

Ain Shams University, Engineering Bulletin

Vol. 28 No. 1, Mar. 1993, Page. 335-367

PLANNING SOCIAL & PRIVATE SPACE FOR THE ELDERLY

PRESENTED BY

Dr. BASHAYER EL SAYED MOHAMED KHAIRY

**LECTURER
URBAN PLANNING DEPARTMENT**

**FACULTY OF ENGINEERING
AIN SHAMS UNIVERSITY**

**PLANNING SOCIAL & PRIVATE SPACE
FOR THE ELDERLY**

Fore word

The research discuss the social and private space needed by the Elderly. The paper shows that the built environment of the Elderly's home should be designed to enrich the occupant's life and be supportive of his disabilities, medical and psychological needs. The home should be planned as part of the urban web and should be complemented by a sympathetic neighbourhood.

INDEX

- Special types of Environment in U.S.A.
 - A. Unplanned Ordinary Communities.
 - B. Adapted Housing.
 - C. Planned Independent Housing.
 - D. Alternative Housing.
 - E. Congregate Housing.
 - F. Continuing Care Retirement Communities.

- Site Location, Environment, Area, Car Parking and Services in Congregate Housing.
 - a. Service & Leisure facilities.
 - b. Communications: Pedestrian & Public transport.
 - c. Environment.

- Site Area.

- Car Spaces.

- Landscape.

- Elderly People in Tall Buildings.
 - Housing Satisfaction.
 - Motility.
 - Movable.
 - Friendship.
 - Kinship.
 - Participation in Activities.

- Social & Psychological Factors.

- Sensory & Physical Limitation.

- Economic Resources.

- Age Segregation.

- Shared Facilities.

- Examples: Site A, Site B, Site C and Site D.

- Personal Belongings.

- A survey of seven different case-studies interviewed by a Design Evaluation Project.

- Analysis of different case studies in U.S.A.
 - Walls, Corners and Niches.
 - Room Proportions.
 - Visual Access.

- Analytical survey with comparative analysis for "Housing the Elderly" in Sweden, Denmark, Great Britain and Egypt.

- Conclusions and Recommendations.

LIST OF FIGURES

	Name	Page
Fig. 1	Sympathetic neighbours	4
Fig. 2	Routes & distances	5
Fig. 3	Gardens & privacy	8
Fig. 4	Residential Environment	13
Fig. 5	Site A, a	13
Fig. 5	Site A, b,c,d,	14
Fig. 6	Site B, a,b	15
Fig. 6	Site B, c,d	16
Fig. 7	Site C, a	17
Fig. 7	Side C, b,c	18
Fig. 8	Site C, d	19
Fig. 8	Site D, a	19
Fig. 8	Site D, b,c	20
Fig. 9	Personal belongings	22
Fig. 10	Mr. and Mrs. Watson	24
Fig. 11.	Mrs. Alexander	25
Fig. 12	Mr. Anderson	25
Fig. 13	Mrs. McDonald	26

	Name	Page
Fig. 14	Mrs. Benson	27
Fig. 15	The Samson Sisters	27
Fig. 16	Mr. and Mrs. King	28
Fig. 17a	Irvington New Jersey efficiency	30
Fig. 17b	Charlotte, North Carolina efficiency	30
Fig. 17c	Gloucester, Massachusetts efficiency	31
Fig. 17d	Cleveland, Ohio (One bedroom)	31
Fig. 17e	Brooklyn, New York (One bedroom)	32
Fig. 17g	Ames, Iowa (One bedroom)	32
Fig. 17h	Boston, Massachusetts (Two bedrooms)	33
Fig. 18	ALDERDOMSHEM PAPEGOJELYCKAN	36
Fig. 19	Västra Fäladen Service centru	38
Fig. 20	ORDRUP VAENGE: GENTOFTE, COPENHAGE, DENMARK . .	40
Fig. 21	COPENDHAGE, GLADSAXE MOLLEGARDEN CARE CENTER . .	41
Fig. 22	Milton Keynes, Springfield	45
Fig. 23	Milton Keynes, Carpenter Hall.	46
Fig. 24	Home of Virgin, Lady Mary, Heliopolis, Cairo . .	48
Fig. 25	Internal Green Court	48
Fig. 26	Bathrooms attached to rooms for two	49

	Name	Page
Fig. 27	Shared Bathrooms for two or three bathrooms for two or three dormitories	49
Fig. 28	Shared Balcony on all the rooms	50
Fig. 29	Small Kitchenette on each floor	50
Fig. 30	Main Kitchen	50
Fig. 31	Hobby rooms	51
Fig. 32	Center of Services for the Elderly	53
Fig. 33	Internal dark corridor on the rooms	54
Fig. 34	Greenery & T.V. belonging to the Elderly	54
Fig. 34	Refrigerator belongs to the Elderly	55
Fig. 35	Complete Medical care in Mezzanine	56
Fig. 36	The share Bedroom & the proposed semi-private Bedroom with dimensions	58

The first notion that enters one's mind on thinking about designing space for the Elderly is that one must understand exactly what are the specific characteristics of these occupants and why we are about to house them in separate units. Religion, tradition and customs in Egypt have put rules and policies in caring for their old aged by putting their responsibility on the closest relatives. In Islamic culture the case of the older person is the responsibility of the nearest relative i.e. the son, the daughter and if they are not present the cousins or nieces and nephews or still more the tribe or the bigger family circle which if one puts it in wider range could reach to one's own native country. The cases in Egypt, that need this kind of housing, could be a minority for we can still say that family ties are still strong and only a small percentage have had to reach these measures, but in the coming years with more exported ideas and increasing economical family problems and social independence we can expect an increase in this percentage. The Elderly person in the Middle East, generally should be a very sensitive case on being housed in such accommodations, for this method of habitation is not the accustomed case in most families and severe lapses of depression may attack the housed Elderly in comparing themselves with some of their friends and relatives who have not been treated in the same way and still live within their family circle.

*¹ "In reviewing the literature on environment and aging in international researches one is struck by the emphasis on the importance of "autonomy." To define "autonomy" as a state in which the person is, or feels, capable of pursuing life-goals by the use of his or her own resources; there is thus minimal need to call upon other people's resources. The implication is not, of course freedom of responsibilities, social ties, and so forth, but

*¹ J.E. Birren & K.W. Schaie (Eds) Handbook of the Psychology of Aging, p.p. 245-258, 1990 Academic Press N.Y. Van, Nostrand. Reinhold.

freedom of choice, action and self-regulation of one's life, space or in other words, the perception of and capacity for effective independent action."

* 2 "The built environment speaks, that is it affects our behaviour and can change our mental outlook. Privacy and independence can be conceptualized on many levels and communicated in a variety of forms. The environment must reinforce individuality self-esteem and dignity. Housing should be supportive of disabilities and medical needs, rather than allowing the environment to become mechanical and sterile. Nearly 11% of the World's urbanized population is over 65."

Special Types of Environment in U.S.A.:

A. Unplanned Ordinary Communities:

In U.S.A. about 85 to 88% of all Elderly people live in ordinary homes in ordinary communities 75% of this group own their own homes.

B. Adapted Housing:

That is modification of existing private housing to meet changing needs. About 10% of the previous percentage have made modifications in their homes (Handrails, grab-bars, wheel chair access and sensory deficits.)

C. Planned Independent Housing:

This is an ill-defined category of environments distinguished by the fact that they were planned without supportive services and intended to house fully independent older persons. 600,000 Elderly occupied these units "Kramek, Hoffman, and Baker's (1986) survey" revealed that complaints

* 2 Housing For the Elderly: Privacy & independence in Environments for the Aging". J. David Hogleund. Van Nostrand Reinhold Company. N.Y. 1985.

focused on the lack of on-site medical facilities and in-home services.*³

D. Alternative Housing:

A number of traditional forms of Housing accessory apartments and shared housing. This could be the right choice for low income groups who would compromise their autonomy yet it is not the right choice for participants who need assistance.

E. Congregate Housing:

A planned housing that offers a package of diverse supportive services. This kind of housing is selected by the majority of Elderly people and is the most widely used internationally and is the focus of our study.

F. Continuing Care Retirement Communities (CCRCs):

Full nursing home-care for the frail-aged.

Site Location, Environment, Area, Car Parking and Services in Congregate Housing:

In both publicity-funded and privately-financed schemes the proximity of family and friends is important for the prospective resident. Social contact and activity helps to sustain independence whilst providing a sympathetic and supportive background.

The criteria for site selection are usually considered:

- a. Service and leisure facilities.
- b. Communications.
- c. Environment.

*³ Kramek. L.M., Hoffman. T.I. & Baker M.W. (1986), Stability and change in the Sun City Retirement Community: Findings from the 1984 follow-up study. Tucson AZ: Arizona Long Term Care. Gerontology Center.

a. Service and leisure facilities:

For convenience of day to-day living and involvement in local affairs there must be easy access to post office, bank, building society, shops, health center and leisure facilities generally, Fig. 1.

b. Communications: Pedestrian & Public Transport.

Easily traversed pedestrian routes to service and leisure facilities are essential 0.4 Km. (approx ¼ mile) from the site to these areas is the max acceptable distance. The site location must not be such that roads with busy vehicular traffic have to be crossed to reach shops, etc. The topography must be considered as well, no inclines or steps on the route. Fig. 2.

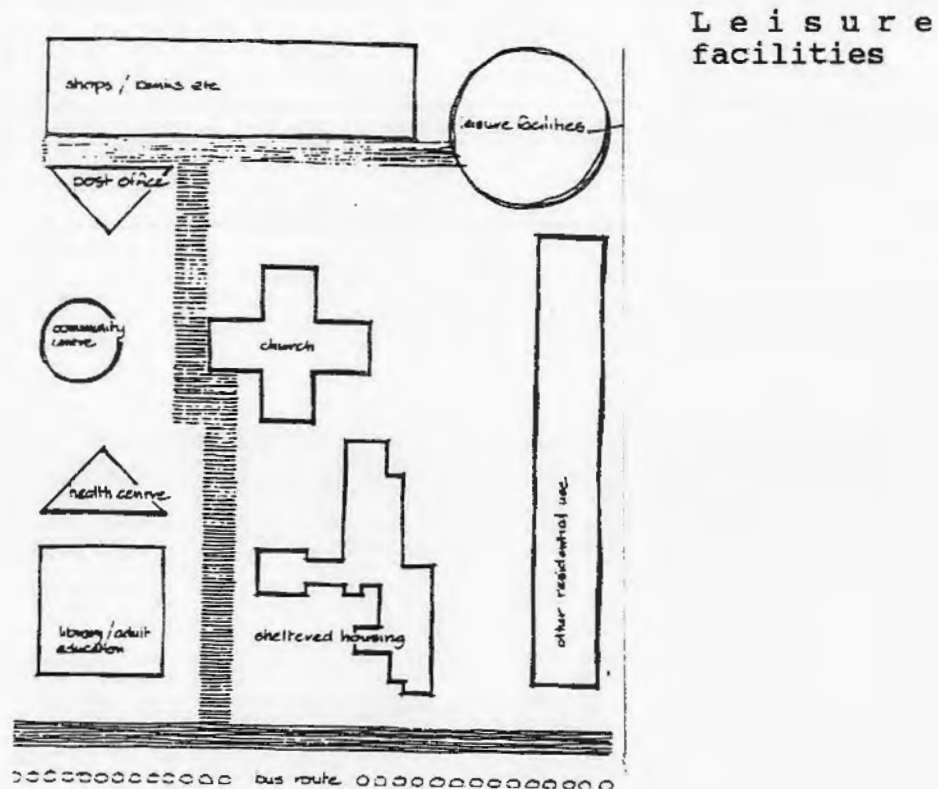


Fig. 1

Sympathetic neighbours Sheltered Housing sites should be close to all amenities in a sympathetic environment

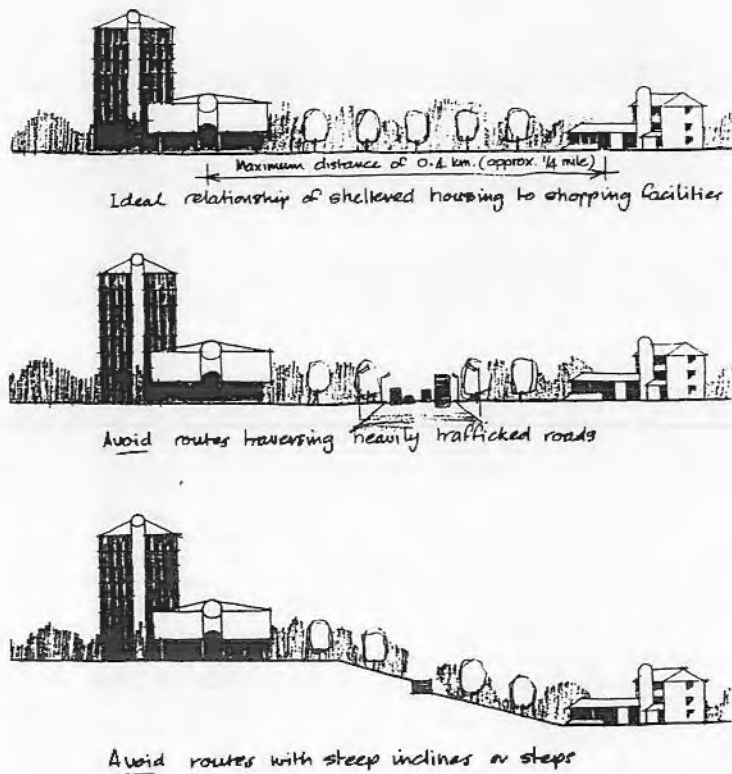


Fig. 2.
Routes to shopping facilities

Advancing years, with failing eyesight and reactions preclude car ownership for many. A reliable local public transport system is therefore essential.

c. Environment: In site selection the location of services and leisure facilities may be necessities but there remains the immediate environment of the site that should be considered :

1. Residential scale and category of use.
2. Sympathetic neighbours.
3. Privacy and routes through the scheme.

Site Area:

a) A small community, self-support group of 10 units in a rural or suburban context would require a site area of approximately 0.2 to 0.3 ha (05 to 0.75 acres). AS a general rule a minimum road frontage of approximately 30 m (100 ft) is needed to plan vehicular and pedestrian access satisfactorily into a courtyard development, supervised by the residents. In larger developments a density of 50 to 70 rooms per acre would be appropriate to a rural or sub-rural area. Densities in inner city areas can be increased using height and car parking reduced as public transport services are available.

b) A community with supervising warden (one warden servicing 30 dwellings), requires approximately one acre of land for schemes in inner city like the previous case the size site may be reduced.

c) A community for frail Elderly may not have cars but extra areas will be needed for staff and visitors and common space must be provided for kitchens, dining and sitting areas and even for schemes in inner city no heights in buildings would be appropriate.

In case a)*⁴ statistics proved that 4.9% used cars. In case b) a car parking ratio of one space to four dwellings is sufficient.

Baker & Parry reported that car ownership for the Elderly should be one space to four dwellings and the Guardian Housing Association recommended a ratio of one to three, with space reserved for upgrading it to a ratio of one to two.*⁵

*⁴ Car parking Survey 1979, Anchor Housing Association (Unpublished).

*⁵ Parry. M. Housing for Sale to the Elderly, 3rd report. A review of the retirement housing market and future trends. Housing Research Foundation, 1986.

Car Spaces: As they become less agile, the Elderly need more room to manoeuvre and park cars. Car parking spaces 5.00 m x 2.5 m (16 x 8 ft) should be provided with a reserving zone of 7.00 m (23 ft). Handicapped Elderly will need room to transfer from the car to the wheel chair.*⁶

Landscape: Usually housing for the Elderly is set in a landscape designed for passive recreation, institutional in character, merely a setting for the building. They do not invite participation in the horticultural by the residents and thereby deny the full enjoyment of the garden. The community of Elderly is a reservoir of stored knowledge which, given the right stimulus, can make a contribution to the neighbourhood.*⁷ In his paper "Meeting client and user needs" Tony Babbage discusses the therapeutic nature of gardening of the Elderly. He record a successful arrangement in which the children from a local school assisted with the weeding and visited the rabbits kept by the residents of an Elderly housing scheme, thus opening up a dialogue between school and residents. The interaction between the landscape and the building should be complementary in scale and colour to give an established character to the development by the time the residents move in. Sitting-out spaces in the garden should be provided and screened by planting or walls. Fig. 3. (Cherry Tree Court, Harwell) Photo, Alan Williams, Architect Francis Weal and Partners), all changes in level should be carefully considered. Whilst access to doorways from the outside should generally be ramped (maximum slope 1:12) and steps avoided long ramps can be a source of danger for anyone using a walking frame. Descending a ramp when using a frame, the center of gravity is thrown forward, increasing the danger of fall. The solution should be in a slow stepped ramp with a gentler slope.

*⁶ Weal, Francis & Fransesca. Housing For the Elderly Options & Design. Nichols Publishing. New York, 1988.

*⁷ Published in Gardens & Grounds for Disabled and Elderly People, Proceedings of a seminar held by the Centre on Environment for the Handicapped, CEH, 1981.

Private outdoor spaces can offer private sitting-out space, with small areas defined for cultivation by the residents.



Fig. 3
Screened sitting-out spaces

Elderly People in Tall Buildings:

Despite the fact that a great many subsidized Elderly units are multi-storey, there has been almost no research on the psychological impact of building height. Gelwicks (1971) studied preference for floor height expressed by Elderly and found out that older people favored lower floors. A research made in Philadelphia Geriatric Center was made in 1971 and 3654 tenants from coast to coast in United States were interviewed and 662 were re-interviewed in 1974. The buildings were all at least three years old in 1971. 154 sites were chosen from the universe of public housing projects with Elderly-designated units. The research was designed to investigate the relation between the physical characteristics of the housing environment and tenant well-being. A questionnaire was made as follows:

* * Housing Satisfaction:

- 1- How much do you like living in this neighbourhood.
- 2- If you could live anywhere you wanted, where would you like to live ?
- 3- How much do you like living in this housing project ?

Motility:

- 1- How often do you go out of this building in warm weather ?
- 2- How often do you leave the neighbourhood ?

Morale:

- 1- Do you have a lot to be sad about ?
- 2- Do things keep getting worse as you get older ?

Friendship:

- 1- How many people at this housing do you consider very good friends ?
- 2- In the past week how many friends (not relatives) did you visit in their apartments, or visited you in yours ?

Kinship:

- 1- How often do you see (the relative that you see most frequently) ?

Participation in Activities:

- 1- The number of non-site activities engaged in during the past year ?

The major finding was that after the variance due to age, sex, race, marital status, health, welfare status, length of residence, public or private management and size of independent relation to two of the indices of well-being: -

* * Paper "Elderly People in Tall Buildings." A Nationwide study Lucille Nahemow, M. Powell Lawton, Sandra H. Howell. Philadelphia Geriatric Center

- 1- Motility = the extent to which people left the building and travelled out of the neighbourhood - the result of the interview was that the Elderly tenants seemed relatively unaffected by whether they lived in high-rise or a garden apartment. They engaged in the same number of activities, had as many friends, saw relatives as often and were equal in general morale. Yet some of them were persistently more satisfied and more likely to traverse their neighbourhoods when living close to the ground.

- 2- Housing satisfaction = People in low buildings liked their housing and their neighbourhoods better. Similarly building height and size of project (the total number of apartment units) had a negligible impact upon morale, friendship, kinship and participation in activities. High-rise buildings are more common in urban than rural locations and are more likely to have an Elderly tenant's organization and a variety of activities on the site, enriching services such as libraries, theatres, religious facilities within ten blocks and a great variety of medical services in the neighbourhood. On the other hand, the specific comments of elder people revealed that they were afraid of becoming trapped in their apartments in case of fire.

Generally, older people cannot smell or hear or see quite as well as they used and this gives them a feeling of insecurity. They commented that if their balconies are high they do not see surrounding neighbours and streets. Elevators tend to break down and some of them have a bad heart. Others complained that they have trouble recognizing their floors from the elevator and tend to mistake their apartments for others on other floors. They have also commented that social and shared spaces are here neglected and that they feel isolated from their surroundings and at that age if circumstance and design do not offer communication with others it is very difficult to make new acquaintances just by sharing the elevator.

The general impression is that Elderly residents seem more negative about high-rise buildings and the general feeling is that low-rise building is more appropriate.

Yet it is unrealistic to think we can always build low-rise units, after all we do live in a crowded world. If we have to build high-rise units, care should be taken to provide good emergency elevator services, fire precautions should be installed and informed to the residents to give them a feeling of understanding and personal control over their own fate.

For the older person, the living unit is a container for daily activities and a storehouse of experiences and memories. A "home" means many things, but the main requirement is that the place in which a person lives is the one in which he has to feel "at home", to which he belongs and in which he has a meaning to himself and to others who live under the same roof with him. An apartment unit which is insensitively designed affects the life of occupants by constraining the activities which they wish to conduct and by making it impossible either to retain valued furnishings or to create a setting for such objects consistent with a prior life style. These issues do not always seem very important to the designer, however, from a psychological and physical standpoint the intimate environment of the late life can have a profound affect on health and moral. The problem that we are presented with and that represents the main part is the need for privacy for the old person in a public institution and dealing with people who mostly need medical care.

There are two areas of special concern that need to be taken into consideration when designing environments for older persons - the first area deals with changes generated by aging that have direct implications on the design e.g.

Social and Psychological factors: These factors center around role loss. Loss of job (being retired), husband or wife, children have grown up and left home and friends may have died. The older person may tend to withdraw socially as a result of these losses.

Sensory and Physical Limitations: Mobility becomes more difficult and frequent resting is often necessary.

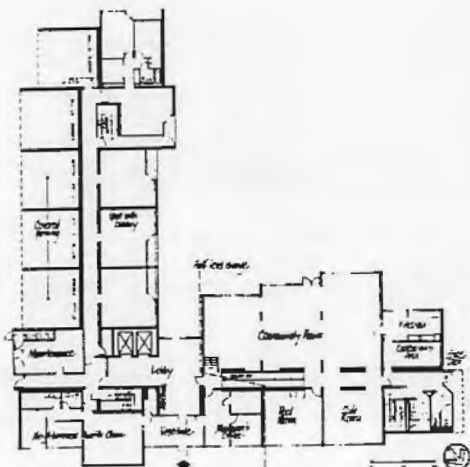
Economic Resources: In many cases financial problems have forced the Elderly person to leave his home and accept residential limitations according to his economic resources.

The second area of concern deals with adjustment and re-socialization, e.g.

Age Segregation: This means that they will encounter others of similar ages and have to deal with them on a day-to-day basis.

Shared Facilities: Elderly people find that they have to share facilities with other residents and socialize and communicate with others. However, not all residents are ready to use these shared facilities or change their private life style and take a lot of effort to mingle with the other guests. Many Elderly people due to their family losses depend greatly on these spaces for both activities and friendship formation. The design of these spaces must encourage social contact and help enter-action. The interior spaces of each site can be defined in four zones:

- 1- Public zone-circulation areas.
- 2- Semi-public zones-Social and recreational areas.
- 3- Semi-private zone-Areas on each floor or with each group of housings which include circulation and socializing with neighbours.
- 4- Private Zones - the apartment unit. Fig. 4



Site A

Fig. 5b
Ground floor

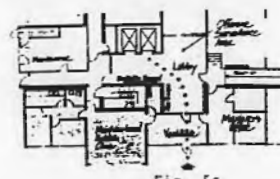




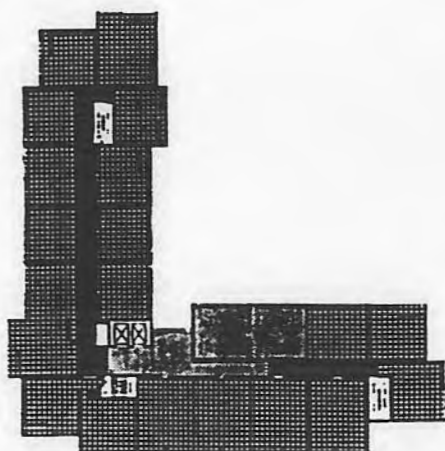


Fig. 5c

Site A
zones

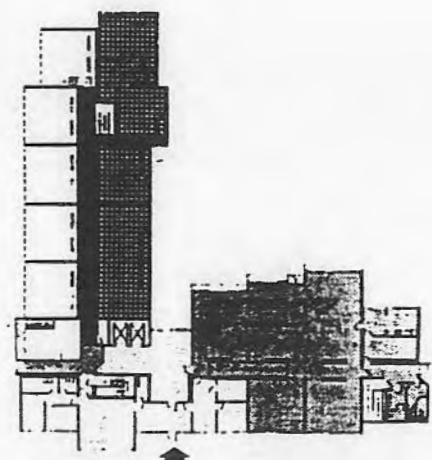
Fig. 5c

-  Public Zone
-  Semi-Public Zone
-  Semi-Private Zone
-  Private Zone



Fifth floor

Fig. 5d



ground floor

In site B residents did not feel welcome in the zone of entrance and a high level of commitment is needed on their part to either go outdoors at ground level or use the bridge connection at the second level to reach the social spaces. Yet they expressed their appreciation for the proximity to the major commercial street and bus stop and at the same time being in the midst of residential lots, Fig. 6a,b,c d.

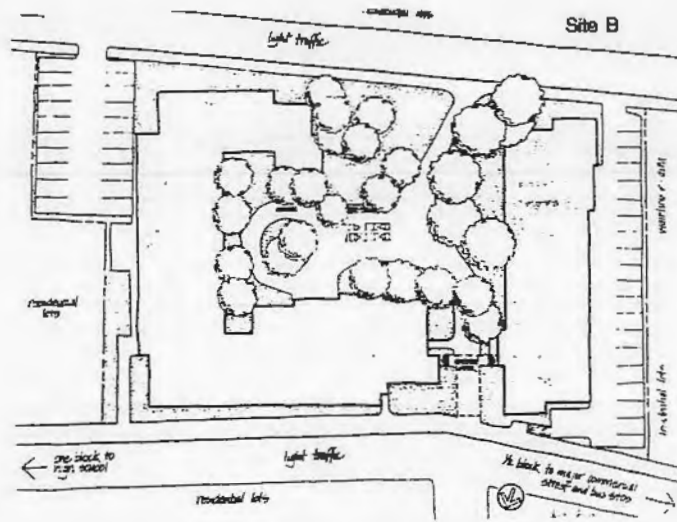


Fig. 6a

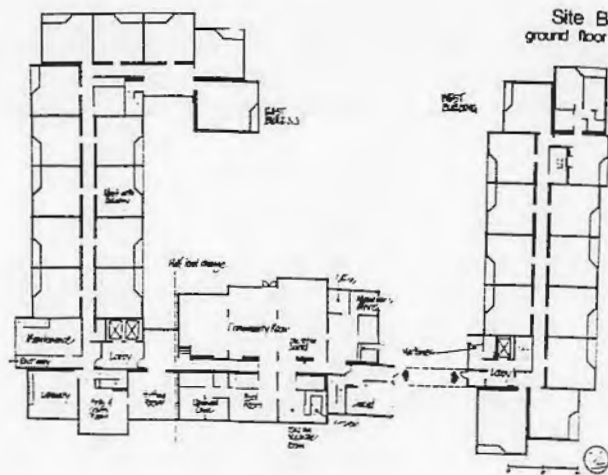


Fig. 6b

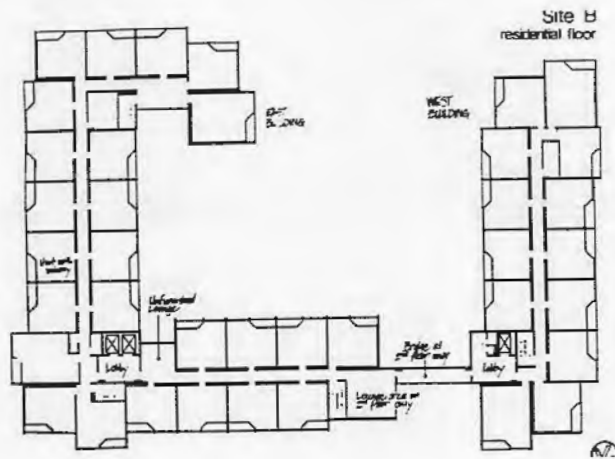




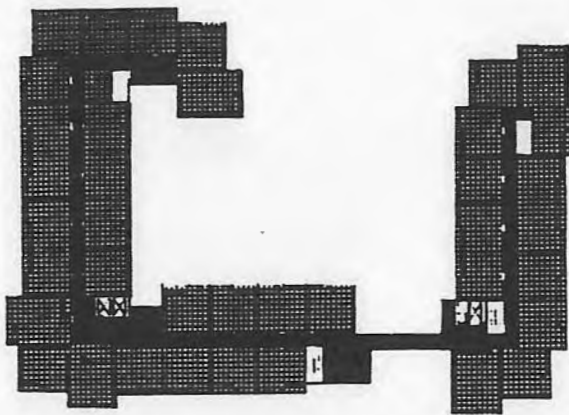


Fig. 6c

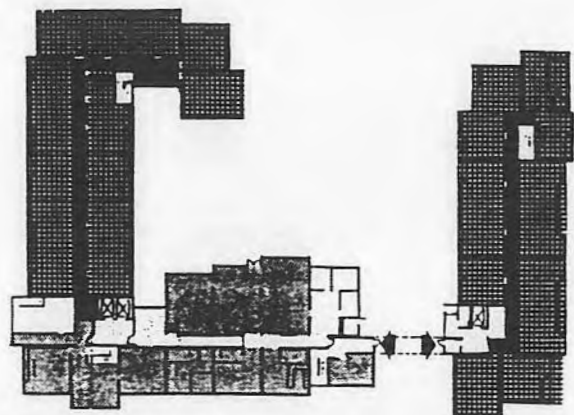
-  Public Zone
-  Semi-Public Zone
-  Semi-Private Zone
-  Private Zone

Site B zones



residential floor

10 20



ground floor

10 20

Fig. 6d

Site C is unique because it has three main entrances with vestibules and buzzer systems. Its popularity can be attributed to the fact that it has the most direct enclosed route to a major commercial street and this route passes the social spaces. Any residents moving from the apartment unit to the social spaces must follow a very public route. This tends to have an inhibiting effect on some individuals' use of the social spaces. Only one third frequent these areas once a week or more. Fig. 7a,b,c,d.

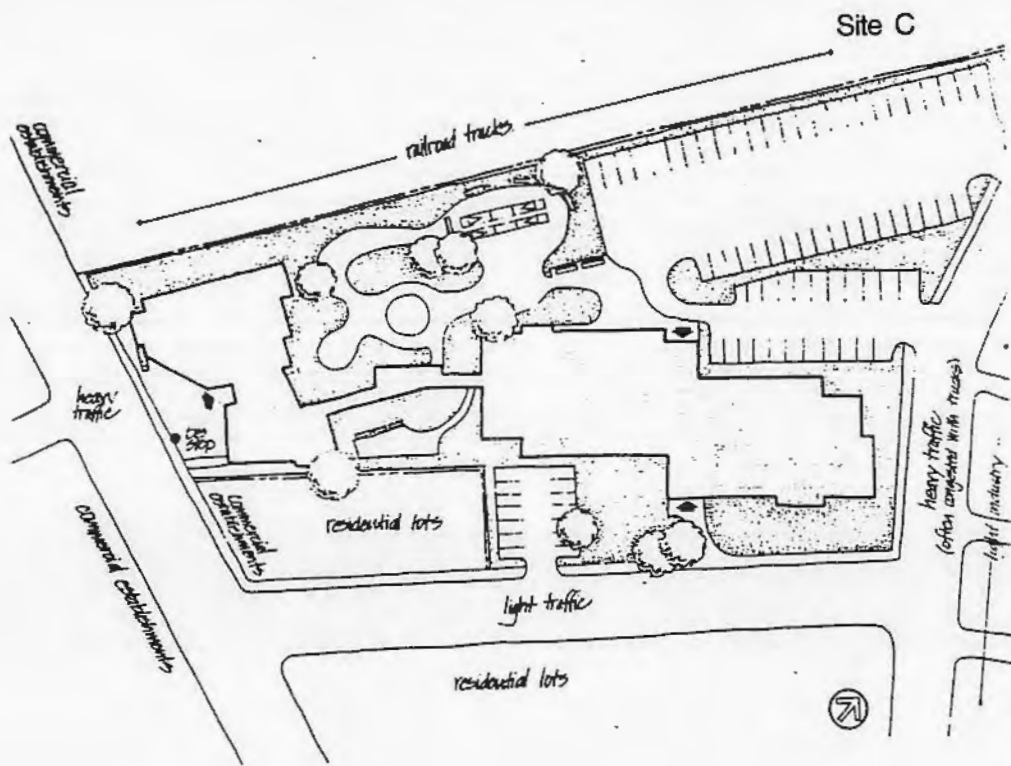
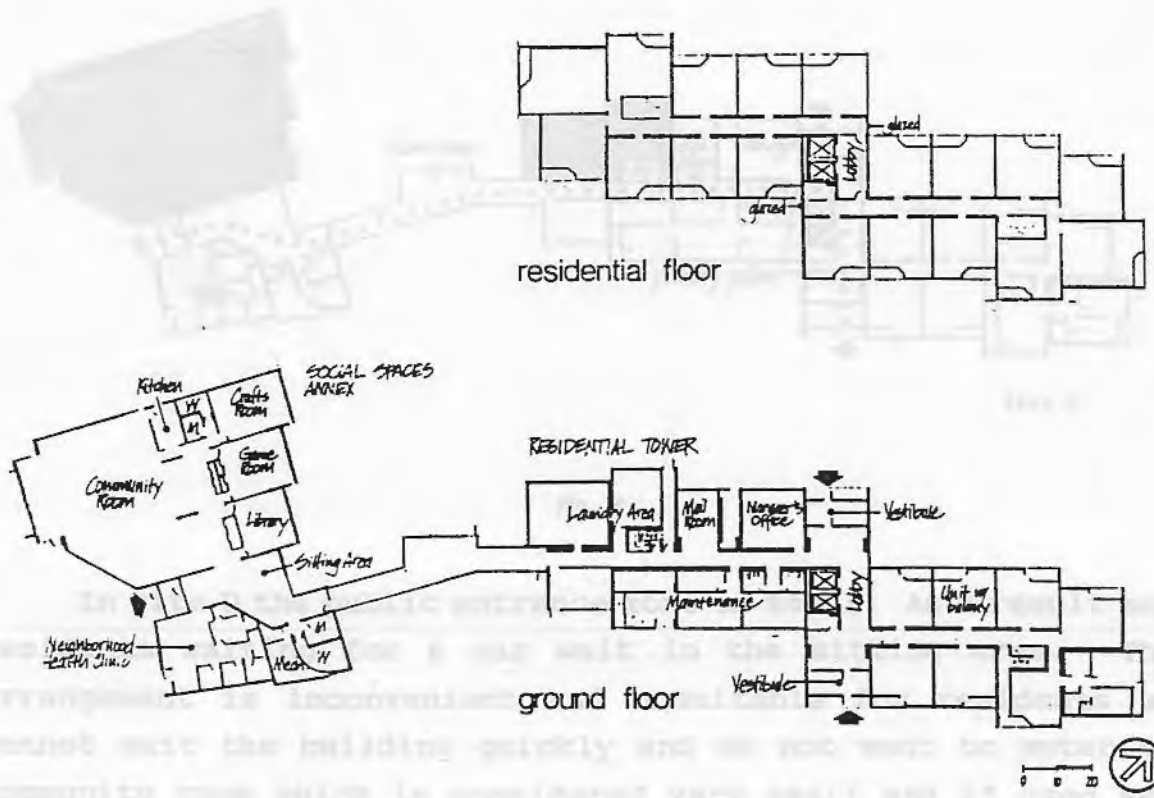
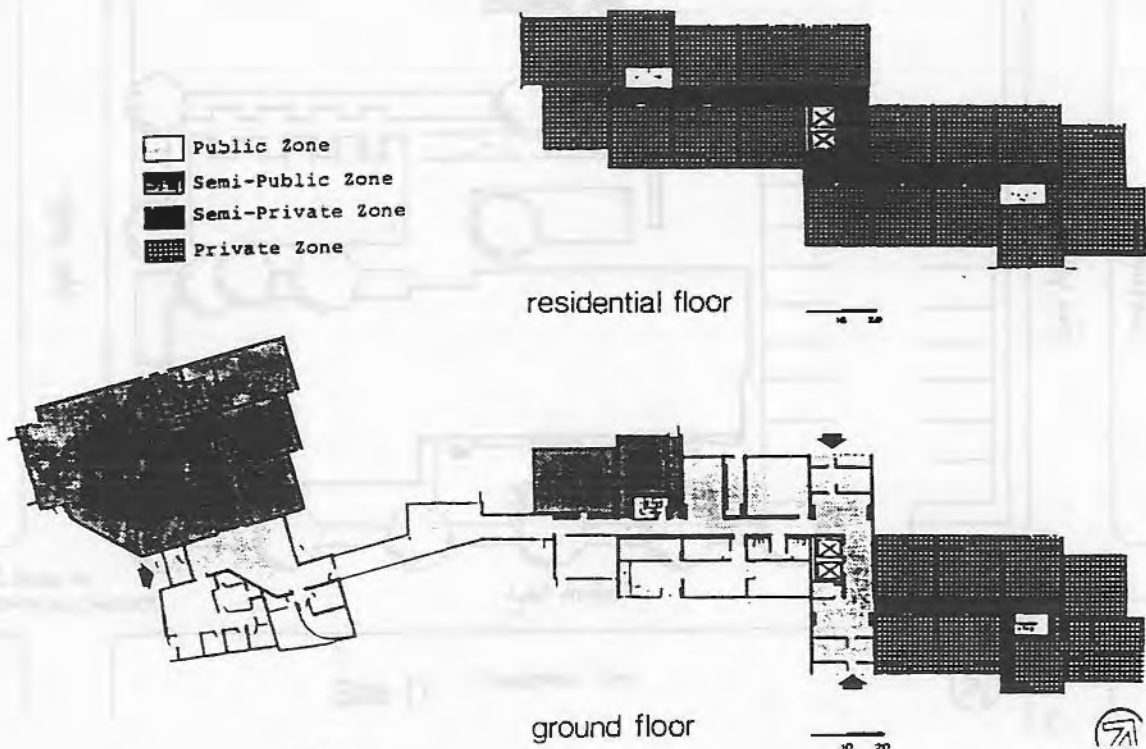


Fig. 7a



Site C

Fig. 7b



Site C
zones

Fig. 7c

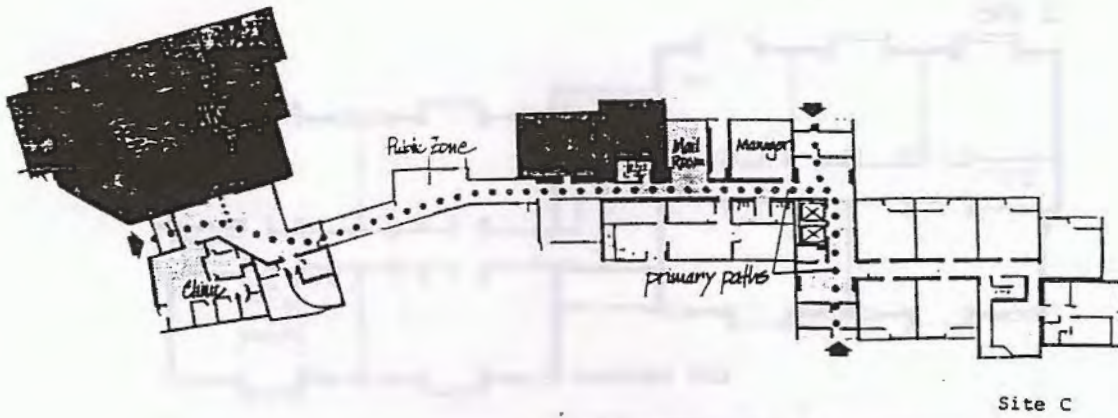


Fig. 7d

In site D the public entrance zone is small. As a result most residents waiting for a car wait in the sitting area. This arrangement is inconvenient and unsuitable for residents who cannot exit the building quickly and do not want to enter the community room which is considered very small and if used as a multipurpose room should be very crowded. Fig. 8a,b,c.

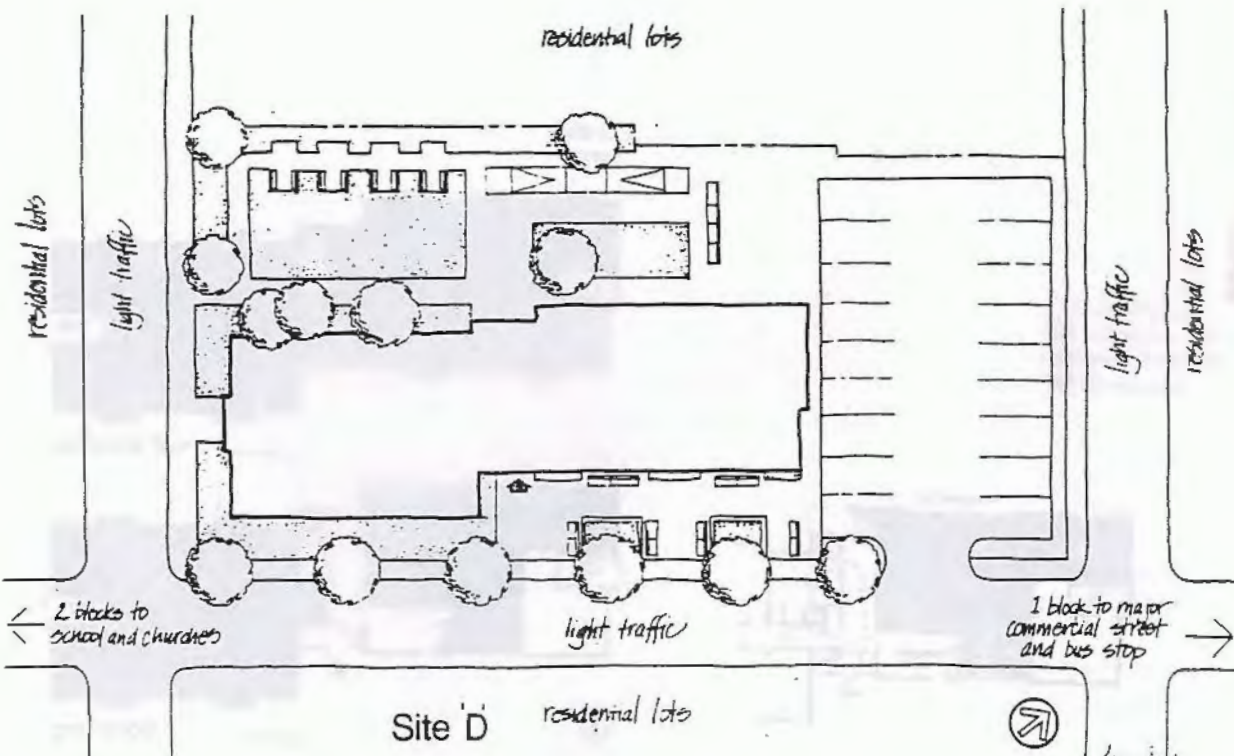


Fig. 8a

It is important to note that in the three previous cases private green areas either attached to the rooms or the building as a whole, appear very limited and the residents would find difficulty in using them as they are attached to the parking lots.

Personal Belongings: *⁹ The influence of institutional environments on the behaviour and symptoms of Elderly people have received increasing attention in the last years (e.g. Baltes & Lascomb 1975, Drummond et al, 1978, Ernst et al, 1978) *¹⁰ Yet little has been done to encourage Elderly people to bring in other personal possessions apart from clothing.

*¹¹ Posner (1974) remarked on the striking lack of personal belongings on the special care floors in a home for the aged. She felt that the scarce contents of the rooms reflects the social isolation of the occupants. In a behaviour framework *¹²"Baltes & Zerbe 1976" viewed loss of private possessions as a "loss of reinforcing events" which contributed to the deprived environment.

*⁹ Personal belongings- A Positive Effect ?. Peter H. Millard, MB, FRCP & Chris S. Smith, BSC, MSC². Vol 21 No. 1, 1981, p.85. (paper).

*¹⁰ Baltes, M.M. & Lascomb S.L. Creating a Healthy institutional environment for the elderly via behaviour management: The nurse as a change agent. International journal of Nursing Studies, 1975, 12, 5-12.
- Drummond, L., Kirchhoff, L. & Scarbrough, D.R., A practical guide to reality orientation. A treatment Approach for confusion & disorientation. Gerontologist 1978, 18, 568-573.
- Ernst, P., Beran, B. Safford F. & Kleinhaus, M. "Isolation and the symptoms of chronic brain syndrome" Gerontologist 1978, 18, 468-474.

*¹¹ Posner J., Notes on the Negative implications of being competent in a home for the aged. International Journal of "Aging & Human Development" 1974, 5, 357-370.

*¹² Baltes M.M, Zerbe M.B., Independence Training in nursing-home residents. Gerontologist 1975, 16, 428-432.

During a recent research in Denmark it was found that the presence of personal possessions was the rule rather than the exception. The only furniture provided is an adjustable height hospital bed and the rest of the room is furnished by the Elderly patient. As a general rule they were surrounded by personal mementos, photographs, clocks, ornaments and even quite large items of furniture. The presence of personal possessions has a striking affect on the residents for the latter are individuals who have led full lives and have exchanged this housing unit for original homes.

The presence of personal belongings could be also argued as a discriminative stimuli opposed to feeling ill and in an institution, but cues for more normal and usual behaviour.

Not only does the absence of personal possessions deprive the Elderly person of his memories and act negatively in his responses to his surroundings but the hypothesis was made that an Elderly patient surrounded by personal belongings would be perceived in a less negative way than the same person in bare surroundings and treated so.*¹³ Fig. 9



Patient surrounded by
personal belongings



Patient in bare
surroundings

Fig. 9

*¹³ Canter, D. West, S. & Wools, R. Judgements of people and their rooms. British Journal of Social and Clinical Psychology 1974, 13, 113-118.

*¹⁴ The research work done by eighty medical students indicated that the person without personal belongings was seen as feeling depressed, rated less effective, more dependent and less socially capable and desirable and that he would be likely approached as such. Finally this quest for identifiable territory has been described as "invalidism" or "nesting" and the presence of personal belongings may be seen as a sign that the individual is taking roots within the housing complex. *¹⁵

Previous studies have indicated the difficulty the elder person has to face on deciding what to bring in their new homes and what to leave behind. However their choice should depend on the ways in which older people use their new apartments which is generally governed by:

- 1- The transfer of their varied life styles into the new settings.
- 2- The level of personal and social activity they engage in their new home.
- 3- The physical characteristics of the unit itself.

Yet we must put into consideration two main points:

- 1- Older people themselves vary greatly in their life style and environment needs.
- 2- Because of the increasing time spent within the home, variation within that place need to be provided for the stimulation of the individual.

*¹⁴ Spence D. L., Feigenbaum, E.M., Fitzgerald F. & Roth, J. Medical Student attitudes towards the geriatric patient. "Journal of the American Geriatrics Society." 1968, 16, 976-983.

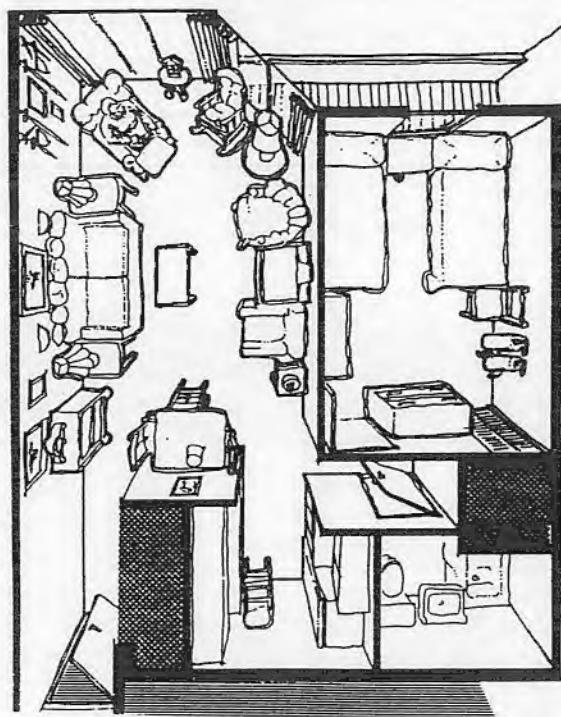
*¹⁵ Rosencranz H.A. & McNevin T.E., A factor analysis of attitudes towards the aged. Gerontologist, 1969, 9, 55-59.

However various studies have been made to survey the adequacy of apartment units designed and used to question their success in being appreciated and habitable.

Habitability is defined as the ability of dwelling unit to support the daily activities needed by the resident.

A survey of 7 different case-studies were interviewed by a Design Evaluation Project.*¹⁶

The first unit was occupied by a couple; on being interviewed they complained that the bedroom was too small for their movement amidst all the furniture and the husband's apparatus for oxygen therapy. The bathroom too small for the oxygen tanks. They were not satisfied that they could not entertain more than four guests in the living room. They insisted on having a high-chair for their grandchildren which they kept in the kitchen, Fig. 10



rocking chair
for husband

oxygen tanks

bathroom too
small

high chair

Fig. 10

Mr. and Mrs. Watson

*¹⁶ Design Evaluation Project. M.I.T. Sandra C. Howell. "Private Space. Habitability of Apartments for the Elderly" August 1978.

The second example was occupied by a widow. She complains that she must close the bathroom first before opening the closed. She finds difficulty in making up the bed as it is tucked in a corner. She would like to have her breakfast and coffee in the kitchen but as it is too narrow she eats in the living room. Fig.11.



Fig. 11.
Mrs. Alexander

The third example is occupied by a single man. He likes the size of his apartment and enjoys his independence as he had been living in a rooming house before. He doesn't think he needs all the closet and storage place. Fig. 12.

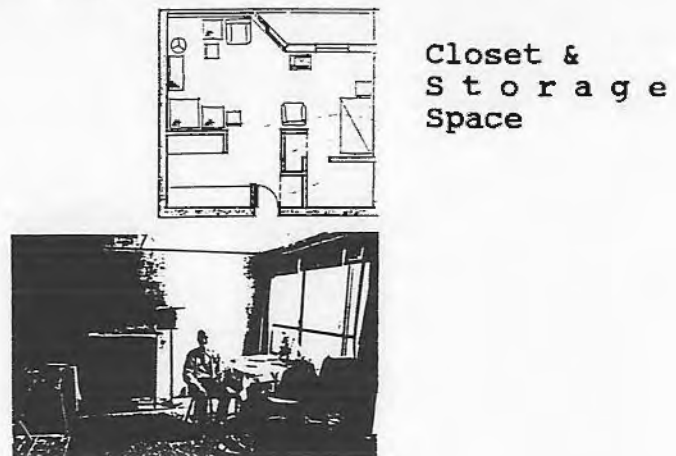
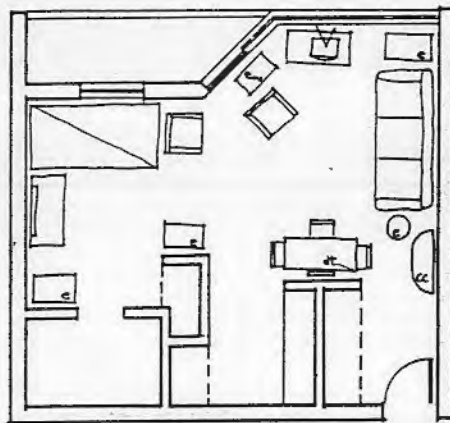


Fig. 12
Mr. Anderson

The fourth example is occupied by a widow. She complains that she had to give away many of her dear things (as her large antiques) as they would not fit in in her new apartment. She has retained her china cabinet and her son has positioned it in a place where she can always see them. She complains that she likes to cook for her family visitors and cannot invite more than four at a time. She is also distressed that if she is ill she would be able to retire in a private bedroom. Fig. 13.

no
privacy



C h i n a
c a b i n e t
o n l y
f o u r
v i s i t o r s

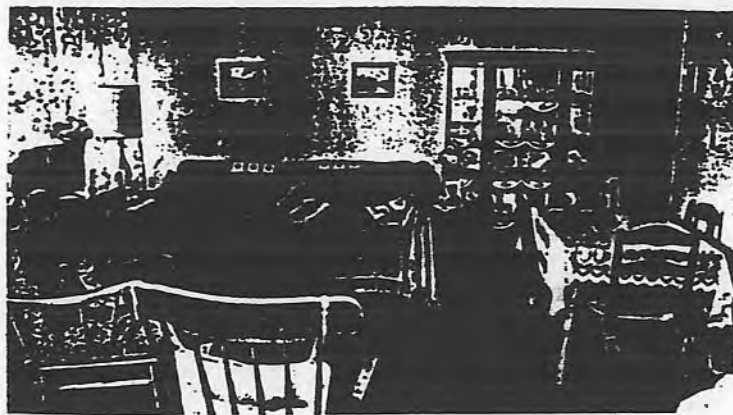


Fig. 13

Mrs. McDonald

The fifth example is occupied by a widow. She is unhappy that she has given away most of her old furniture and misses her china cabinet. She feels that although she has retained minimum pieces of her furniture the room is too crowded. She feels that built-in furniture would give her more space. Fig. 14.

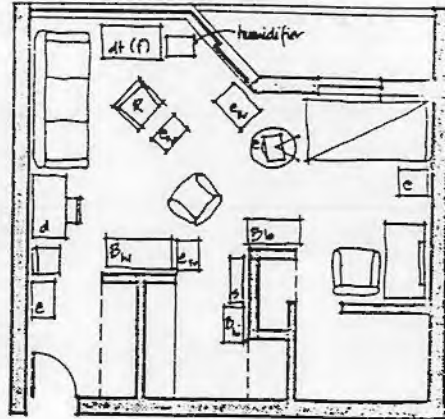


Fig. 14 Mrs. Benson

The six example is occupied by two sisters. They feel that this apartment is much too small for them. When they moved in they gave away all their furniture and had to but smaller facilities to fit in the apartment. They would prefer a bigger kitchen and larger bedroom because they can barely move now. They are the first occupants to use the balcony. Fig. 15.

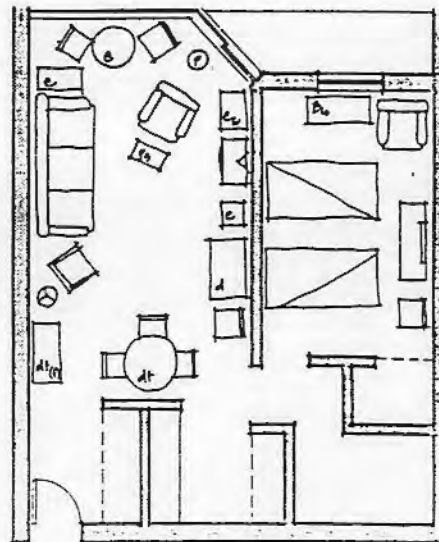
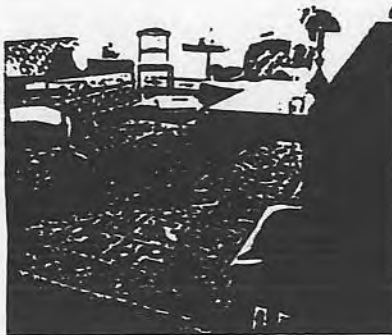


Fig. 15

The Samson Sisters

The last example is occupied by a retired couple. Although they are please with their new accommodations yet they would prefer a separate dining room and they consider their bedroom and their closet space too small. Fig. 16.

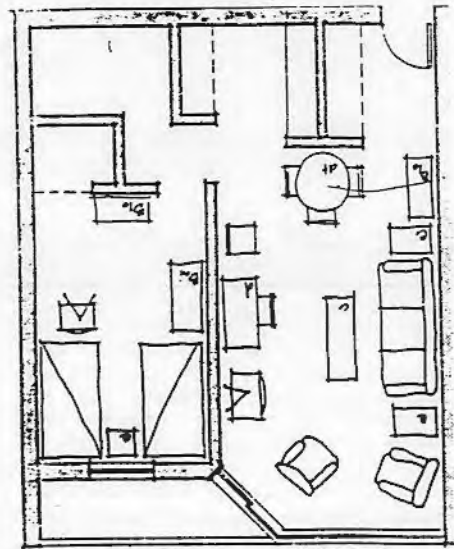
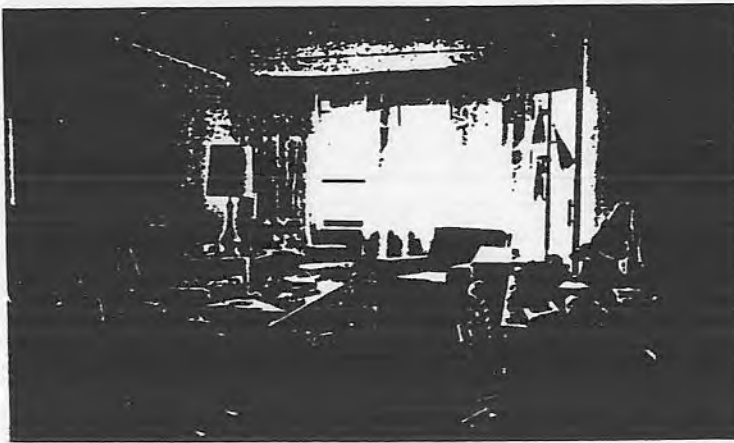


Fig. 16.
Mr. and Mrs. King

The study of these examples illustrates that there are basic similarities in the activities and furnishings of residents in subsidized housing for the Elderly not unique to a particular geographic area but are characteristics of other regions. Although the amount of time devoted to a particular activity and the timing may vary from one resident to the other, they all engage in the same activities, eating, sleeping, dressing, watching TV, reading etc.

To summarize the previous case studies we can conclude that for most older persons the move into the new apartment includes the followings:

* Many furniture pieces are discarded, some reluctantly, if they have functional or sentimental value.

* Entertaining, is a problem because of inadequate floor area and has to be made in the public spaces outside the apartment and the resident loses the feeling intimacy with his visitors.

* There is no rearranging of furniture after the move-in of the residents as the furniture barely fits in.

Within the single occupancy units, there are differences in furniture patterns of men and women. In general, the Elderly women have more furniture, are more attached to it and are more critical of their private environment than are single men. The women also have a more expressed need for visual privacy in the sleeping area and find the apartment unacceptable if it does not fulfill this need while men are often satisfied with convenience and simplicity.

Given the activity needs and furniture patterns typical of older residents we can sum up the specific characteristics supportive of their activities.

These characteristics include shape of apartment, dimensions and boundaries. Analysis of 8 different case studies in U.S.A. have made and the supportive and constraining features in their design have been pointed out.*¹⁷ Fig. 17,a,b,c,d,e,g,h.

*¹⁷ Cambridge Studies, National M.I.T. Studies. Sandra. C. Howell, 1974-1978.

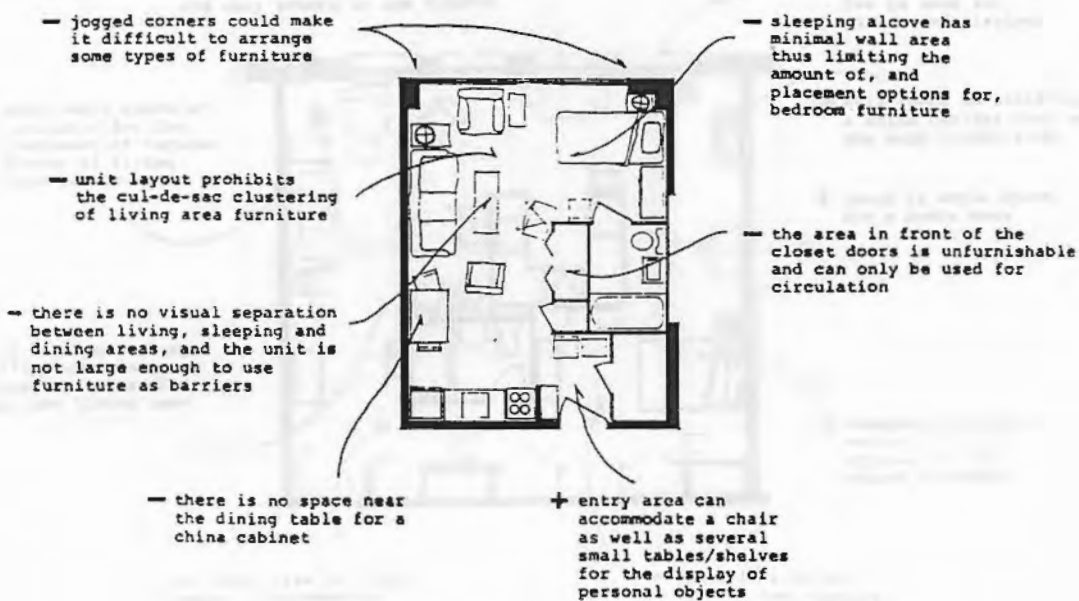


Fig. 17 a Irvington, New Jersey
efficiency (32 sq.m.)

"...need a different arrangement. I want a place for a bedroom. There is throw-away space."

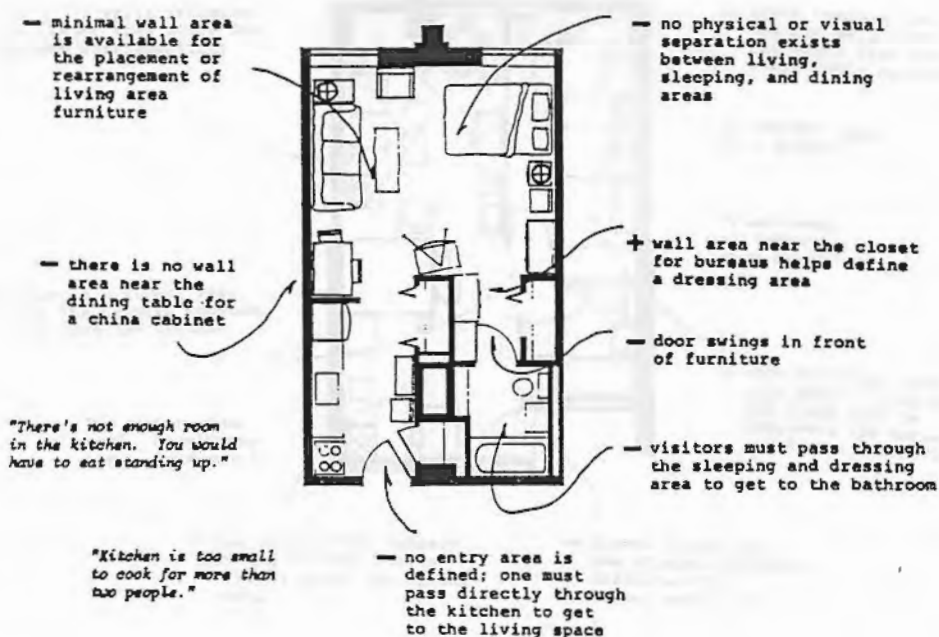


Fig. 17 b Charlotte, North Carolina
efficiency (36.6 sq.m.)

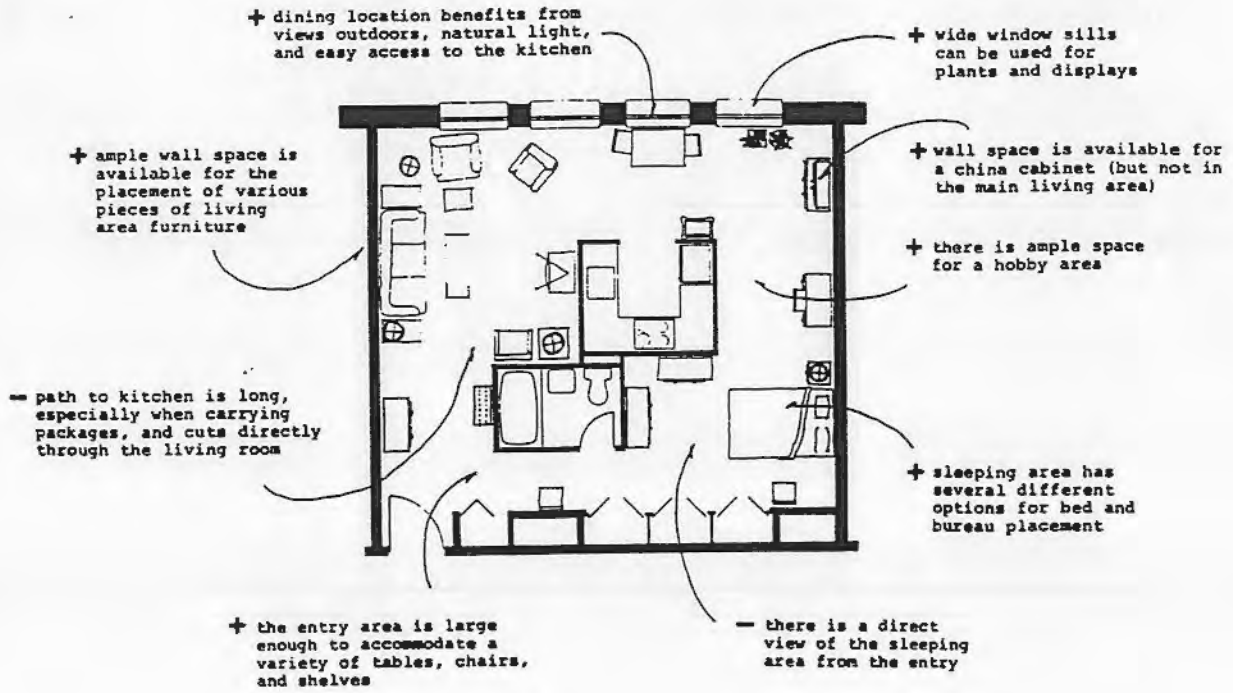


Fig. 17 c Gloucester, Massachusetts
efficiency (renovation 69 sq.m.)

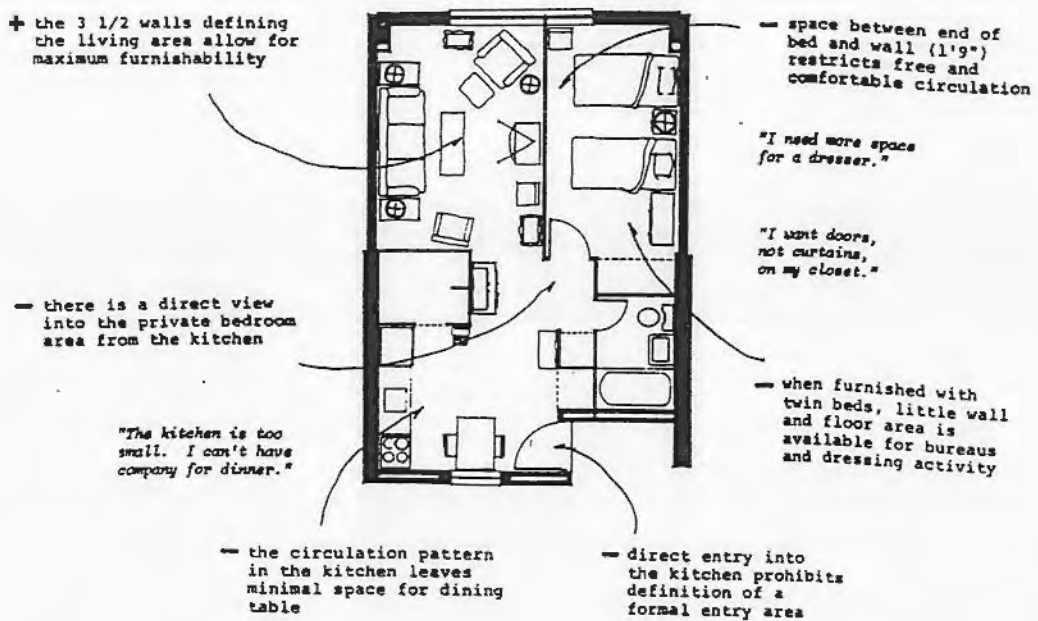


Fig. 17 d Cleveland, Ohio
one bedroom (45.7 sq.m.)

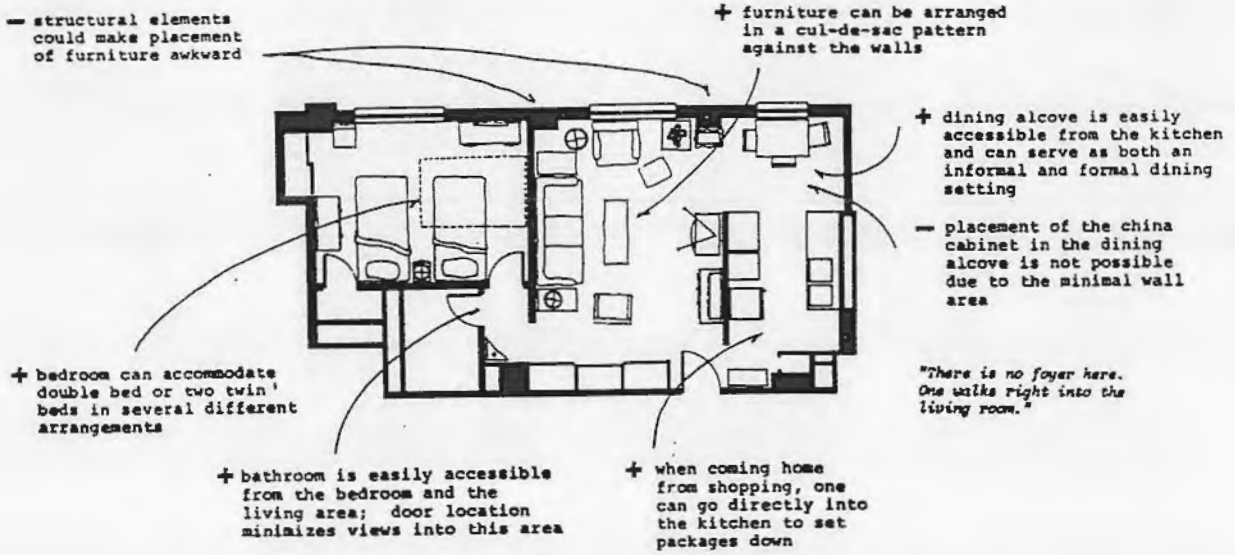


Fig. 17 e Brooklyn, New York
one bedroom (48.5 sq.m.)

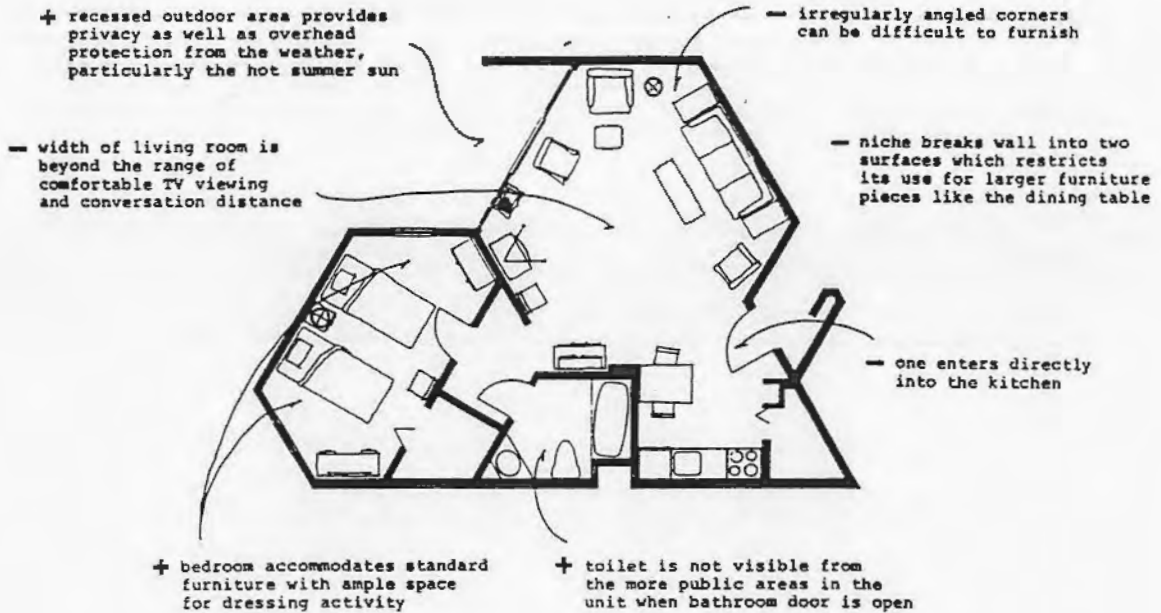


Fig. 17 g Ames, Iowa
one bedroom (47 sq.m.)

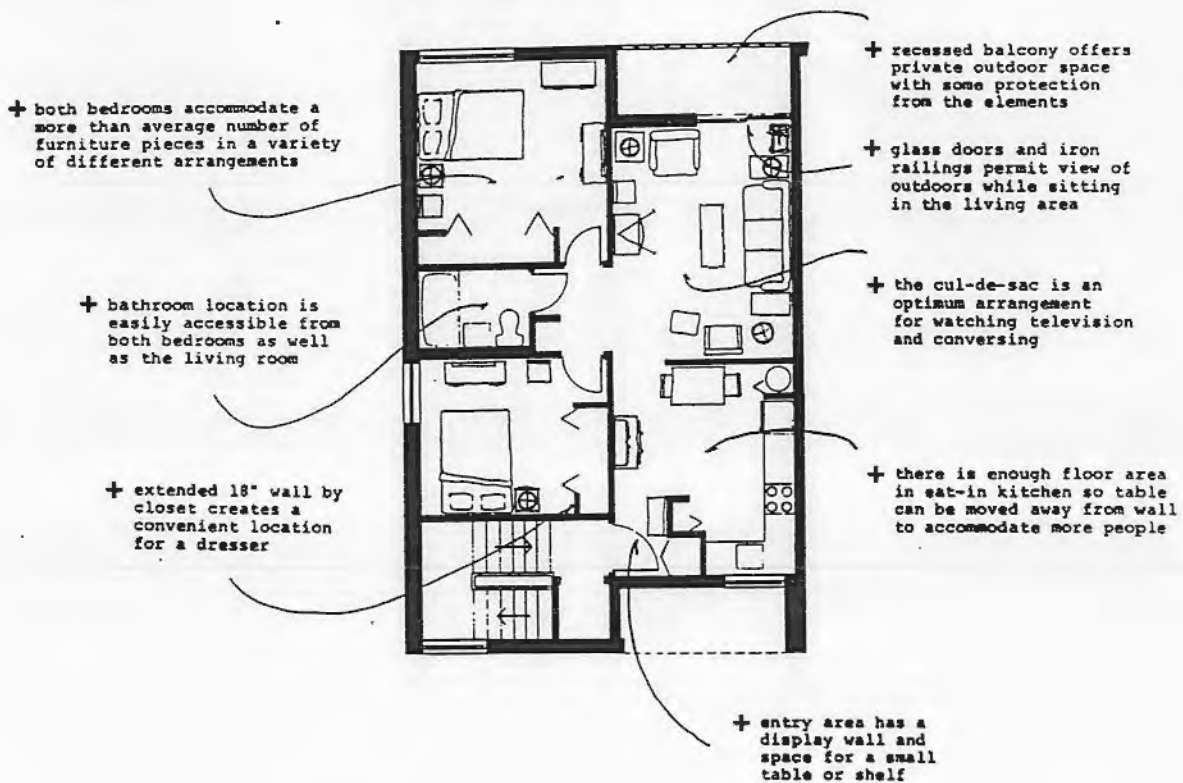


Fig. 17 h Boston, Massachusetts

Two bedroom (63.5 sq.m.)

From the previous examples and the comments labelled on them we may sum up all the features in:

Walls, Corners and Niches:

- The more wall area, the more furniture it will be able to accommodate.
- Right-angled corners are more easily furnished.
- Niches help in nestling furniture without intruding into the space.

Room Proportions:

The living and dining area are much more easily furnished in square rooms but in terms of privacy level a rectangular room where each activity level can be defined would be more easily furnished.

Visual Access:

Within the apartment unit there are public areas (Living, lobby, dining) and private areas (bedrooms, bathroom, kitchen) that should be respected not only in terms of physical entrance but also in terms of visibility. Doors should be located in such a way as to maximize privacy and the sleeping area should be completely invisible to the visitor by walls or providing alcoves.

Guidelines:

The studies suggest that the design of more habitable space does not need more space but more careful attention to spatial features.

Area	HUD Minimum property Standard 1974		M.I.T. Study 1978	
	m ²	Least Dimension (m)	m ²	
Living	14.6	3.30	14.6	one wall at least 4.20 m min width 3.5 m max width 4.0 m
Dining	9	2.50	9	one wall at least 2.5 m
Bed-room	11 with one wall at least 3 m.	2.80	14.6*	one wall at least 3.5 m min width with dresser 3.5 m placed at foot of bed.

* 14.6 m² calculated in a room 3.5m x 4.2m (3.5m for twin beds plus approximately .75m for closet.)

Analytical survey with comparative analysis for "housing the Elderly" in Sweden, Denmark, Great Britain and Egypt.

(1) Housing for the Aged in Sweden:

In 1984 there were 284 municipalities providing social welfare for the aged, i.e. housing, sanitation, parks, streets. Care of the Elderly has become the responsibility of the government not the family. The basic goal of old-age care in Sweden is to provide Elderly citizens with a financially secure future in good, modern housing with supportive medical and special care services.

1st example ALDERDOMSHEM PAPEGOJELYCKAN. (68 single rooms, 2 double rooms).

The residential care offered here is closest to what we call personal care, it encompasses skilled care. Medical care is distributed from a central concierge desk in the building lobby. All rooms are linked to this desk by a call system. Two meals are provided in the dining room (lunch and dinner) breakfast is provided in the room. Each resident is provided with a "hot plate, refrigerator and storage space" so residents can prepare snacks, coffee or tea. Meals can also be prepared in specially equipped resident's kitchen located in each wing. The rooms have a door bell and their area is 160 sq.ft. or 60 sq.m. with a private bathroom. The bathrooms are all accessible to wheel chair users. Except for the hospital-type bed which is provided, the rooms are furnished by the residents.

Weakness of the project: Too many quiet lounges (sitting rooms, shared living rooms, smoking rooms, sitting areas within the residential wings weakening the opportunity of social contact. Residents proposed fewer lounges as well as more compact design to minimize travel distance.

Too many services available (medical care, groceries, activities and social opportunity) made residents have no need to go out into the community,

Residential corridors suffer from an institutional sterile appearance-hard surfaces with little texture, resulting in glare from lighting fixtures and the lack of natural light weakens the residential appearance.*¹⁸ Fig. 18

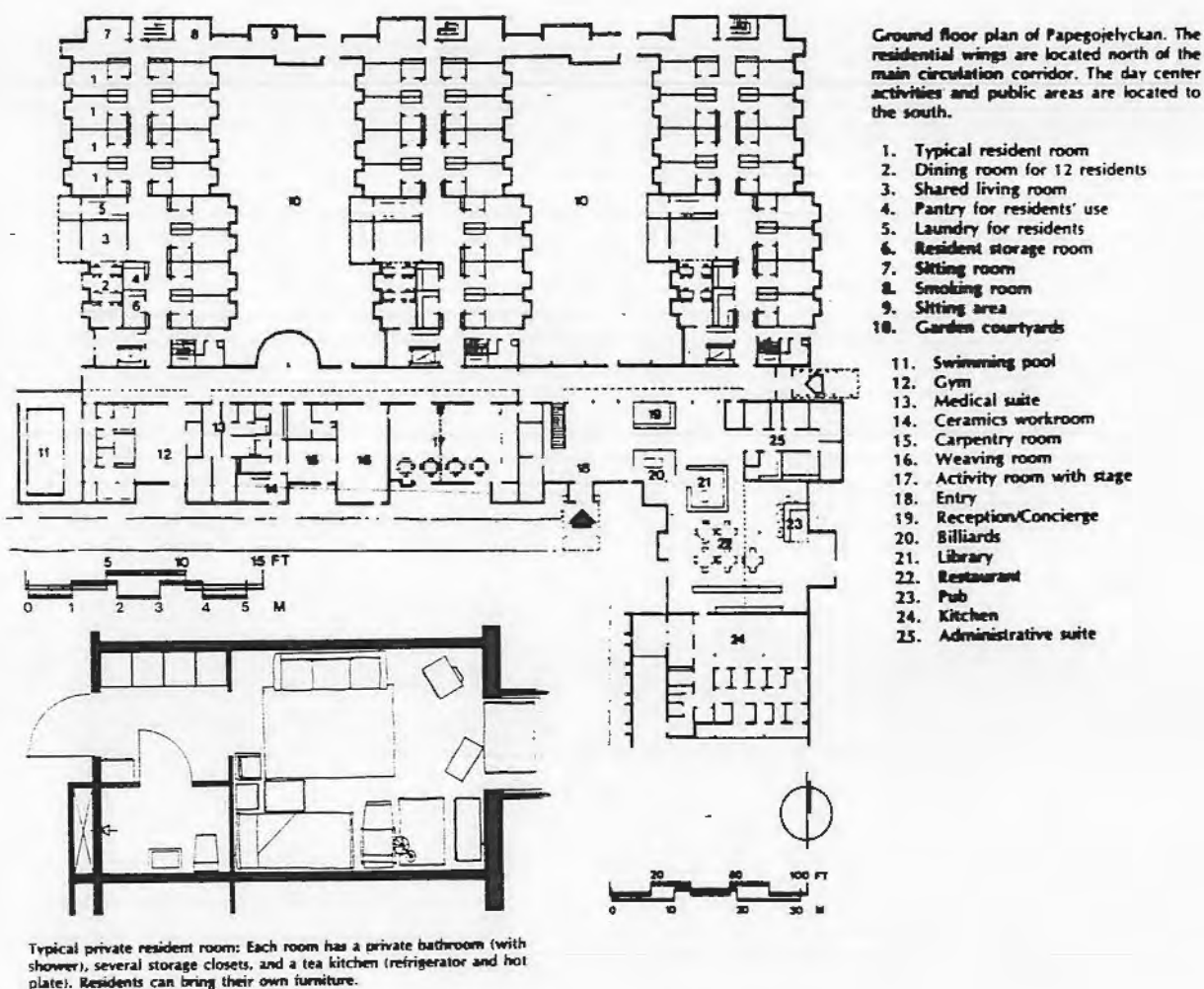


Fig. 18

*¹⁸ Hoglund; J. David "Privacy & Independence in Environments for the Aging." Van Nostrand Reinhold Company, New York.

2nd example in Sweden: VASTRA FALADEN SERVICE CENTRU. 58 apartments. (Two rooms)

The service center is located in the town center of a new residential community in "Landskrona".

It consists of a low rise building with 28 apartments linked by a bridge to a ten-story building with 30 apartments and a one-story day center. The day-center is designed as an activity space and commercial center and resident's cafeteria providing 100 meals per day. The plan consists of a pinwheel of four apartments arranged around a central core. There are opportunities for the Elderly residents to socialize with village residents coming to the town center for shopping and medical care.

Strengths of the projects:

- 1- Location at the heart of the community.
- 2- Shopping and cafeteria can be shared with the public.
- 3- Community services and medical care are part of the center used by the public and integrating the Elderly into the main stream of the community.

Weakness of the project:

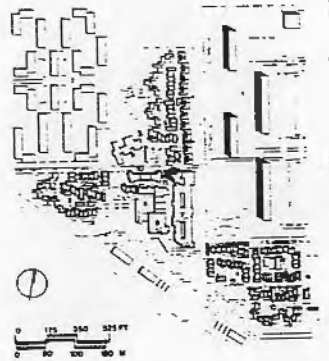
- 1- There are only four apartments per floor which minimizes socialization and isolates people on the upper floor.
- 2- Only one elevator which leaves the residents stranded if unserviceable for any period of time.
- 3- Sitting areas in low-rise building are small.
- 4- High-rise building are not preferred for older-aged residents.

Fig. 19.

Site plan of the new housing community, Västra Fälåden. The complex consists of small villages around a town center that has small shops, services, and a day care center for children. The housing for the elderly (10 and 11) is located at the north end of the town center.

1. Existing high-rise housing
2. Existing low-rise housing
3. Village M
4. Village K
5. Village L
6. Town center
7. Support services
8. Shopping center
9. Day care center for children
10. Low-rise housing for the elderly
11. Mid-rise buildings to house the elderly

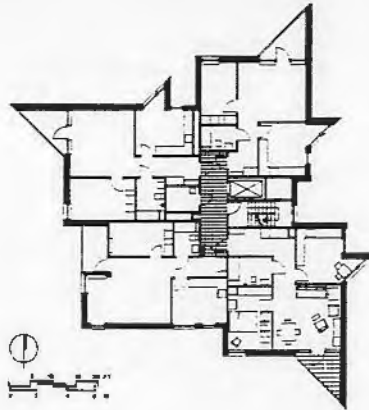
(FROM "BOLIGBYGGISEN VÄSTRA FÄLÅDEN, LANDSKRONA, 1979)



Site plan of the new housing community



The north side of the 10-story apartment building. The bridge connects the "tower" to the low-rise apartments for the elderly



Floor plan of Västra Fälåden: Floor plan of the 10-story building for the elderly. There are 4 apts. on each floor.

(2) Case Studies in Denmark:

Denmark has a population of 5.1 million people. Statistics indicate that 14 percent of the population are over the age of 64 and 20 percent are over the age of 60.

1st Example: ORDRUP VAENGE: GENTOFTE, COPENHAGEN, DENMARK (48 efficiency apartments)

The 48 living units are located across the street from two nursing-home buildings (D-2) and a day care center (D-3). The units are grouped into 4 clusters with 10-15 apartments each.

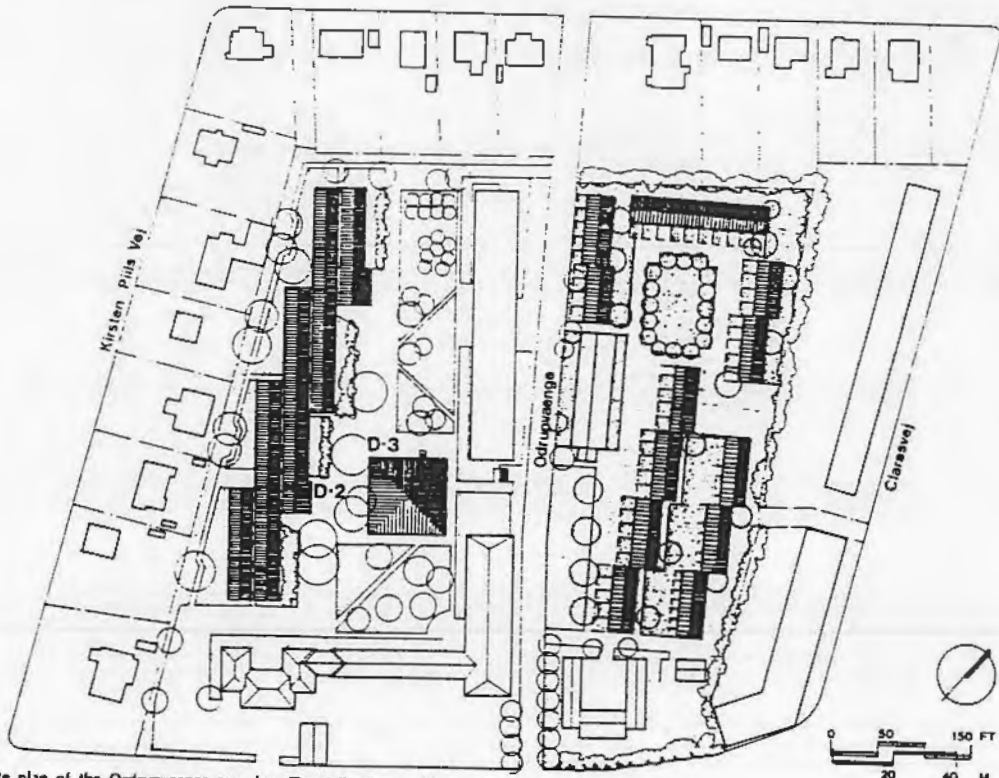
The resident's independence is enhanced by the close proximity of the downtown shopping district. The apartments are one-room efficiencies with an area for the bed and a small kitchen and bathroom. The major focus of each unit is the garden court provided and the plants are the choice of the residents.

Strengths of the Project:

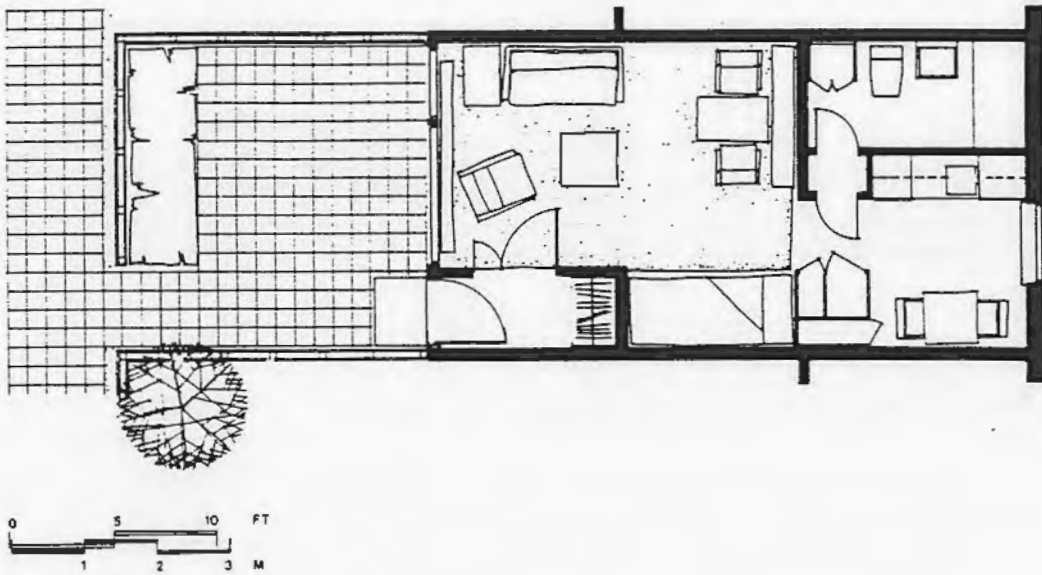
- 1- Garden courts coupled with large windows extend the living area.
- 2- Location of these units near the main nursing home allows the residents to live their own lives away from the hospital influence.
- 3- The proximity of the downtown shopping district is an attraction and independence for the residents.

Weakness of the Project:

- 1- The size of the apartment is criticized as too small for their own belongings.
- 2- All residents are stranded in their apartments in bad weather as there is no covered access to public areas. Fig. 20.



Site plan of the Ordrupvaenge complex: The collective dwellings are indicated by the shaded area.



Typical apartment plan: The private garden entry court expands the private territory of the individual into the public zone.

Fig. 20

2nd Example in Denmark, Copenhage, GLADSAXE MOLEGARDEN CARE CENTER, Fig. 21. (56 single rooms, 50 sheltered dwellings).

Similar to the Gentofte campus, the care center offers two levels of residential care. The nursing home and sheltered dwellings. The nursing home and the day center are two-story buildings linked by a bridge. The sheltered dwellings are a series of one-story attached houses arranged around large green courtyards. The Mollegarden Center is used by three levels of service to its community.

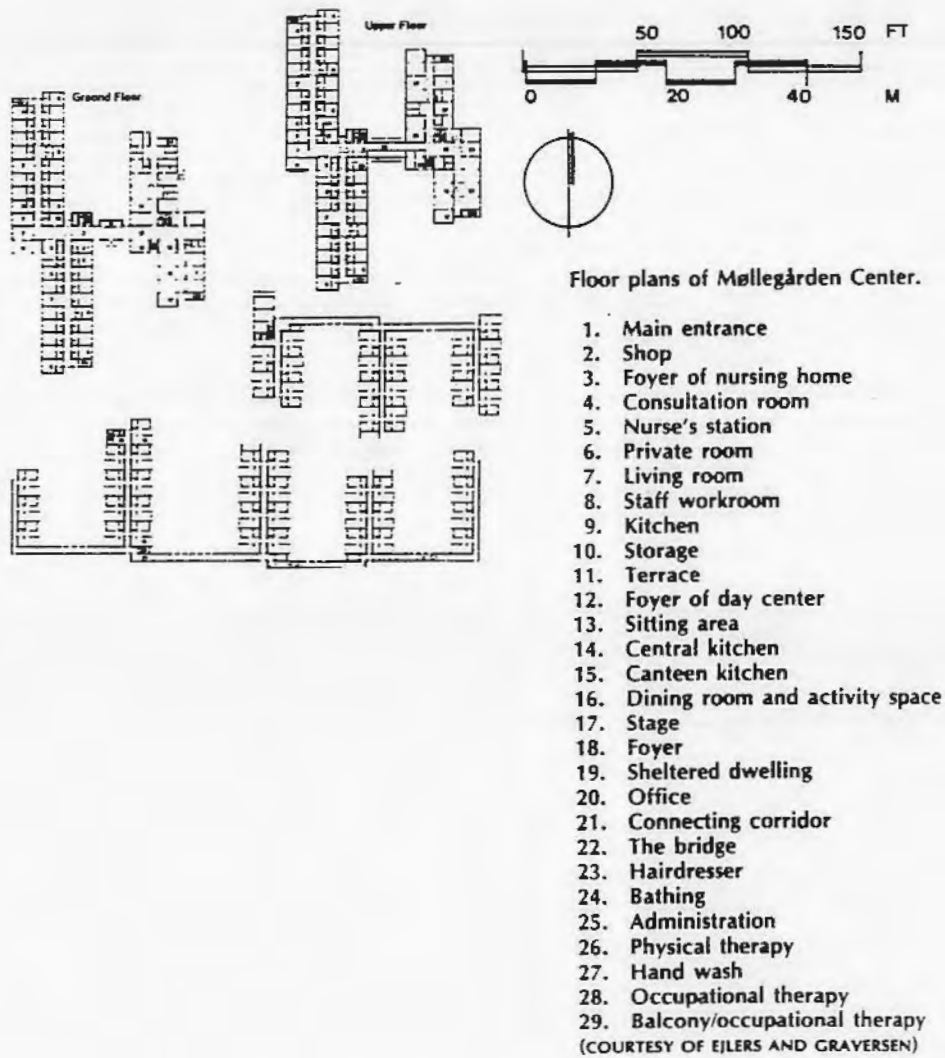
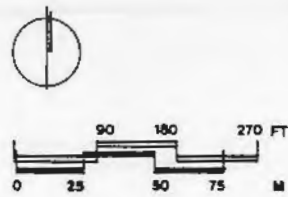
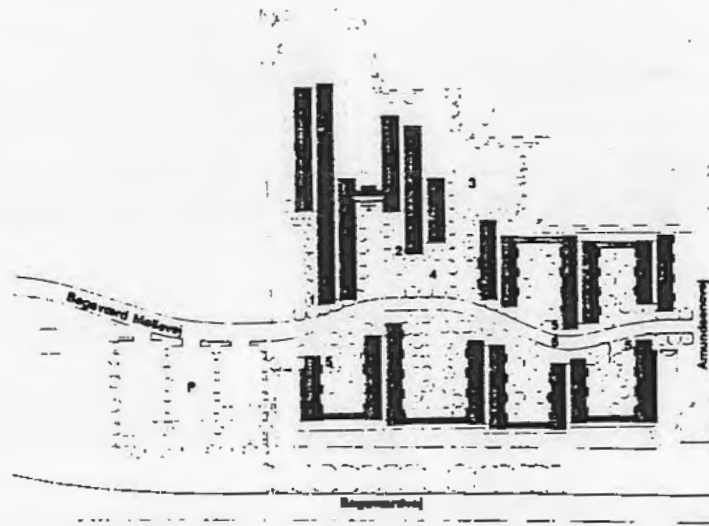


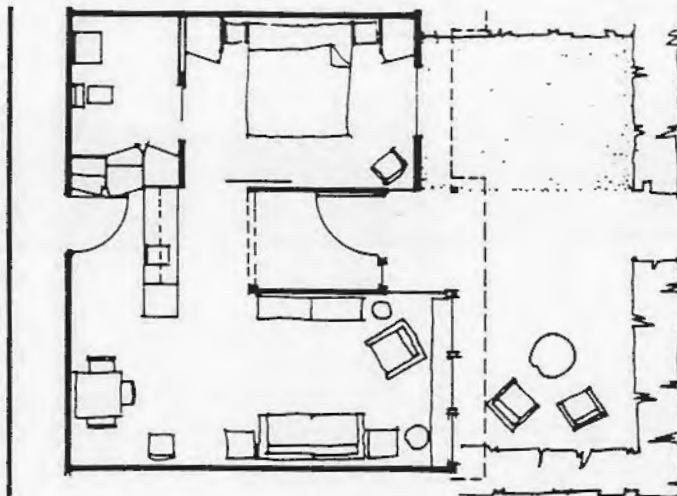
Fig. 21



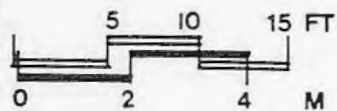
Site plan of Møllegaarden Center

1. Nursing home
 2. Day center
 3. Courtyard
 4. Plaza
 5. Sheltered dwellings
 6. Pedestrian street
- (COURTESY OF EILERS AND GRAVERSEN)

Site plan of Møllegaarden Center



Typical apartment plan: The identity of the individual is enhanced by a series of private territories both inside and outside the dwelling. Services are delivered to the resident's door, and each apartment has its own street address.



Typical apartment plan

Fig. 21

The Elderly who can still remain at home but require occasional services (therapy, meals and socialization). Residents living sheltered dwellings and require support services to be independent. Third the residents who are too frail to depend on themselves.

Strengths of the Project:

- 1- Residential and village-like quality.
- 2- The public street connects the Elderly, age-segregate community to the larger social community.
- 3- The garden for the nursing home create outdoor activities.
- 4- Each apartment has private entrance and mail.

Weakness of the Project:

- 1- The bathroom is only accessible through the bedroom.
- 2- The kitchen is small, open to the living room and difficult to screen from guests.
- 3- Living space is given up by having two entrance doors.
- 4- The corridor that connects the apartments is uninteresting and has become storage area for wheel chairs. The corridor is extremely long.

Example in Great Britain:

Great Britain has a population of 55.7 million, 14 percent are over the age of 65.

1st Example in Great Britain: Milton Keynes, Springfield Court, Fig. 22 (26 sheltered apartments).

Springfield Court is located in a neighbourhood of attached dwellings at the center of a "grid square" which adjoins an activity center and small convenience store.

The highlight of this project is the circulation space, which uses an internal street concept.

British housing Policy has developed Category I and Category II housing for the Elderly. Category I does not offer so much public space as category II for they can be more independent. Category II are more dependent and need supervision.

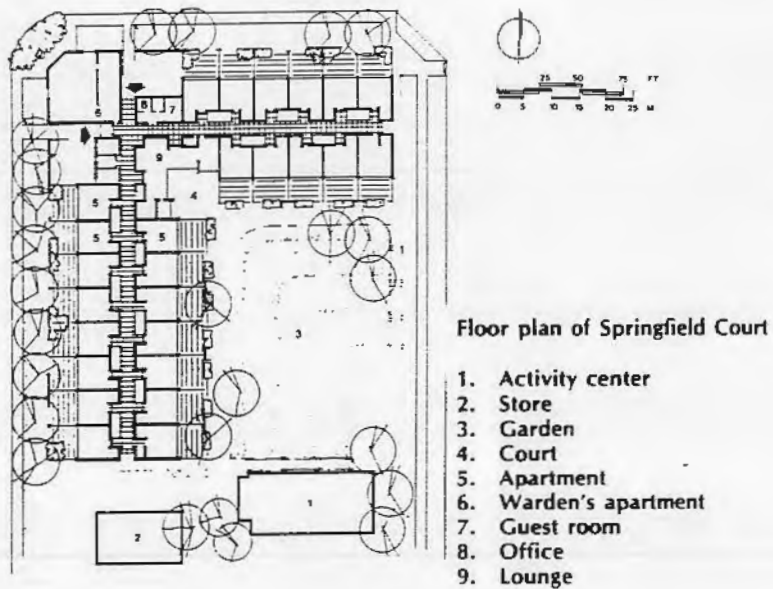
Springfield court is for category II. Each apartment is linked to the warden's apartment by an emergency call system.

Strengths of the Project:

- 1- The street concept strengthens the attractiveness of the corridor and encourages independent living.
- 2- Location in the midst of a residential area and adjacent to local shopping enriches the environment.
- 3- Quality and richness of landscaping externally and internally.

Weakness of the Project:

- 1- Site perimeter has a steep incline which decreases accessibility.
- 2- The warden's apartment being at the apex of the two wings and elevated above them, creates a sense of domination.
- 3- The kitchen window is small and high for most residents to see out.



Floor plan of Springfield Court.

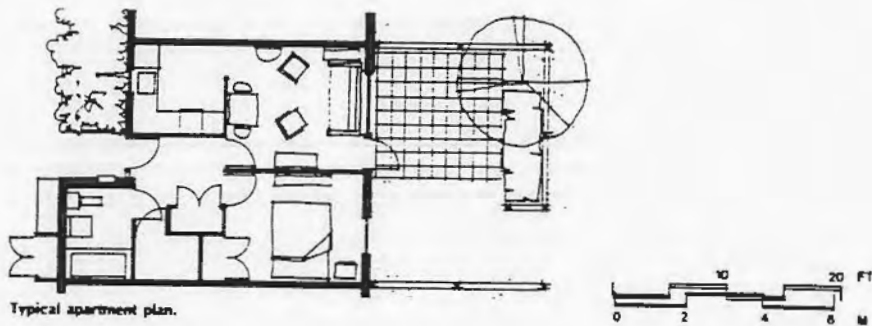


Fig. 22

2nd Example in Great Britain: Carpenter Hall, Milton Keynes, England, Fig. 23 (29 Sheltered apartments).

Carpenter Hall is located between a small neighborhood part and the village which contains several shops. This two-story building is considered as a sheltered housing for category II yet it does not provide elevator service to the second floor. A paved parking court provides a common entrance. Carpenter Hall is a good example of a building located among multifamily housing without identifying itself as special.

Strengths of the Project:

- 1- Location is a residential campus near the village center.
- 2- The corridor is used to define semi-public zones at apartment entrance.
- 3- Site development provides a variety of spaces.

Weakness of the Project:

- 1- The absence of elevator services for people unable to climb stairs.
- 2- The warden's apartment dominates the main entrance.

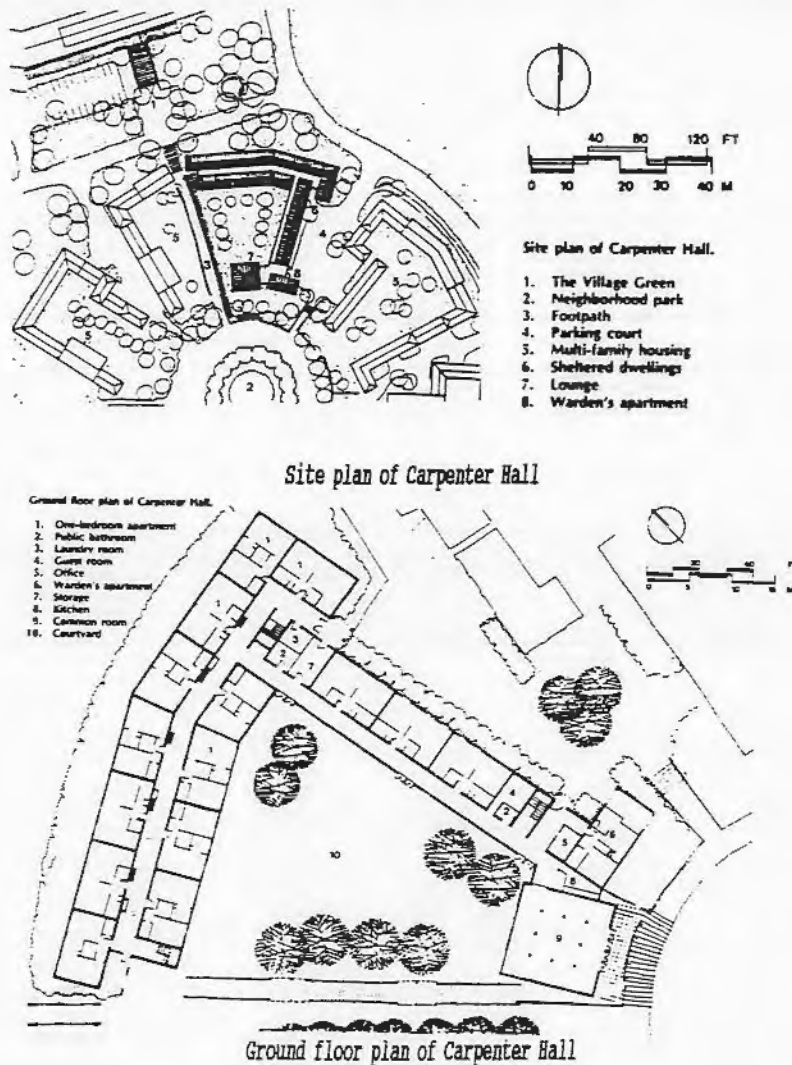


Fig. 23

Examples in Egypt, Cairo:

Egypt has a population of about 57 million and 12 percent are over the age of 65.

But this percentage does not affect the number of people living in homes for the aged in Egypt as the acceptance of the Old Aged to being moved to "Homes for the Aged" is not the general rule (as has been explained before).

The number of these homes therefore are few and have not been sufficiently experienced. They are generally sponsored by individuals and depend mainly on the social and economical level of the occupant. The occupant or his relatives pays a certain amount of money monthly and the rest of the financial needs of the home are paid by the benefactors.

First Example in Egypt:

Home of Virgin Lady Mary, Heliopolis, Cairo.

Home of Virgin Lady Mary is located in a busy district in the midst of the residential houses behind a very busy shopping street. This three storey building is considered as a sheltered home for the three categories 1, 2, & 3. The home is sponsored by the Church of Lady Virgin Mary and is directed by it.

There is an outside entrance where there is control over the visitor and which leads to the main entrance of the building which is composed of a large staircase with four large columns leading into a small hallway, Fig. 24.

The building is a corridor system around an open square court where there are trees and greenery, Fig. 25.

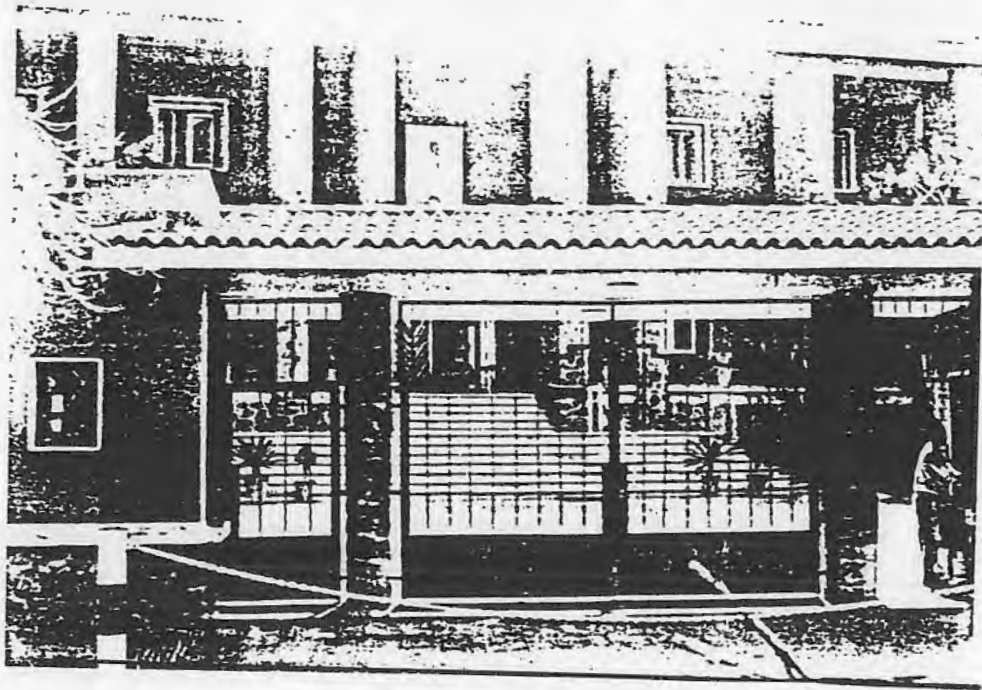


Fig. 24
The Controlled External Entrance



Fig. 25
The Internal Court filled with Greenery

The building provides elevator services to the upper floors. The economical and social status of this home could be considered mixed as there are different levels of servicing. The residents live in rooms for two and four with their attached bathrooms, Fig.26.

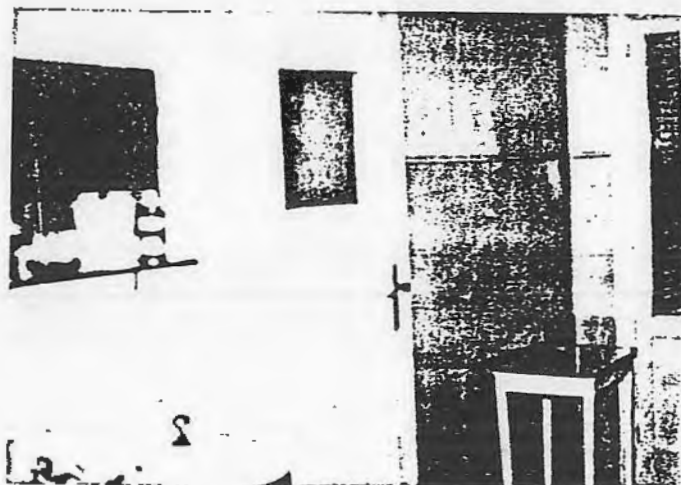


Fig. 26

Rooms for two with attached bathroom

There are also dormitories for six and eight with out-side bathrooms in the end of the corridor shared by about six dormitories, Fig. 27.

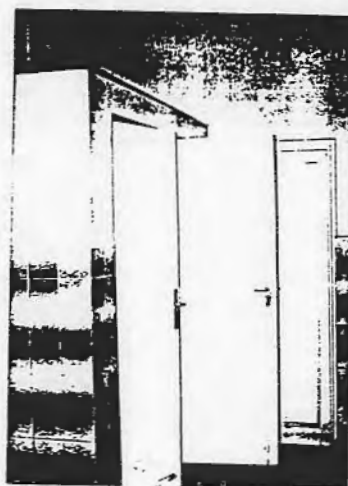
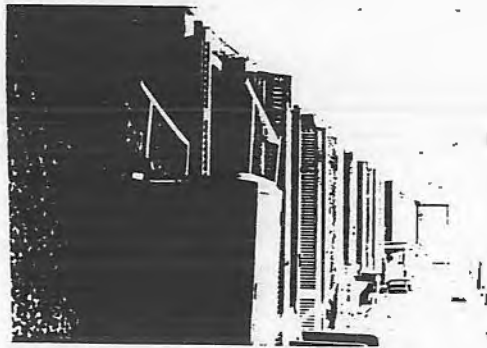


Fig. 27

Shared Bathrooms

The rooms all look out on a shared long balcony along the length of the dormitories, Fig. 28.

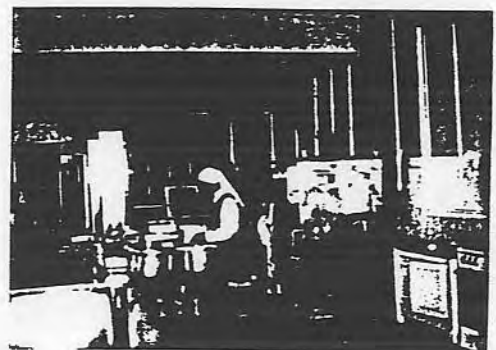
There is a small kitchenette on each floor with a refrigerator and an oven and two or three cabinets, Fig. 29. There is a big dining room on the second floor which contains a stage so that it could be used as a multipurpose room it is served by a big kitchen on the first floor, Fig. 30



Shared Balcony for a number of rooms Fig. 28



Small Kitchenette on each floor Fig. 29



The main Kitchen Fig. 30

Strengths of the Project:

The home being sponsored by the benefactors of the church is visited usually by the regular visitors of the church and the young people of the church make social activities and participate in the festivals and special occasions by giving parties and decorating the home and giving our presents and take the residents on out-of-door picnics.

The house is in the middle of the houses and near a busy shopping street so residents could enjoy safe shopping around and near the home on foot.

This site also affords easy transport so that the residents are visited by their relatives occasionally, not on a weekly basis but according to the proximity of their relatives. Some of the residents have pets and they are allowed to keep them in the home in a special room where they can enjoy watching and taking care of them, Fig. 31. The dining room is a place where the residents could meet and enjoy social activities.

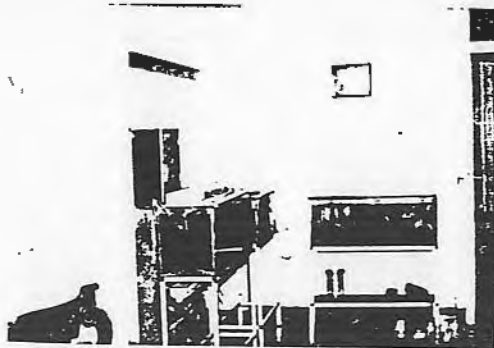


Fig. 31
Rooms where the pets are kept

Weakness of the Project:

Many of the residents are handicapped or dependent in their movement so they rarely leave the home and even those capable of movement are not attracted to going out on foot.

Those who move about by wheel chairs have no place in their rooms to store the wheelchair so they are simply folded and given to the nurse to put in a store for wheelchairs and the nurse has to be called every time they need the chair.

Each one has a cupboard and a cabinet. The cupboards are lined beside each other against the wall giving a feeling of dormitory in a hospital or school.

Although generally the older people eat in the dining room yet the handicapped do not feel comfortable about eating in public and do not feel that they are in privacy in their rooms with other residents entering and leaving the room. On the other hand the women generally prefer to eat in their rooms especially in the rooms containing only two beds.

The rooms are bare and no personal belongings and photographs could be noted. The atmosphere of the home looks and smells more like a hospital than a home.

Generally we can say that the resident does not enjoy any degree of privacy.

- 1- The rooms are like dormitories.
- 2- The bathrooms are shared and they don't feel that they could be sufficiently clean.
- 3- There are no social sitting places beside the rooms or on each floor and they have to socialize with their relatives in their bedroom with the other residents.

Second Example in Egypt: Center of Services for the Elderly. El Nasr City, Cairo.

Center of services for the Elderly is a congregate home for the Elderly with medical services on site. The home is located on the boundaries of the city behind the International Garden and at the same time beside a big market for vegetables and fruits.

The four storey-building homes about one hundred residents. Fig. 32. The rooms are all two-bed rooms with bathroom attached. The building is linear with rooms on a corridor Fig. 33, and a private balcony to each room. The rooms are adequately furnished with two wooden beds, some chairs and a dresser, an in-wall cupboard and refrigerator, Fig. 34. The residents are free to bring in their own T.V. and their radios.



Fig. 32
Home surrounded by a narrow strip
of garden

The room is provided with an intercom service attached to the warden's room which is situated on each floor at the end of the corridor.



Fig. 33

The rooms all look on a dark corridor



Fig. 34

The residents are free to bring their own T.V. & Greenery



Fig. 34

The rooms are provided with a refrigerator

On the other end of the corridor is a sitting room with big windows overlooking the International garden. The system of this home does not accept except a certain percentage of dependent and handicapped so that the system could be capable of taking full care of them and at the same time not to hospitalize the home. The mezzanine floor is attributed to complete medical care laboratories, examination rooms equipped, training rooms, dentist, optical room and there is also a hobby room, Fig. 35. The entrance of the building is wide to a large waiting hall with saloons and a large dining room where the kitchen is obviously underground. Beside the dining hall is a large meeting room for the residents. There is also a glass room in the middle of the entrance lobby where the residents exhibit the needle work or hobbies they participate in.

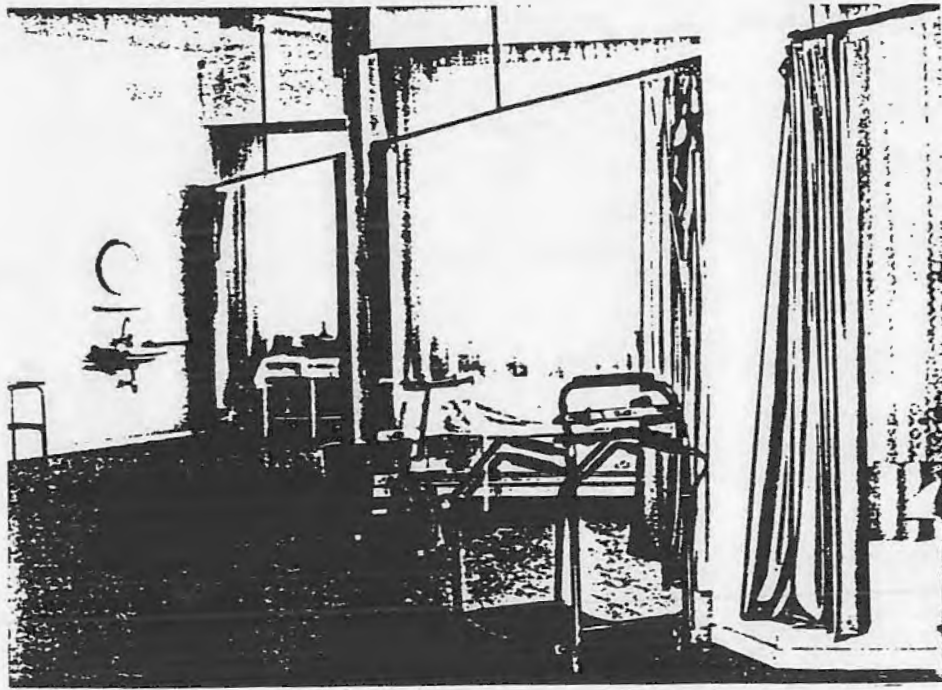


Fig. 35

Rooms for medical services and exercises in the mezzanine

Strengths of the Project:

- 1- The International Garden strengthens the attractiveness of the building and encourages the residents to go and enter the garden and enjoy the greenery.
- 2- The privacy of the room and its complete independence affords the occupant to put his private belongings about the room e.e., photos, green plants, pictures, precious ornaments, hence he feels the room his home and in roots himself.
- 3- The sitting room at the end of the corridor gives the residents chance to sit together and exchange memories, especially those of the same floor.
- 4- The intercom in the rooms attached with the warden's room gives the residence a feeling of security with help at hand. (Emergency call system).
- 5- Complete medical-care on the building and hidden away in the mezzanine affords medical use without the hospital atmosphere.

- 6- Giving importance to the hobbies of the residence and giving them the opportunity to exhibit their work enriches their life.

Weakness of the Project:

- 1- The building is almost isolated from the residential cores and the traffic so that the residents have to use a car to go shopping.
- 2- The building is limited and it is not surrounded by a garden and the residents have to keep indoors on the premises and cannot enjoy any gardening, except in their own balconies in green plants. However, the administration is trying to purchase adjacent land to acquire a garden.
- 3- The complete independence of the rooms encourages the residents to eat in the rooms and not mingle with the other occupants hence minimizing socialization.

Conclusions and Recommendations

The residents come from a variety of socio-economic backgrounds, the disadvantaged-moving from insufficient psychological, economical, physical housing conditions, to the warmth and companionship of their new home. They seek, on retirement, more convenient housing to enable them to continue their life in comfort with varying degrees of background support. The location of the new home., its proximity to shopping and leisure facilities, friends and family is of fundamental importance to all the residents. The aging process does not have to lead to the surrender of all independence in a resident care home. Imaginative design, creating an environment sympathetic to the needs of people handicapped by infirmities enables the Elderly to lead independent lives.

If purpose built housing (Elderly-housing) is to respond to future generations of Elderly people, there must be a greater

awareness of what standards will be used to measure their requirements in housing. Privacy and independence will undoubtedly have greater meaning than in the past. It is obvious that semi-private rooms in Elderly housing provides no standard of privacy for the individuals forced to share the same space.

The semiprivate rooms designed in the U.S.A. in the 1970's were 5/2 m (17 ft) by 3.7 m (12 ft) with a shared toilet and lobby. Neither of the residents have complete control on the window, television, room temperature. As an issue of cost and spatial requirements, approximately the same space standards can be used in a room that maximizes individual privacy and spatial control. The proposed room provides a private space for each resident with his or her own window, television and telephone and clothes storage space. The lobby and bathroom are still shared Fig. 36. The additional cost is only 1.5 sq.m (16 sq.ft) or .75 sq.m (8 sq.ft) per bed. Over the lifetime of the building the cost is negligible when considering the quality of life provides to the hundreds of people who will live in the room.

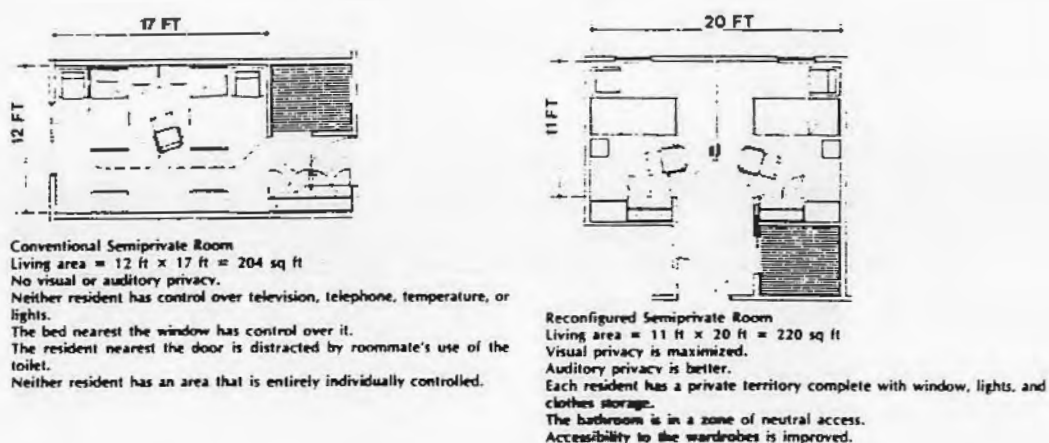


Fig. 36

The previous examples in Sweden, Denmark, Great Britain, America show that privacy, ease of movement inside the singular apartment has been the main issue. The private interior and

exterior spaces of the Denmark nursing homes and the private rooms of Sweden indicate space standards that are changing worldwide. Apartment standards that provide a private bedroom, private terraces and residentially scaled environments are likely to become common in the future. Egypt being very late in beginning the design for the Elderly still has a lot of experience to undergo. The Units are still without kitchenette's and sitting areas in the rooms are negligible. The private bathrooms are very small and the general sitting room on each floor is also small for the number of residents on the floor. The home feeling is not present; either the home gives the feeling of a hotel or hospital. In most cases it is a financial project or a religious dependent institution. Generally speaking the psychological side of these buildings is still deficient.

One important point that should be taken into consideration is that in most of the international examples, Egypt excluded, we have studied and displayed, the occupant receives his apartment with only the moving bed and the occupant furnishes the rest of his unit with his own furniture and that provides him the opportunity of still being surrounded by his own environment and memories. In Egypt on the other hand the occupant is provided with a completely furnished room and he feels as a guest for a small period of time, Chart 1, 2, & 3.

Private rooms with vestibule
and bathroom

		Sweden	Denmark	Egypt
Room	(sq.m)	15	16	14
	(sq.ft)	160	171	150
Vestibule	(sq.m)	4.7	5	3
	(sq.ft)	50	54	32
Bathroom	(sq.m)	6	5.25	4
	(sq.ft)	65	57	43

Chart 1

* In Great Britain the chart (2) is made for a one bedroom apartment, the first column is for the standard proposed areas. The second column is case (1) where the bed and living area are one space but in case (2) the bedroom is separated from the living area. It could be noticed that the difference in space is only the price of 2 sq.m but at the same time affords maximum privacy.

	Standard proposed area		Bedroom separated from living area	
	sq.m	sq.ft		
bedroom	14	150	(1) living room	19 sq.m 204 sq.ft
living area	14	150	bed living (old standards)	3.6 m x (12 ft x 5.10 m 17 ft)
vestibule	6	65		
bathroom	6	65	(2) separate bed rooms	21 sq.m (3.3m x 6.0m)
kitchenette	9	96	(proposed standards)	220 sq. ft. (11 ft x 20 ft)
			bath in case (1) & (2)	4 sq.m (2.2 m x 1.8 m) 42 sq.ft (7 ft x 6 ft)

Chart 2

* In U.S.A. the detailed guidelines by the "Ministry of Housing and local Government circular 82/69 emphasized on the space standards of flats according to category (1), (2).

Minimum overall size	Cat. (3) Active Elderly		Cat. (2) House keeper		Cat. (1) Bungalow	
	sq.m.	(sq.ft)	sq.m.	(sq.ft)	sq.m.	(sq.ft)
1 person (bed sitter)	32.6	351	30	323	33	355
1 person (separate bedroom)	34	366	34	323	--	--
2 persons (one bed room)	47.5	511	41.5	446.7	48.5	522
3 persons (two bed rooms)	60	645.8	--	--	61	656.6

Chart 3

It is important to emphasize that these new international dimensions and alternative new approaches to housing maximize privacy and a self determined life style. The design of these units in flexible way to fit in the requirements of different residents does not need more space but more careful attention to spatial features, walls, niches and windows. At the same time opportunity for the presence of personal belongings which have been perceived through studies to have a positive affect on the Elderly. High rise buildings, although they are not preferred by the Elderly for many reasons (mentioned before) sometimes are a must, especially downtown in an expensive area and therefore care must be taken to ensure the safety of the residents by installing

kitchen self-closing door and escape stairs with fire resistance doors, smoke alarm systems, warden call alarms. Residents should know exactly how to act and how to handle the situation if fire should occur. The homes should have out-of-door spaces with gardens and horticultural participation should be encouraged.

Efforts must be directed to focus on the patterns of life that restore to old age a period of fulfillment, advantage, enjoyment and unparalleled freedom and independence.

It is important to point out that in U.S.A. a new care system (personal - emergency - response program) has been established known as "LIFE LINE" for the elderly who prefer to stay in their own homes and receive special care. Lifeline is an Electric equipment located in the elderly's home, a portable help button which could be carried in one's pocket or clipped to the belt or clothing and home unit linked to the telephone used to summon emergency assistance. An emergency response center could be located in the same community and could be established in the nearest hospital where there is an information card for each subscriber (Lifeline was designed by Professor Andrew S. Dibner, Boston University specialist in rehabilitation and gerontology, 1977).