which are more reflective of the needs and desires of the people residing in them.

CONCLUSION

The density of residential development and the height of buildings in urban areas will be higher in the future. An increase in density does not necessarily mean residents of high-rise apartments will be faced with pathological threats produced by overcrowding. A number of factors exist within our society and more specifically our economy which project an increase in density and height of buildings.

First, there is evidence that single family housing is becoming more costly for consumers and for the political jurisdictions in which the housing is located. Low density single family housing developments require not only more land for dwellings, but for the streets, recreation areas, schools, and other public services necessary to support them. In addition, the cost per household for such services as police and fire protection, trash pickup, and mail delivery tends to rise as density of development decreases. The costs of providing these services are increasing for local units of government at a rapid rate and are being passed along to local residents. Added service charges in the form of taxes, together with rising building costs, have reduced the ability of many consumers to purchase new single family homes.

Second, despite recent fluctuations in the cost and availability of gasoline, indications are that in the long run, the

price of fuel will continue to rise. With this increase, the demand for housing at great distances from employment and shopping centers could diminish. Conversely, there could be a greater demand for housing concentrated near major centers of activity.

Third, the growing awareness of the value of open lands, including farms and forests, will place a premium on such lands for agricultural and recreation uses, especially if they are within the confines of an urban region. Should such lands be used for these purposes or retained in their natural state, housing to accommodate the growing metropolitan population will by necessity be built at higher densities and at greater heights.

The potential of future increase in density and the demand of affordable high-rise apartment units requires future planners, architects, and psychologists to collectively identify those criteria which reflect preferences of the future tenants. Presently, research in housing (according to psychologists) provides an excellent example of work at the interface of community and environmental psychology. This research encompasses three levels of social process to determine human well-being and satisfaction. The three levels used to evaluate success of a high-rise structure are social groups and social organization.

In addition, housing research has addressed particular attention to the processes of social support and personal control that are viewed as key mediating links in producing the ideal high-rise residential environment. Therefore housing research tends to focus

on how residents feel in terms of controlling their environment after a housing unit has been built and occupied. This approach to measuring high-rise residents' social well-being represents bias designers, planners, and the ultimate residents of the building.

It is apparent that research on housing has notable limitations. A limitation of work directed toward both interior space and outdoor space in high-rise public housing is that the evaluations have focused on the social and psychological limitations of existing projects, but the recommendations for change in public housing design have been directed only generally toward architects and urban decision makers for applications in future designs. There have been no efforts (as of the present) in environmental psychology to alter the physical environment in existing public housing settings as part of an ongoing evaluation and social change program.

Clearly, it is important to consider the moderating effects of the social characteristics of the residents before developing general principles on the effects of environmental design. Residential design must conform to the behavioral and cultural characteristics of its residents. Examination of prior residential preferences, participation, and incorporation of them into design is the challenge facing future designers.

Location of the high-rise residential site in relation to the community at large plays a major role in influencing the perception of residents. Research has shown that there is a carryover effect

of the community at large and one's perception of his place of residence. Generally the better impression one has of his neighborhood and community at large, the better he feels about his residence and vice versa. Planners play an important role at this stage of the game.

Taken together, planners, architects, and psychologists, through a cohesive effort, will continue to be responsible for implementing housing policies to meet the various needs, lifestyles, age, socio-economic make-up of the residents in communities throughout the United States.

RECOMMENDATIONS

The actual construction of a high-rise apartment building is a rather straightforward process once a designer knows its physical dimensions. The definition of the living environment quality of the residents of high-rises is a complex and fluid endeavor. The complexities of identifying good environment quality is exacerbated by the diversity of needs of potential high-rise residents.

Researchers have been active in their efforts to identify factors contributing to resident satisfaction mostly in a post-occupation capacity. This process has led many public officials to support many public high-rise residential buildings without basic concern of the needs of the occupants. In order to correct this problem, planners, architects, landscape architects, and psychologists have been chosen to provide the leading roles in the planning and implementation of housing projects.

Psychology researchers have developed three basic criteria for high-rise development which will lead to tenant satisfaction: (1) the integration of human needs and life styles into design as much as possible, (2) build and design high-rises to the extent that adequate social interaction takes place, and (3) the buildings' locations and public space between them should promote a sense of environmental control.

Architects, landscape architects, and urban planners have long been interested in the housing environment and have operated under the premise that such environments are important to the well-being of individuals and society. But like government officials, many in the design professions have judged improvements in housing solely in terms of the dwelling size, the condition of the structure, the availability of electricity and plumbing, and the presence of health, educational, and shopping facilities. At the same time, no attention has been given to the quality of high-rise housing environments as experienced by the people who live within them.

The gap between architects and planners and tenants in their perception of what constitutes a quality environment must be closed. In order to do so it will become necessary for architects and planners working in concert with social scientists to develop a better understanding of the needs of potential high-rise residents. The social scientists clearly recognize that the needs and motives influencing human behavior in the physical environment are so imperfectly understood and many have turned to the environmental design professions for help.

Perhaps there are three ways that architects, planners, and social scientists can work together in the future to better integrate human needs and preferences into high-rise design prior to people occupying the residential units. First, it is recognized that at the beginning of the planning process the architect or

planner must gather information which eventually will be synthesized and integrated through design talents to produce an environment consonant with the program objectives. Information can cover the prospective uses of the environment and it is here that the architect, together with the social scientist, can design and conduct research aimed at producing such information. The specific kinds of information needed about the users and the data collection methods depend on the type of environment being designed, the ability to identify the user group beforehand, and the basic purpose for which the environment is intended.

Secondly, at the other end of the planning process there are several instances where architects and social scientists must collaborate in order to devise an evaluation technique to measure the quality of the residential environment from the point of view of the users. Evaluation techniques must address questions as to what extent the needs of the residents have been met. Is the environment being used by its occupants in the ways designers had envisioned it? And finally, to what extent has the environment contributed to the residents' quality-of-life experience? These and many other questions can be answered through post-construction evaluation.

And thirdly, architects and social scientists should begin to pool their talents in efforts to determine those salient dimensions of housing and residential areas which contribute to the overall quality-of-life experience.

These recommendations rest on the belief that high-rise tenant level of satisfaction depends on how well the planning process is able to collect data and identify tenant needs and wants prior to having architects design the building. In addition, post-construction evaluation studies must be performed and evaluated so that problems may be detected and resolved. The closer architects, planners, and social scientists work at integrating prospects' preferences into design with the feedback mechanism the more likely the level of satisfaction will increase.

The ultimate challenge for architects, planners, psychologists, and other social scientists will be to identify the multiple needs and desires of our ever-increasing diverse population into a compatible design for high-rise residents.

NOTES

[1]U.S. Bureau of the Census, Current Construction Reports, Series C40.

[2]Willem V. Vliet, "Families in Apartment Buildings Sad Stories for Children?" Environment and Behavior (March 1983):218.

[3]Ibid., p. 219.

[4]Ibid., p. 221.

[5]M. Gregoire, "The Child in the High Rise," Ekistics 186:331-333.

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[8]J. Farley, "Effects of Residential Settings, Parental Lifestyles, and Demograhpic Characteristics on Children's Activity patterns" (Ph.D. dissertation, University of Michigan, 1977).

[9]Roy C. Herrenkohl and Christian Norberg-Schulz, eds., Planning and Environmental Criteria for Tall Buildings (New York: American Society of Civil Engineers, 1981), p. 30.

[10]Ann Sloan Devlin, "Housing for the Elderly: Cognitive Considerations," Environment and Behavior 12 (November 4 1980):453.

[11]Ibid., p. 463.

[12]J. Douglas Porteous, Environment and Behavior (Reading, MA: Addison-Wesley Publishing Company, 1977), p. 294.

[13]W. Yancy, "Architecture, Interaction, and Social Control," Environment and Behavior (1971):6.

[14]Ibid., p. 9.

[15]Ibid., p. 11.

[16]Oscar Newman, Defensible Space: Crime Prevention through Urban Design (New York: MacMillan, 1972).

[17]Ibid.

[18]Ibid.

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[22]Ibid.

[23]Ibid., p. 138.

[24]John R. Aiello and Andrew Baum, eds. Residential Crowding and Design (New York: Plenum Press, 1979), p. 169.

[25]Ibid., p. 172.

[26]J.S. Fuerst, "High-Rise Living: What Tenants Say," Journal of Housing (May/June 1985):89.

[27]Ibid., p. 89.

[28]Ibid.

[29]Gerda Wekerle and Edward Hall, "High Rise Living: Can the Same Design Serve Young and Old?" Ekistics (March 1972):186.

[30]Ibid., p. 186.

[31]Ibid., p. 188.

[32]Ibid., p. 189.

[33]Ibid., p. 191.

[34]Jeffrey S. Slovak, "Attachments in the Nested Community," Urban Affairs Quarterly 21 (June 1986):577.

[35]Ibid., p. 578.

[36]Ibid.

[37]Ibid., p. 581.

[38]Aiello and Baum, p. 230.

[39]Ibid., p. 231.

[40]Ibid., p. 234.

[41]Robert W. Morans, Basic Human Needs and the Housing Environment (Ann Arbor: Institute for Social Research and College of Architecture and Urban Planning, University of Michigan, 1977), p. 44.

[42]Ibid., p. 45.

[43]Ibid., p. 46.

[44]Ibid., p. 48.

[45]Herrenkohl and Norberg-Schulz, p. 251.

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