

A LIVING ENVIRONMENT FOR AGED PEOPLE
through integration of properly
designed housing and facilities
into a thriving community

A Thesis

Presented to

the Graduate Faculty of the
Massachusetts Institute of Technology

in Partial Fulfillment of the
Requirements for the

Degree of

Master of Architecture

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B.Arch. Alabama Polytechnic
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August, 1952

THESIS ABSTRACT

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Harry Abbott Golemon

Master of Architecture, August, 1952
(B. Arch., Alabama Polytechnic Institute, 1951)

This thesis is entitled "A Living Environment for Aged People" for a profound reason. We must restore in the community the active relationship of the old with the young. Housing alone is not the answer. The housing must be integrated into a community that furnishes to the elderly an inviting and healthy environment. In this thesis the author-designer endeavors to provide an example of what he considers to be a suitable living environment for the aged.

The written part of this thesis is divided into four sections: I Preface, II Design Considerations, III Design Recommendations, IV Problem and Solution. The first two sections stress the need for a special environment for the aged and the physiological and psychological aspects that must be considered when choosing and designing this environment.

Rotch (Arch.) Nov 7, 1952

In the third section the author, considering the information stated in the first two sections, recommends specific design characteristics that must be prerequisites when designing for the aged.

In the fourth section the local problem in Boston is stated, and a recommended design solution is given. This section purposely does not go into details about the design solution. The written material in the first three sections thoroughly explains the design considerations and recommendations that apply for any suitable environment for the aged. Considering the first three sections, the design solution speaks for itself.

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Pietro Belluschi, Dean
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Dear Dean Belluschi:

I hereby respectfully submit this thesis, entitled
"A LIVING ENVIRONMENT FOR AGED PEOPLE", in partial
fulfillment of the requirements for the degree of
Master of Architecture at the Massachusetts
Institute of Technology.

Respectfully yours,

Harry Abbott Golemon

ACKNOWLEDGEMENTS

To the following people I express my sincere gratitude for their patience, kindness, and helpful guidance.

Pietro Belluschi, Dean
Department of Architecture and Planning
M.I.T.

Lawrence B. Anderson, Head
Department of Architecture, M.I.T.

Roland B. Greeley, Professor
Department of City Planning, M.I.T.

Mr. Richard Hamilton
Bemis Foundation, M.I.T.

Tage Gorm Hansen, Instructor
Department of Architecture, M.I.T.

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My Classmates

My Wife

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"And now I come to old age,
which is one of the spots
that has been most complete-
ly neglected by planning,
although the facts of the
matter have been staring
us in the face for the past
generation."

Lewis Mumford



P R E F A C E

A SHORT HISTORY

Special provision for old people has long been a feature of European housing policies.

Denmark, the first country in the world to do so, introduced the principle of free provision for old age in 1891, with the first specific Act of Parliament for care of old people. In connection with the Old Age Pension Act, relief might be granted in certain circumstances by placing the old people in "special asylums" or similar institutions, and a small beginning was made toward the erection of "Homes". Since the Old Age Pension Act of 1922, these have been known as Old People's Homes and twenty years later, a total of 510 had been opened for those who needed care and attention. About half of these were built between 1910 and 1929. Around 1933, some local authorities began building a few flats for able-bodied old people and in 1937, new governmental provision was made for the erection of houses for old age pensioners who can look after themselves.

In 1920, approximately seven per cent of Denmark's population was 65 years of age and older.

Very small old-age pensions were provided in England in 1908. The contributory Pensions Act of 1925 made these a little more generous but not until 1943 was the pension amount materially increased. Residential homes have been provided since 1901 by religious and other voluntary bodies, and Charitable Trusts. Before the Second World War a few local authorities had begun to build small homes, but the total accommodation provided by both voluntary bodies and local authorities was small. From 1918-1940 about four per cent of the houses built by local authorities in England and Wales were specifically designed for the aged but of all building in Great Britain between the wars, less than one and one-half per cent was specifically designed for older people.

In 1920, approximately six per cent of the population of England and Wales was 65 years of age and older.

Old age pensions were first introduced into Sweden in 1913, although it has been said that until Parliament granted a considerable increase in 1946, the sums were neither enough to live on nor to die on. As early as 1933, housing measures were undertaken which have culminated in a new housing policy. Although housing for families with many children was

the first consideration (indeed, the entire Swedish social and housing policy was inaugurated to increase the birth rate), pensioners were the next in need of housing improvement. In 1939, government funds were made available for municipalities to build homes for pensioners.

In 1920, nearly nine and one-half per cent of Sweden's population was 65 years of age and older.

Prior to the Emergency Law Provision of the Aged, which came into force in Holland in 1947, old age assistance was based upon private charity and the Poor Law. In connection with the Poor Law, many aged people were admitted into municipal or private verzorgingshuizen (homes where the old are looked after), and there are some 1,000 privately run Homes for Old People. The new law makes it financially possible for many old people to live independent lives in their own homes and about 95 per cent of the aged live outside of Homes which provide care.¹ The Government gave little active support before 1940, although some special blocks of houses were built for the aged, or a few houses were set aside for them

¹ This compares with similar estimates that in England nearly 95 per cent of the aged are in private homes, rather than institutions, and in the United States only four per cent are in institutions. In Copenhagen, the majority of pensioners live in their own flats.

in an ordinary block. As a result of the Housing Act for 1948, considerable building is now possible.

In 1920, about six per cent of Holland's population was 65 years of age and older.

Housing provision for old people in the United States has been confined for the most part to the establishment of community Homes by private social agencies and public bodies, since the U.S. Housing Act of 1937 did not extend aid to the building of individual accommodation for aged or single persons, and there is an acute shortage of suitable accommodation for old people in many of the larger cities today. The State of New York, through the passage of special housing legislation, has, however, taken the initiative in encouraging the provision of individual dwellings for the aged, and has recently passed a legislation that allocates five per cent of all public housing for the aged. The first project under this legislation is now under construction in New York City.²

²For detailed historical information refer to Eleanor Watkins, "Housing for the Aged", a report of a study tour of England, Holland, Denmark, and Sweden. 1951.

A GROWING NATIONAL PROBLEM

Publication of 1950 Census results brings into sharp focus the growing importance of older people in the American pattern of living. The census revealed that there are now about eleven million persons 65 years of age or older in the United States. This total is expected to nearly double in the next three decades, if long-range trends continue.

Even more significant is the increased proportion of persons over 65 in the United States population as a whole. In 1900, only 4.1 per cent of the population was 65 years old or more. In 1950, people in this age group comprised 7.7 per cent of the population. By 1970, the proportion is expected to be more than 10 per cent.

In order to determine what kind of housing should be provided for this growing percentage of the U.S. population 65 years old or more, facts on a national scale are needed about the housing situation now. The Housing and Home Finance Agency is at present sponsoring a special survey and tabulation through the Census Bureau to determine what kind of

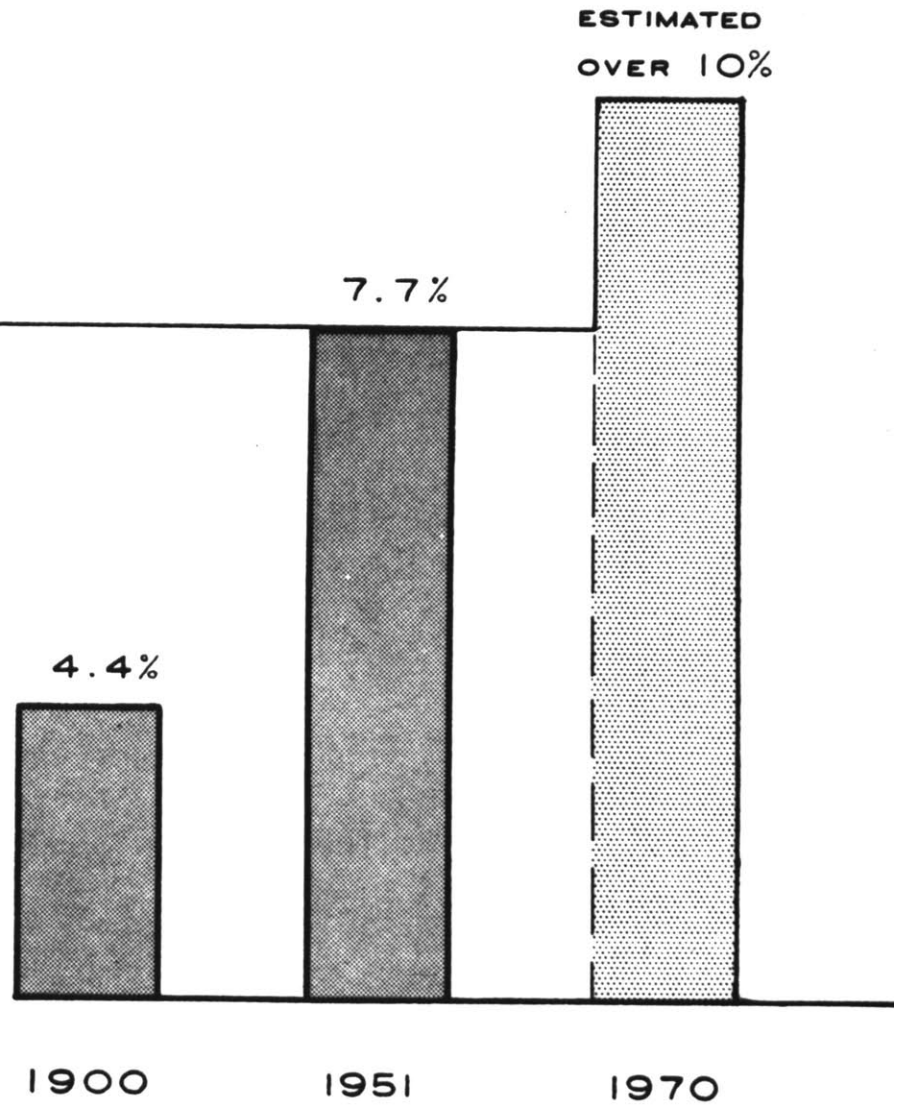
housing people 65 and over live in. Although thorough analysis of the census material is not complete, key data of the survey is now available.

The survey indicated that housing conditions of aged persons were somewhat worse than for the population as a whole. Among families headed by persons 65 or over, 8.4 per cent lived in dilapidated housing. The corresponding figures for all nonfarm households was only 7 per cent. Housing conditions of the aged were worse than would be indicated by consideration of only the number of dilapidated units. Of all dwellings occupied by households headed by aged persons, only 63.9 per cent had private toilet and bath and hot running water, were not dilapidated. The parallel figure for the general population was 70.4 per cent. In absolute numbers, heads of households over 65 occupied about 675,000 dilapidated dwellings, and about 1,200,000 dwellings lacking private flush toilet or bath.

The relatively low income of the older aged families appears to be the most important factor contributing to the poor condition of their housing, compared to United States housing generally. The second principle factor accounting for the poorer housing of the aged is that old people frequently



PERCENTAGE OF U. S.
POPULATION OVER 65



live in old houses which are often deficient in plumbing facilities. Further, these old houses are frequently located in neighborhoods which tend to become slums during periods of rapid urban decentralization. As a result there is a tendency to allow the dwelling to deteriorate and where facilities are lacking to hesitate to install them.³

Much sociological research has been done, and we are aware of the housing problem that exists for the aged. A recent finding of the New York State Joint Legislative Committee on Problems for the Aging stated, "Less progress has been made in housing older persons than in virtually any other field relating to the oldster." In many cases aged people are existing wherever they can find a place for the rent they can afford to pay. The survey reveals that in most cases these low rent quarters exist only in slum sections of the city.

Recently, one proud native son of Sweden said to Ollie Randall as they rode through rural northern Sweden, "When you come into a village, just look for the very nicest and biggest house with the very nicest

³"How Our Aged Families are Housed", Housing Research, Results of Survey. Winter, 1951-1952, pp. 19-22.

garden, and you will know that is the village's home for its old people."⁴

Should not we do as much for our Aged?

⁴William Donahue and Clark Tibbets, Planning the Older Years. Ann Arbor, Michigan: University of Michigan Press, 1950, p. 51.



DESIGN

CONSIDERATIONS

WHY SPECIAL DESIGN CONSIDERATIONS?

The ultimate object of all housing activity is to give the opportunity of living a full and happy life in healthy and congenial surroundings, so far as housing can contribute towards this end.⁵ For the bulk of the population the search for this ideal must be translated into a housing policy aiming at the provision of residential accommodations which will conform to the accepted requirements of physical and mental health and the formation of a balanced local community. For the older people it means that accommodations should be provided which enable them to take their part in the life of the community. In saying this, we are not thinking of their benefit alone. Elderly people with their greater leisure and greater freedom from family cares can render valuable service to the community in which they live. The role of the good neighbor and wise counselor as well as opportunities offered in organized social work for helping their fellows belong to them in a special degree.

⁵Ministry of Local Government and Planning, Housing for Special Purposes, Supplement to the Housing Manual 1949: His Majesty's Stationery Office, London, England, 1951, p. 6.

With these considerations in mind why not just design enough good housing and let the elderly people live where they please? As has already been mentioned, good housing in our present day is too expensive for the majority of the elderly; therefore, housing for the elderly must in most cases be subsidized. Also, there are other considerations:

(1) Elderly people spend much more time in and around their homes than do most younger people. They are inclined to depend more heavily on the home and its facilities in the performance of social functions and the pursuits of their interests, in addition to the basic routines of living.

(2) Design must take into account "the slow decline of the biological and psychological functions, the onset of chronic illness, and the reduced activity of older persons."⁶

However, in designing special housing for the elderly, one warning seems to merit serious attention. In our eagerness to care for the infirm and the chronically ill, we should not convert housing for the aged into an infirmary or hospital atmosphere.

⁶"Man and His Years -- An Account of the 1951 Conference on Aging", Health Publication Institute, Raleigh, North Carolina.



An example of one of the rooms of one of
the best known homes for the Aged, the
Fort Greene House in New York City.

But. . . is this good enough?

Housing must be designed so that those who are healthy will stay healthy, and those who are in slight ill-health from mental frustration and minor handicaps will not continue to lose their health because of an institutional atmosphere. The elderly who are really sick should be taken care of in a hospital until they regain their health and can return home.

DESIGN CONSIDERATIONS

This part of the thesis avoids discussing living arrangements and standards for housing in general. Those design considerations specifically peculiar to housing for the elderly are discussed under physiological and psychological aspects. In some cases the physiological and psychological aspects overlap, and in all cases one affects the other. The considerations herein have been chosen from many books, articles and papers on the basis of what the author thinks has important relationship to housing for the aged.

Physiological Aspects:

"Inadequate housing often proves disastrous when advancing age brings weaker vision and hearing, and poorer coordination."

Anonymous

Safety: It is very important for the designer to give extraordinary attention to the use of designs and materials that will reduce accident and fire hazards. Fatal home accidents are approximately equivalent in number to the ninth leading cause of death. In 1949 home accidents accounted for 17,300

deaths among persons aged 65 and over.⁷ Falls accounted for more than one-half of these fatal accidents. Reports indicate that the bedroom and stairs are the principle sites of falls.

Ordinary precautions against fire do not suffice for elderly people. The ability of older persons to smell is less acute; they have decreased mobility which may reduce their ability to escape from a burning dwelling; mental deterioration may be a factor in causing fires, escaping from them, or taking proper remedial action. The sense of smell in older persons is usually merely weakened. However, it may suddenly disappear for several months or more and may be recovered without apparent cause. In 1949 there were 1,200 reported deaths from home gas poisoning accidents. About 40 per cent of these deaths were among persons age 65 and older.⁸ Approximately three-fourths of these fatal accidents were due to utility gas and carbon monoxide escaping from defective heating equipment.

⁷Ralph J. Johnson and Allen Pond, "Health Standards of Housing for the Aging Population," paper presented at the Second International Gerontological Congress, St. Louis, Missouri. September 9-14, 1951, Public Health Service -- Federal Security Agency.

⁸Ibid.

Temperature Regulation and Air Circulation:

Aged persons, with poorer circulation and impairment of their heat regulating mechanism, are more sensitive to their surrounding temperature than are young healthy adults. They need a higher operative temperature⁹ of some 5° more than is required by young people.¹⁰ Also, older people are particularly sensitive to chilling of the extremities, and it has been suggested that a comparatively even temperature from floor to ceiling should be provided. British research on aged people indicates that there is a wider and varying range of comfort temperatures desired by the individual. Therefore, each individual should be able to control his own room temperature.

In dwellings for the aged the bathroom is the most difficult room in which to regulate the temperature for the human body. Most of the present floor and wall linings are both good conductors and have high emissivity factors. Therefore, the human body loses heat more rapidly to the wall and floor surfaces than is desirable. It is necessary that careful consideration be given to the choosing of materials for the bathroom.

⁹Combined effect of air temperature and mean radiant (usually surface temperature of the walls) temperature.

¹⁰Johnson and Pond, Op. Cit.

Lighting: "Commonly, the transparency of the ocular media suffers with increasing years, the pupil is constantly smaller, and the visual acuity diminishes markedly."¹¹ Conclusions from recent research indicate that the pupil of an average 60-year-old would have 0.435 the area of the average pupil of the eye of an average 20-year-old; at the age of 70, daylight pupil area is about 0.48 of the pupil area at the age of 40. Generally, for aged people, the quantity of illumination can be increased from two to three times the normal quantities supplied for most visual tasks, providing attendant increased glare problems are also solved. It should be noted, however, that increased illumination can do very little to increase depth of focus by causing the pupil to constrict in aged persons since there is very little difference in pupil diameter of an aged person when in daylight and dimlight.

Contemporary illumination and color experts seem to emphasize the fact that high light levels become tolerable and effective only when it is possible to minimize extreme contrasts within the

¹¹W. D. Zoethout, "Physiological Optics", (the Professional Press, Inc., 5 No. Wabash Avenue, Chicago, Illinois, 1947).

field of view. Walls, floors, and ceilings and furniture (particularly those surfaces likely to be in the field of view of a person performing a specific visual task) will cause the least amount of light contrasts if their colors are light in tone.

"Without proper control of color and brightness, the factor of light alone will not meet visual requirements."¹²

All other lighting considerations such as adequate lighting of halls and closets applies in design for all human beings.

Psychological Aspects:

"Nothing in all my experience or planning for, and in living with, older people stands out so vividly as the human need for personal privacy."

Ollie A. Randall

The psychological needs of aged people include privacy, the opportunity for association with others within and without the home, the advantages of what modern science knows about physical and mental health illness, and recognition of every human being's fundamental need to be a person, or even better, a personality in his own right.

¹²Faber Birren, N.Y., "The Functional Use of Color", Paper III, Division 3, Building Research Congress, London, England, 1951.

Old People's Dwellings

Some examples of recently completed schemes



Fig. 15. Hackney M.B.C., London

Frederick Gibberd, F.R.I.B.A., *Architect*

A terrace of old people's bungalows in a layout which also comprises two-storey houses and three-storey blocks of flats.

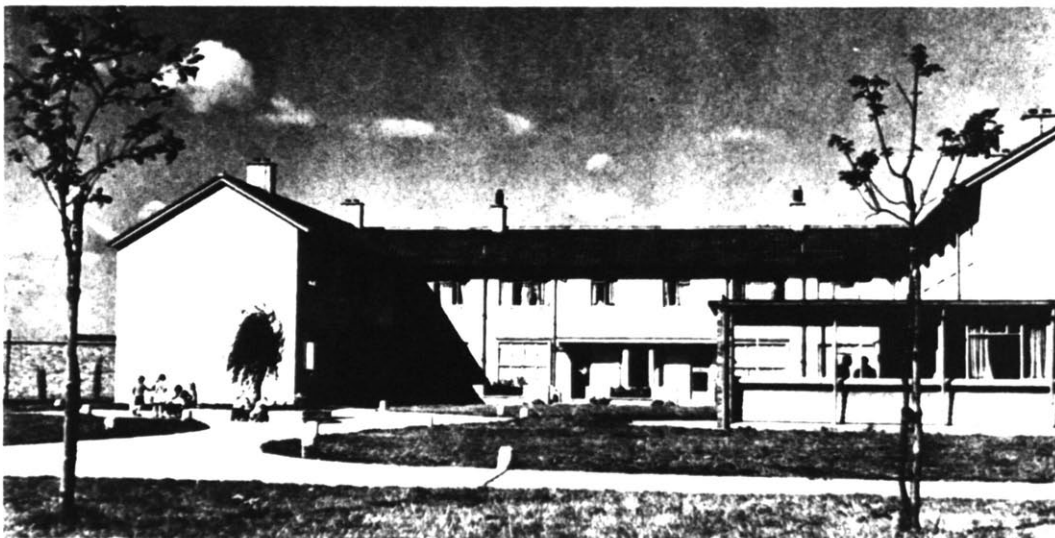


Fig. 16. Walthamstow B., Essex

F. G. Southgate, A.R.I.B.A., *Architect*

A two-storey block of flats for old people. A sun shelter for the use of the tenants is seen on the right of the illustration.

Privacy is essential for elderly persons even more so than for younger people, because of the much higher percentage of time spent in their dwellings. This need is emphasized by the frequency of acute and chronic illness among older people. Furthermore, there is a special need to be able to avoid the daily living tensions and to have privacy for sedentary recreation and meditation.

Since exercise has a psychological value as well as a beneficial effect on the circulation and appetite, adequate space for outdoor recreation should be provided. Many aged persons seem to enjoy gardening, and when possible, provision of garden space off the front or back terrace seems desirable. Provision for indoor recreation space involving mildly active games should be strongly considered. In multiple-unit housing developments such space may well be provided on a community basis. The importance of provision for indoor and outdoor recreation is stressed by Dr. William Menninger. He suggests three types of recreational activity which effectively meet important psychological needs.

- (1) Competitive games which provide an unusually satisfactory social outlet for the feelings of aggression which

do not have sufficient opportunity for expression in other aspects of civilized living,

- (2) the opportunity to produce something-- a rug, a chair, a piece of music, a poem, or a cake, provides expression for the erotic, constructive or creative drive, and
- (3) relaxation through entertainment also satisfies important psychological need through catering to passive desires as well as providing an opportunity for vicarious participation.

Most articles on special design considerations of housing for the aged stress the psychological importance of having enough storage space so that aged persons may enjoy the enrichment of their reflections by having easy access to the various paraphernalia with which important events of preceding years are associated. Further, storage space right in the apartment is needed for present active hobby paraphernalia.

As has been previously stated, elderly persons are housebound to a far greater degree than younger people. It is essential, therefore, that they have

plenty of direct sunlight in the home to provide the psychological stimulation of its generally cheering aspect. Obviously, the windows need to be large and properly oriented to the sun so that direct sunlight will enter both the living room and the bedroom at some time during the day. Due consideration must be given to land densities, high adjacent buildings, and the need for housebound individuals to look out on pleasant surroundings.

All designers realize the tremendous possibilities that color and light combinations offer when skillfully used. The following paragraph suggests the potentialities that lie in the correct use of color and light:

"In a general way brightness and warmth stimulate the autonomic nervous system (the action of the heart, lungs, digestion, glands). Blood pressure and pulse rate will tend to decline...Bright light and warm colors condition the human organism for action for outwardly directed interests, for muscular activity. Poor colors and dim light are conducive to introspection to sedentary tasks, to mental activity. Goldstein says, 'One could say red is inciting to activity and favorable for emotionally determined actions; green creates the condition of

meditation and exact fulfillment of the task. Red may be suited to produce the emotional background out of which ideas and action will emerge; in green these ideas will be developed and the actions executed."¹³

There are great possibilities for mood conditioning afforded in the handling of color and light. Variety in mood requirements can be met by using stimulating or restful schemes within the dwelling, and by giving appropriate variation between particular areas of the dwelling. Some recommendations for the handling of color and light will be discussed in the section entitled, "Design Recommendations."

¹³Ibid.



DESIGN

RECOMMENDATIONS

DESIGN RECOMMENDATIONS

The section entitled "Design Considerations" considered only the physiological and psychological aspects and purposely excluded any design recommendations. In this section the design recommendations are considered that are used in solving the specific design problem of this thesis. However, the recommendations will cover only those design principles that are peculiar for dwellings for the aged. Such design features as aesthetics are imperative for any structure and will not be discussed.

Also, "standards" and "minimums" will not be recommended. Only "optimums" will be sought. It is the responsibility of each designer to see how closely the optimums can be applied within the limits of his budget and imagination.

Site:

Elderly people want to live in much the same way as they have always lived, with an opportunity to associate with younger people and to have the feeling that they are a part of the community. The housing should be located in or near the city close to transportation, churches, stores, recreation

facilities, medical facilities; and if possible, in a district familiar to the aged persons. To have park facilities on or near the site is very important. In the "Nuffield Foundation's Report on Old People" the report stated that a public park near the housing was a great boon to the morale of the aged people.

Space Requirements: Elderly people can be classed into two categories--the single person and the couple. Studies that have been made, both in Europe and America, on living space for the elderly couple seem to agree that the need is one-bedroom apartments with separate kitchen and dining facilities and separate living area. However, agreement on the living space for the single person has not been so profound. The writer believes that the living space for the single aged person should be at least a combination living-sleeping room and a combination kitchen-dining room with private bath. Of course, the rooms need not be as large as in the couple's living space.

Square footage sizes for rooms for the aged recommended by the British Housing Manual, 1949, are as follows:

Living Room	140-160 sq. ft.
Living room and bed recess	230-250 sq. ft.

Plans of Old People's Dwellings

Reproduced from Figs. 45-52 of the Housing Manual 1949

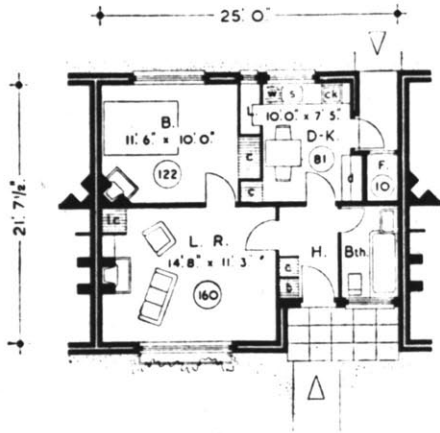


Fig. 45
Two person. South aspect.
Floor area 541 sq. ft., including inset porches of 45 sq. ft.
Plan where the bedroom is entered from the living room.

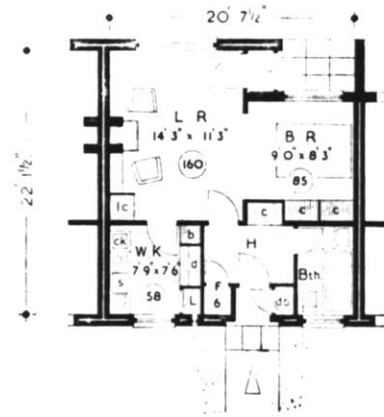


Fig. 46
Two person. North aspect.
Floor area 456 sq. ft. including inset porches of 28 sq. ft.
Plan where a bed recess is arranged off the living room.

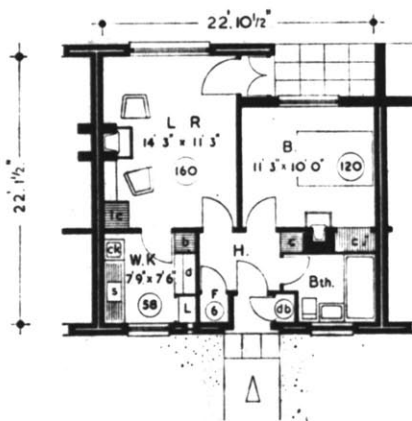


Fig. 47
Two person. North aspect.
Floor area 506 sq. ft., including inset porches of 36 sq. ft.
Plan where the bedroom is entered from the hall.

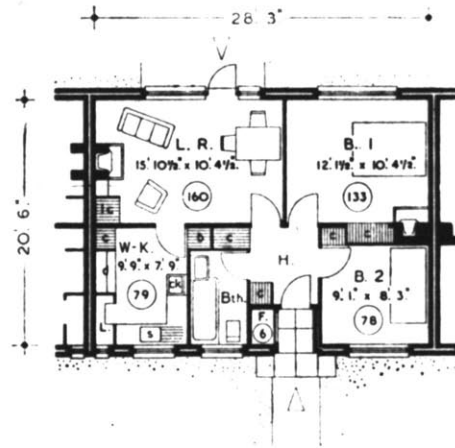


Fig. 48
Three person. North aspect.
Floor area 579 sq. ft., including inset porch.
Plan where two bedrooms are both entered from the hall.

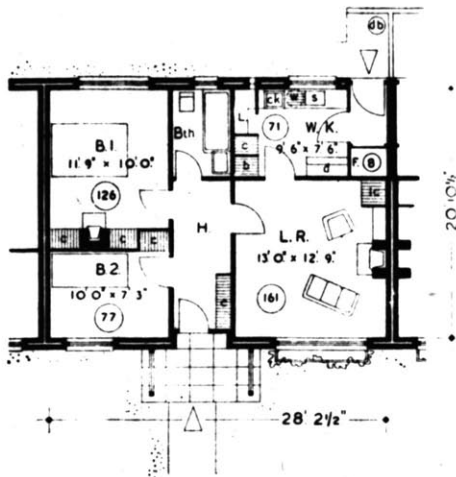


Fig. 49
 Three person. West aspect.
 Floor area 589 sq. ft., including inset porch 14 sq. ft.
 Accommodation similar to Fig. 48, but arranged for a different aspect.

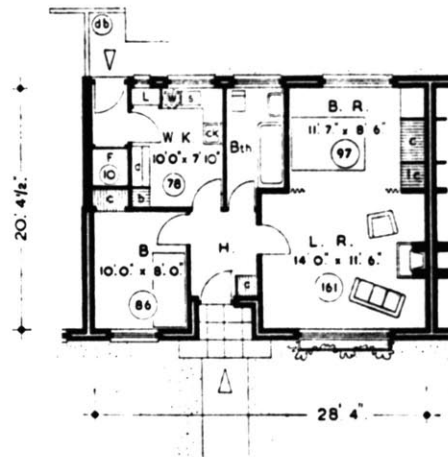
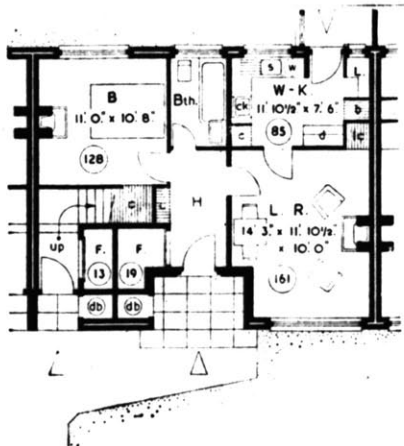
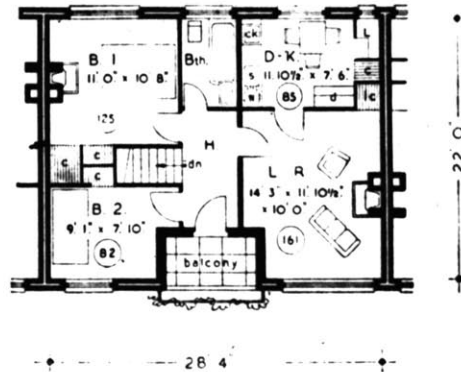


Fig. 50
 Three person. South aspect.
 Floor area 577 sq. ft., including inset porches 23 sq. ft.
 Plan in which a separate bedroom is entered from the hall and a bed recess is arranged off the living room.



Figs. 51-52
GROUND FLOOR PLAN



FIRST FLOOR PLAN

Fig. 51. Two person. Floor area 541 sq. ft., including inset porches 34 sq. ft.
Fig. 52. Three person. Floor area 623 sq. ft., including inset balcony 27 sq. ft.
 Dwellings in two-storey flats with private entrance to each.

Double bedroom	120 sq. ft. minimum
Single bedroom	70 -80 sq. ft. ¹⁴

Mr. Johnson, of the U. S. Public Health Service states that an apartment for the aged should have 400 square feet. The most recent recommendations of the Housing and Home Finance Agency for any Federally-purchased housing of the one-bedroom, multi-family, apartment type, call for a minimum floor area of 535 square feet, and a maximum for a reasonably modest unit, of 650 square feet. Many authorities believe that elderly people can live comfortably in smaller apartments than younger people. It seems that living space should not be purposely cut because the living units are for elderly people. In many respects elderly people need more living space within their living units than a young adult couple. As stated under "Design Considerations", elderly people spend much more time in their living units and usually have much more paraphernalia to store. This writer believes that the optimum size for elderly people's living space should be as follows:

Couple living Units	450 sq. ft.
Single living Units	350 sq. ft.

¹⁴British Housing Manual, 1949, p. 46.

Using these optimums as a basis, there are many variations that the living space may take. Solutions depend on the particular problem at hand and the imagination and design ability of the designer.

One recommendation concerning outdoor space is stressed at this point. Nearly all authoritative writings on elderly people recommend the importance of provision being made for outdoor garden space. Besides giving the aged people an excuse for going outdoors, the garden also gives them an interest in life from day to day.

Safety Requirements: Obviously, rigid safety requirements should be of top priority in designing any structure for human habitation. However, there are a few safety considerations that are of utmost importance in designing dwellings for elderly people.

First and foremost, it is necessary to reduce to an absolute minimum the possibilities for falling. One of the chief causes of falls has been self-impelled efforts at changes in elevation. This means the elimination of all stairways, the placing of accommodations for aged persons on the ground floor or at least on a single floor level in apartments with elevators that are serviced by operators or are entirely mechanical in operation. It means using

very gradually inclined ramps instead of steps, where the rise is absolutely necessary under certain entrance conditions. Also, it means placing storage space, such as shelves or cabinets, in a low enough position so as to eliminate the need for climbing on ladders, stools or chairs to reach it. Finally, all thresholds should be eliminated. Of course, falling hazards can be partially eliminated by giving special attention to skid-resistant floor surfaces. This problem is not peculiar to the design of dwellings for the aged, but is a problem that should be thoughtfully worked out in all housing designs and construction.

The use of a bathroom and its facilities by the aged introduces safety problems in addition to those that already exist for the younger person. Many elderly people have a difficult time getting in and out of a bathtub, and because of their frailty and slow coordination are more apt to fall than are younger people. The installation of horizontal and vertical hand rails in convenient locations would minimize the chances of falling. Also, the installation of a tub with a seat in it or a portable seat in a regular tub would make far easier bathing for many elderly people.

A recommendation for accident prevention suggested by Herbert Heavenrich, Jr., is the use of the industry

safety color code of the American Standard Association. The colors are designed to provide a psychological stimulation of an alertness for the correct responses in each case. The color code is as follows:

Yellow ---Strike against, falling, or stumbling hazards.

Orange ---Acute hazards likely to cut, crush or burn.

Red ---Fire protection equipment.

Blue ---Levers, controls, and switch boxes.

This color code might be helpful at key danger points, particularly in the kitchen.

Another safety measure would be the use of special devices to avoid strains and permit not-so-agile hands to control air, water, heat, etc. Several authors suggest that valves controlling water in both kitchen and bathroom can be advantageously operated with long lever bars, such as used on surgical scrub-up basins. Using this type of knob would help mitigate the danger of scalds caused by being unable to turn off hot water or turn on the cold.

Light: The diminishing of visual acuity and the reduced ability of the eyes of aged persons to accomodate stress have been recognized in "Design Considerations." Generally, the quantity of illumination can usefully be increased about two times the normal quantities supplied for most visual tasks, provided attendant increased glare problems are also solved. If the artificial illumination on specific visual tasks is increased to 100 foot candles, there should be a corresponding step up in the general level of illumination as well. This can be accomplished by the careful use of indirect lighting in harmony with functional color.

Speaking specifically about artificial lighting, Mr. R. L. Biesele, Jr. states, "There is some merit to the view that the artificial lighting should generally be somewhat warmer in color quality than the daylight. This seems to make the atmosphere more cheerful."¹⁵ However, the artificial lighting is somewhat different for the elderly person than this general statement would indicate. The yellowing of the ocular media in old age makes it more difficult for the blue components of light to strike the retina.

¹⁵R. L. Biesele, Jr., "Daylighting", address before Convention Symposium II, Light and Illumination, A.I.A. Washington, D. C. May 11, 1950.

One might conclude that an artificial light quality, which had a somewhat more blue than normally prescribed to gain a cheerful effect would tend to compensate for this blue filtering of the retina. The statement has been made that elderly people are often thirsty for blue. A recommendation to the designer would be to use those illuminants which have a fairly high amount of the energy denoted to the blue wavelength.

One other lighting recommendation merits attention. Pond and Johnson recommend that artificial lighting should be designed to provide six to ten foot candles over the entire stairway and over the floor at an elevation of thirty inches above the floor.

Obviously, not all areas of particularly activity require high level intensities of illumination. As in any design problem, such decisions are left to the discretion of the designer.

Recommendations for day lighting are not discussed because there are no daylight problems that are specifically peculiar to designing for the aged, except for the aforementioned problem of glare.

Group Services: If those planning aged housing intend to have group services the dwellings must be planned in clusters large enough to allow for the

economic development of group services by which each individual unit may be reached as needed and which must be seen as an essential supplement of each unit. Group services will center on housekeeping, attendant and nursing aid. There must also be recreational facilities, provided in and out-of-doors, suitable in layout and program for elderly people of mature interests and limited mobility.

The physical base for such group services must be included in the basic design of each housing development, but their operation should not necessarily be a function of the landlord. Group services may be sponsored by non-profit agencies, by churches, by cooperative associations, by public or private community agencies.

A typical service center for aged dwellings would offer one or several social rooms adjacent to outdoor living space. It would also provide a housekeeper service operated by a small staff of visiting housekeepers and practical nurses for part-time care in the residents' own dwellings, except for disabling illness of very extended duration or requiring institutional service. In units planned for a sizable number of dwellings, a local infirmary under the care of the central housekeeping and nursing service may

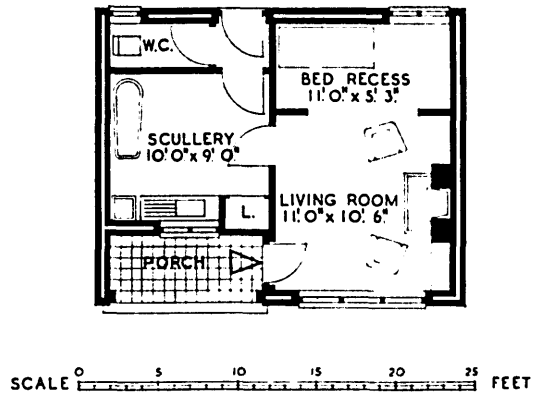


Fig. 1. Typical Cottage for single persons

become desirable. However, as stated previously, caution must be taken to prevent the environment from becoming too much like a hospital. The infirmary should be only large enough to take care of physical checkups by visiting doctors and allow for a brief internment of those suffering from minor illnesses such as colds. Those with more serious maladies should be sent to a hospital.

A COPY OF THE NEW YORK CITY HOUSING AUTHORITY'S
DESIGN DETAILS FOR APARTMENTS
FOR THE AGED

BATHROOMS

1. Tub

Eljer or approved equal 5'-6" tub, with a built-in seat. Bathroom to be 5'-6" wide the entire length of the room. No showers will be provided.

2. Grab Bars

Two 9" grab bars to be provided at tub, one vertical. Exact location to be determined. Grab bars to be included in Plumbing Contract. Detail to be prepared showing plate fastened with U-belts to channels, and studs projecting through the plaster. See bars by Ch. Parker or similar manufacturer.

3. Tile Floor

Non-slip tile to be provided.

4. Saddle

Floor tile to be laid in mastic cement with flush saddle to minimize difference in floor levels and danger of tripping.

5. Lavatory

Apartments of both types to have 22" x 19" lavatory with 18" x 12 $\frac{1}{2}$ " bowl size in lieu of 20" x 18", to make up for lack of laundry tray in kitchen.

6. Arrangement of Fixtures

To avoid window over bathtub.

RECESS KITCHENS (Apartments of "C" type)

1. Enclosure

Means of enclosure still to be determined. Study being made of horizontally folding wood slat screen.

2. Sink

Roll rim type 3'-6" single sink with integral drainboard, and wood cabinet enclosure with sliding work board, and shelf for garbage can under sink.

3. Mechanical Ventilation

To be installed in accordance with Multiple Dwelling Law and Code. Provide as close to range as possible.

4. Overhead Cabinets

Standard heights to be used to obtain 23 square feet of storage capacity.

5. Range

Four-burner electric with oven.

6. Refrigerator

Six-cubic foot size.

KITCHENS1. Sink

Same as in recess kitchen in "C" type apartment.

2. Refrigerator

Six-cubic foot size.

3. Range

Four-burner electric.

4. Cabinets

Provide 25 square feet storage capacity. Cabinets to be 2'-2" height instead of standard 2'-10". No cabinet to be provided over refrigerator.

MISCELLANEOUS ITEMS1. Electric

Wall switches shall be provided for all fixtures within the apartments except that combination wall brackets are used when adjacent to doors.

2. Heating Radiation

To be increased to provide 80 degree heat instead of 70 degrees.

3. Windows

Use crank operators. Conflict with hopper vents to be avoided in layout of windows.

4. Saddle at Apartment Entrance

To be bevelled or rounded to minimize danger of tripping.



P R O B L E M

& S O L U T I O N

LOCAL PROBLEM

In 1940 Boston had 61,000 persons 65 years of age and over, constituting slightly less than eight per cent of the total population. Although this proportion was higher than the national average of that time (6.8 per cent) it was the same as that for the Boston Metropolitan Area.

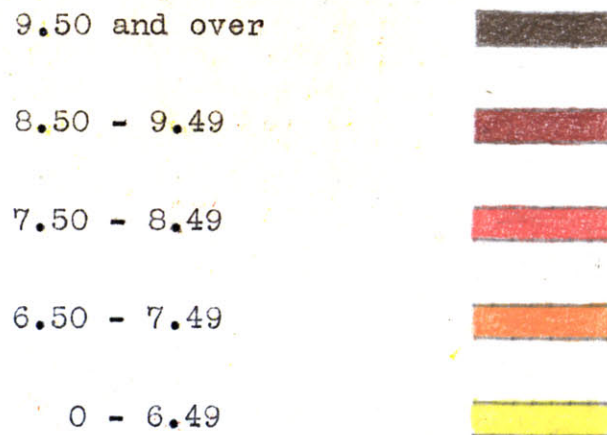
Preliminary 1950 U.S. Census reports indicate a rapid increase of persons age 65 and over in Boston.

<u>Year</u>	<u>Total 65 and Over</u>
1930	42,637
1940	61,581
1950	82,800

Indications are that the number will continue to increase.

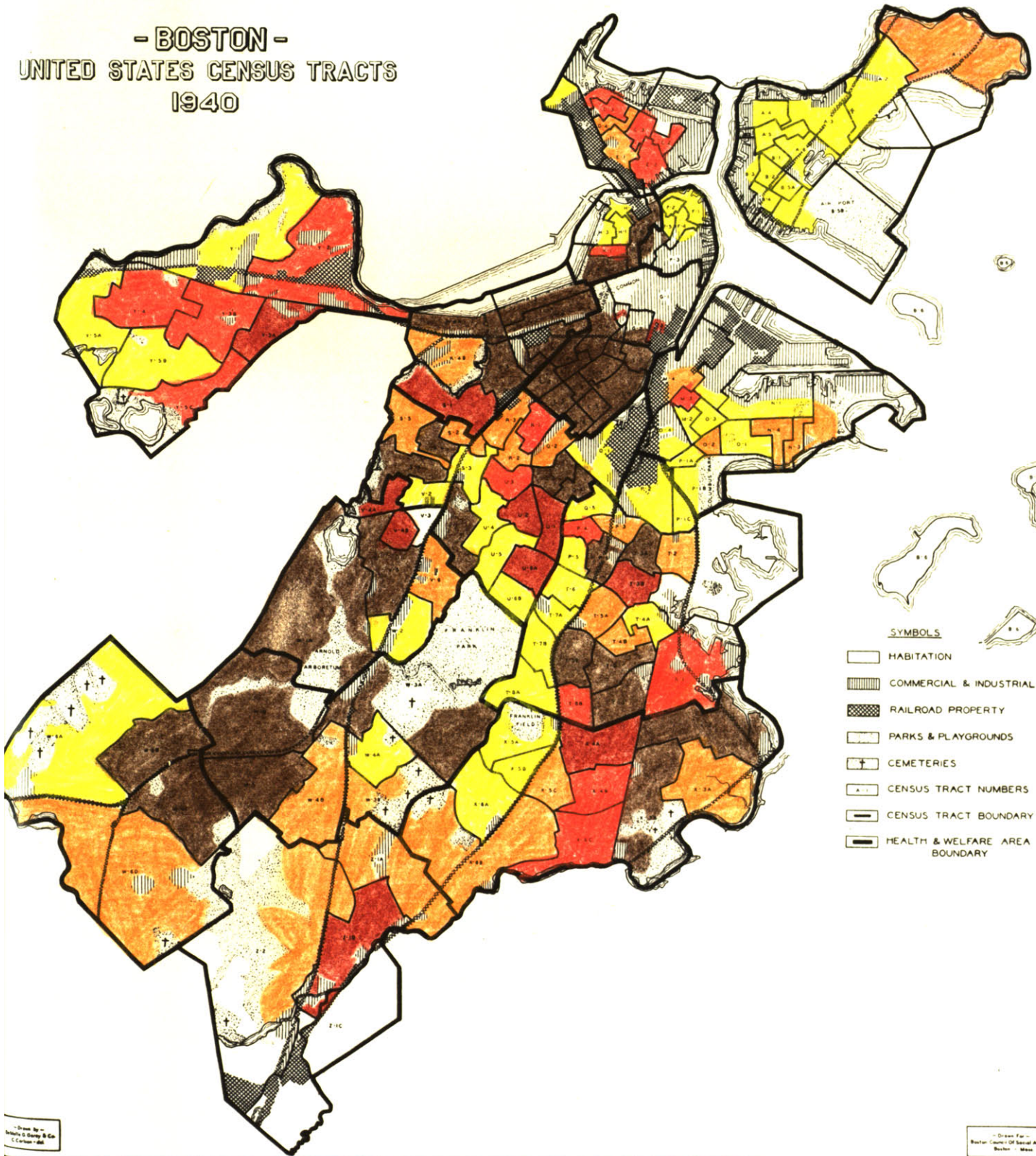
In 1940 73 per cent of the female population age 65 and over were not married. 27 per cent were married. In 1940 43 per cent of the male population age 65 and over were not married. 57 per cent were married.

Per cent of Population
65 Years of Age and Over
(Adapted from U.S. Census, 1940)



See census tract on opposite page.

- BOSTON - UNITED STATES CENSUS TRACTS 1940



SYMBOLS

- HABITATION
- COMMERCIAL & INDUSTRIAL
- RAILROAD PROPERTY
- PARKS & PLAYGROUNDS
- CEMETERIES
- CENSUS TRACT NUMBERS
- HEALTH & WELFARE AREA BOUNDARY

Drawn by -
Harris & Corp & Co
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Drawn for -
Bureau Census of Social Agencies
Boston - Mass.



It is estimated
that 10,600 persons
65 years of age and
over live in small
households in worse
areas in Boston

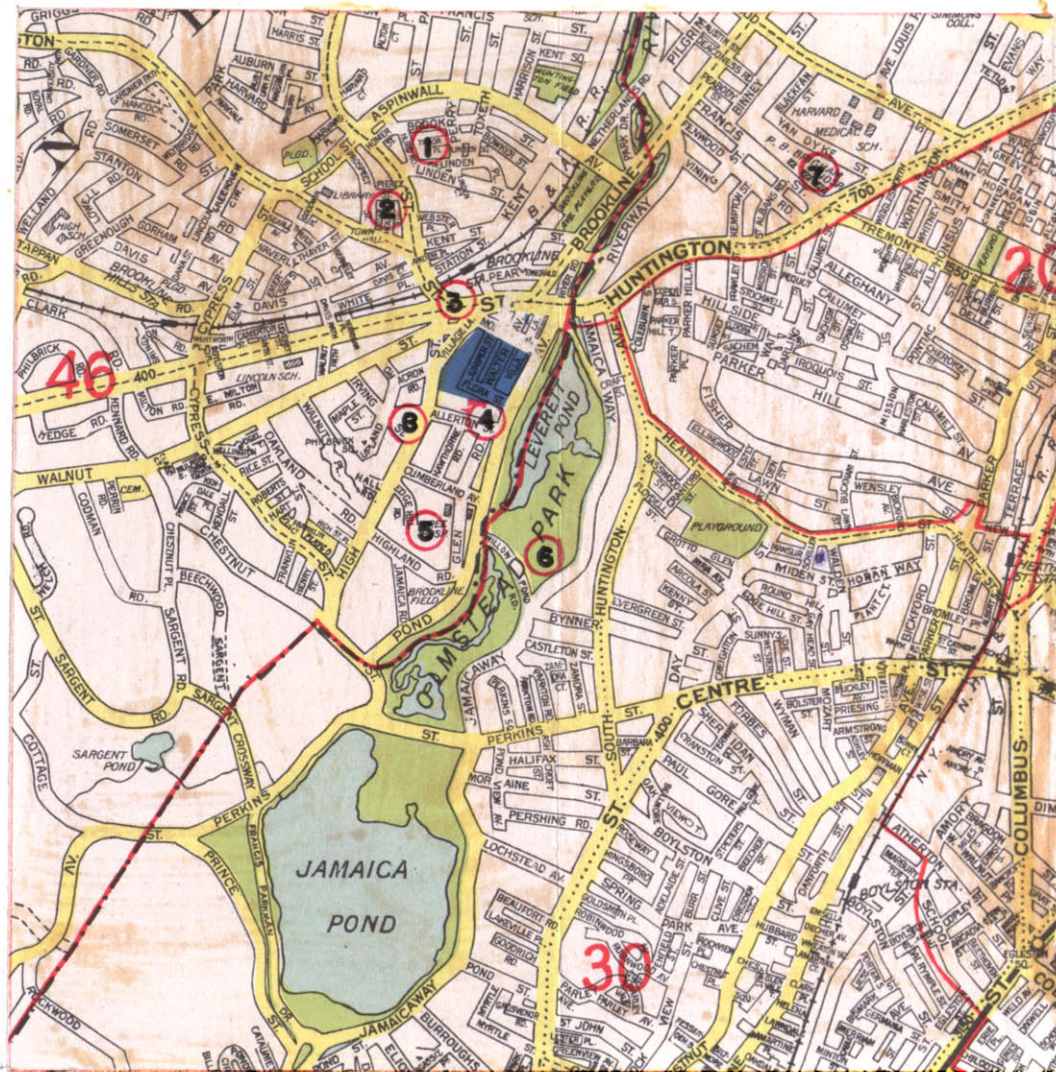


RECOMMENDED SOLUTION

Site:

"We should plan our homes for the aged, not in great institutions but in small communities. We should place them not by themselves, segregated among the dying, but among the young, among the active, among the vital."

Lewis Mumford



- (1) St. Mary's Church of the Assumption
- (2) First Presbyterian Church
- (3) Brookline Village Square
- (4) Allerton Hospital
- (5) Free Hospital for Women
- (6) Olmstead Park
- (7) P. B. Brigham Hospital
- (8) Massachusetts New Church Union

HOSPITAL FACILITIES



Free Hospital for Women



Allerton Hospital



Brookline Village Square



Pleasant Scenery

PEACEFUL ENVIRONMENT



Shady Paths



Picnic Spots



Quiet Streets

Recommended Design:

"The ultimate object of all housing activity is to give the opportunity of living a full and happy life in healthy and congenial surroundings so far as housing can contribute towards this end." (p. 9)

In Section III of this thesis the author has stated specific design recommendations that are considered applicable to housing for the aged. The design solution that follows is a recommended solution, incorporating recommendations in Section III, that is a self-sufficient, independent housing unit for aged people without the traditional atmosphere of the old-age home.

Miscellaneous Recommendations:

The tenants who choose to live in this housing unit will pay rent ranging from approximately \$27 to \$50 a month per apartment. This is not a charitable institution and should be administered as any public apartment house. The aged who live here must feel independent of any charity.

The unit could be built and subsidized if need be under the United States Housing Act of 1949. Surely there are business men who would be willing to lend 10% of the total cost for such a housing unit.

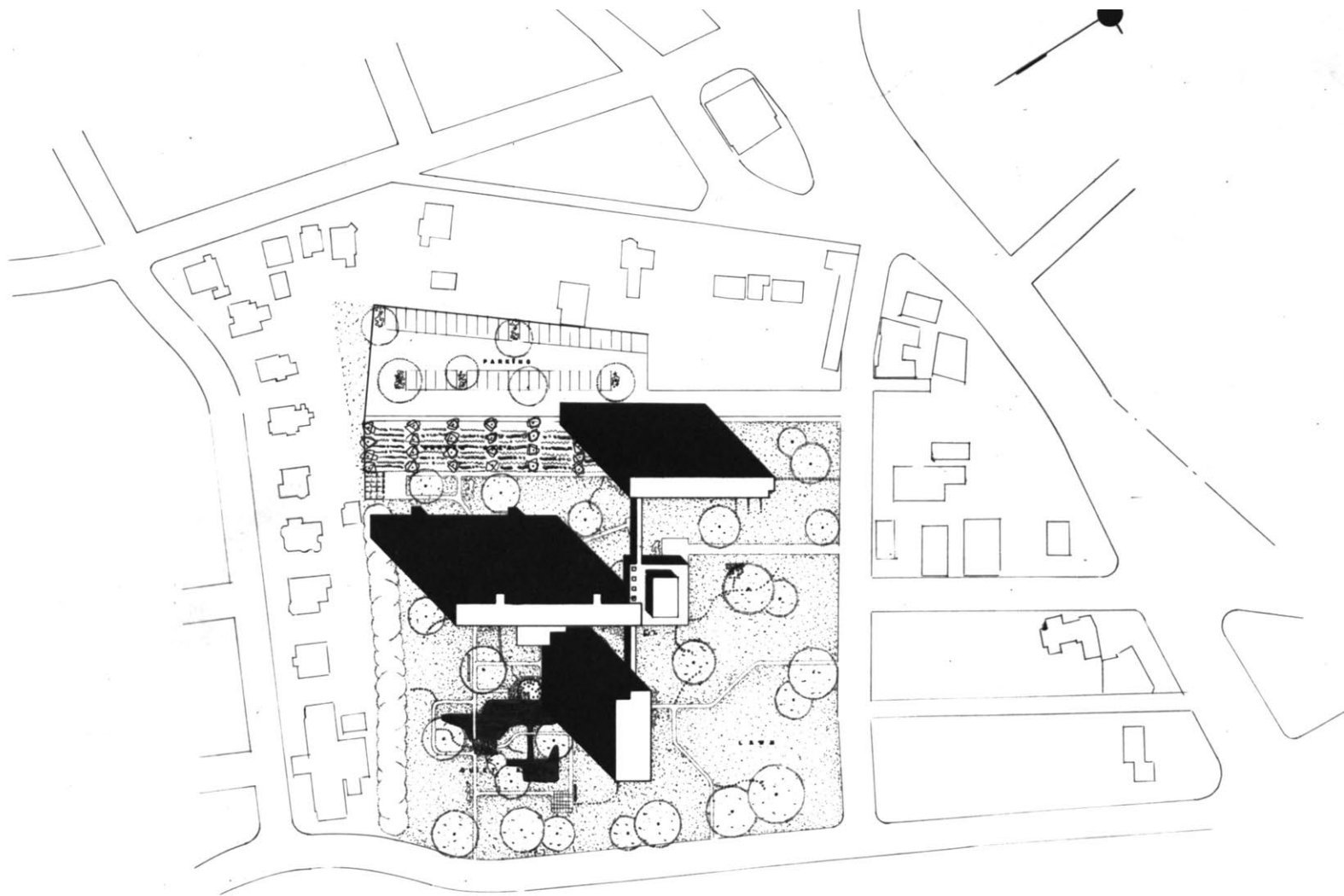
Approximately 300 aged people would be housed here. New York sources say that an apartment group should not house over 400-500 people because of a piling up of administrative difficulties. Also, a unit housing less than 100 would have little chance of being self-sufficient.

To protect against becoming over-populated with too many of one age group, 50 per cent of the tenants would be chosen from the age bracket between 55 and 65, 25 per cent between 66 and 70, 10 per cent between 71 and 75, and 10 per cent over 76. However, after they have been accepted tenants should be allowed to remain as long as they wish and can find means to pay their bills.

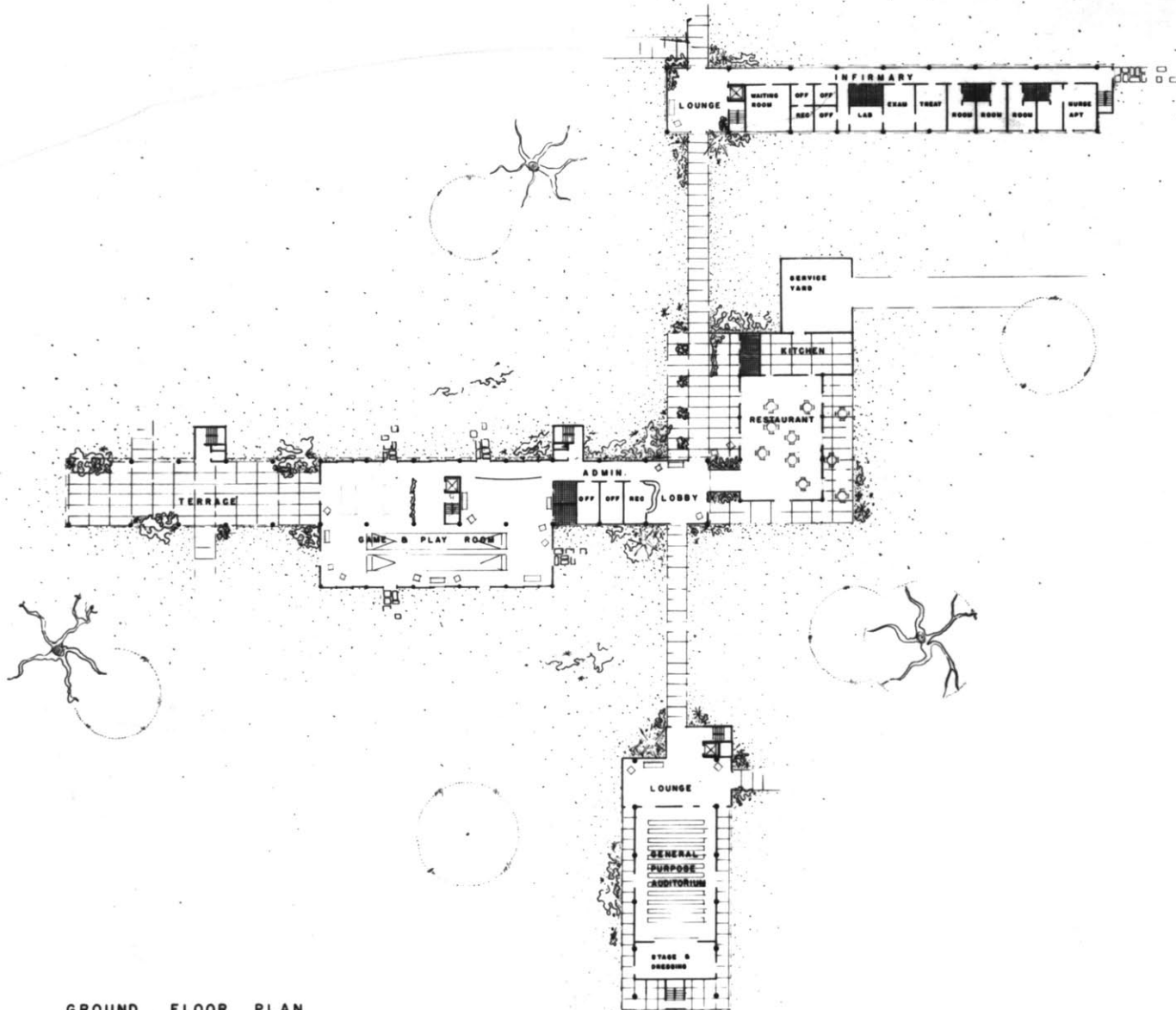
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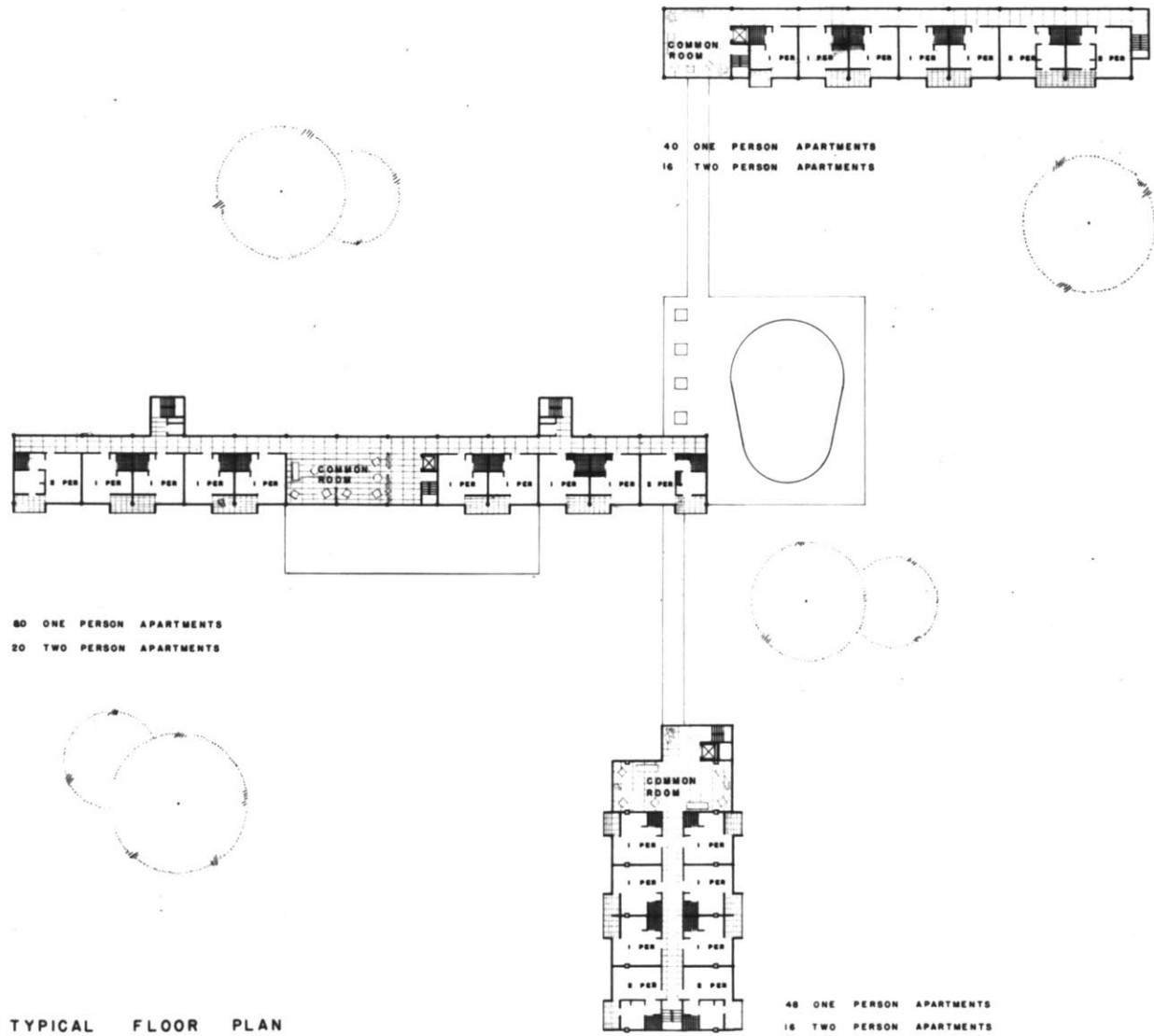
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PLOT PLAN
SCALE 1/80 IN = 1 FT



GROUND FLOOR PLAN
SCALE 1/8" = 1 FT



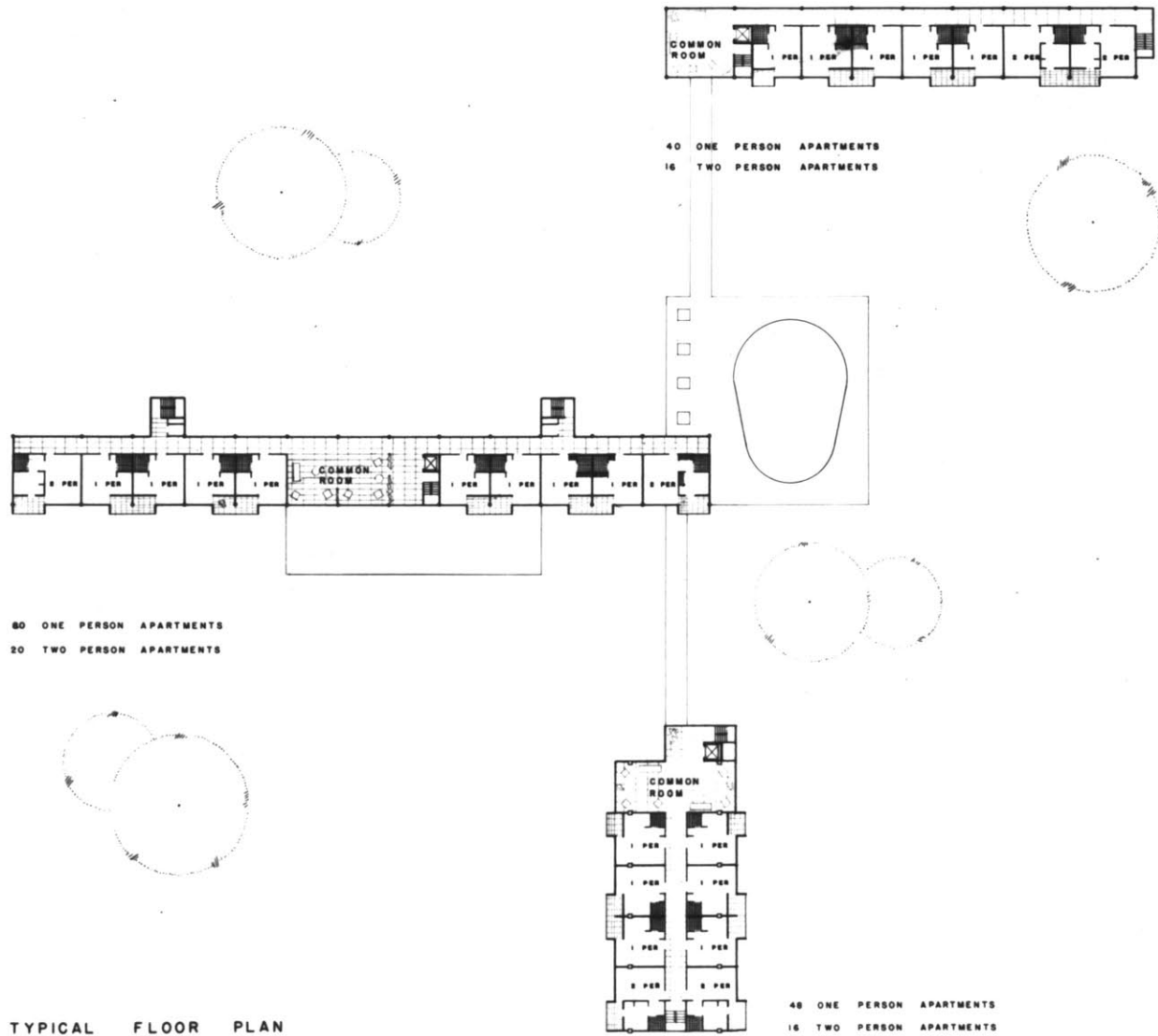
80 ONE PERSON APARTMENTS
20 TWO PERSON APARTMENTS

40 ONE PERSON APARTMENTS
16 TWO PERSON APARTMENTS

48 ONE PERSON APARTMENTS
16 TWO PERSON APARTMENTS

TYPICAL FLOOR PLAN
SCALE 1/8" = 1 FT

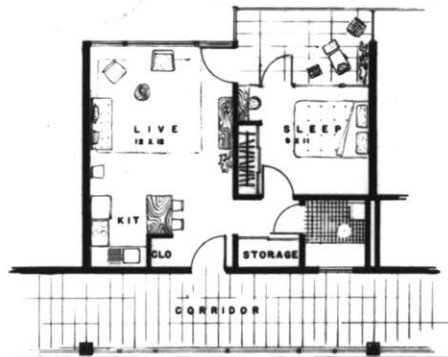




TYPICAL FLOOR PLAN
SCALE 1/16 IN = 1 FT

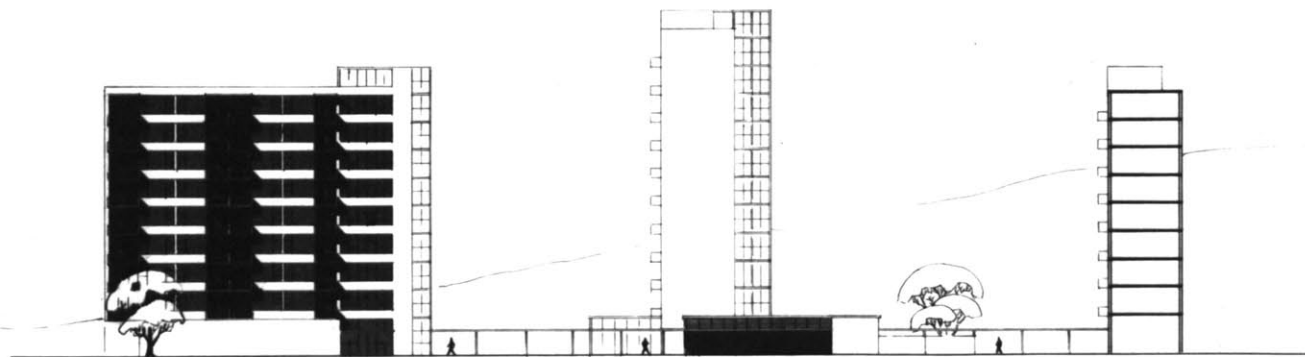


TYPICAL ROOM PLAN
FOR ONE PERSON

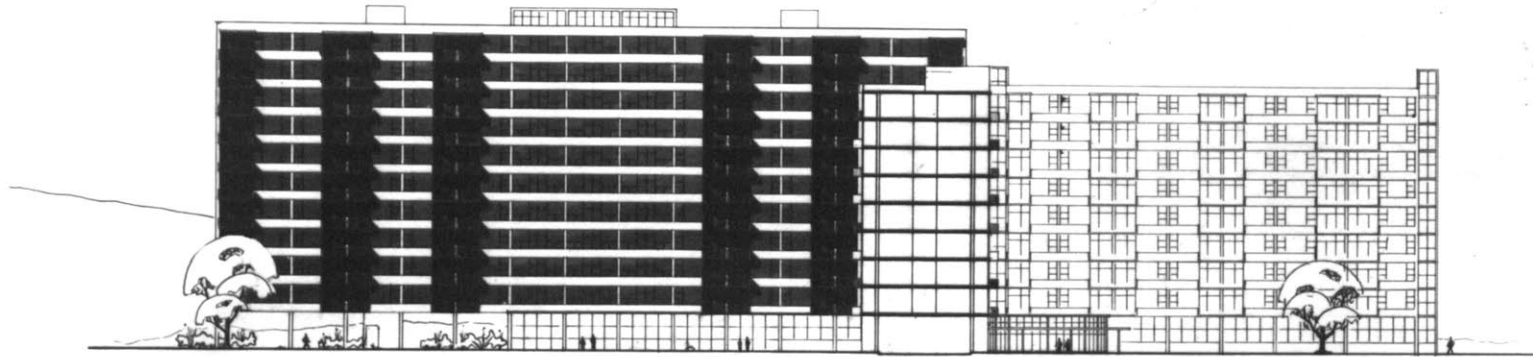


TYPICAL ROOM PLAN
FOR TWO PERSONS

ROOM PLANS
SCALE - 1/4 IN. = 1 FT



EAST ELEVATION
SCALE - 1/16 IN. = 1 FT



SOUTH ELEVATION

SCALE 1/16" = 1' FT



NORTH ELEVATION

SCALE 1/16" = 1' FT

A LIVING ENVIRONMENT FOR THE AGED
HARRY A GOLEMON
MASTER'S THESIS M I T 1952

