BEHAVIORAL FACTORS
for
ELDERLY HOUSING DESIGN

new england non-profit housing development corp

BEHAVIORAL FACTORS FOR ELDERLY HOUSING DESIGN

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TABLE OF CONTENTS

☐ introduction

The purpose of this booklet is to acquaint sponsors, developers, architects and others involved in developing housing for the aged with some of the major environmental issues of elderly housing design. In particular, this booklet focuses on optional housing environments for the semi-independent elderly, and examines some of the major issues from the perspective of the architect/behavioral scientist.

It is not proposed that finite solutions are presented in this document, rather an attempt is made to introduce the layman and not-for-profit housing sponsor to some of the choices and decisions which must be made when planning housing for the elderly. The major emphasis in this work is to demonstrate that each architectural/planning decision has potential behavioral implications, that decisions about buildings may have an impact on who the residents will be; on what they will do; and on how residents may think about themselves and about others.

In recent years the concept of a discipline embracing both architecture and the behavioral sciences has emerged from, and been generated by a variety of factors. These include the decay of American cities, the deterioration of the natural environment, and the unpredictable response of users to the built environment. The now growing "science" of "environmental psychology" (1) has attempted to provide methodologies for solving problems where both people and built environments are linked to create a spectrum of highly interdependent issues.

Some architects have embraced this new discipline since recent well-publicized environmental

design failures have indicated an incomplete understanding of what makes a neighborhood or a building "livable", "attractive", or "functional".

This lack of understanding is, however, most apparent in institutional environments, or what Robert Sommer calls "hard architecture". (2) The most often cited example is, of course, public housing; Pruit Iago in St. Louis could not have been a more miserable failure. To varying degrees however, mental health facilities, correctional facilities, college dormitories, armed forces installations, schools, hospitals, and housing for the elderly have shown some of the same deficiencies.

Psychologists and behavioral scientists have also recently shown concern for these developments, and have focused more attention on situational and environmental impacts on behavior.

The result is a multi-disciplinary attempt to positively affect the nature of the design process and more clearly understand the relationship between man and his environment.

The material collected for this booklet is not the result of new data based research, rather it is a synthesis of ideas collected from a review of both psychological and architectural literature, from interviews with housing administrators and residents in a variety of congregate-living projects, and from subjective observation of behaviors in a range of elderly housing environments.

The focus here will be to integrate and present both theory and practice. The emphasis will be almost entirely upon design and its relationship to behavioral research. For this reason a number of areas which are essential to the success-

ful implementation of any project are eliminated or assumed. For example, quantitative analysis of housing need, the economic position of the elderly and the condition of existing housing for the elderly are eliminated. Information in these areas is available elsewhere. (3)

Simultaneously, a number of architectural/planning issues with which many architects and developers are familiar have been omitted or only mentioned in the context of behavioral research. For example, land costs, zoning, code requirements, and financing procedures are each elements which strongly impact upon the success of any housing development. In fact, such elements often become more significant than the issues presented here. Certainly each of these variables must be carefully evaluated as means to an end when making planning decisions, but such variables should not obstruct planning for human needs in the ideal sense. The material presented here is what the building of housing for the elderly should be about. It is about the behavior that takes place and about the people who live in "congregate housing".

☐ analysis

What is congregate housing? What does semi-independent imply and how are these concepts related? What is an institutional environment? What makes housing non-institutional? This section will attempt to answer these and other questions so that recommendations and suggestions made

later in this booklet can be evaluated in the broadest context.

The common denominator for each of these terms and of this entire booklet is choice; the right to freely choose ones own lifestyle, environment, friends, and behavior. Congregate housing is an attempt to expand the range of environmental choices for America's elderly citizens. It is one further housing style available to meet the needs of those who might not desire or be able, to live in more traditional housing options (i.e. The single family detached house, apartments or the nursing home). It is an attempt to maximize the opportunity for choice for one relatively narrow but expanding spectrum of society. This further option is in some way also linked to behavior, that is, who will live there? What will they do? And so on.

● A MAN-ENVIRONMENT RELATIONSHIP

There are several methods by which human behavior has been linked to environments. Each method is different, stressing and emphasizing selected aspects of the man/environment interface, but for the purposes of understanding congregate housing as presented here, some generalizations will be made. These generalizations are not attempts to make explicit the relationship between people and buildings, but merely to give the reader a "handle for" and "way to think about" the issues discussed later.

First, let us think of each individual as having a screen or template through which he views the world. This template acts as a filter (for the purposes of this discussion) both into and out of the individual. That is, the individual "sees" and "reacts to" events in his own way based on the

template design or his "personality". Groups, too, may be thought of as having templates through which they view and react to the world. Those
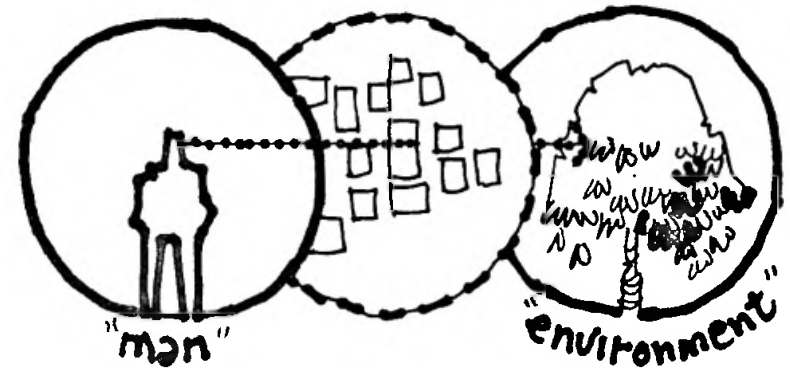
"man"　　　　　　　　　"environment"

● each person sees and reacts to the world in their own way, each person has their own filter through which they view the environment.

aspects of several individual filters or templates which are common or shared and which overlap form the groups "personality".

"The group"　　　　　　　"environment"
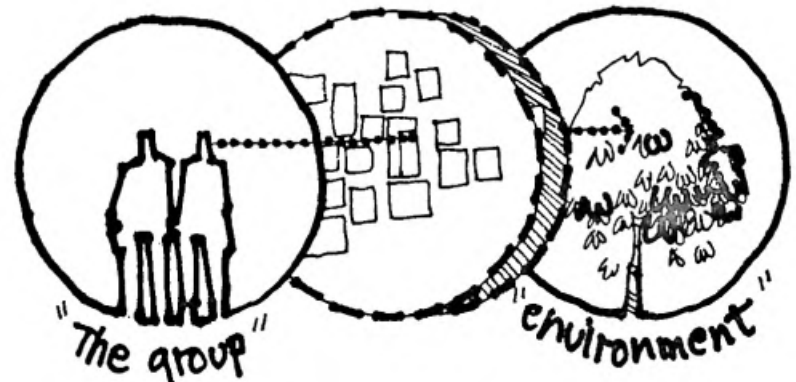
● those aspects of each individuals template which overlap or are shared, may be thought of as representing group attitudes and characteristics.

3

In a very similar manner, environments have templates which act as a filter. According to the psychologist, Henry A. Murray, environments are capable of affecting the individual by means of what he called "press". (4) Murray goes on to describe various types of environmental press, but here we shall refer to "alpha press". That is, "aspects of an individual's physical (or sciophysical) environment which an objective observer would classify as capable of affecting the individual". (5) This press can also be thought of as a filter, which is then superimposed upon the group or individual "personality". Thus, in this relationship the linkage between people and buildings is effected by two templates or entire sets of variables: one, the "personality" template; and two, the "environmental" template. Mayer Spivack, Director of the Department of Environmental Analysis and Design, states "...under many circumstances the environment recedes into the background, but that there are occasions when the intensity of environmental imputs or arrangement of circumstances intrudes upon the person to inhibit or cause a malfunction or annoyance of the ongoing behavior." (6) It should be apparent from this model, that the man/environment interface is extremely complex and that any attempt to sort out single variables is extremely difficult. What is clear however, is that when the templates do not align an incongruence and disfunctional relationship occurs. Our task is to determine what this "personality" template is like for the elderly, and to insure that the environments designed for them have templates which match.

Our relationship model can now be applied to the concepts congregate housing, hard architecture, the semi-independent elderly, and choice.

● CONGREGATE HOUSING

"The "official" definition of congregate housing is in the Housing and Urban Development Act of 1970 and the Housing and Community Development Act of 1974, where it is defined as (a) low-cost housing in which (b) some or all dwelling units have no kitchens and in which (c) there is a central dining facility." (7)

The function of congregate housing is to provide another option (another screen or filter) which best "fits" a particular category of resident or client. Trying to answer questions relating to further definition of congregate housing (i.e. kitchen or no kitchen) would be fruitless at this point. In fact, our beginnings of a definition can perhaps best be served by stating what congregate housing is not. It is not living totally independently in a single family house or in an apartment. It is not living in a home with 24 hour skilled nursing care. Nor should it be "institutional" living of any kind.

If congregate housing is indeed to be a viable alternative to totally independent living or to institutional environments we must be careful not to reproduce these styles, and merely give them another name.

● HARD ARCHITECTURE

Most readers are probably aware of what independent living is, that is the way most of us live right now. But what about institutional environments? What are the characteristics of institutional living? Most likely institutions were built as a response to groups which could be described as having slightly different characteristics than the norm of American society. Consciously or

unconsciously the result has been to develop hous-
ing, work, or total environments which also have
slightly different characteristics or (to use our
new terminology) slightly different templates than
comparable functional units. Robert Sommer calls
these places "hard architecture". Hard Architec-
ture has these components built into its template
system. (8)

"●Lack of permeability. A minimum of contact be-
tween inside and out. The building has no conn-
ection with the surrounding neighborhood.

●Expensive to construct, alter, or raze. Few
possibilities for change or expansion without
a gross misfit between building and activities.

●Clear differentiation of status levels. Every
activity and person has a specified location.
Minimal contact across status levels of de-
partments.

●Passive adjustment and psychological withdrawal
are encouraged. Little possibility for experi-
mentation or change.

●Rather than relying mainly on the occupants
themselves to provide security with outside
assistance when needed, security is assigned to
a specialized agency. Eventual replacement of
security through people by security through
machines.

●Materials and furnishings selected for ease of
purchasing and maintenance producing uniformity
in design and layout."

To complete this list at least one other
highly significant item should be added. Probable
lack of choice or minimal choice at two levels.
One, minimal choice with respect entering that en-

vironment at the outset; and two, minimal choice
and options for behavior within the environment
itself.

It can be safely assumed from the above defi-
nition that whatever our group of semi-independent
elderly is like, hard architecture is probably
not a viable solution. Certainly it may fit the
earlier definition of congregate housing as des-
cribed by statute, but most likely these environ-
ments will exhibit a press or a filtering action
upon residents that is antithetical to goals set
by any housing group. Clearly it is necessary to
establish design determinants which do not evolve
hard architecture.

● THE SEMI-INDEPENDENT ELDERLY

"Wilma T. Donahue, no stranger to those who
work in the field of gerontology, recently gave
this view of herself: 'I have more measure of
feeling about aging when I see the people I was
young with, at the university, and all of a sudden
I see them in the version of old people. I may
not have seen them for a long time, and then I
see them after they've stepped over the threshold
and are now looking old. I have never thought of
them as older people and suddenly I see them as
old and I gather a sense of their being different,
and I have thought about this. To them, just like
I am to myself, there is a consistent personality.
I don't recognize that I was 20, 30, 40, 50, 60
and so forth. I just seem to be a consistent per-
sonality that's lived a whole life. I realize I
look the same to them as they look to me. As far
as my feeling is concerned, I don't have that
sense. I have the same sense of being a whole per-
son with spirit and interests that are consistent
with my life.'" (9)

Most people think of the elderly as somehow

5

"different", and those who are behavioral scientists are no exception. This section will attempt to briefly relate some of the behavioral theory regarding the elderly, and will then list some generally accepted physiological and psychological constructs which describe the "differences" which characterize the elderly population as a group. The acceptance of these characteristics however, should be strongly tempered by the statement by Ms. Donahue which is presented in counterpoint to this entire section.

Several major theories of aging have been developed. (10) Two of these are to some extent contradictory but for many people one or the other seems appropriate. The first concept has been called "Activity Theory" and in its simplest form hypothesizes that happiness is dependent on continuing activities (or alternative activities) which promoted satisfaction in earlier life. Thus, the elderly are viewed as continually trying to stay "middle-aged". Very simply, "keep active" is the phrase which dominates the design, programing and administrative decisions necessary for successful elderly housing.

The second concept is that of "disengagement". Disengagement theory suggests that the aging process results in clear-cut changes in life goals and needs. Proponents of this theory maintain that aging and a retreat from activity is highly compatible and that a "mutual and inevitable" disengagement from ones environment is satisfying. This is one of the most controversial theories, and is perhaps least acceptable philosophically to many people. Research, too, seems to indicate that a full acceptance of this theory is extremely difficult.

A third theory is probably most consistent with the statement of Ms. Donohue presented at the beginning of this section. "Continuity Theory" holds that as each individual matures he develops habits, roles and preferences and that these preferences continue in later life. Thus unlike activity theory, lost roles do not need to be replaced by renewed activity; but rather as the individual ages there may be changes in any number of directions depending on what the indivdual's personality has been like in earlier years.

Certainly the acceptance of any one of these theories will have significant impact upon the direction that designers, architects, and planning officials take when developing housing strategies for the elderly.

SOCIAL BREAKDOWN SYNDROME
a cycle of increasing incompetence
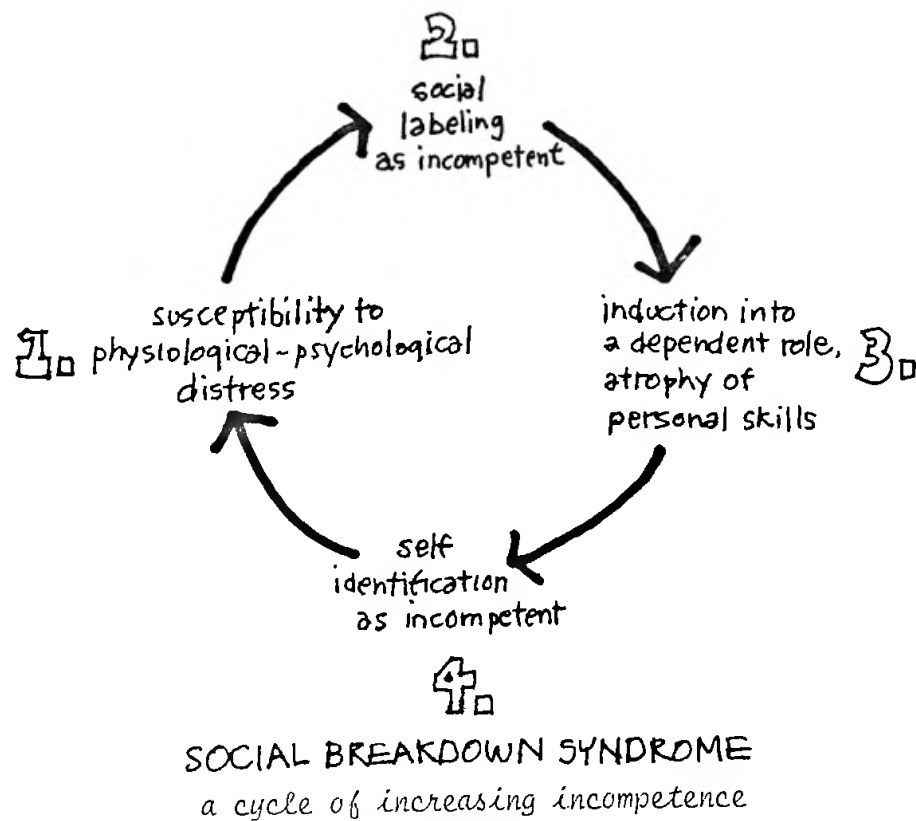
One other model is perhaps useful for introduction here, particularly since it is adaptable to our model of "intervening environmental templates". This model is the "social breakdown syndrome". This theory evolved from "labeling theory" in community psychiatry and can be best described by the adjacent charts.

INPUT A. Judgement of elderly based on non-economic, non-comparative criteria

INPUT B. Improved housing, transportation nutrition, etc.

2. self reliance

self labeling as competent 3.

1. reduced susceptibility, self-confidence

INPUT C. encourage self-help, reduced control by social agencies

5. competency & effectiveness

development of maintenance skills 4.

SOCIAL RECONSTRUCTION SYNDROME
a cycle of increasing competence

The model asserts that a good deal of the perceived incompetence of the elderly occurs in conjunction with the "labeling" of the elderly as incompetent. As can be seen from the chart, this model places emphasis on socio-environmental factors which tend to label and define the elderly as not being capable or totally functioning people. Strategies proposed as a result of this concept, attempt to intervene somewhere in the cycle and to alter the tendency for people (and environemnts) to treat the elderly as incompetent.

The position of this paper is that both "con-tinuity theory" and the "social breakdown syndrome" offer significant possibilities for understanding how environments might best be built for the elderly in general, and more particularly the semi-independent elderly.

● *PHYSIOLOGICAL/PSYCHOLOGICAL CHANGE*

The following section summarizes (apart from theory) some of the physiological and psychological templates through which a substantial number of the elderly can be expected to view the world. It should be emphasized again, however, that these are not fixed principles for elderly individuals but characteristics which might be found in "groups" of aged persons.

SENSORY PROCESSES

Sensory processes of all kinds can be expected to have reduced effectiveness and accuracy. A stronger stimulous is required, and a greater difference between stimuli is required for discrimination of any object or event. (eg. lights must be brighter, sounds louder, etc.)

VISION

1. Focusing is less accurate.
2. Sensitivity to glare increases.
3. Adaptation to darkening is slower.
4. Color vision is less effected. (while shapes may be indistinguishable, colors can sometimes help to separate objects.)

HEARING

1. Less accurate, especially high frequencies but low frequencies are effected as well.
2. Males are effected to a greater extent than are females.

OTHER SENSES

There has been less research completed on the deterioration of other senses, and in general they are somewhat more stable. After age 70 however, it can be expected that tactile (including pain), smell, and taste senses will be reduced.

MUSCULAR/SKELATAL SYSTEM

The strength and endurance of the muscles declines, response time (particularly in unfamiliar situations) is reduced. General decline seems to effect "a progressive shrinkage of the physical frame of reference". (11)

1. Loss of elasticity in muscles.
2. Stiffened joints.
3. Reduction in height.
4. Stooped posture.
5. Limitations in mobility.

OTHER PHYSIOLOGICAL CHANGES

1. There is a greater prevalence of chronic disease, and particular susceptibility to arthritis, rheumatism and stroke.
2. There is a general deterioration of the cardiovascular system.
3. There is some change in skin pigmentation causing increased sensitivity to exposure to the sun.
4. There are a number of changes relating to food and the digestive system. The need for caloric food energy declines but the need for protein, vitamins and minerals may increase. There is a decrease in the secretion of digestive juices and problems related to elimination.
5. The perception of thirst is reduced.
6. The mechanisms for the regulation of body temperature are altered. (Outside temperature changes may not be perceived.)

7. Diminuation of secretion of hormones by the adrenal glands, thus there is a lessening ability to produce energy to meet stressful situations.

● SOCIO-PSYCHOLOGICAL CHARACTERISTICS

Again, any statements made should not be thought of as universal or as applying to each individual, rather these concepts must be viewed only as a framework for elderly characteristics. (In fact, "labeling theory" would suggest that even the act of collecting together a series of statements about the elderly is an injustice and part of the problem, not the solution). Certainly, however, some statements apply to some elderly.

1. As opposed to physiological changes, more stability is reflected in interpersonal functioning, psychological well-being and general life-style.
2. Degree of interaction with others and personal style is more a function of past behavior, as well as sex, age, health and socio-economic status, rather than particular characteristics associated with the psychology of aging.
3. A new and less valued "self-image" is thrust upon the individual by society; interaction with others and the environment tend to socialize the elderly into a role emphasizing incompetency and uselessness.
4. There may be increased preoccupation with "inner life" as opposed to objects and current events.
5. There may be mild depression associated with social isolation and loneliness.
6. There is an increased sharpening (or focus) for memory of events in the past.
7. There is an apparent reduction in memory for very recent events.
8. There may be anxiety associated with contin-

ued deaths in the individual's peer group.

9. There may be a reduction in stress as a re-
    sult of the reconciliation of life goals
    with actual personal achievement.
10. There may be a tendency toward introversion
    and increased emotional sensitivity.
11. There may be a release from stress as a re-
    sult of integration of formerly unacceptable
    characteristics into the "personality" (e.g.
    males may accept passive roles in some sit-
    uations).
12. There may be an increase in assertive behav-
    ior as a compensation for perceived insecur-
    ity.
13. There may be increased preoccupation with
    food, eating, and elimination as a result of
    physiological changes discussed earlier and
    the social importance attached to eating.
    (If social experiences associated with eat-
    ing erode there may be a tendency to under-
    eat, alternatively food may begin to sym-
    bolize lost pleasure, security and interac-
    tion, and overeating may result.

● *ANALYSIS: SUMMARY*

The semi-independent elderly are (in terms
of our set of physiological and psychological
constructs) perhaps no different that the elderly
in general. In some ways perhaps, all elderly
experience difficulty in maintaining their total
independence. (e.g. reduction in income, some
physiological deterioration, reduction of friend-
ship ties, etc.). For our purposes here we can
think of the semi-independent elderly as repre-
senting a small but growing segment of society
which exhibit some of the characteristics descri-
bed above without losing sight of an individuals
uniqueness in character, abilities and interests.

In summary, this section has:
1. Fixed a structure for a way of thinking
    about man/environment relations.
2. Described what congregate housing is and
    is not.
3. Reviewed some of the theory related to grow-
    ing old.
4. Reviewed some of the characteristics of the
    group called "the elderly".

The next section of this brochure will sug-
gest ways for handling this information, and will
identify some of the current congregate housing
issues and potential environmental responses.

☐ synthesis

Part II (Synthesis) of this booklet will
attempt to integrate the concepts presented
earlier. That is, the theories about aging, the
psychological and physiological changes expected,
and the concepts of hard architecture and man -
environment relations will be applied to the
design of housing environments for the elderly.

First, some of the more controversial issues
will be presented, most of these issues will never
be resolved to everyone's satisfaction. These
issues are controversial simply because the range
and diversity of character in the elderly group is
great; clearly not everyone lives the same way or
likes the same breakfast cereal or the same res-
taurants. They are controversial, too, because as
was seen earlier, basic theories of aging often

conflict and it is from theory that goals, and thus action, evolves.

What can be done, however, is to design environments to better fit specialized resident characteristics and to support or discourage particular behaviors. The subsequent section "process and planning" will discuss one possible way of increasing the accuracy of this design goal.

Finally, some design concepts which apply to optional housing environments will be presented. The "design choices" section is not intended to be a cookbook for housing design, rather these are concepts which ought to be evaluated in the context of project goals at some point in the planning process.

● SPECIAL ISSUES

DOES NEW CONGREGATE STYLE HOUSING HELP THE ELDERLY?

Very simply the answer is yes. This issue has been a focus of several major research projects. Without citing the exact findings of any specific projects, however, the following general conclusions can be drawn:

-When residents move to new elderly age segregated housing, there is an overall self-perceived change for the better. (e.g. residents themselves feel they are "better off")

-Moving to new housing has also been linked by research to more social behaviors, to more friendships, and to increased activity in the elderly community.

-A number of studies have found that relative health declines when moving to new elderly

housing. This finding is contradictory to the many positive outcomes which are associated with new housing. It has been argued, however, that research techniques have not been adequate and that many factors other than the move to new housing are possible causes of this finding. Thus, the positive aspects of housing should be emphasized; it is clear that new congregate style housing can effect a significant positive change in the style and content of an individual's later years.

HOW "INDEPENDENT" OR "DEPENDENT" MUST A POTENTIAL TENANT BE?

The answer to this question involves several issues:

●What are the project goals?

●What is the philosophy upon which the project has evolved?

●What are the behaviors which are valued in the elderly community?

●Does the architecture support project goals and desired behaviors?

●Does the programming and services support project goals and desired behaviors?

The interrelationship of these issues can perhaps best be illustrated by the actual experiences of one congregate housing project.

CASE STUDY

This project was first built as congregate style housing for semi-independent elderly. The major components were single private rooms with

private bath, some group recreation spaces and a major dining area. No kitchens were provided for individual rooms. Residency entrance requirements included mobility without aids such as walkers or wheelchairs, and total functional capability in bathing, light housekeeping, toilet performance, eating and dressing.

Many social activities were initially started by the residents and the project was considered highly successful. At the outset the resident population was highly homogenous since strict entrance criteria relating to personal functional capabilities were applied.

At a later date (perhaps a year) the sponsors desired to add cottages for totally independent living. These were added as separate units on the perimeter of the site, but still architecturally related to the main congregate complex. Each unit had complete kitchen facilities, laundry facilities, etc. Residents were expected to participate in some recreational activities and perhaps occasionally eat in the major congregate dining facilities. To some extent this occured, though not, perhaps, as much as was anticipated. During this time the condition of a few residents in the congregate complex deteriorated. When this occurred, administrators assisted residents to find alternative housing in nearby nursing homes or skilled care facilities. Those residents who were forced to leave, of course, experienced stress during the move, particularly since payment for their congregate unit had to continue while unoccupied. Thus, for some, this move indicated a final housing option, that of an intensive care facility with perhaps little chance to move back to congregate status.

In response to this problem, the sponsors elected to expand their facilities, to include the "dependent" segment of the elderly population. The result was that after 3 years of existence a nursing wing was added to the main congregate complex.

The architecture of the nursing wing was such that it was separate, but connected by a corridor to a congregate group space for reading, conversation and passive games. The corridor could be closed by two double doors at the entrance to the group space.

The nursing wing, when first completed, was to be occupied by additional residents drawn from the community. Within a short period the nursing wing was 3/4 full, sufficient occupancy level to be economically self-sustaining. All Skilled care residents were at this point new members of this elderly community. These new residents, though exhibiting a range of functional capabilities, could not pass one or more of the entrance requirements for congregate, semi-independent living. The administration, however, fully intended that these more dependent individuals would participate in social/recreational/service programs. What happened and the degree of intensity felt by residents was unexpected.

Though congregate residents had initially expressed the desire to have a place to go when they could no longer function semi-independently, the location of a nursing wing connected to the congregate area developed negative behavioral effects.

There developed among congregate residents a unified feeling of incompatibility and general superiority toward the nursing wing residents. A grapevine developed which indicated whenever a dependent resident was intending to attend any social function; thereafter, almost no congregate

residents would attend. Congregate residents began to utilize community services more and Sunday church services became the only event at which the semi-independent and semi-dependent residents would interact. There was a request by congregate residents not to allow others in "their" dining hall. There was a request to keep the double doors to the nursing wing closed at all times. There was a request to have separate programs for non-congregate residents. The resident dissatisfaction with this mix finally resulted in a number of residents threatening to leave.

To date, there have been some changes attempting to resolve the situation. A separate small dining room was created for those most seriously impaired, some programs were duplicated for each population, and finally, in the connecting corridor, one door stays open and one door stays closed.

This kind of patchwork solution, however, is certainly not ideal. The two opposing theories about functional integration can be summarized as follows:

"Let's plan for and incorporate the aging process in the design of the buildings."
and...
"Why reinforce anxiety about death or disability?"

The resolution can be found in "planning for" the aging process but not "institutionalizing" it. Specifically, it is suggested here that the requirement for skilled nursing care be satisfied by an entirely separate facility, that residents and administration together plan for this eventuality and that residents should have full knowledge of what the various housing and programing options are.

It is further suggested that, often, when an attempt is made to provide for skilled nursing care on the same site, the image and character of the site, as perceived by the "well" residents, change in a negative manner. To partially avoid this only minimal shared facilities should be utilized. (e.g. main food preparation areas, maintenance services and administration zones)

A variety of screening procedures have been developed which can assist the administrator in making decisions about the functional capability of any individual with respect to daily living skills. (12) In general, required skills should be defined for bathing, dressing, toilet performance, eating and mobility.

Finally, the following characteristics can be generally found among the applicants for congregate living.

1. A number of applicants will be from the surrounding area.
2. Applicants will live alone.
3. Applicants will be female.
4. Applicants will find their present living inconvenient.
5. Applicants will not see their children very often.
6. Applicants will describe themselves as bored or lonely.
7. Applicants will rent rather than own current housing.
8. Applicants will have some disability.

WHAT SERVICES ARE NEEDED FOR SEMI-INDEPENDENT LIVING?

The answer to this question should be based on who the residents are, what behaviors are desired and what the project philosophy is with

respect to community. Specifically, some administrators suggest that the "stream of life" is to be found only in the community, others state that "the stream of life can be created in a building or project". This issue needs to be addressed at the outset of the planning process.

Certainly those who elect to enter optional living environments do so because they have needs which cannot be satisfied by a totally independent life style.

Nevertheless, those who can adequately utilize community resources should be encouraged to do so, particularly where there is increased diversity and increased intensity of services available. "Over-designing", either architecturally or programmaticly can have the effect of making residents more complacent about their independence. Ideally, the environment and programing should compensate for resident disabilities but should go no further. That is, there should be increased feelings of competence as well as some small degree of environmental challenge.

Some assistance in the following areas is usually typical in congregate housing; the degree of assistance offered is, however, extremely varied.
1. meal preparation
2. housekeeping services
3. transportation and escort services
4. individual and group counseling
5. social and recreational services

SHOULD THERE BE PRIVATE KITCHEN AND BATH FACILITIES?

For those who have been housewifes, especially, the kitchen is a link with self-respect, identity and personal expression. From a functional standpoint, too, the kitchen is essential, providing choice in meals, between meal snacks, coffee and cold drinks. From a safety and abilities standpoint, however, the kitchen may become a danger to the resident and the housing project. Gas jets on but not ignited, electric stove on but not visably red, utensils left on the stove while the heat is still on, may each be common occurrances as the resident ages. There are two suggested alternatives: one - a snack-bar open during most hours can provide the resident with the functional necessities of coffee, cold drinks, etc., or two - a shared group kitchen (for perhaps 8 residents) can maintain ties to cooking and food preparation activities, but with the added safety features of group surveillance of the cooking areas and increased resident interdependence and assistance.

Bathing, too, presents a privacy/competence vs. safety problem. Tubs, particularly seem to be the cause of a number of severe injuries resulting from falls, but tubs are preferred by most elderly females. A compromise is suggested: a shower stall with seating and a fexible shower head. In this way the rising from a supine position is eliminated, but the resident can still "sit" and "relax". When the resident cannot individually and safely utilize this design, one of the usually required "activities of daily living" is not adequately fulfilled. More services and architectural support should then be available at a different facility.

WHAT ARE SOME INNOVATIVE CONCEPTS ASSOCIATED WITH ELDERLY OPTIONAL HOUSING?

Architectural and facility choices include:

•design and build an entirely new facility

13

●renovate an existing structure to meet elderly needs. (e.g. motels, apartment houses, schools, churches, etc.)

●build or share use and services with an existing function. (e.g. university dormitory, children's day care center, urban renewal or brownstone renovation, neighborhood shopping development or planned unit development.)

Special places might include resident-managed taverns, shops, boutiques, aged day-care, children's day care, greenhouse, senior citizens
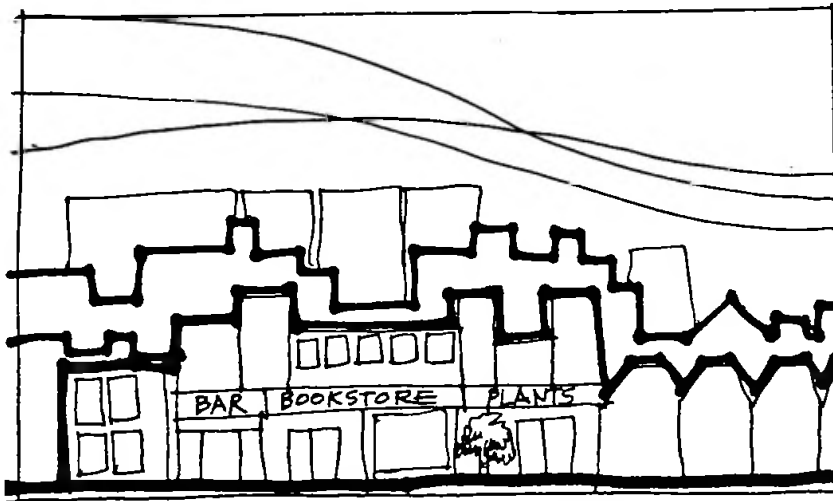
●as part of an urban renewal project, a planned unit development or suburban development, consideration should be given to developing commercial enterprises with elderly housing

information center, or bookstore. Such functions, if open to the public on a commercial basis, might provide a real, and highly significant link to community and help to demonstrate resident competency to all. It is suggested here that the

abilities and ingenuity found within a population of 75 - 100 independent to semi-independent elderly could provide ample resources to handle any of the above projects.

One special place might be a "men only" activities room. Often the furnishings of group spaces cater more to the feminine interests rather than those of the men. Oftentimes, too, men may feel intimidated by the large number of females in social spaces. Perhaps a "tavern style" room with television and a pool table would be well used if there were sufficient numbers of men in residency.
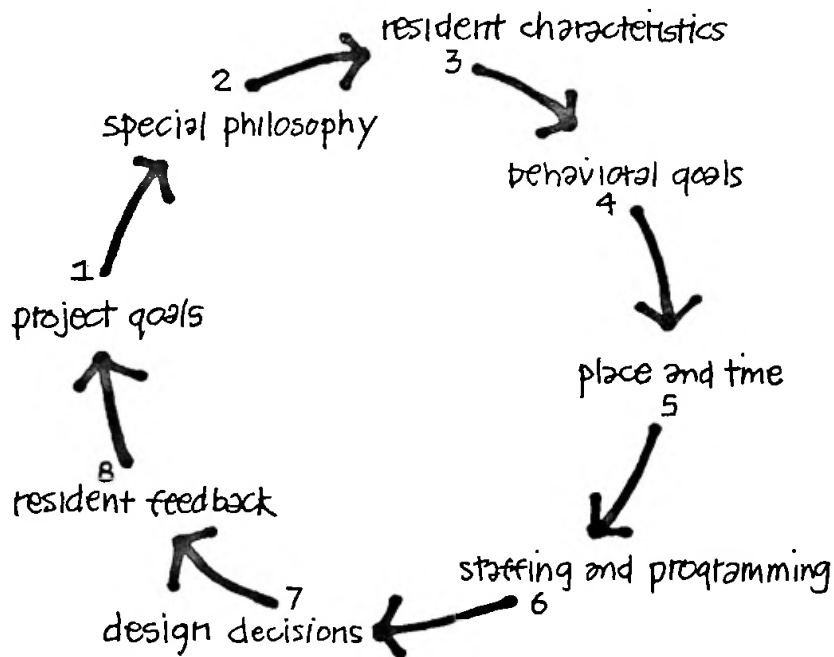
Consumer-based design should be emphasized to the maximum extent possible. This means not only designing for resident needs but allowing current or potential residents, to participate in the design process. At the time of the initial market survey, some interested elderly persons should be enlisted to participate in design decisions. How this might best be accomplished is described in the "process and planning" section of this booklet. Later, as the occupancy of the building is completed, residents should have the opportunity to provide maximum input for potential remodeling, expansion or phased completion of the project.

● PROCESS AND PLANNING

Choices that affect the design process occur at the very beginning of project conceptualization. As discussed earlier, the linkage between environment and behavior is complex, and questions about which physical design templates are the "best fit" can be made only if the project team (sponsor, consultant, developer, architect, etc.) acknowledege the importance of behavioral inputs.

The following is one suggested process for maximizing these inputs in the design process. It should be noted that many real world constraints are omitted (e.g. zoning, land aquisition, etc.) for the reasons discussed earlier in the introduction. The process proposed here seeks to answer a series of questions as completely as possible. To the maximum extent possible architects and planners should be involved very early in this process, though sponsors, their consultants, and potential tenants must provide the initial design impetus.

FIRST, WHAT ARE THE GENERAL GOALS AND SOCIAL OBJECTIVES OF THE PROJECT?

For example, "to provide increased safety for elderly residents", or "to provide maximum opportunity for residents to make new friends" might be just two typical goals for an elderly semi-independent residential environment. The more specific any statements responding to this question, the better. (e.g. "to provide better housing" is a start, but it doesn't answer the question as well as more specific statements.)

SECOND, IS THERE A SPECIAL PHILOSOPHY OR THEORY TO BE FOLLOWED?

For example, is a project to provide for reintegration of elderly into the main stream of community, or is community to be created within the project? Again statements should be generated which answer the question as specifically as possible.

THIRD, WHAT ARE THE CHARACTERISTICS OF THE RESIDENTS?

To some extent this question has been answered earlier in this booklet, however more specifics should be gathered based upon the client population to be served. (e.g. urban or rural, economic spectrum, level of daily living activities required, etc.)

FOURTH, WHAT ARE THE SPECIFIC BEHAVIORS WHICH ARE VALUED AND WHAT ARE THE SPECIFIC BEHAVIORS THAT ARE LESS VALUED?

Typically, the first three questions are answered to some extent by most developers of elderly housing. However, rarely are specific behavioral goals established. This step is

DESIGN PROCESS MODEL
improving behavioral based design

2 special philosophy
3 resident characteristics
4 behavioral goals
5 place and time
6 staffing and programming
7 design decisions
8 resident feedback
1 project goals

essential if architects and planners are to effectively design for elderly needs. As many statements as possible should be made: more statements means more ideas and inputs which architects and planners can use.

Behavioral goals should be based upon at least three sources: (1) the project philosophy and goals, (2) current elderly behavior in the community (observation, social agency interviews and interviews with potential residents are good sources) and (3) desired behavioral goals as expressed by potential residents. The level of specificity for responses to this question should be very high.

For example, three behavioral statements from the above three sources might be as follows:

1. From the project philosophy: "Residents should have the opportunity to have complete privacy whenever they desire."
2. From observed behavior and agency interviews: "Elderly often go to the library to read current newspapers and magazines."
3. From interviews with potential residents: "I would like to meet someone my age who enjoys sewing as much as I do."

Though each of these statements is from a different source, the sum total of all specific behaviors will give a suprisingly clear view of the behavioral needs of the elderly.

FIFTH, WHERE AND WHEN DO PARTICULAR SPECIFIED BEHAVIORS TAKE PLACE?

It is at this point that the architect "must" become involved. It is at this point, too, that the large collection of behavioral goals state-ments must be evaluated in terms of space needs. Some behavioral goals will imply privacy, some community; some will imply homogeneity, others diversity. The issue then becomes: what spaces are needed for particular categories of behavior? Given the information based on question 1-4 above, architects can be utilized effectively and effeciently, and the opportunity for maximum design fit is created.

SIXTH, WHAT KINDS OF STAFF SKILLS, PROGRAMS AND SERVICE DELIVERY WILL BE REQUIRED TO ACHIEVE THE PROJECT AND BEHAVIORAL OBJECTIVES?

This question needs to be answered in close association with architectural decision-making. Programming, staffing and environmental support must be considered as a unified solution to the behavioral needs of the elderly.

SEVENTH, WHAT DESIGN DECISIONS MUST BE MADE AND IN WHAT ORDER?

The following model is suggested, though decisions will not be made in this exact order. This represents a sequence of decisions which most architects and planners will follow to some degree.

1. Location: Where in the community will the project be located, which site will be selected?
2. Site Development: Where will the building be on the site, what will the landscaping be like, etc.?
3. Character and Image: What will the project look like to the casual observer, what will people say when they walk by, etc.?
4. Spatial Organization and Proxemics: How will the building be organized,

what spaces will be near the
main entrance, what is the
relationship between the dining
room and the laundry room, etc?

5. Functional Area Characteristics: What
will each special area be like,
how is the library different
from the game room, etc.?

6. Human Engineering: What special supports
are needed for the semi-inde-
pendent elderly, what materials
should be used, etc.?

Each of these areas will be discussed in the
next section "Design Choices".

EIGHTH, AFTER THE BUILDING IS FINISHED AND
OCCUPIED, DOES IT WORK?

It is suggested that whenever possible there
should be funds set aside for post-occupancy
research. Architects and others need to know if
their ideas have been successful, and residents
should have the opportunity to suggest changes to
make a good design even better.

● A HIERARCHY OF DESIGN CHOICES

The following section lists some of the
choices, based upon practical experience and
research literature, which architects and sponsors
might consider when responding to environmental
needs of the elderly. To some extent this listing
represents a hierarchy of choices which must be
made. These are: Location, Site Development,
Character and Image, Spatial Organization and
Proxemics, Functional Area Characteristics and
Human Engineering.

LOCATION

Location is almost always the first design
decision made in the planning process, many times
in fact, it is the sudden availability of one or
more parcels of land which generates the desire to
develop housing in the first place. Though this
and other issues such as zoning, land costs, or
long-term lease availability often greatly effect
the eventual project outcome, ideally a more con-
ceptual approach is desired. As described above,
project goals, project philosophy, resident char-
acteristics, and desired behaviors should be the
prime determinates of site selection. The follow-
ing are some of the issues which must be consid-
ered, regardless of the project philosophy or in-
tent.

●Unless programing philosophy or entrance re-
quirements declare otherwise, a significant
number of residents will probably come from the
surrounding area. Clearly if an urban, rather
than rural, site is selected this will have
implications upon desirability for potential
residents. (In general, life-long urban dwell-
ers are more likely to feel comfortable in an
urban setting, and so on.)

●For any location, consideration should be given
to avoiding environmental generators of crime
and potential vandalism, i.e. bars and taverns,
high school play yards and transitional hous-
ing areas.

●Emphasis should be placed upon thorough analy-
sis of the topography and the expense and modi-
fication necessary to create barrier-free site
development. This is not to suggest the site
should be entirely flat, rather the site should
be capable of barrier free access.

●Consideration should be given to potential ex-

17

pansion or phasing of project development on the initial site. (Resident characteristics or project philosophy may change in time.)

● The value of public transportation, whether an urban or rural site is selected should be emphasized.

● The value of community or isolation should be considered, with particular emphasis on proximity of services. The following gives the rank of critical distances as perceived by urban older persons: (13)
1. Grocery store– 2 - 3 blocks.
2. Bus stop– 1 - 2 blocks.
3. Church– ¼ - ½ mile.
4. Drug store– 3 blocks.
5. Clinic or hospital–¼ - ½ mile.
6. Bank– ¼ mile
7. Social center– 3 blocks.
8. Library– 1 mile.

● Consideration should be given to environmental generators of noise, e.g. major truck routes or industry.

● Consideration should be given to the proximity of parks, particularly those which emphasize passive recreational activities.

● Careful site evaluation should be made based on the goals of project and behaviors desired with respect to community interaction. Specifically a project which desires to bring the "community in" rather than "force residents out" would imply different site selection criteria.

SITE DEVELOPMENT

Site development refers to the way in which the building fits into the neighborhood context,

the way in which the building fits onto the site and the way in which the "exterior environment" is designed. The following section discusses some of the possible alternatives and specific design innovations which might be considered as potential architectural responses to the behavioral characteristics of the elderly.

● Consideration should be given to the buildings orientation, to prevailing sun and wind conditions; specifically:
1. Major walkways should be given maximum exposure to the winter sun to assist the melting of ice and snow.
2. Room orientation should be based upon useage characteristics, time of use and desire for either "sunlight view" or "sunlight room".
3. Building orientation should funnel cooling summer breezes through open spaces and block direct winter winds.
4. Trees and shrubbery should be used for wind deflection as well as for definition of boundries and pathways.

● Consideration should be given to allocation of garden and growing space for each resident. Berms, shrubbery and retaining walls can be utilized to define boundries or to eliminate an unsightly view.

● As discussed in the section "Human Engineering" there should be a focus on barrier-free design and supportive environmental elements, including: bus stop shelter, rest stops along pathways, handrails when there is a change in level, textural indicators of pathway change.

● Consideration should be given to allowing residents to select and design exterior spaces. (Though occasionally used most residents tend

to laugh at the proverbial "shuffleboard".)

● Provision should be made for outside sitting and watching in both sun and shade.

● In exterior spaces, provision should be made for both secluded quiet spots and active group congregation areas.
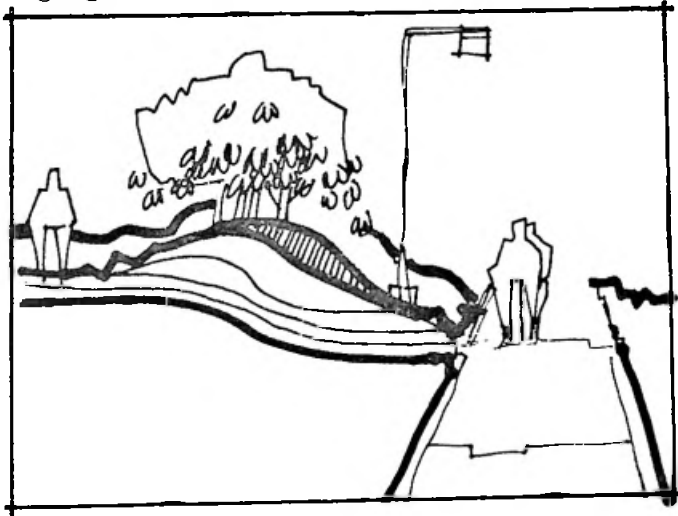

● earth berms and shrubbery can assist in the definition of outside "territory".

● Increased useage of "sitting and watching" areas can be encouraged if there is something to look at. Events on the street, playgrounds, stores, visitors and other activities can each be a focal point for sitting activities.

● There should be attractive walks through the site; utilizing such pathways will be supported if there is a "destination" at the end of each path.

● Paths might continue off-site, the continued use of signing, street furniture and planting can direct the resident from the housing site to perhaps a "senior center" or library.

● Functional walkways should be designed as the straightest means to get from point to point. Right angle corners should be avoided.

● Consideration should be given to allowing the residents to participate in the design of paths and exterior furniture, and to permit "unplanned" paths to evolve and be developed at a later date.
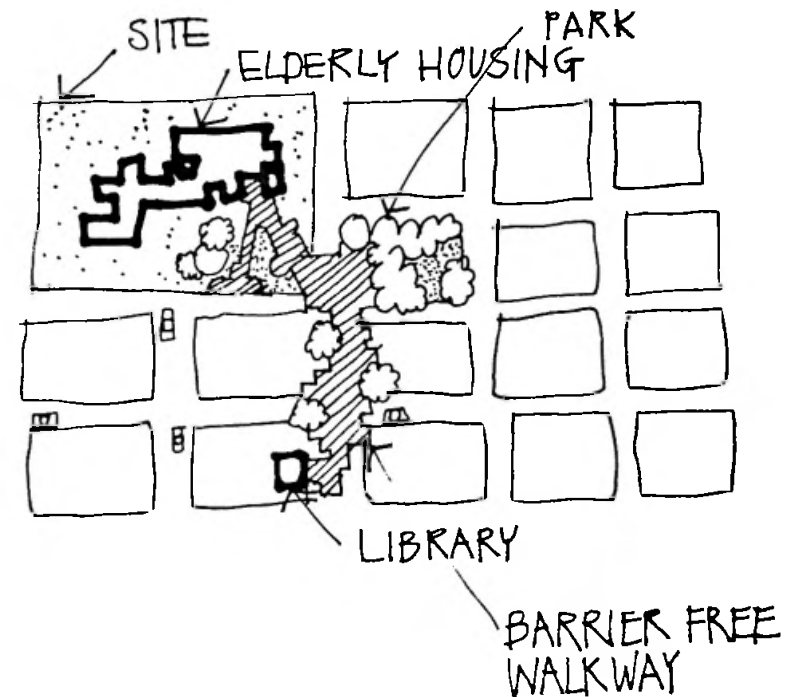

● where possible consideration should be given to "extending" the site by means of pedestrian walkways.

19

●Pathways, parking lots and paved surfaces should quickly drain so that standing water does not become a mobility barrier.

●Parking should be close to a 24 hour access point to the facility. Though only perhaps 20% of the elderly have cars, consideration should be given to potential parking expansion as this number is expected to increase in coming years.

●There should be a covered walkway between the resident parking area and building entry, if elevators exist, the parking lot should be accessible to the elevator entry level.

●Provision should be made for significant visitor parking.

●There should be a clear separation between pedestrian and vehicular circulation; intersection of these paths should almost never occur.

●There should be an auto/pedestrian pick-up and drop-off area, not conflicting with pedestrian pathways.

●Service access for all categories: garbage, laundry, food and particularly ambulance should be as unobtrusive as possible. Access for fire trucks should be part of the initial design scheme.

●The major facility entry is a logical focus of design, but the entry and adjacent exterior development should not dominate the neighborhood.

●Emergency call boxes should be placed at various locations along walkways, particularly as the distance away from the main buildings

increases.

●In almost all elderly housing projects, the primary security problems occur on the site or
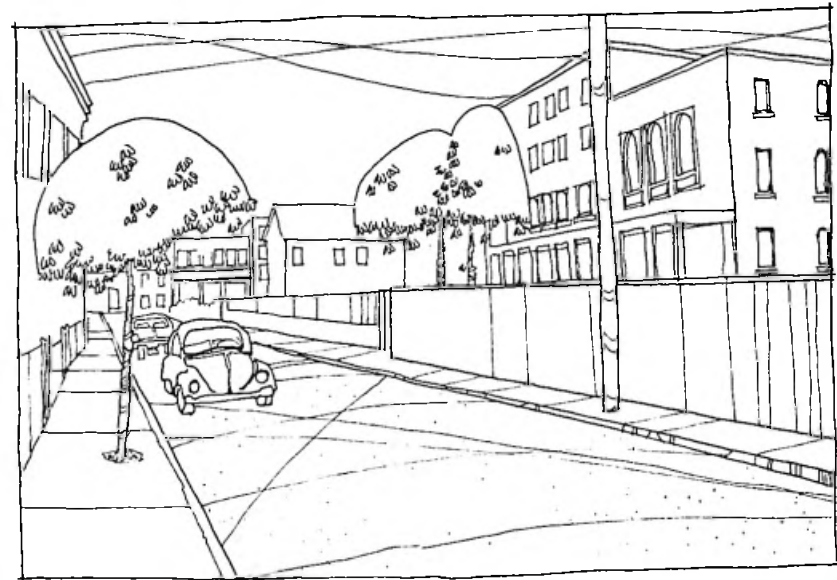
in areas directly adjacent to the site. Typically, the urban elderly housing project is a fortress, once inside most residents feel safe, but outside or in semi-public areas (such as the lobby) residents experience fear and real danger. There are two possible alternatives to this problem. First, and probably least satisfactory, is to extend the fortress to the site boundary. High fences, guard patrols, spotlighting, closed circuit television monitoring, pressure sensitive alarms, and other devices may be used in this context.

Another alternative, however, is to modify the character of the site in just the opposite fashion. That is, to make the site an attractive part of the community, not for crime, but for a variety of positive activities. For example, if one dark unused area is particularly troublesome, conversion to a "neighborhood commons" may reduce or eliminate the crime problem. Such an area might have high intensity lighting but in conjunction with an open-air restaurant, shops and boutiques. Instead of converting to a fortress, the conversion is to community, and to an area in which people feel safe. In this case the architecture attempts to create cues which say to the observer, pedestrian, or potential criminal "crime doesn't happen here". Of course, such a strategy involves community support and more work,

- *drawings opposite: in the top view a high fence has been erected to keep intruders out, in the bottom view barriers have been removed and an inexpensive attempt has been made to create a sense of community between the elderly housing (right) and the neighboring areas.*

but perhaps for the elderly housing project, less money and increased resident involvement in the community.

CHARACTER AND IMAGE

Character and image refers to what the building or building complex looks like to the casual observer. If a housing development "looks like" a hospital, then the residents may feel like they in fact, live in a hospital. The institutional character of many environments could probably be reduced if more emphasis were placed on some of the concepts listed below.

- The building scale should be consistent with the environment around it.
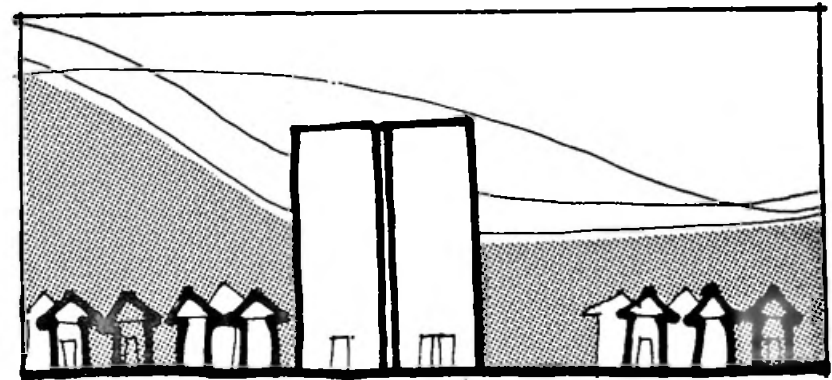
- *when the building scale is inconsistent with the environment around it, an institutional image can result.*

- Landscaping should be emphasized, again consistent with the surrounding environment.

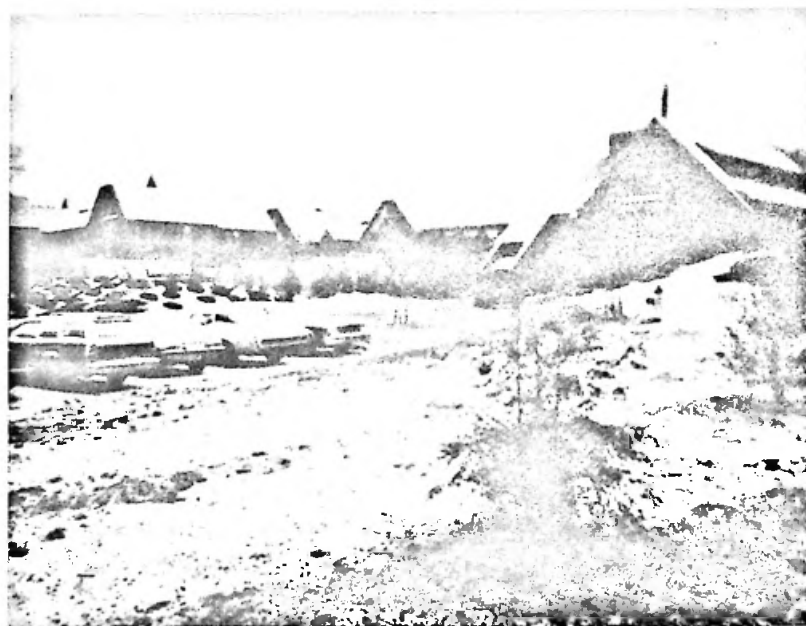- Monolithic masses should be avoided; apparent mass can be reduced by breaking up one unit into several smaller ones.

21

●An increased number of edges and corners tends to visually reduce apparent mass.

●Visual identity should be provided for as small a living unit as possible, both on the interior and exterior. (Ideally each living unit would have its own character.)

●Signs directing visitors to various locations should be highly readable and non-institutional in character.

●Consideration should be given to integrating the site with nearby landmarks and activity areas. (Extended pathways and modest landscaping and street furniture beyond the site is one way of achieving this.)

●Careful attention should be given to material selection. Again, scale can be reduced or modified by the size and character of the "building blocks".

●Monotonous repetition of color or material on

●*public housing and...*

●*suburban 'congregate living' each present a particular image to the public and to residents.*

●The boundry of the site should not be definded by obtrusive measures (i.e. a chain-link fence) unless security is the major environmental issue.

the interior should be avoided. Florescent lighting, uncarpeted and long hallways and other cues to institutional style construction should be avoided.

●Emphasis should be placed on the exterior
entrance and the "face" it presents to the
public. Monumental entrances and huge vistas
should be reduced to a residential scale.

●Diversity of image should be developed, views
from different vantage points should not all
look the same.
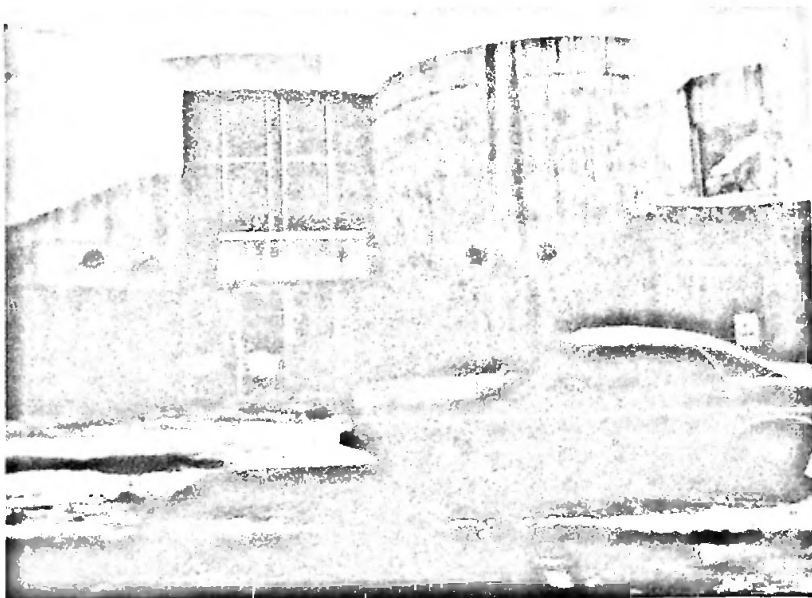
● *two highly successful semi-indepen-*
dent living environments...
a new modern facility and...

● *an unused urban building which*
has been renovated.

●An attempt should be made to integrate nature
into the building and building zone, for
example, interior courtyards which are acces-
sible from group spaces or individual units
can encourage use of natural setting.

●An effort should be made to provide an environ-
ment which both on the exterior and interior is
legible rather than ambiguous. That is,
residents and others should have a "feel for
where they are", have a "sense of place".
Proportion, shape, texture and each of the
concepts above can help to send information
about the environment to the resident and the
observer.

23

● In terms of actual size, 100 residents is the minimum suggested by administrators for facilitation of supervision, economy, etc.; it is this size, too, when environmental concepts described here become a dominant consideration.

SPATIAL ORGANIZATION AND PROXEMICS

This section will address some of the issues relating to general building organization and to the nearness of one functional element to another. As with the other levels of design decision making, organization and proxemics will be different for each project. Organization is affected by a number of variables including location, site development, resident characteristics and behavior to be supported.

● In many facilities the lobby and entrance foyer is a primary activity zone, while in some projects this is discouraged by removal of furnishings and posted rules. It should be clear, however, that the entry of visitors and friends, other residents, the mailman, and other service personnel makes the lobby a focal point in most projects. If interaction is to be encouraged, environmental support should be focused on the lobby. This support includes adequate seating, space for "milling" and congregation, waiting areas for the elevator, and attractive furnishings.

● At the same time that the lobby is active, it must be secure. Part of the security can be provided by natural surveillance and interpersonal observation, but in high crime areas entry should be by buzzer-operated access and visual check of each visitor.

● A public bathroom, which is barrier-free and accessible to wheelchair persons should be located in and visible from the lobby area.

● Observation of all points in the lobby should be possible from any one position. This not only assists in survaillance for security, but also helps residents find and locate their friends.

● An issue has been made about mailbox location, but if the lobby is successful as a focus of activity, security problems should not be a predominant feature of mailbox placement.

● The lobby can also serve as a disseminator and distributor of activity. In this context, the major group activity space might be adjacent to or very near the lobby.

● Depending on the project philosophy, other spaces which might be located adjacent to, or as extensions of the lobby include: a senior citizens center, a senior daycare center, a children's daycare center, university classrooms, or a community retail center.

● Another area which is a high generator of activity is a large group dining room. If interaction is to be encouraged, a smaller group room, perhaps with a small library and comfortable chairs, should be located as an extension of the dining area. If after diner conversation is to be promoted, residents might be funnelled through this area before entering a corridor or circulation zone.

● Again, if interaction is to be supported, activity areas should be located adjacent to major pedestrian zones.

● If interaction is to be encouraged, consideration should be given to locating required

activity zones at ends of a pathway. For example, the lobby and the dining room might be at opposite ends of a path, then more specialized activity spaces might be located along this major pathway.
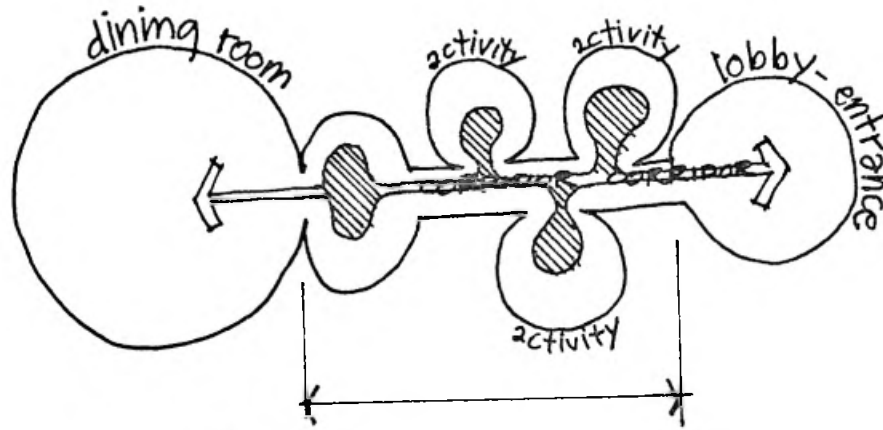
• *a prime location for spaces to encourage diverse activities is along a major pathway connecting two 'essential' activity areas.*

●Corridors should be as short as possible, distances for escape (from fire, smoke, crime) should be within the "breathing range" of residents.

●Corridors should be as wide as possible to permit conversation and short discussion without interfearing with pedestrian traffic. Corridors which begin to approximate rooms in shape and size will more clearly imply residential rather than institutional traffic patterns.

●Careful consideration should be given to maximizing flexibility in the building organization. Changes in the resident population may imply expansion, contraction, change of

function or increased mixed usage.

●Flexibility may imply the cluster concept rather that of a single structural unit.

●Clear architectural distinction should be made between those areas which are public, semi-public, semi-private, and private. Color, texture, material change, lighting intensity, barriers, planting, scale and view can each be utilized effectively to communicate information about the "communality" of any given area. Such visual cues can also be effective in preventing unwanted movement from one zone to another.
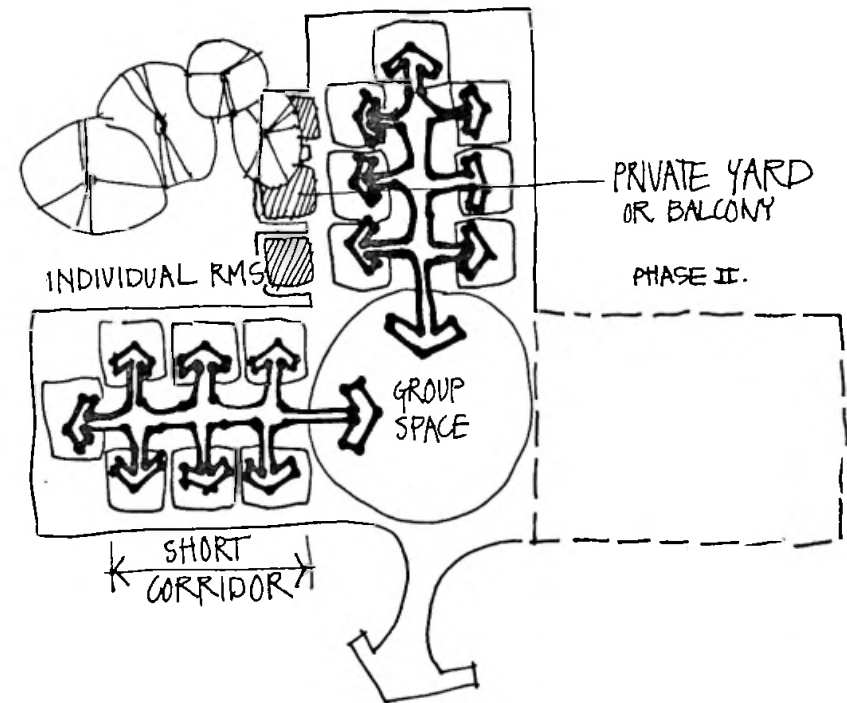
• *the cluster concept presents a number of design advantages, including adaptation to phasing.*

●From zones, the concept of sequence emerges. Sequence implies movement through various rooms in a specified order. The sequence of movement from public to private should be logical, areas which are defined as activity generators should be located in public - semi-public areas. For example, locating a dining room such that visitors must pass through semi-private space should be avoided.

●If there is to be housing provided for a range of resident characteristics, (from independent to semi-dependent for example) an attempt should be made to integrate these groups in semi-public and public zones. Privacy and differential service delivery can be accomplished in private and semi-private zones. More independent residents are, however, best able to handle personal space on the facility perimeter.

FUNCTIONAL AREA CHARACTERISTICS

This section will describe some of the general issues which must be addressed for each of several spatial categories. The categorical breakdown presented here is derived from the functional/behavioral events to take place in a given setting. For each category, image, design and architectural features are different; the areas are: personal space, group space, circulation zones, administrative zones and service areas.

Personal Space:
●Personal space implies maximum privacy, and architectural definition of social conditions which change when entering another's territory.

●"Ownership" of personal space should be clearly defined. Methods by which this can be com-

municated include: Maximum utilization of personal furnishings for room decoration, the provision of tack boards and peg boards for attaching materials to the wall, different use of color, etc..

●For maximum impact on personal space, residents should be allowed to select wall coloring and make all major furnishing decisions.

●Consideration should be given to providing closets and shelving space which are modular and movable rather than "built in", residents thus can have maximum impact on room organization.

●The entryway or threshold to personal areas should be clearly defined. One way to do this is to recess the doorway and create a transition zone from semi-private to private space. It has been suggested by some that recessed doors create hiding areas for potential criminals; however, if intruders can move this far into the personal territory of residents, doors flush to the wall will be of little value.

●Balconies should be considered for extending personal space into the natural environment, however in high rise units balconies should be avoided. Feelings of vertigo, dizzyness, and lack of use most often characterize high rise balconies for the elderly.

●All of the critera which define privacy should apply to balconies. Visual privacy from adjacent balconies should be provided. Means for self-expression should be available (e.g. planter-boxes).

●Balconies should also be considered as a

further safety factor for increased evacuation
capability during a fire.

● Each of the criteria for exterior development
apply to balconies, specificly: protection
from spring and autumn wind, "sun penetration
vs. sunny view", and so on.

● Hygiene areas should also be defined as
personal space. When individual bathrooms are
located in each room there is no particular
problem. However, if bathing facilities are
to be shared for reasons of economy or safety,
special architectural features should be con-
sidered. For example, one further zone should
seperate the bathroom from the corridor or
hallway. This room might be a kind of lounge
area with dressers, mirror, chairs and vanity
table, creating a highly personal feeling.
The actual bathroom area should be beyond this
"buffer" zone.
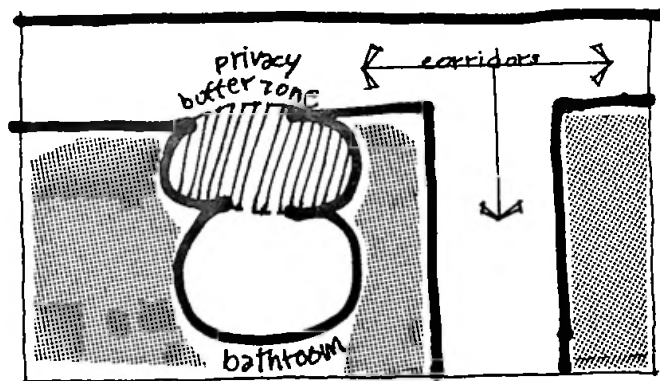
● *there should always be a 'semi-pri-
vate' zone prior to entering a
'private' zone, in this case a
buffer between corridor and shared
bathroom.*

● Bathroom furnishings and safety features will
be described in a subsequent section, "Human
Engineering".

Group Space:
● Group spaces are those areas which imply some
integration and sharing of activities, this
may include reading, dining, conversation,
crafts, games or active recreation.

● Group spaces which are intended to promote
conversation and interaction should focus upon
some activity. The mere provision of a room
will not directly stimulate interaction.
Events or conditions which can help to stimu-
late talking include: a special view of some
area, a small kitchen, arrivals or departures,
odors, sounds or uncommon resident behavior.

● Research has given some indication that round
rooms rather than square or rectangular ones
tend to promote interaction. The concept is
the same for tables, that is, the shape tends
to focus eye contact and create feelings of
group centeredness and equality. This effect
is probably most striking in small spaces,
particularly in which chairs are placed at wall
facing inward. In large spaces this effect
tends to be diminished and shape is probably of
little value.

● It is not suggested that all rooms be round,
rather only those group spaces where intimacy
and interaction are to be encouraged. In any
given housing project, perhaps one or two rooms
might be of this design.

● Group spaces which are intended for quiet
activities should also have a focus. View, or
a fireplace, library books, newspapers and
magazines, or television may present cues which
imply passive activities.

● The issue concerning the quantity of group
space is highly complex and should be very

closely tied to the project philosophy and behaviors desired as evolved in the planning process. In general, however, the following statements may be considered as theoretical guidelines for developing group space.

1. The more comprehensive the range of spaces and services provided the more residents will tend to stay on the site.

2. A large number of dispersed and specialized group spaces tends to reduce the quantity of interaction. In many facilities dispersed gourp spaces in primeter areas are grossly underused.

3. Less services imply that residents will be forced to leave the site more frequently and will expend more-energy in off-site interaction.

4. Multipurpose rooms imply more people per square foot, thus higher contact frequencies. Clearly, however, incompatible activities should be seperate (e.g. quiet games and physical therapy demand definitive separation).

●Group spaces which might be considered as advantageous in promoting an extension of tenants behavior include: a resident-managed snack bar, boutique or flower shop, a resident-managed daycare center for children.

●Group dining is perhaps the central activity of the day for some elderly. The dining room should convey dignity and opportunity for maximum respect for all residents. Tables should be located ample distance apart to increase confidence in mobility and facilitate wheelchair access. Tables should be round or of another shape (square, hexagonal) which permits conversation between all occupants at any one table.

●Long rectangular tables should never be utilized. Tables should accomodate between 2 and 8 persons with the majority being at the 4 to 6 category.
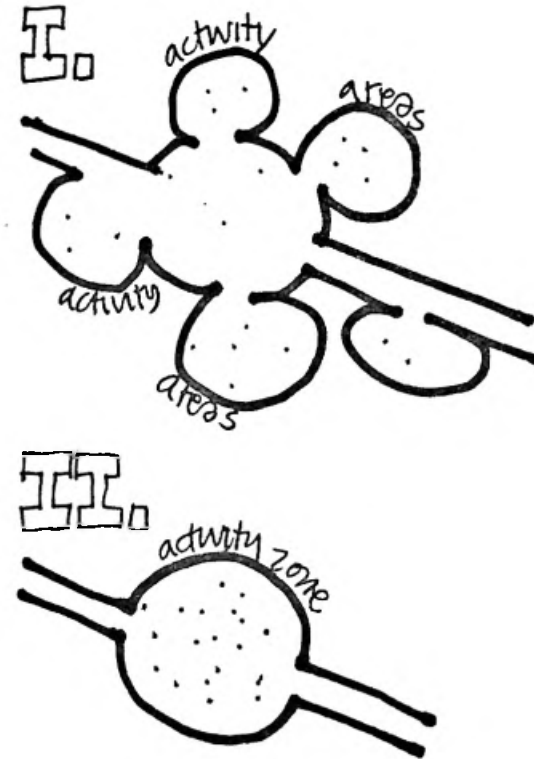
●in facility one there is more space and more diverse spaces devoted to on-site activity, assuming the same number of people engaged in activity at any one time, there is a greater probability of interaction in activity space number two.

●One specific group space which seems to be highly popular and receives maximum usage in a range of facilities is a private dining room for resident and guests. This area can be most successful if complete waiter service is available, and the atmosphere and furnishings are formal; 8-10 persons should be able to be seated at one time.
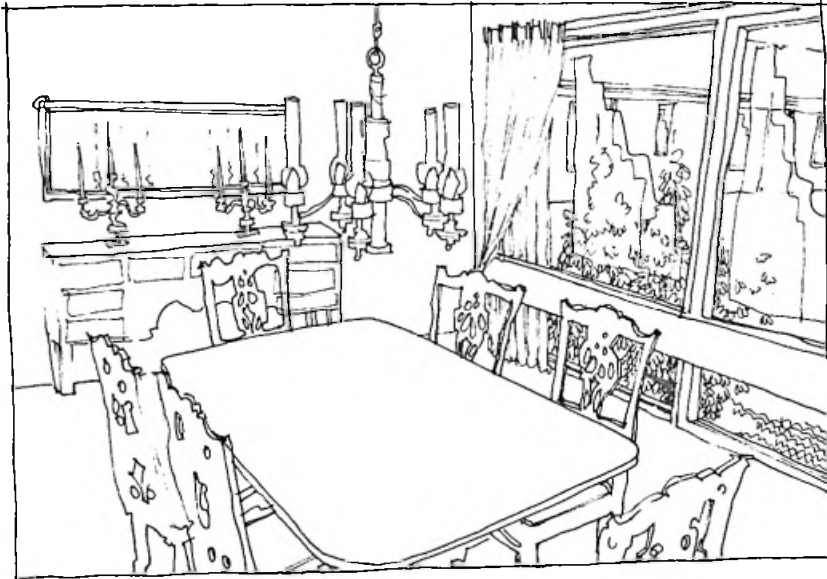
●*a small private dining space for residents and their guests is an extremely well used space in most congregate living environments.*

Circulation Zones:
●Circulation areas and hallways are one of the trademarks of institutional architecture. Long unrelenting corridors with no furnishings, tile flooring, high sound transmission and lack of identity can be described by almost anyone. In high rise buildings, long corridors have been called "the sidewalk in the sky". Every effort should be made to eliminate this feature in housing for the elderly.

●Consideration should be given to having all corridors less than 40' in length where interaction is to be encouraged.

●Consideration should be given to making hallways into rooms. For example, alcoves along corridor zones can be utilized for library/ reading space or a small game area. In this way, pedestrian contact with "sitters" and "watchers" can be facilitated.

●A further extension of this concept is to include a group kitchen in the corridor. For those whose housing philosophy is intended to promote resident friendships and interdependence, this can be an extremely powerful example of architectural impact on behavior. For example, though residents can optionaly bring meals to their room, cooking activity occurs in groups and in semi-private zones rather than private areas. Thus, the location and design of one activity almost "requires" certain behaviors, in this case, socialization.

●Consideration might also be given to a sitting and looking alcove along pedestrian paths, again resident contact is promoted.

●It might be mentioned here that at least one facility has elected to have curved hallways solve their problem of long corridor imagry. In this case, view is limited by the angle of curvature and residents "cannot tell how far they must walk" to arrive at any one room. However, it seems that "residential" rather than "contrived" solutions might be more appropriate.

● the corridor above is 'institutional' in style, it is narrow and long, rooms are undefined, there is no furniture, fluorescent lighting is utilized.

● the corridor above is more 'residential' in style, there are furnishings though they are little used, rooms can be identified by their location and the furnishings nearby.

30

●this corridor has a function in addition to circulation, it is also a kitchen and group activity space, lighting is non-institutional and furnishings are well used*

*116 Norfork St., Boston, Architect: David Conover

Service and Administrative Zones:
●Much less will be said about these two areas, since with some exceptions the problems associated with these spaces are typical for a wide variety of project types.

●There should be provision for management offices; however, too often the administrative area dominates the lobby character. With a variety of secretaries, administrative offices etc., exposed to the lobby zone the character and image is often that of a hospital or bank. This can be eliminated by placing the administrative complex adjacent to, but separate from the lobby area.

●If a medical examining room is to be provided, this space should be located in an easily accessible area, but unobtrusive and visually isolated from major group spaces.

●The location and design of the laundry area is another oftentimes significant issue. A ground floor single large laundry, as opposed to alternate floor or dispersed smaller facilities is a common choice which must be made. The following behavioral implications have been suggested for the first option, that is, "a single space, located on the main floor":(14)
  1. Limits privacy for this particular activity.
  2. Increases opportunity for social interaction.
  3. Requires formal preparation (i.e. dressing for social contact).
  4. Reinforces the anxiety of those who fear social contact.
  5. Creates conflict over use of laundry machines.
  6. Maintenance is facilitated.

7. Results in less resident control of space and less resident control of own personal behavior (i.e. uncontrolled meeting of those who are unsociable or percieved as undesirable aquaintances).

●As with all other housing categories, services (food delivery, food preparation, etc.) should be as unobtrusive as possible.

HUMAN ENGINEERING

Human engineering refers to the special environmental features which might be incorporated into an environment, or room, or tool, which will assist individuals to function to maximum capacity. When considering any of the options listed here, the critical issues are:

1. What are the resident characteristics?
2. To what extent do those characteristics imply environmental modification to promote independence?

The changes listed here are primarily based upon physiology, certainly not all of the items would be appropriate in any one facility. Exact locational and dimensional specifications are available in a number of excellent sources. (15)

Visual Criteria:
●Avoid westerly view from rooms which will be used frequently in the afternoon, glare can be a visual hazzard.

●Avoid sequential movement through spaces which are alternatley light, then dark.

●Work areas (and movement zones) should have about 2 times the normal illumination level.

●If room sizes are small, dark colors should be avoided, they tend to make rooms appear even smaller.

●Strong patterns on floor and wall surfaces (particularly stripes) should be avoided, patterns seems to be disorienting, perhaps even causing dizzyness.

●Lighting should be rheostat controlled, so that intensity can be selected by the user.

●There should be visual cues, to assist resident orientation in movement areas, for example: graphics, plants, highlighting, and color differentiation.

●When color differentiation is needed, blue and green are perceived as least clearly different, other combinations should be selected.

●There should be an increase in the use of textural cues whenever possible.

Acoustics:
●Acoustic privacy should be emphasized, background noise in some facilities may be low but the contrast between quiet and noise can be disturbing. Irregular sleeping hours and resident habit variations tend to maximize this disturbance factor.

Movement and Mobility:
●Door handles should be push-pull, lever action type, rather than turning round knobs.

●All stairs, ramps and corridors should have hand rails mounted at a height of 2' 9" above the floor.

●Ramp slopes should not exceed 1:12 ratio, 1:20 is preferable.

- Resting places should be provided along all movement areas (interior and exterior) which exceed 150 feet in length.

- Floor materials, particularly on ramps, stairs, and in the bathroom area should be non-slip.

- Door and change of level thresholds should be eliminated.

- The main front door should be self-closing and self-locking.

- The elevator door should close slowly, and should reopen quickly upon activation of a pressure sensor.

- Where possible, chair height should be at least 19" above the floor, emphasis should be on chairs with arms high enough to "push out of".

- Electrical wall switches should be located between 3' and 4' 8" in height.

- Electrical wall outlets should never be located lower than 1' 9" above the floor, preferably higher.

- Ceiling mounted light fixtures should be avoided, wall mounting at about 5' to 6' above the floor is preferable.

- Stove controls should be located at the front of the stove, residents should not have to reach over hot areas to make control adjustments.

- Maximum cupboard height should not be greater than 4' 8".

- Shelving should not be located over stoves, sinks or other appliances.

- Kitchen sinks should have about 2' 2" clearance underneath, so that residents may work while sitting on a chair.

- Sinks should have lever action handles.

- Grab bars should be available in the bathroom, adjacent to toilet and tub/shower.

- The toilet mounting height should be 3" – 4" higher than typical residential construction.

- For those moderate to severe mobility problems, "push" bars should be located on each side of the toilet.

- Consideration should be given to a shower/tub combination with fexible shower hose and built-in seating space in shower.

Temperature:
- Elderly are generally less sensitive to temperature change, emphasis should be placed on uniform temperature regulation, though bedroom units should ideally be individually controlled.

- Elderly may perceive small spaces as "stuffy" (particularly if windows are closed), therefore emphasis should be placed on adequate ventillation.

- Hot water should be regulated so that 120°F is the maximum temperature available at the shower/tub area.

- Electric heat is preferred in private or semi-private kitchen areas, appliance should include light or visual cue to heat activation.

Wheelchairs:
- If extended use or occupancy by persons using wheelchairs is contemplated a number of special

33

design features should be considered, including: "wheelchair" washer and dryers, "wheelchair" planter boxes, "wheelchair" kitchen access, and drinking fountains.

●The geriatric wheelchair can create a strong basis for behavioral discrimination. An effort should be made to integrate features which support wheelchair use in common areas (e.g. an "empty space" at group tables). If use by persons in wheelchairs is considered, room furnishings should not be "overdone", there should be some empty areas so that wheelchairs can easily move through the space.

●Door width and corridor width should accomodate the use of wheelchairs. Elevator controls should be accessible to persons in wheelchairs.

Furnishings:
●Where social interaction is to be encouraged; tables should not be rectangular. Round or square or hexagonal tables permit eye contact and simultaneous comfortable "psychological distance".

●Seating at right angles appears to be the most preferred conversational setting.

●Linear arrangement of chairs in front of a wall reduces the potential for spontaneous conversation.

●Tables should be placed where emphasis is to be on conversation; tables tend to emphasize facial contact and may act as a visual screen against leg, or other disability.

●Window height should allow a view to the exterior from a sitting position.

●Emphasis should be placed on allowing residents to keep as many of their own furnishings as possible; where applicable, and with resident agreement, consideration should be given to using resident furniture in group spaces. Where use characteristics permit, carpeting should be used as much as possible.

Security and Communications:
●Where security is an issue, entry should be by buzzer operation and visual check of the resident; either by personal observation or closed circuit television monitors.

●Where security is an issue, lighting should clearly illuminate exterior pathways and entryways.

●Where security is an issue, careful consideration should be given to all door and window hardware which should keep intruders out, but allow for emergency exit in case of fire.

●Call buttons should be available in individual rooms, (both bedroom and bathroom). One button should be next to the tub and toilet area about 2' above the floor in bathroom, another, accessible from the bed in the room area.

●Call buttons should automatically unlock entryway doors to button location.

●The elevator should be connected to a staff station by voice and button control intercom.

☐ summary

It is hoped that the issues and concepts presented in this booklet will be of some assistance to sponsors and their architects when considering the development of housing for the elderly.

The direction and content of this material has been guided by two basic themes. First, that the elderly or semi-independent elderly should have the maximum opportunity to make a wide range of decisions about how they will live and where they will live; and that congregate housing is one option which increases this range of choices.

Second, that environments can act as a filter of behavior, encouraging or supporting some behaviors, while discouraging others; and that, therefore, environments should be designed based upon this relationship.

This booklet has suggested some concepts for beginning to do this for elderly housing environments. However, as stated earlier this material should not be used as a "cookbook". Only "signposts" along the road are presented here.

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