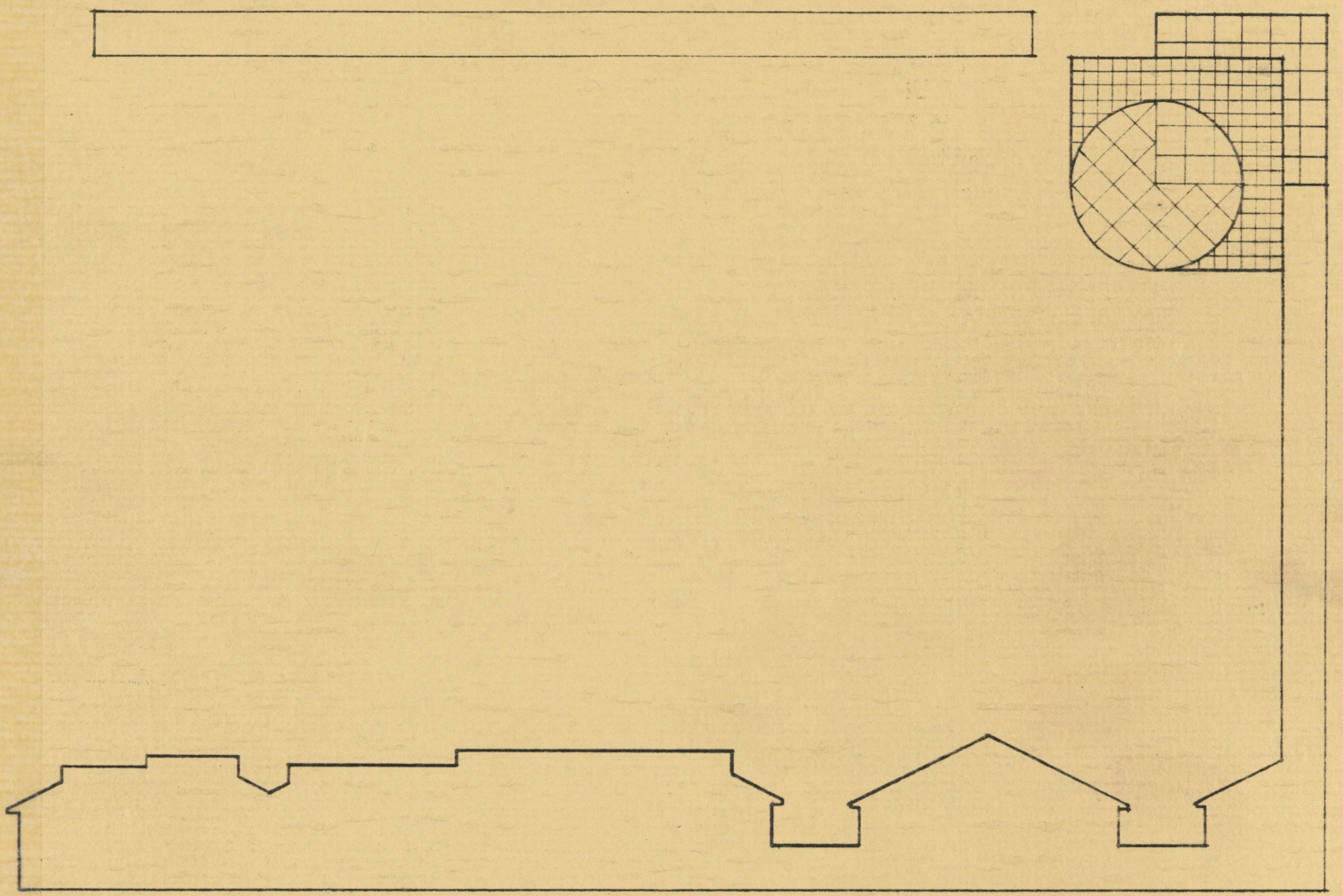
"CHOICE" in an elderly housing community



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"CHOICE," IN AN ELDERLY HOUSING COMMUNITY

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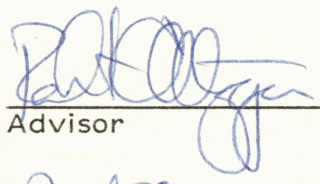
Steven K. Williams

A professional paper submitted in partial fulfillment
of the requirements for the degree

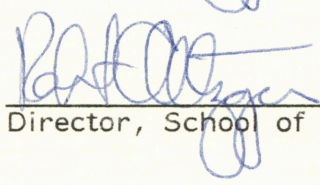
of

BACHELOR OF ARCHITECTURE

Approved:



Advisor



Director, School of Architecture

Montana State University
Bozeman, Montana

March 1986

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Steven K. Williams

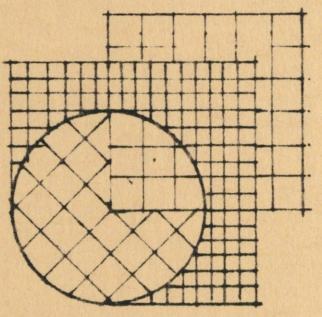
DEDICATION:

to Linda, my wife, my partner, my friend

TABLE OF CONTENTS

	Page
Introduction	1
Meaning	3
The Users	5
The Site	10
The Program	
. functional goals	24
. form goals	24
. economy goals	25
. time goals	26
. spatial analysis	27
. spatial summary	64
Case Studies	67
Schemes	73
Design	76
Bibliography	80
Appendix	
A.	81
B.	95
C.	96

INTRODUCTION



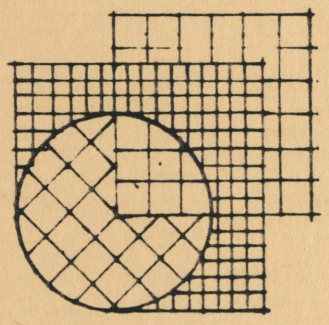
Sturgis, South Dakota, like so many small towns in our nation, is experiencing a shortage of elderly housing. (We are all aware of the demographic shift towards an increasing percentage of elderly people in our society and their need for adequate housing.) To meet this need, North Central Health Services, a non-profit development organization concerned primarily with health care facilities, has purchased a 12 acre site in Sturgis with the intention of developing low-rise apartment housing for the elderly. North Central Health Services has identified the need and the feasibility for such a development and is currently moving towards the realization of this project.

Using the small town of Sturgis (5,180 pop.), the specific site, and an approximate density ratio proposed by North Central as the foundation of my thesis project I have further modified that program to provide a more comprehensive solution to the elderly housing needs in Sturgis. The community will provide housing for only independent and semi-dependent elderly as a long term care facility is located only three blocks away, I have proposed not only low-rise apartments but also a congregate living facility, independent "houses" (duplexes, threeplexes, and fourplexes), and a service center to include a convenience store, day-care facilities, and dry-cleaners.

The diversity of housing types specified in the program serves to support my primary goal in this thesis project. That goal is to produce a housing environment with a multitude of living and activity choices arranged in a comprehensive, cohesive, and understandable setting. The ability to pick, choose and decide on what their environment will be is crucial to fostering and maintaining the elderly's sense of dignity and independence.

The opportunity for choice will not only be available by various living unit types, but by a selection of indoor and outdoor recreational activities, passive spaces ranging from public to private both indoors and out, and dwelling unit design that allows for various furniture configurations. The primary goal of choice in this project will ultimately allow the residents to decide on the environment they live in and the activities they participate in and will help them to adapt more comfortably and with more dignity to the aging process. In support of this concept, Diane Carstens, in "Site Planning and Design for the Elderly" states, "Those whom we call 'elderly' encompass a great diversity of physical and mental abilities, preferences, and life-styles. To meet these opportunities for independence, environmental choices must be integrated into all aspects of housing."

MEANING



MEANING - personal observations and convictions

Over time I have become increasingly sympathtic to the needs and concerns of the elderly. Frequent contact with elderly people both in my immediate family (all of my grandparents are alive) and contact through my father's business has given me a sense of admiration for the accomplishments and knowledge of the elderly population. I am a firm believer in "experience" as the ultimate learning method and, given that conviction, it follows easily for me that our parents, grandparents, and forefathers have accumulated an incredible storehouse of information.

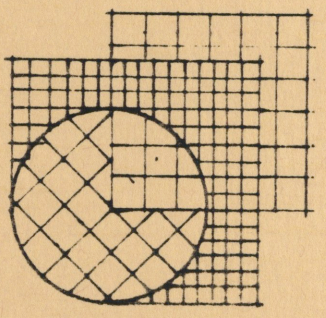
Moreover, they are the people responsible for the kind of society and environment we inhabit today. Although some pessimists may prefer to enumerate on the problems in our world today, I would maintain that the environment we have inherited is much better off for the accomplishments of our forefathers.

Yet, our society is most certainly focused on youth, energy, and action. A quick glance at any television program or commercial will attest to that focus. How many times have we heard or stated, "The future belongs to our children." That same statement has been made throughout history. However, the children of yesterday are the elderly of today and it seems they are being forgotten.

The elderly seem to be valued less as their worth (usually measured by socially dictated preconceptions) to an action oriented society is diminshed. We have chosen to neglect the needs of the elderly. We also seem to have forgotten the contributions the elderly have made and can make to our environment. I think our society has

shirked a very powerful obligation. We have not provided for the maintenance of elderly people's dignity, individuality and freedom of choice through old age. A basic requirement for the cultivation of dignity, individuality, and freedom of choice is a stimulating living environment. The design of such an environment is the goal of my thesis project.

USERS



COMMUNITY USERS

Community Users are the people involved with and living in Heritage Acres elderly housing community. The users are separated into four major groups; staff/administration, specialists, visitors, and the residents. The residents are further defined in terms of their abilities to care for themselves. Heritage Acres will provide facilities exclusively for the independent and partially dependent elderly. The organization of this section shall group the users into appropriate building types that coincide with both user groups and the levels of dependency.

A. Congregate Housing - semi-dependent

1. Resident - This group of poeple may be defined as those who do not need institutionalized nursing care but who are not capable of living completely alone.

   a. They may need help in one or two of the following areas:

      - meals
      - transportation
      - medication
      - laundry
      - cleaning
      - shopping

   b. The residents of this facility are capable of taking care of themselves with a minimal amount of help and are quite active.

   c. The residents are mobile, with the ability to use all the activities within the congregate center and many of the nearby outdoor activities and spaces.

2. Visitors - Visitors include an assortment ranging from family and friends to clergymen. All their various needs should be taken into consideration. Visitors may include:

   a. Family - Facilities may include: overnight accommodations, private social space and public social space.

   b. Friends - private and public social space.

   c. Clergymen - chapel or meditation spot.

   d. Beautician/Barber - this is a very popular event for the women and a space should be allocated to this activity.

   e. Social Worker - private social space or office accommodation.

   f. Volunteers - public social spaces

   g. Specialists - Specialists are professionals in the medical or social work fields who are not available within the community and find it advantageous to the elderly and themselves to provide on-site visits or examinations. Examples may be eye optometrists or nutritional specialists. Spaces needed may be: office and/or examining room.

4. Staff/Administration - The staff and administration play a large part in determining the quality of life in grouped facilities and should be concerned with creating an environment conducive to the well-being of the elderly resident.

   a. Resident Manager - There shall be a full-time, live-in resident manager/ managers (husband and wife) who will be responsible for assisting the residents as well as administrative duties.

b. Staff Administration - There will also be one staff/ administrative person on eight hour duty everyday. She/he will be responsible for assisting the resident managers.

c. Public Health Nurse - A public health nurse shall be available on eight hour duty everyday for residents needing medical assistance.

d. Dietician - A dietician or cook and two staff members shall prepare one meal per day to supplement the residents with their nutritional needs.

e. Janitor - Janitorial personnel shall work on a daily basis to maintain public areas. Perhaps residents in the complex would be suited for this work on a volunteer or paid basis.

f. Seasonal Grounds Maintenance - Seasonal grounds maintenance help on a part-time basis.

- snow removal
- grass mowing
- exterior site maintenance

g. The staff's presence should be convenient but not obtrusive. Ideally, the staff/administration should become a part of the social community and become friends rather than "establishment."

h. Workers should be able to separate themselves from their working environment both physically and emotionally. This is largely a management concern, but may be reinforced by proper design.

B. Independent Apartments or "Houses"

1. Residents - The residents in the independent housing will be capable of complete care for themselves but enjoy the advantages of group living among their peers.

   a. Some residents will not be financially eligible for the low income government subsidized apartments and therefore should be provided housing options that could relieve them from the increasing burden of home ownership.

   b. An option will be provided in the form of shared housing in which two to four elderly individuals may choose to live together in one "house." This addresses the desires of single elderly friends who prefer a smaller scale environment to that of the apartments.

   c. Residents of limited financial resources will comprise the majority of the elderly resident population. From a survey by North Central Health Services, approximately 60 to 70% have income levels below $10,000. This need will be addressed by various apartment units.

   d. Residents of independent housing will be highly mobile and active with respect to their age. Provisions for a variety of activities and accommodations for varying areas of interest will greatly enhance the living environment of the Heritage Acre residents.

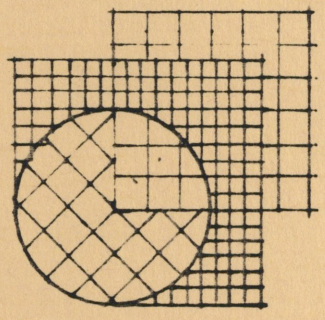
   f. As the aging process inevitably takes place, elderly residents will prefer an easy transition to accommodations that meet their needs.

2. Visitors - Visitors may include family, friends, nurses or business representatives.

   a. Most visitor accommodations such as private, social space will be provided within individual units.

   b. separate overnight accommodations should be available within the complex.

SITE



- GENERAL INFORMATION - STURGIS S.D.
  - History
  - Location
  - Population
  - Economic Base
  - Quality of Life
  - Transportation
  - Major Employees
  - Health Facilities
- ZONING
- PROJECTED IMPACT OF DEVELOPMENT
- LOCATION
- ANALYSIS

I. GENERAL INFORMATION - STURGIS

A. HISTORY

Sturgis is the seat of Meade County, South Dakota, a county larger than the combined states of Rhode Island and Delaware. Sturgis is located in a valley bordered on the north by hills, on the east by Ford Meade, now one of the largest Veterans Hospitals in the United States located on several thousand acres of government owned lands. To the south, the valley narrows as it extends south and east. To the west, the city is at the foot of the Black Hills, and is one of the main entrances to Deadwood, Lead, and the scenic portion of the world-known Rushmore Memorial, and the beautiful valleys and mountains of the Black Hills.

Sturgis was founded in 1978. Major S.D. Sturgis, who was in command of the nearby cavalry post of Fort Meade, is credited with naming the town in honor of his son, Lt. J.G. Sturgis, who lost his life with General George A. Custer in the 1876 Battle of the Little Big Horn.

B. LOCATION

Nearby Cities	Distance
Rapid City, South Dakota	28 miles
Denver, Colorado	425 miles
Minneapolis, Minnesota	675 miles
Billings, Montana	350 miles

Average Elevation: 3,450 feet

C. POPULATION

	1980	1970	1960
Sturgis:	5,184	4,536	4,639
Meade County:	20,717	17,020	12,044

* Elderly over 60 1,178 or 23% (in Sturgis)
  - statewide average 18%
  - nationwide average 11%

D. ECONOMIC BASE

* Agriculture

  Manufacturing

  Dairy Operations

  Natural Gas

  Lumber

  Strong Retail Community

  Health Services

E. QUALITY OF LIFE

  Close to numerous recreational facilities

  Low crime rates

* Quality schools, churches, medical facilities

  Excellent library and parks

  Care free family oriented lifestyles

* Active Senior Citizen Center

* Retired Senior Volunteer Program

F. TRANSPORTATION

Sturgis Municipal Airport

Rapid City Regional Airport (38 miles)

Trailways Bus System

Courtesy Taxi

Key City Taxi

G. MAJOR EMPLOYERS

Name	Product or Service		Employees Male	Female
Ft. Meade Veterans Hospital	Hospital Care		237	356
Dickson Forest Products	Lumber Mill		36	2
Homestake Gold Mine (Lead)	Gold	Total	1500	(Stur)149
Marolfs Dakota Farms	Cheese		20	20
Sturgis Ind. School District	Education		47	129
Sturgis Meat Service	Meat		22	10
Black Hills Publishers, Inc.	Printing		16	20
Allison Publishing, Inc.	Printing		8	16
City of Sturgis	Government		33	17
Pamida	Department Store		7	33
Meade County Highway Dept	Highway		16	1

H. HEALTH FACILITIES

Community Memorial Hospital: 37 beds

* North Central Nursing Home: 84 beds

Ft. Meade VA Hospital: 409 beds

Clinics: 2

Sturgis Medical Center

Dentists: 6

Drug Stores: 3

ZONING

STURGIS ORDINANCE

- Nursing home or home for the aged is permitted use.

AREA REGULATIONS

- front yard: twenty-five (25) feet
- side yard: interior lots six (6) feet
  corner lots eighteen (18) feet
  main buildings thirty-five (35) feet
- rear yard: main buidings twenty-five (25) feet

USABLE OPEN SPACE

- for multi-family structures there shall be usable open space provided for each dwelling unit of not less than four hundred (400) square feet.

HEIGHT REGULATIONS

- No main building shall exceed four and one-half (4½) stories or forty-five (45) feet in height.
- Accessory buildings shall not exceed fifteen (15) feet in height.

OFF STREET PARKING REGULATIONS

Dwelling (multi-family

- 1¼ spaces per dwelling unit for the first (20) units.
- 1 additional space for each dwelling unit exceeding (20) units.

HOMES FOR THE AGED

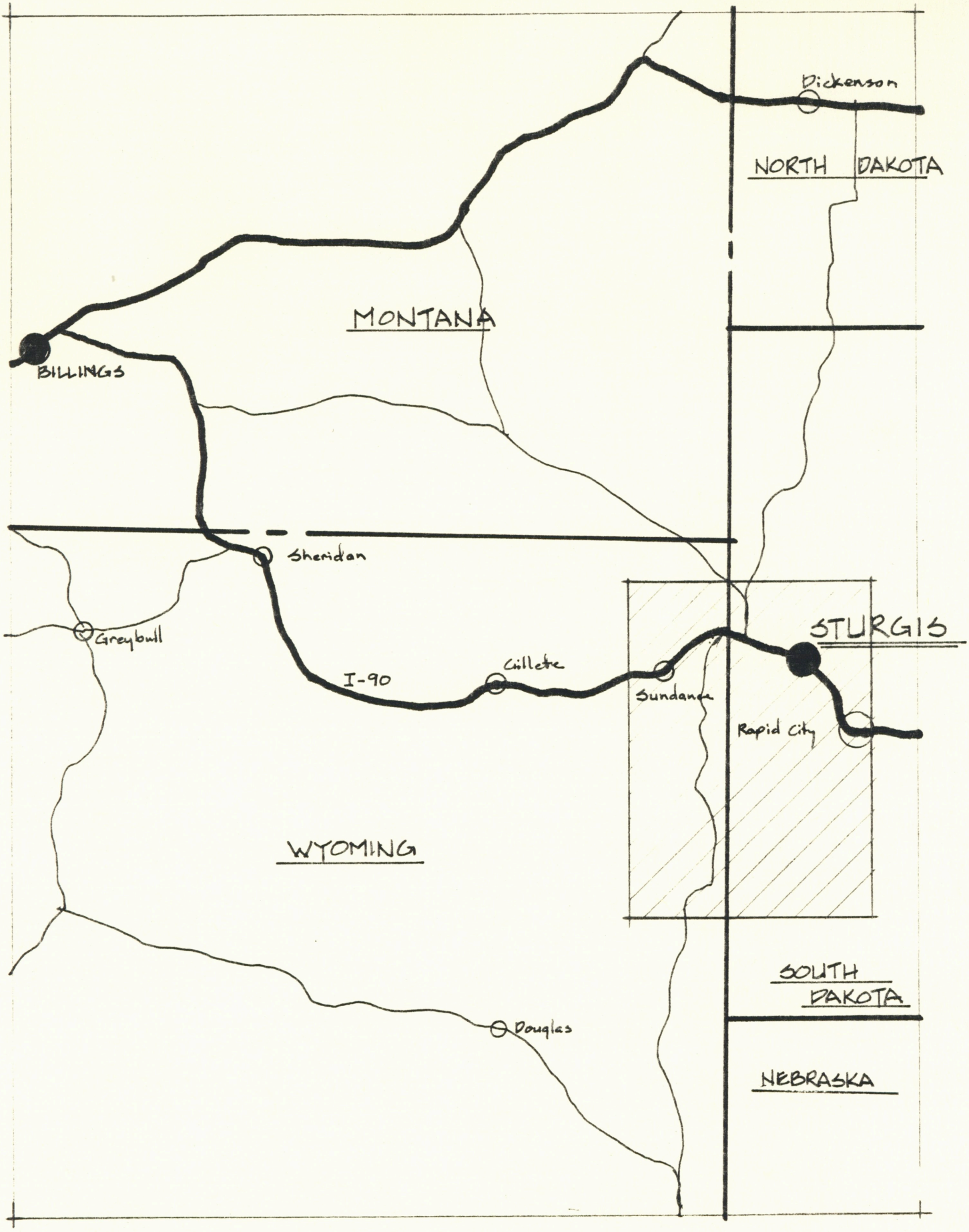
- (1) space for each (4) patient beds; plus (1) for each staff doctor, plus (1) space for each two employees including nurses.

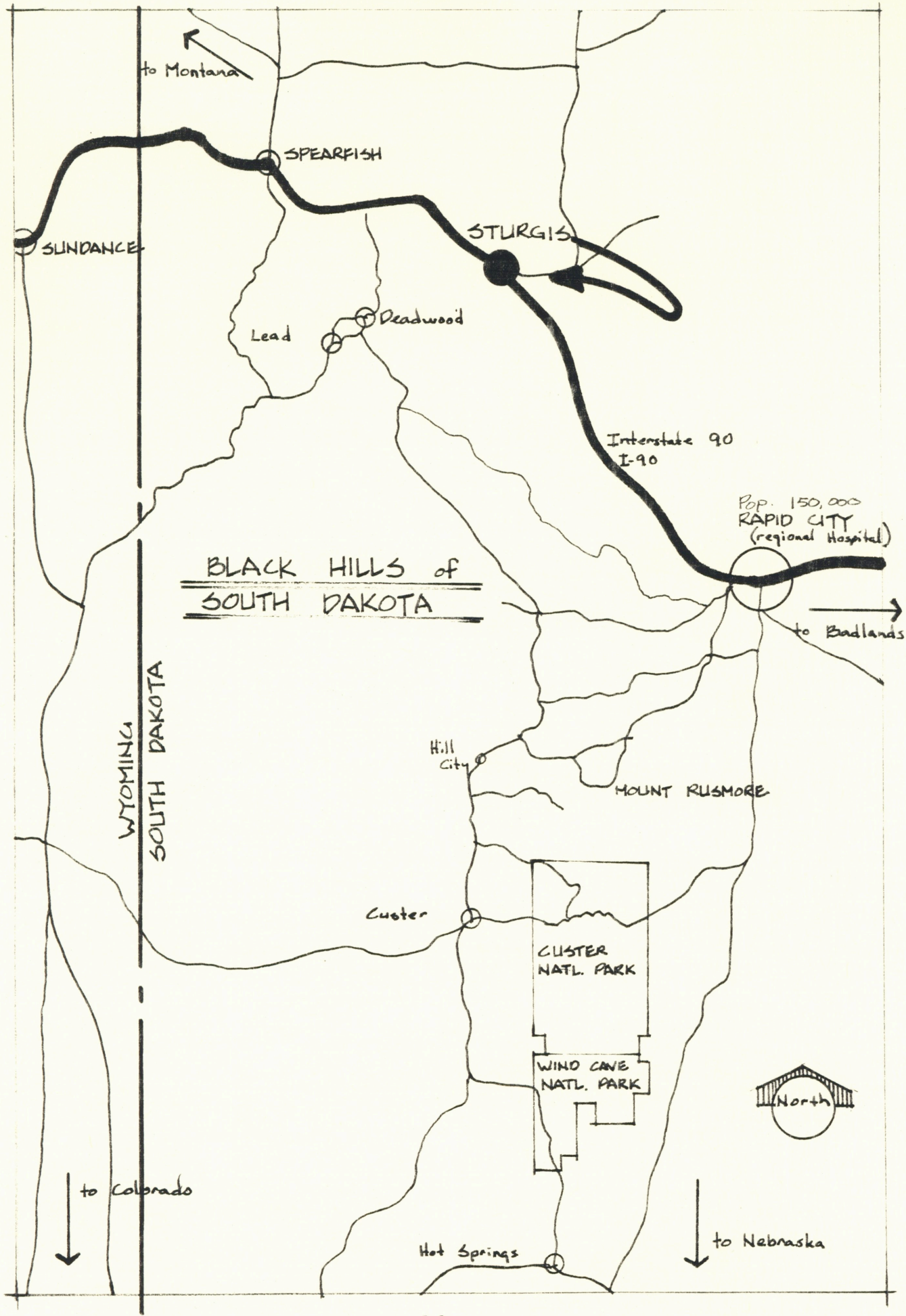
3. PROJECTED IMPACT OF DEVELOPMENT

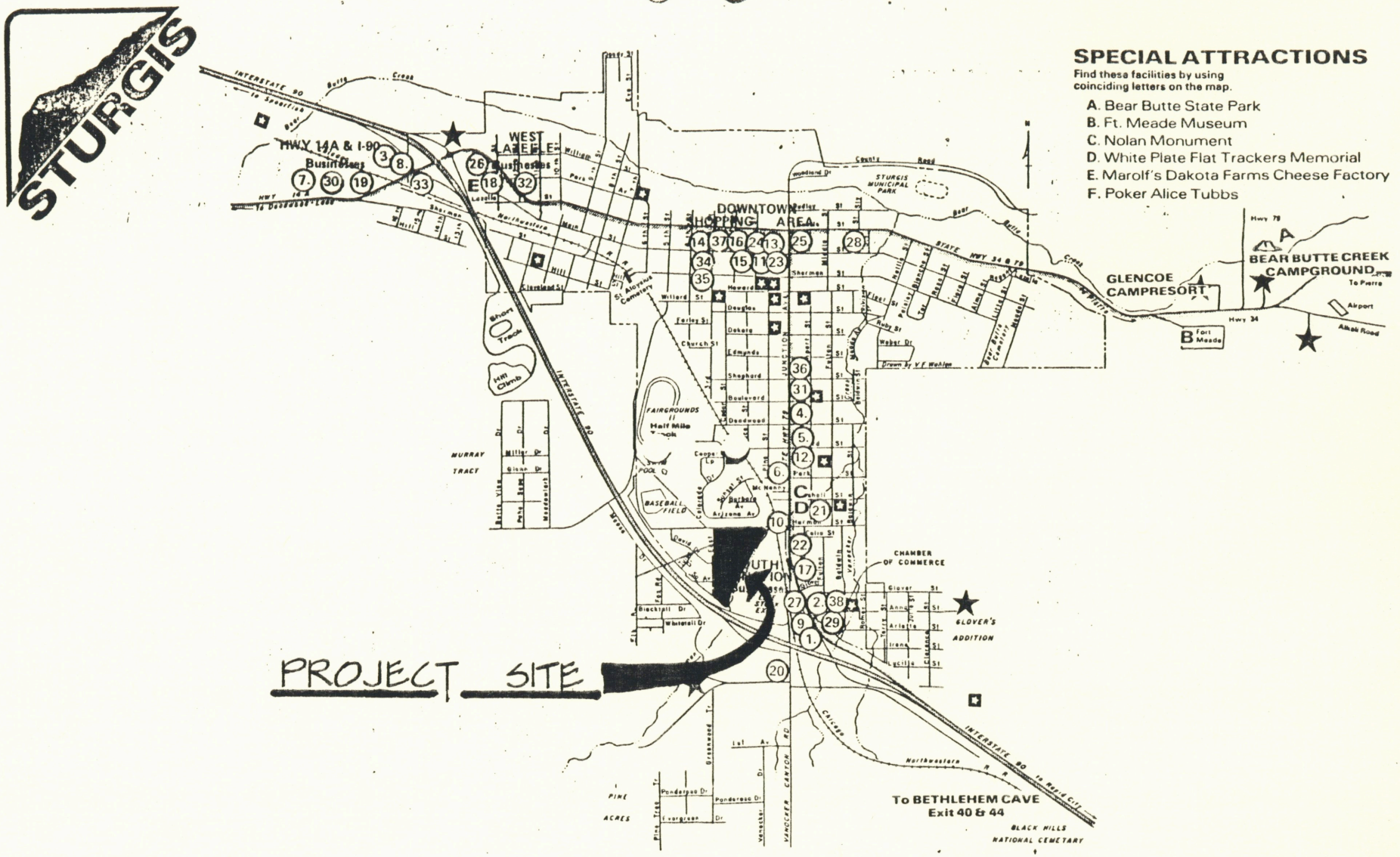
* As determined by North Central Health Services from their loan application to F.H.A.

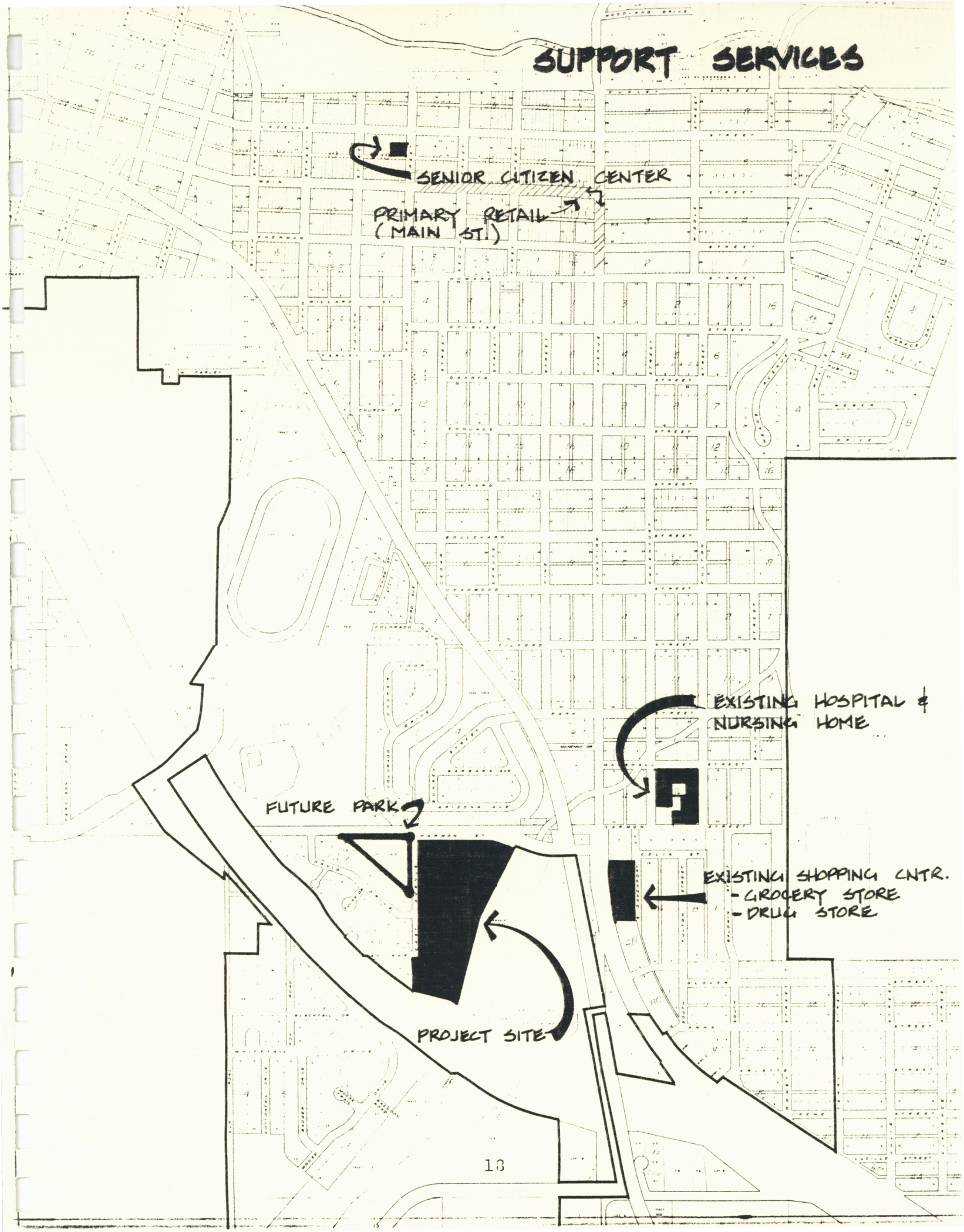
- The primary beneficiaries of the project will be the older citizens of Sturgis and the surrounding area. There are approximately 1,000 individuals of retirement age in the community. The proposed project and related facilities provide for these individuals an opportunity for a more independent lifestyle.
- Minimum concerns with regard to air quality, water quality, land use, natural environment, or energy, have surfaced.
- The projected development will serve to complete and solidify an existing residential neighborhood while at the same time provide needed elderly housing.
- The development does not represent significantly large enough population numbers to overload the existing community facilities and services.
- The annexation of the site into city limits will broaden the existing tax base.
- The impact of the proposed development will be positive with respect to the quality of life for the elderly of Sturgis by providing an alternative housing environment to the housing currently available in Sturgis.

location

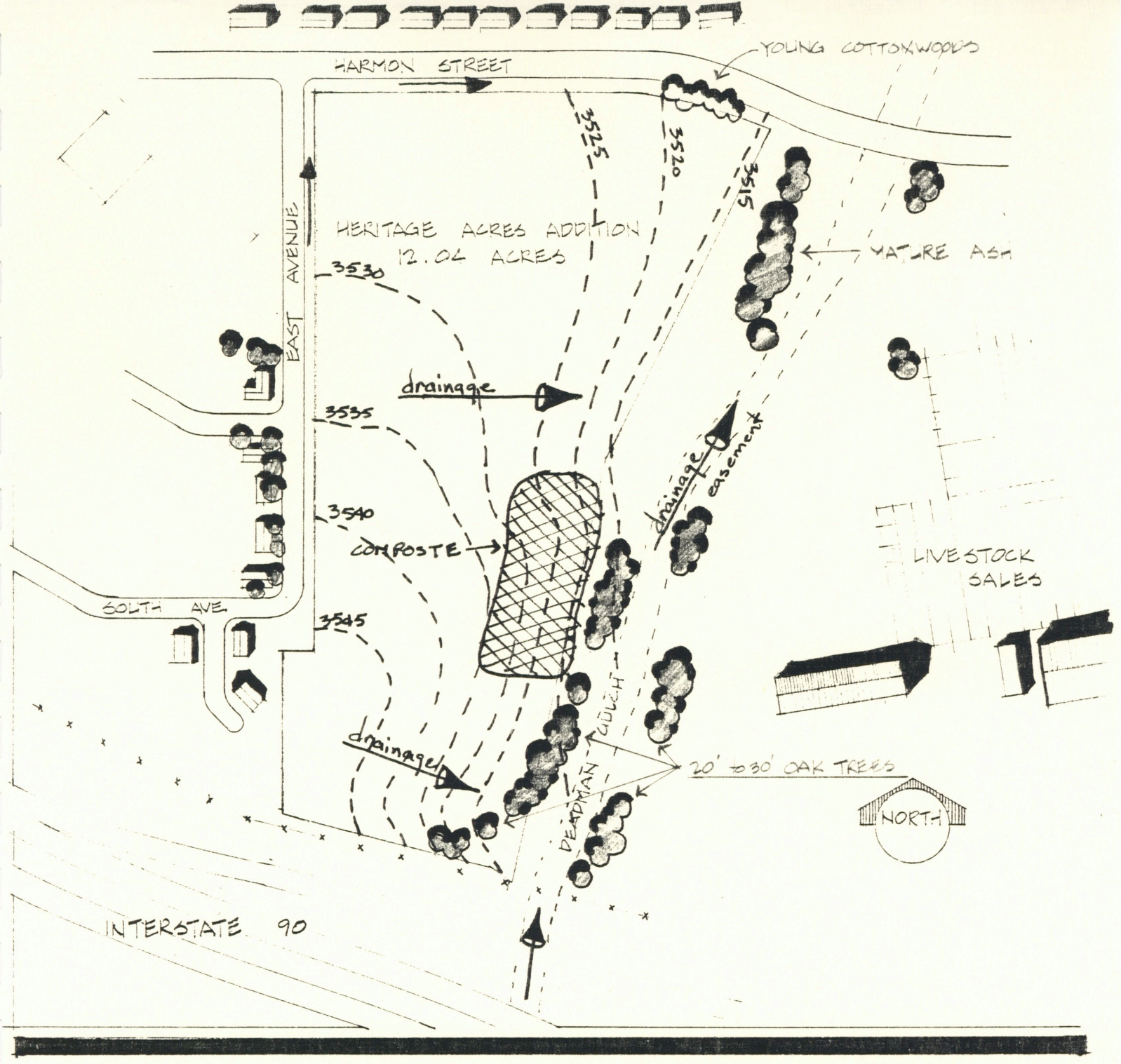

Dickenson
NORTH DAKOTA
MONTANA
BILLINGS
Sheridan
Greybull
I-90
Gillette
Sundance
STURGIS
Rapid City
WYOMING
SOUTH DAKOTA
Douglas
NEBRASKA


to Montana
SPEARFISH
SUNDANCE
STURGIS
Deadwood
Lead
Interstate 90
I-90
Pop. 150,000
RAPID CITY
(regional Hospital)
BLACK HILLS of
SOUTH DAKOTA
to Badlands
WYOMING
SOUTH DAKOTA
Hill City
MOUNT RUSHMORE
Custer
CUSTER
NATL. PARK
WIND CAVE
NATL. PARK
North
to Colorado
Hot Springs
to Nebraska


STURGIS
SPECIAL ATTRACTIONS
Find these facilities by using coinciding letters on the map.
A. Bear Butte State Park
B. Ft. Meade Museum
C. Nolan Monument
D. White Plate Flat Trackers Memorial
E. Marolf's Dakota Farms Cheese Factory
F. Poker Alice Tubbs
HWY 14A & I-90 Business
WEST AZEE
DOWNTOWN SHOPPING AREA
STURGIS MUNICIPAL PARK
GLENCOE CAMPRESORT
BEAR BUTTE CREEK CAMPGROUND
Fort Meade
Airport
Hwy 34
Hwy 79
STATE HWY 34 & 79
INTERSTATE 90
Short Track
Hill Climb
FAIRGROUNDS
Half Mile Track
MURRAY TRACT
BASEBALL FIELD
CHAMBER OF COMMERCE
GLOVER'S ADDITION
PROJECT SITE
To BETHLEHEM CAVE
Exit 40 & 44
BLACK HILLS NATIONAL CEMETARY
PINE ACRES
VANOCKER CANYON RD.
Northwestern R. R.

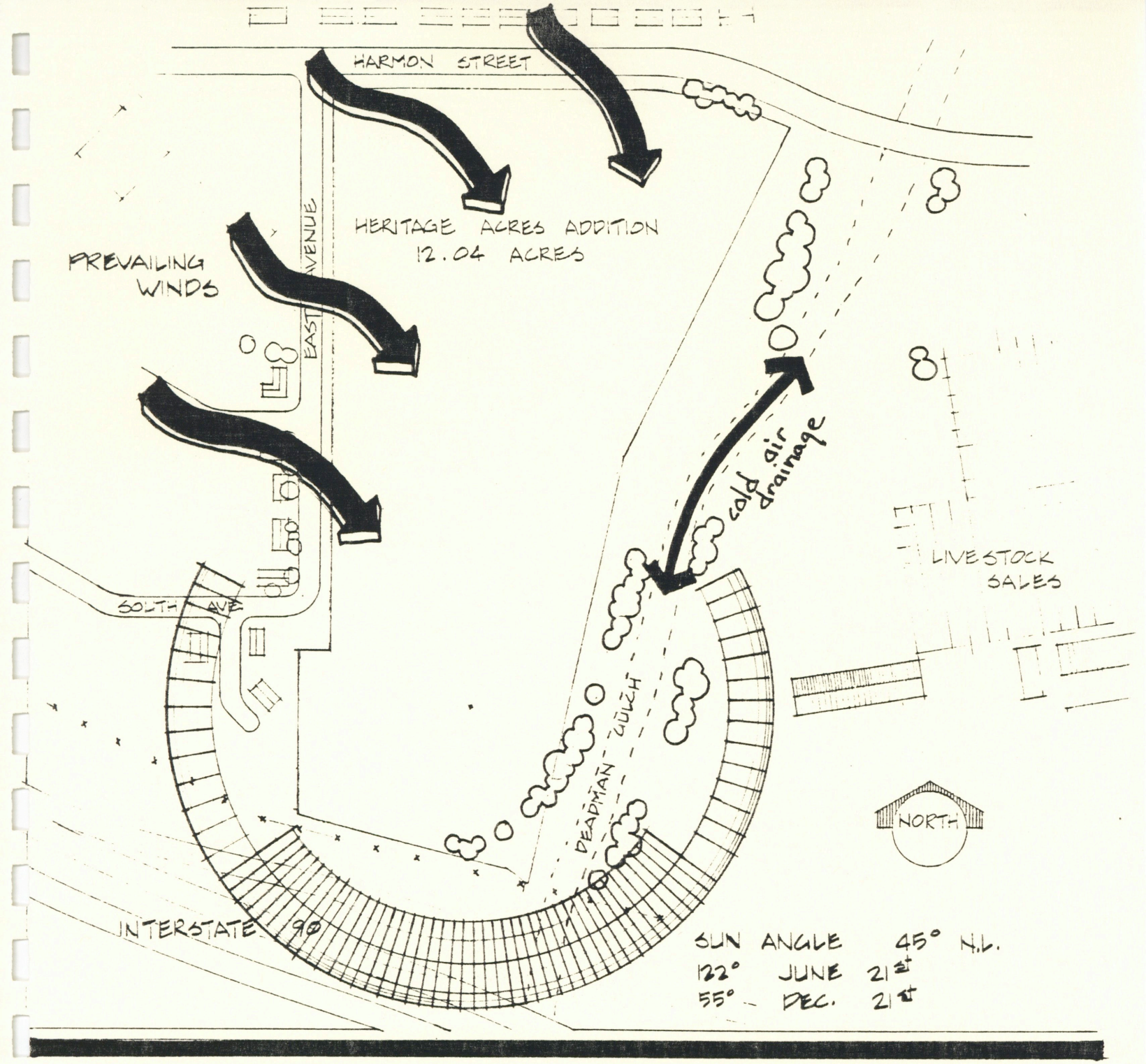

SUPPORT SERVICES
SENIOR CITIZEN CENTER
PRIMARY RETAIL (MAIN ST.)
EXISTING HOSPITAL & NURSING HOME
FUTURE PARK
EXISTING SHOPPING CNTR.
- GROCERY STORE
- DRUG STORE
PROJECT SITE

analysis



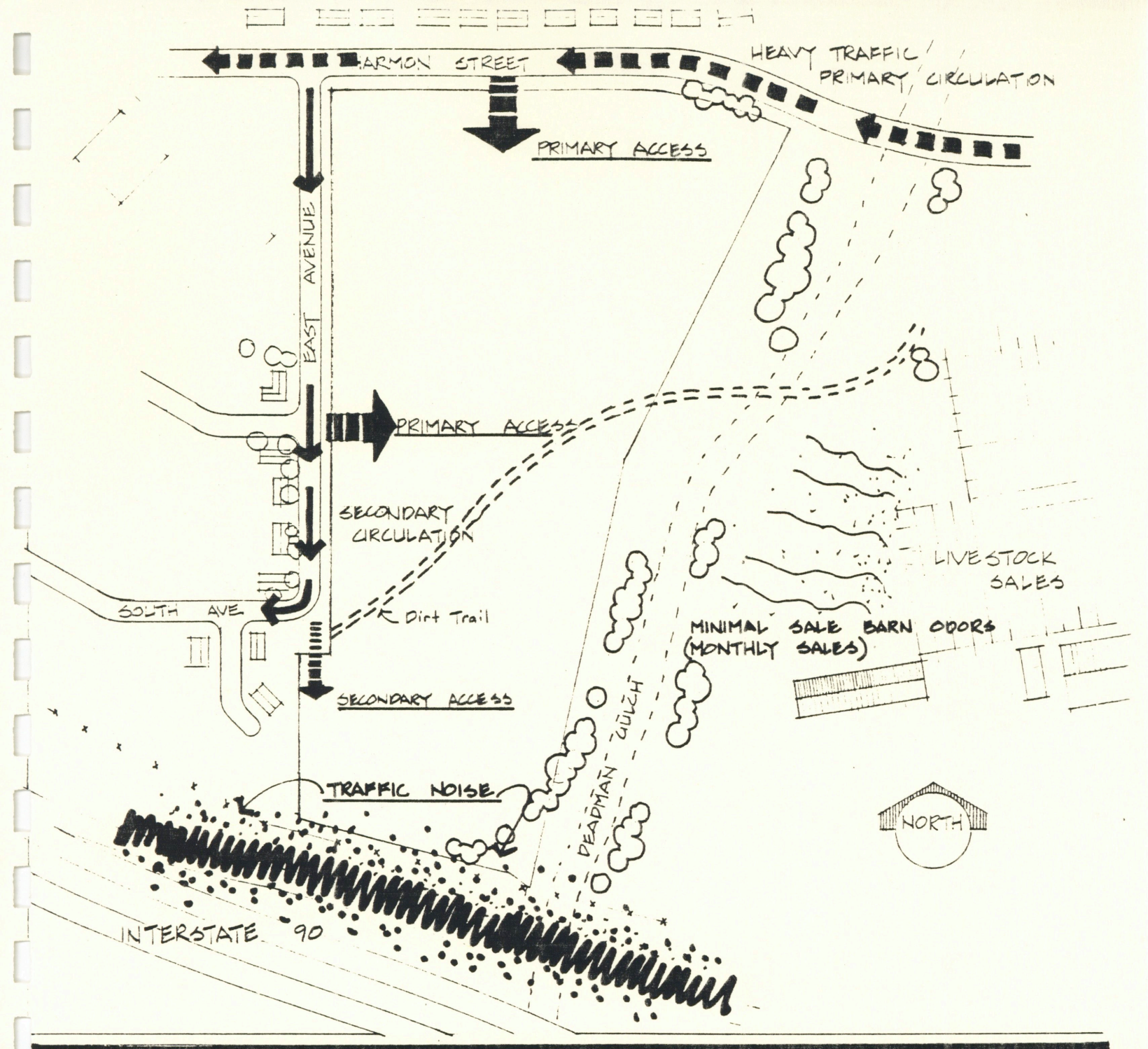
SURFACE CHARACTERISTICS

- COMPOSTE EXCELLENT FOR TOPSOIL FERTILIZER
- 8" to 12" AVG. TOPSOIL ON RIVER-ROCK
- EXISTING TREES PROVIDE POTENTIAL AMENITIES
- MAJORITY OF SITE IS BARE OF TREES & VEGETATION
- DRAINAGE BARROW PIT AT WEST & NORTH PERIMETER OF SITE.



MICRO - CLIMATE

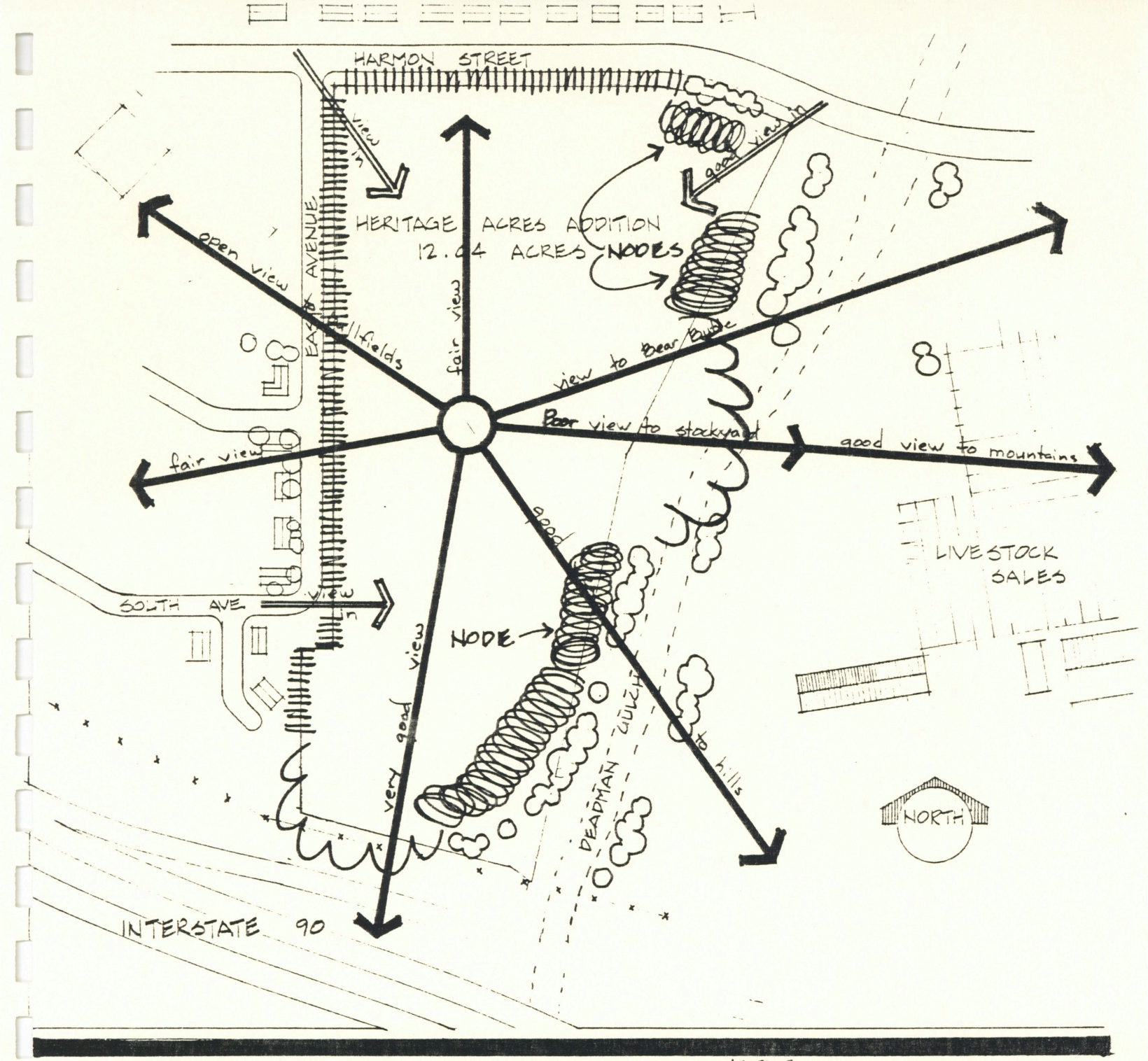
- PARTIAL PROTECTION FROM WINTER WIND BY HOUSING & VEGETATION @ NORTH & WEST
- GOOD SOLAR ACCESS FOR ENTIRE STE
- GOOD POTENTIAL FOR DESIGN TAKING ADVANTAGE OF MORNING SUN.
- ANNUAL AVG. TEMP. ——— 46.7
  MONTHLY AVG. TEMP.
  JANUARY ——— 22.4
  JULY ——— 72.4
  ANNUAL AVG. PRECIPITATION: 17.51 in.
  " " SNOWFALL : 38.8 in.



MAN-MADE CHARACTERISTICS

- ACCESS
- CIRCULATION
- NOISE
- ODOR

- NOISE @ INTERSTATE FOUND TO BE SOLVABLE.
- ODORS FROM STOCKYARD ARE INTERMITTENT AND DIMINISHED BY PREVAILING N.W. WINDS.
- HARMON STREET IS PRIMARY CIRCULATION ROUTE, HEAVY TRAFFIC @ TIMES.
- UTILITIES & SANITARY SEWER LOCATED @ HARMON & EAST. STREETS.
- NO EXISTING STRUCTURES.



VISUAL ASPECTS

KEY

NODES

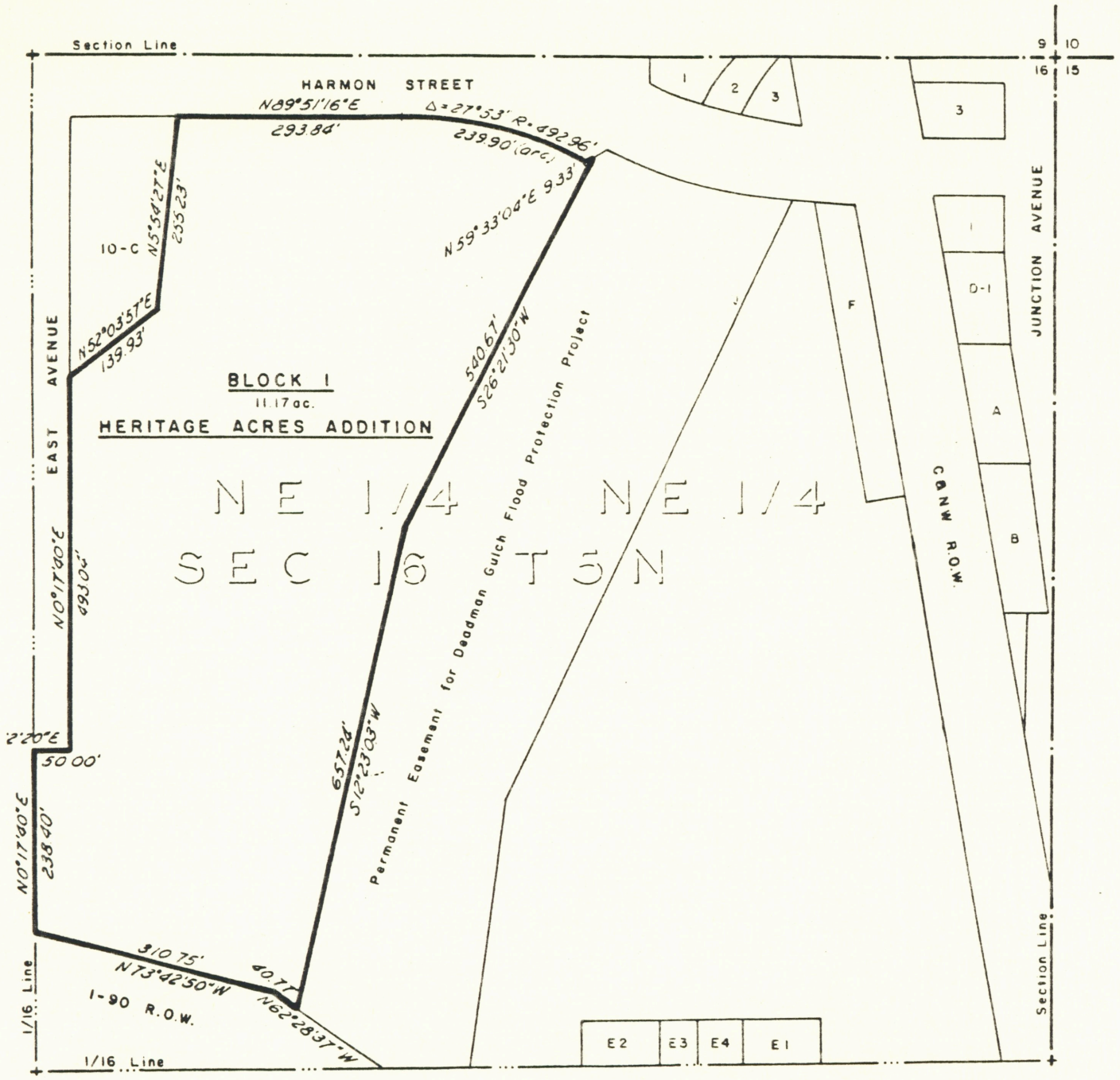
RESIDENTIAL EDGE

WEAK EDGE

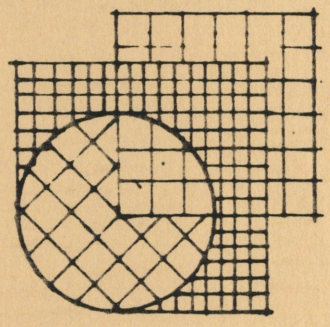
MAP OF BLOCK 1 OF HERITAGE ACRES ADDITION TO THE CITY OF STURGIS

AS ANNEXED TO THE CITY OF STURGIS BY RESOLUTION OF THE STURGIS COMMON COUNCIL DATED JUNE 17, 1985.

Scale: 1" = 200'



PROGRAM



- GOALS
- SPATIAL ANALYSIS
- SUMMARY OF SPACES

The following program was partially derived from an existing program and then modified to provide a more comprehensive solution to meet the needs of the elderly in Sturgis.

FUNCTIONAL GOALS

A. Respond to Sturgis' need for elderly housing.
   1. provide low-income housing, moderate-income housing, shared housing and a congregate housing facility
   2. provide an active community/activity center
   3. provide basic services within walking distance of development

B. Provide an environment, both at public and private levels, that addresses the sociological, psychological, and physical needs of the elderly.
   1. provide opportunities for social interaction
   2. provide a safe and easily negotiated environment at interior and exterior
   3. easily understood circulation and general organization
   4. provide a variety of activities
   5. south facing porches and outdoor spaces
   6. moves as dictated by health reasons, should be comfortable and non-traumataic
   7. provide for year-round circulation patterns within the facility

FORM GOALS

A. Create a strong sense of place and community by:
   1. overall continuity in building form, material, and scale
   2. density that defines the development and relates to neighborhood (12 - 15 units per/acre)

3. well defined outdoor spaces

4. provide strong entry at both vehicular and pedestrian scales

5. create uniqueness and special character that differentiates from other housing and instills pride to residents.

B. Improve the community's image of the elderly.

1. vital and lively architectural/landscaped solution

2. integration of community activities and services. (day-care, dry cleaner, store, etc.)

3. promote elderly and community interaction. (sales, crafts, barbecuing, gardens.)

ECONOMY GOALS

A. Provide an economically feasible solution.

1. consider low-income housing from realistic point of view.

2. consider feasible and realistic construction methods, materials, and level of amenity.

3. limit services to those required by tenants, (i.e., will not provide transportation systems, or comprehensive medical services.)

TIME GOALS

A. Create a development that strives to link past, present and future.

1. consider cultural values and social attitudes of the elderly in Sturgis
2. building forms, materials, etc. should be relative to present values and understanding
3. strive to create progressive character
4. consider development and construction in stages
5. development should reinforce security by allowing elderly to remain in development as health needs change.

SPATIAL ANALYSIS

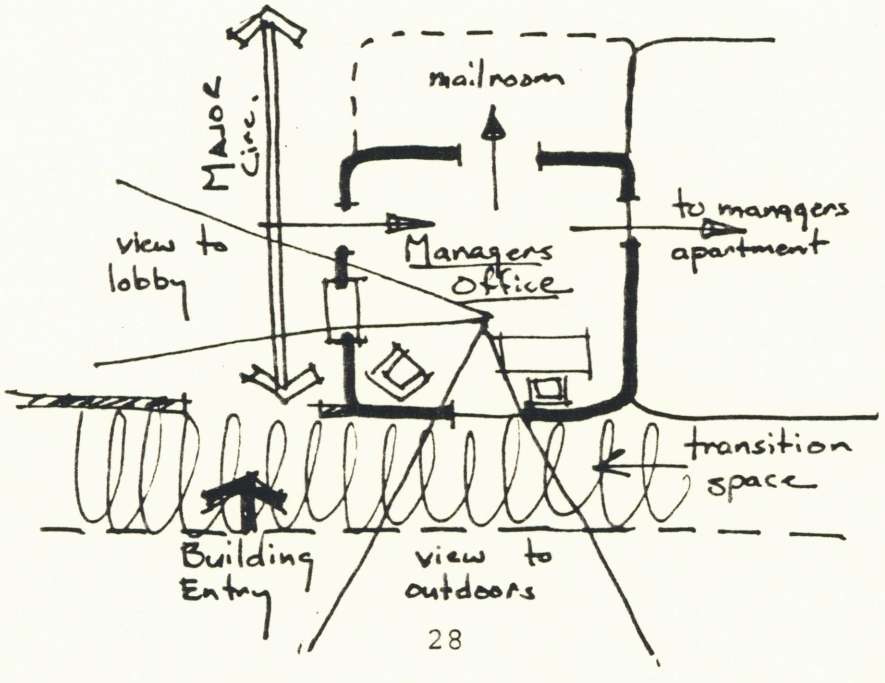
Following is an analysis of the spatial needs for the retirement complex. The analysis is broken into six general zones.

- ADMINISTRATION
- COMMUNITY DINING
- PUBLIC
- INDOOR ACTIVITIES
- OUTDOOR ACTIVITIES
- HOUSING

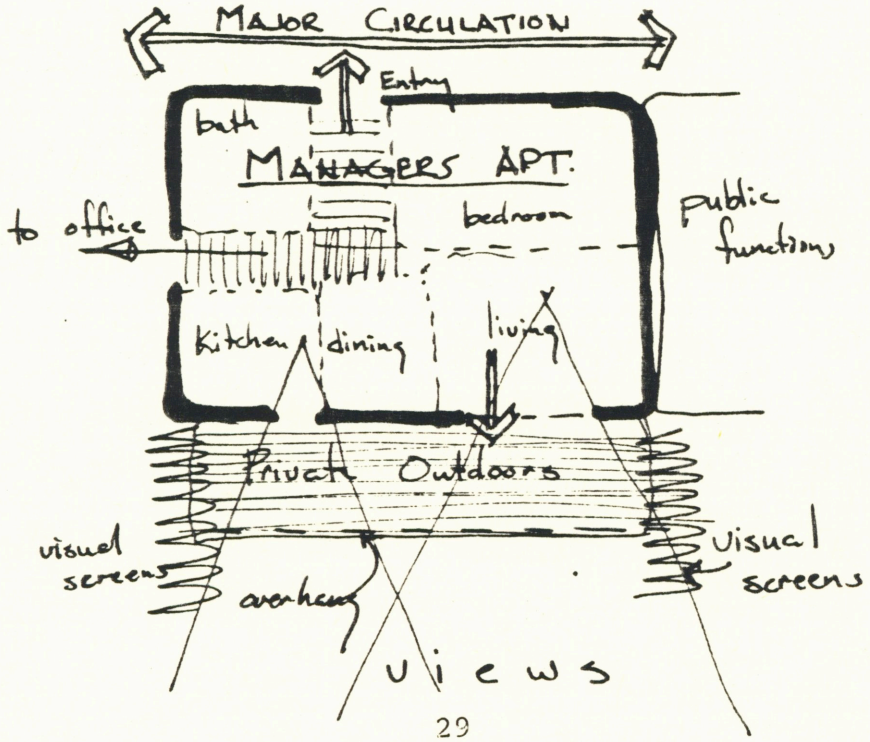
administration

- MANAGER'S OFFICE
- MANAGER'S APARTMENT
- HEALTH SERVICE/NURSE'S OFFICE
- EXAMINATION ROOM
- MAINTENANCE AND STORAGE
- JANITOR
- WASHROOMS

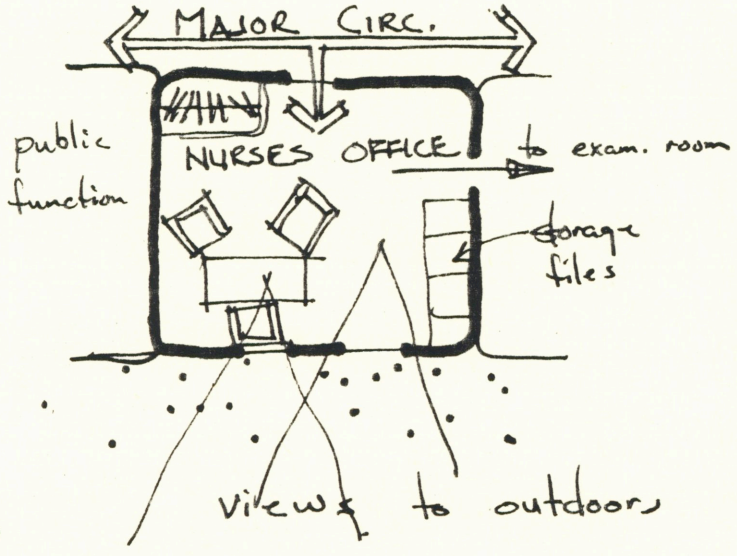
ZONE	-	ADMINISTRATION
SPACE/ACTIVITY	-	MANAGER'S OFFICE
NUMBER OF USERS	-	1
ACTIVITIES	-	administrative planning, meet with visitors, (2-3) tenants, relatives
CONSIDERATIONS	-	comfortable office setting, frequent visitors
EQUIPMENT	-	desk, chairs, file cabinets, storage cabinet/ counter, key storage
AREA REQUIRED	-	10' x 20' 200 sq. ft.
LEGAL/SAFETY	-	
ENVIRONMENTAL	-	daylight, acoustical, privacy, hvac
FUNCTIONAL RELATIONSHIP	-	access to entry, mail/lounge area, and manager's apartment
COMMENTS	-	view to outdoor, warm personal interior



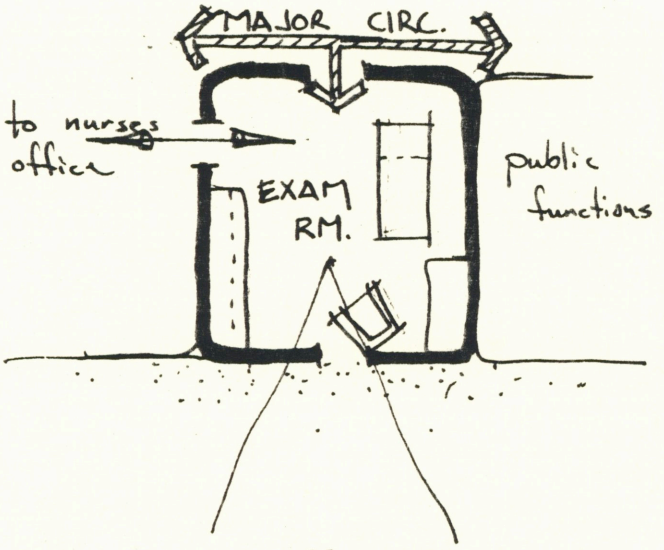
ZONE	-	ADMINISTRATION
SPACE/ACTIVITY	-	MANAGER'S APARTMENT
NUMBER OF USERS	-	1 - 2
ACTIVITIES	-	general living activities, entertaining, cooking, dining, sleeping and working
CONSIDERATIONS	-	pleasant and comfortable living environment, frequent visitors, 1 bedroom, 1 study/office, living room, dining, kitchen, deck, entry
EQUIPMENT	-	typical to apartment living
AREA REQUIRED	-	900 sq. ft.
LEGAL/SAFETY	-	no level changes, smoke detectors, alarm system base
ENVIRONMENTAL	-	daylight, acoustical, privacy, hvac
FUNCTIONAL RELATIONSHIP	-	access to outdoors, adjacent to office and entry, identifiable location



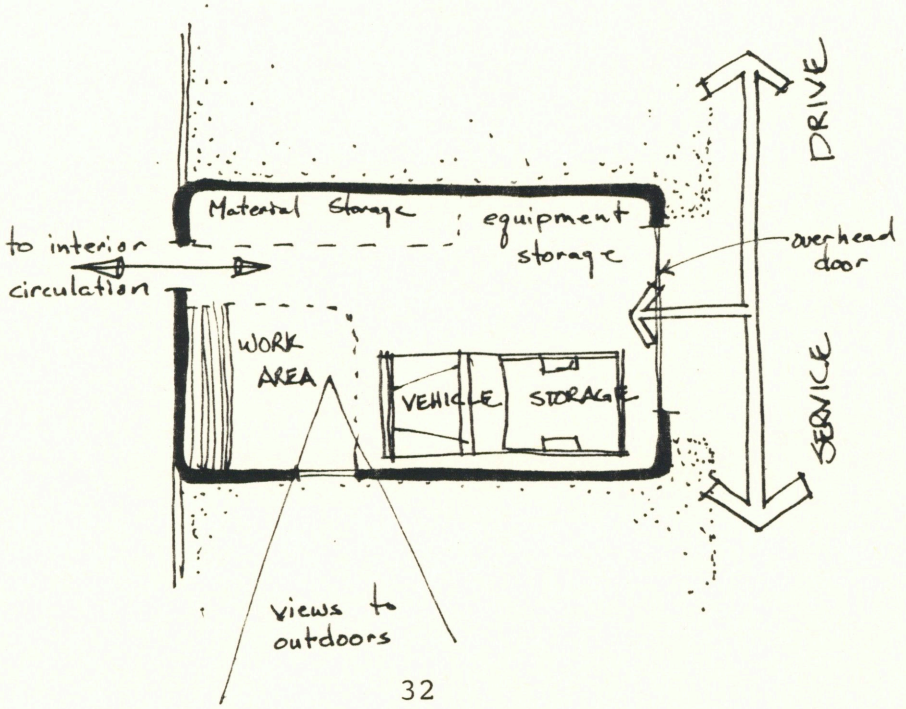
ZONE	-	ADMINISTRATION
SPACE/ACTIVITY	-	PUBLIC HEALTH NURSE OFFICE
NUMBER OF USERS	-	1
ACTIVITIES	-	health planning and record keeping, visitor consultation
CONSIDERATIONS	-	pleasant, efficient office setting, frequent visitors 1 each
EQUIPMENT	-	desk, chair, file cabinets, coat storage, literature storage
AREA REQUIRED	-	8' x 10' 80 sq. ft.
LEGAL/SAFETY	-	
ENVIRONMENTAL	-	hvac
FUNCTIONAL		
RELATIONSHIP	-	access to examination room, close to administrative care



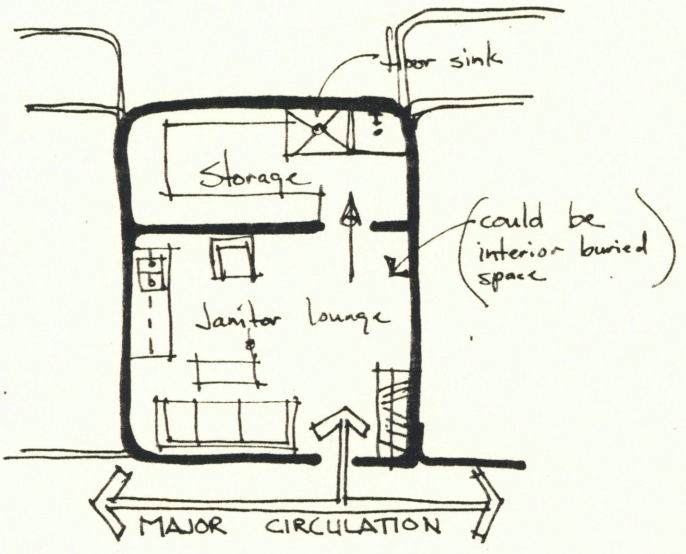
ZONE	-	ADMINISTRATION
SPACE/ACTIVITY	-	EXAMINATION ROOM
NUMBER OF USERS	-	2
ACTIVITIES	-	tenant examinations and basic health checkups, visiting specialists
CONSIDERATIONS	-	comfortable non-institutional domestic exam room
EQUIPMENT	-	exam table, storage cabinet, chair, file cabinets, change room, equipment for specialists
AREA REQUIRED	-	10' x 10' 100 sq. ft.
LEGAL/SAFETY	-	
ENVIRONMENTAL	-	hvac, acoustical privacy
FUNCTIONAL RELATIONSHIP	-	adjacent to nurse's office, part of administrative care, privacy, near waiting area
COMMENTS	-	should provide equipment for specialists suppress medical environment



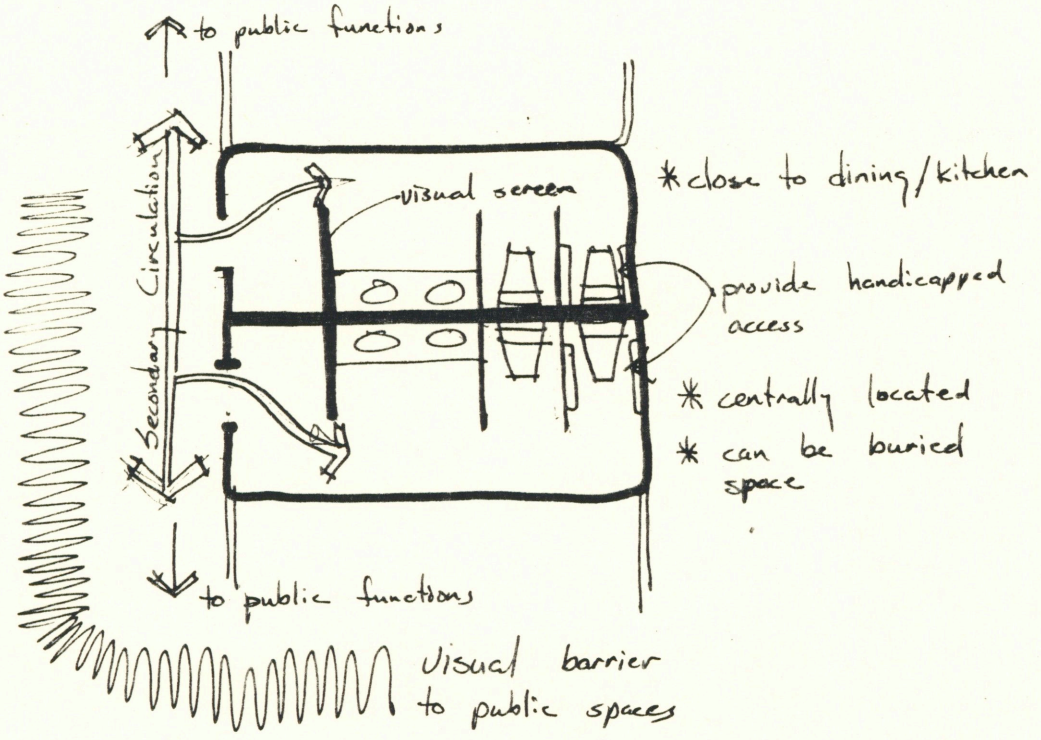
ZONE	-	ADMINISTRATION
SPACE/ACTIVITY	-	MAINTENANCE/STORAGE
NUMBER OF USERS	-	2
ACTIVITIES	-	minor furniture and building unit repair, storage for maintenance equipment and cleaning inventory
CONSIDERATIONS	-	functional work environment for minor repair and maintenance, room for 2 employees
AREA REQUIRED	-	15' x 20' 300 sq. ft.
LEGAL/SAFETY	-	fire separation
ENVIRONMENTAL	-	heated
FUNCTIONAL RELATIONSHIP	-	access to outdoors, near service area, screeened from public spaces
COMMENTS	-	typical shop arrangement, overhead doors
EQUIPMENT	-	work bench, storage shelves, mower, tractor, snow plow storage, garage door, tool chest, carpenter area



ZONE	-	ADMINISTRATION
SPACE/ACTIVITY	-	JANITOR STORAGE/LOUNGE
NUMBER OF USERS	-	1
ACTIVITIES	-	cleaning equipment storage and break area
CONSIDERATIONS	-	equipment storage, break area for janitor
EQUIPMENT	-	table, chair, shelves wall and floor sink
AREA REQUIRED	-	10' x 15' 150 sq. ft.
LEGAL/SAFETY	-	
ENVIRONMENTAL	-	internal space
FUNCTIONAL RELATIONSHIP	-	near service area, screened from public view



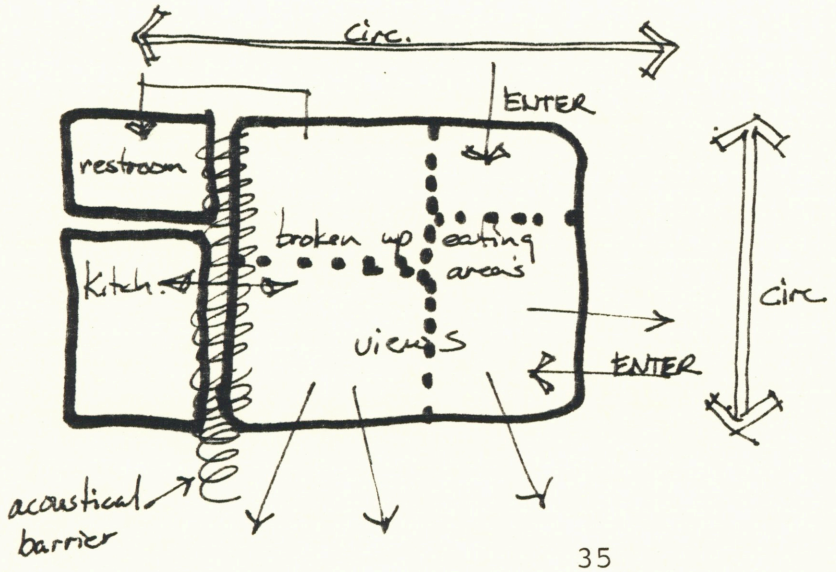
ZONE	-	ADMINISTRATION
SPACE/ACTIVITY	-	WASHROOM
NUMBER OF USERS	-	50 (50/50 mix) (3 @ once max.)
ACTIVITIES	-	
CONSIDERATIONS	-	grooming area, handicap access, privacy sanitation
EQUIPMENT	-	toilets, urinals, grab bars, lavatories, towel dispensers, mirrors
AREA REQUIRED	-	min. stall 3' x 5' - 5' x 5' handicap
LEGAL/SAFETY	-	handicap requirements
ENVIRONMENTAL	-	hvac, ventilation, white sound, common mech. chase
FUNCTIONAL RELATIONSHIP	-	rear dining area and public functions within congregate facility



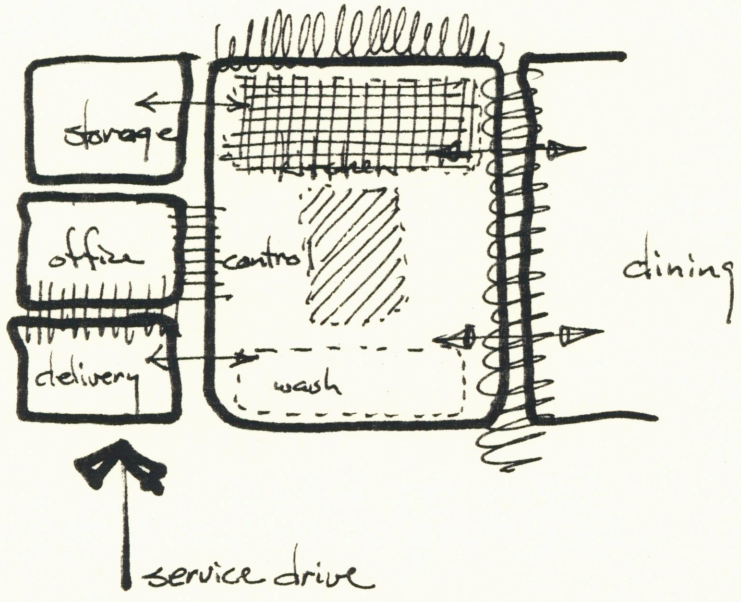
dining

- DINING ROOM
- KITCHEN
- CHEFS OFFICE

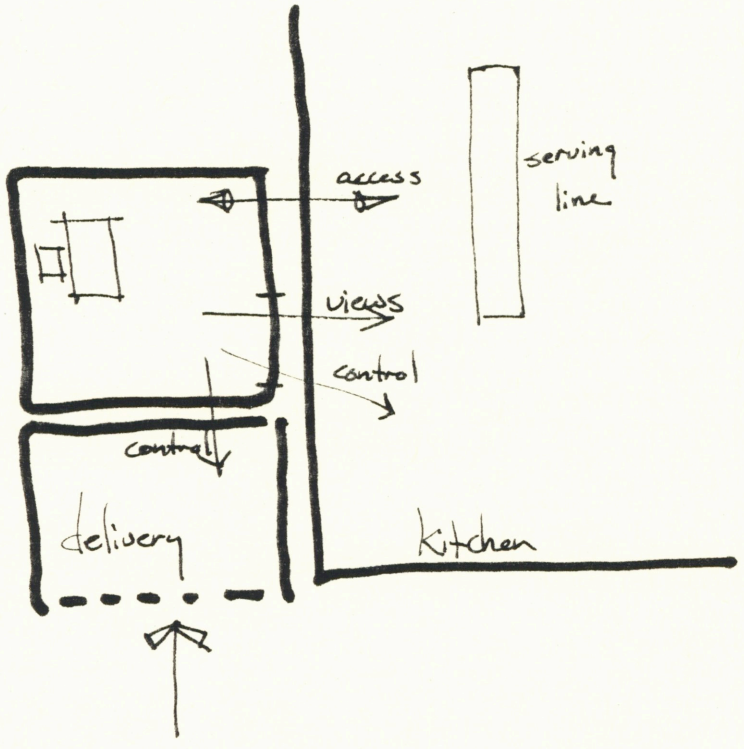
ZONE	-	DINING
SPACE/ACTIVITY	-	DINING ROOM
NUMBER OF USERS	-	50 maximum
ACTIVITIES	-	sit down meals, potluck suppers, overflow seating and off hour meeting area, dual function
CONSIDERATIONS	-	pleasant, bright, comfortable seating room for circulation, variety in seating arrangements, provide separate spaces
EQUIPMENT	-	various size tables, chairs, tray busing area and cart, extra display tables
AREA REQUIRED	-	15 sq. ft per person 750 sq. ft.
LEGAL/SAFETY	-	2 fire exits, smoke detectors, no level changes
ENVIRONMENTAL	-	hvac, well lit, acoustic treatment
FUNCTIONAL RELATIONSHIP	-	proximity to washrooms, view to outdoors (green house) adjacent to kitchen, near lounge and public space for special occasion overflow



ZONE	-	DINING
SPACE/ACTIVITY	-	KITCHEN
NUMBER OF USERS	-	4 maximum
ACTIVITIES	-	preparing meals, food storage, cleaning dishes, serving meals, potluck dinner preparation
CONSIDERATIONS	-	"homey" atmosphere, non-institutional, access by tenants (coffee, etc.) not removed, visible
EQUIPMENT	-	range, oven, pots and pans, counters, cold storage, warm storage (pantry), dishwasher, sink and drainboard
AREA REQUIRED	-	200 - 300 sq. ft.
LEGAL/SAFETY	-	1-hour fire rating, sprinkler system
ENVIRONMENTAL	-	hvac, exhaust hoods, heat and odor removal, well lighted
FUNCTIONAL		
RELATIONSHIP	-	immediately adjacent to dining, adjacent to service drive



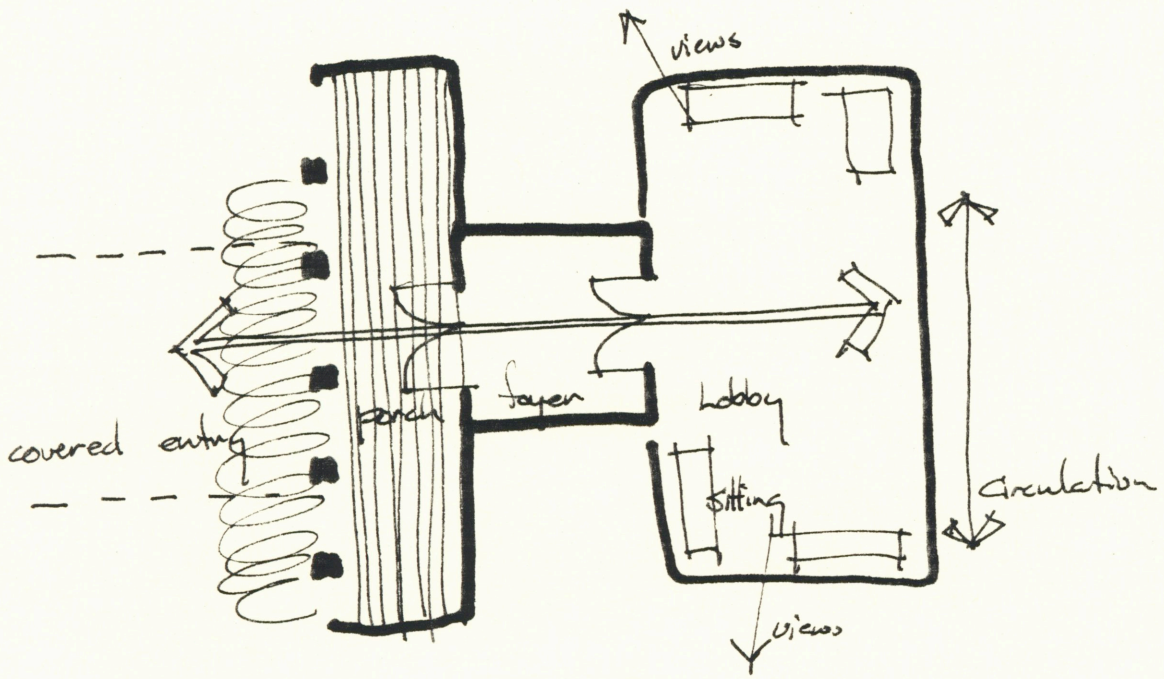
ZONE	-	COMMUNITY DINING
SPACE/ACTIVITY	-	CHEF'S OFFICE
NUMBER OF USERS	-	1
ACTIVITIES	-	meal planning, record storage, employee conference
CONSIDERATIONS	-	efficient office setting
EQUIPMENT	-	desk, chair, file cabinet
AREA REQUIRED	-	10' x 10' 100 sq. ft.
LEGAL/SAFETY	-	
ENVIRONMENTAL	-	hvac,
FUNCTIONAL		
RELATIONSHIP	-	visual connection to kitchen and delivery area



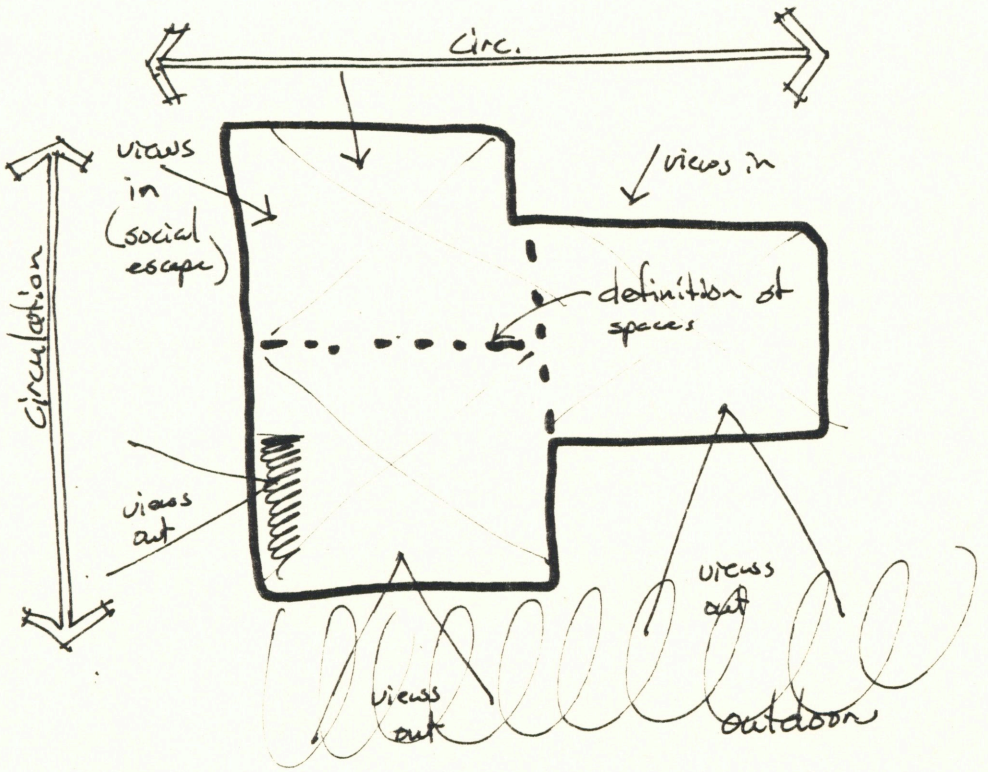
public

- PORCH/FOYER/LOBBY
- LOUNGE
- MAILROOM
- LAUNDRY
- WASHROOMS

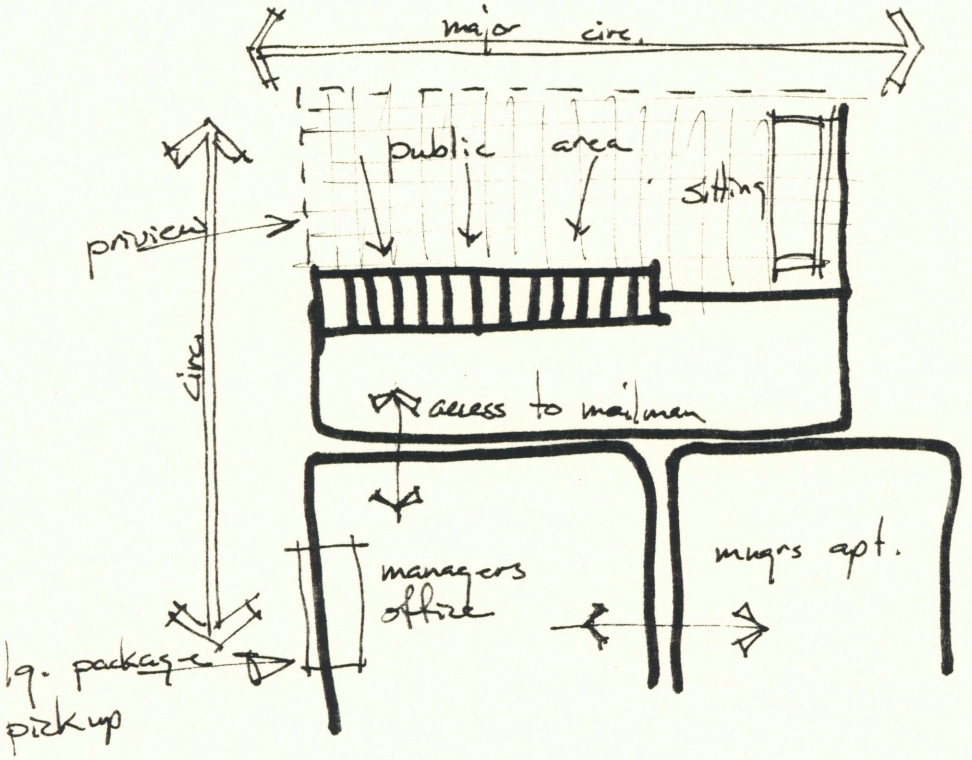
ZONE	-	PUBLIC
SPACE/ACTIVITY	-	ENTRY (porch, foyer, lobby)
NUMBER OF USERS	-	10 maximum @ any one time
ACTIVITIES	-	porch - outdoor sitting, viewing waiting foyer - air lock and visitor identification lobby - primary circulation area
CONSIDERATIONS	-	entry and exit experience should provide pleasant residential impression, view outdoors
EQUIPMENT	-	lobby should provide seating and signage for orientation
AREA REQUIRED	-	12' x 33' 400 sq. ft.
LEGAL/SAFETY	-	buzzer/call system @ foyer
ENVIRONMENTAL	-	hvac, acoustical treatment, well lighted
FUNCTIONAL RELATIONSHIP	-	sequence should be: porch, foyer, lobby, circulation. Adjacent to manager's office and lounge



ZONE	-	PUBLIC
SPACE/ACTIVITY	-	LOUNGE
NUMBER OF USERS	-	10 minimum - 20 maximum
ACTIVITIES	-	observation, waiting, meeting, visiting, chance meeting, and organized activities
CONSIDERATIONS	-	lounge should be more intimate, semi-public space with views to lobby and out-doors
EQUIPMENT	-	sofas, chairs, end tables, and tables
AREA REQUIRED	-	15' x 20' 300 sq. ft.
LEGAL/SAFETY	-	
ENVIRONMENTAL	-	well lighted, hvac, acoustical treatment
FUNCTIONAL RELATIONSHIP	-	open to lobby circulation, near primary circulation, adjacent to other public functions

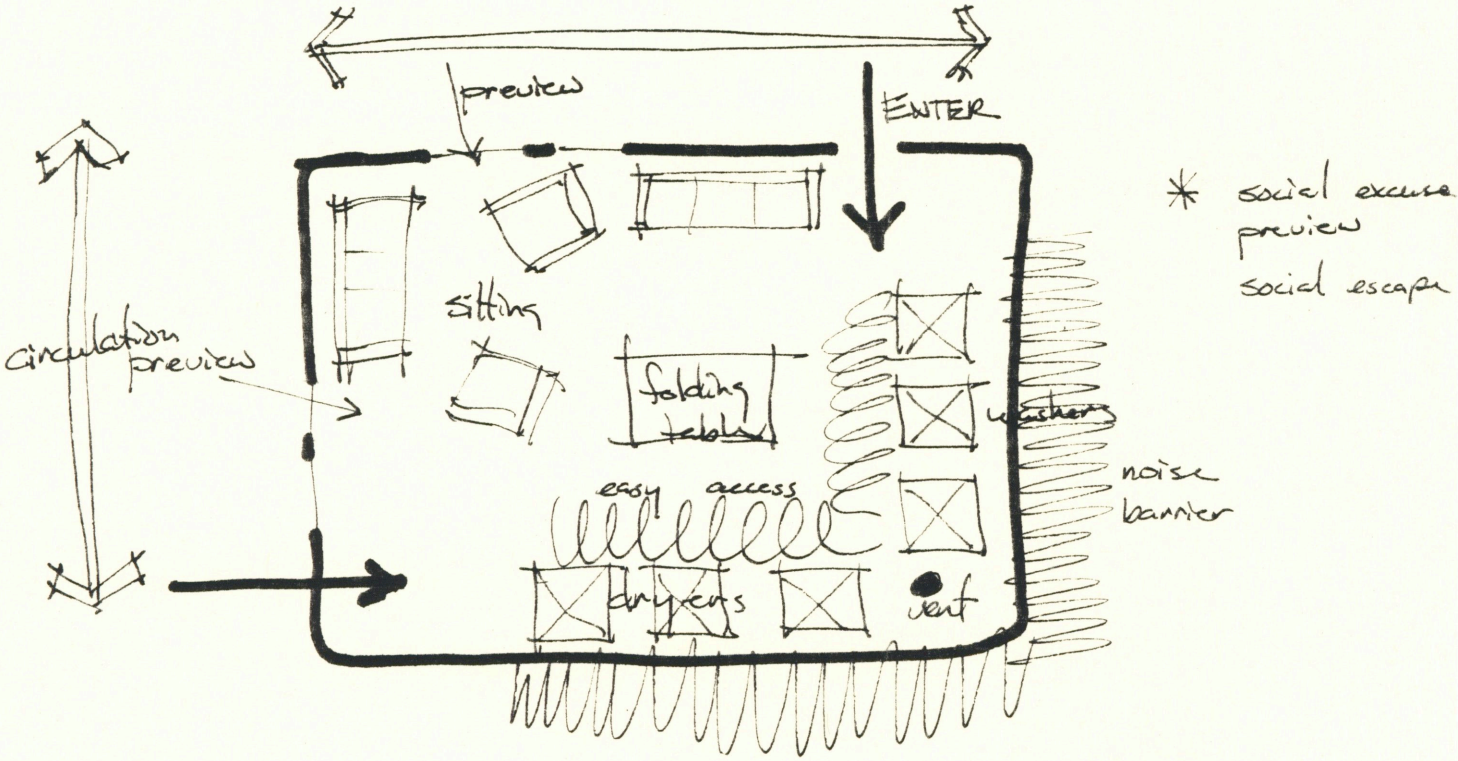


ZONE	-	PUBLIC
SPACE/ACTIVITY	-	MAILROOM
NUMBER OF USERS	-	10 maximum
ACTIVITIES	-	mail drop off and pickup, social interaction
CONSIDERATIONS	-	avoid institutional appearance, high social contact activity
EQUIPMENT	-	mailboxes, package counter
AREA REQUIRED	-	10' x 10' 100 sq. ft.
LEGAL/SAFETY	-	visual surveillance from manager's office
ENVIRONMENTAL	-	hvac, well lighted
FUNCTIONAL RELATIONSHIP	-	adjacent to lobby, circulation, and manager's office



* social excuse
preview
social escape

ZONE	-	PUBLIC
SPACE/ACTIVITY	-	LAUNDRY
NUMBER OF USERS	-	20 - 40
ACTIVITIES	-	washing, drying, folding, waiting, visiting, reading
CONSIDERATIONS	-	laundry is a social event, requires seating and work space
EQUIPMENT	-	2 washers, 2 dryers, 3' x 5' work table, lounge, table and chairs
AREA REQUIRED	-	14' x 15' 210 sq. ft.
LEGAL/SAFETY	-	washer/dryer outlets, dryer vent to exterior
ENVIRONMENTAL	-	acoustical separation, view to interior from circulation, view to outdoors
FUNCTIONAL		
RELATIONSHIP	-	adjacent to circulation focal point, convenient for tenant use (i.e., central location)

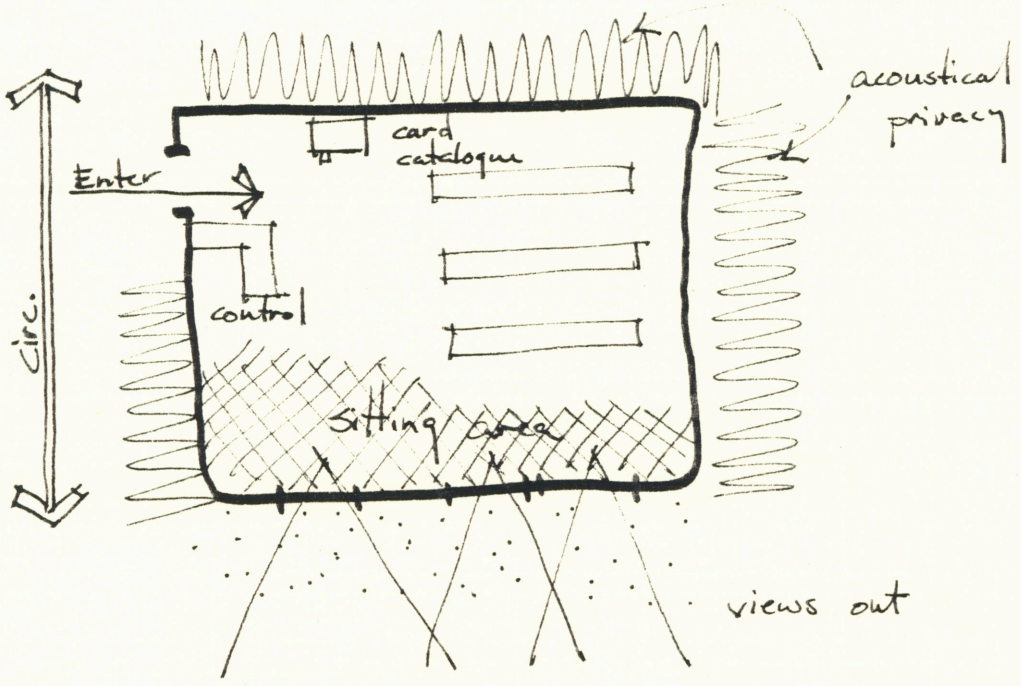


indoor activity

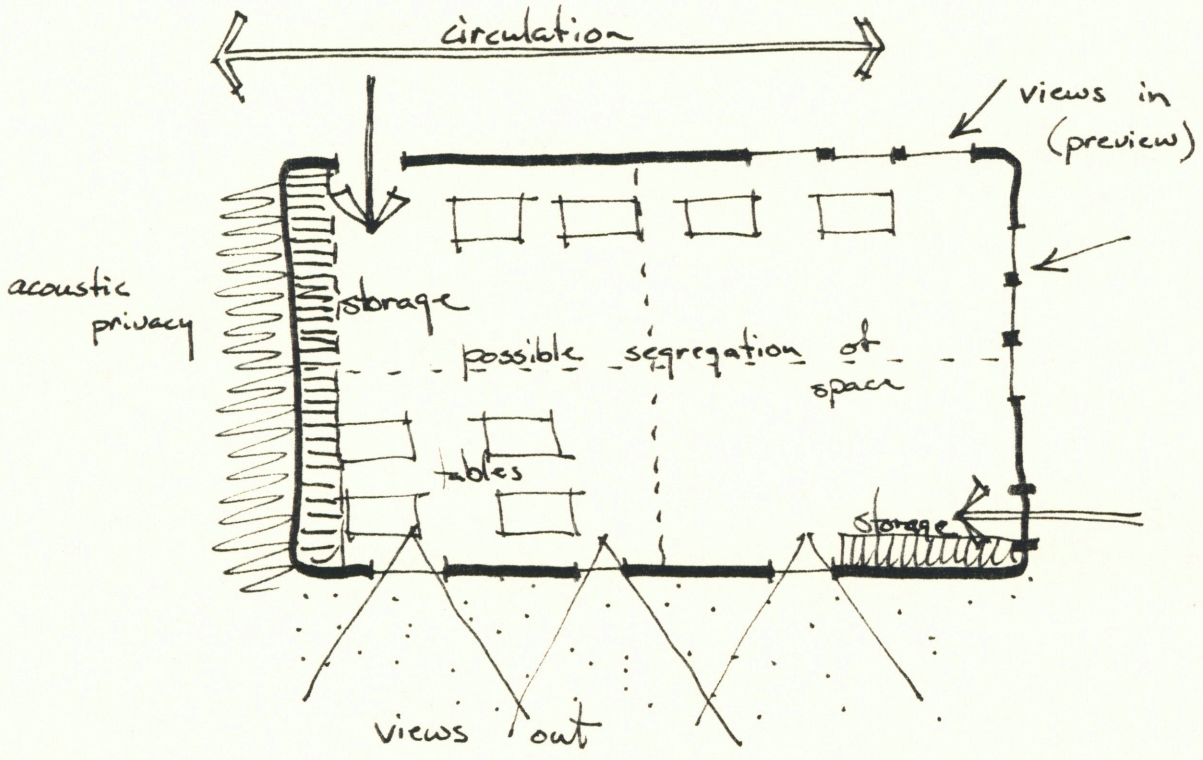
- LIBRARY
- CRAFTS
- TV-CINEMA
- CHAPEL
- GREENHOUSE

- BEAUTY/BARBER SHOP

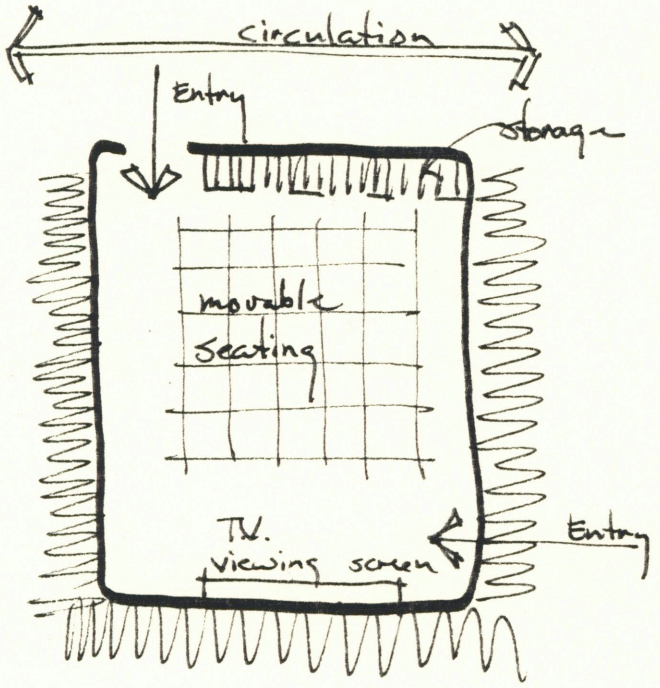
ZONE	-	INDOOR ACTIVITY
SPACE/ACTIVITY	-	LIBRARY
NUMBER OF USERS	-	5 - 10 maximum
ACTIVITIES	-	reading, book location
CONSIDERATIONS	-	comfortable, intimate, quiet and removed space, semi-private space
EQUIPMENT	-	card catalogue (small), chairs, shelves
AREA REQUIRED	-	15' x 15' 225 sq. ft.
LEGAL/SAFETY	-	
ENVIRONMENTAL	-	hvac, acoustical privacy
FUNCTIONAL		
RELATIONSHIP	-	near public function but removed enough to be semi-private
COMMENTS	-	



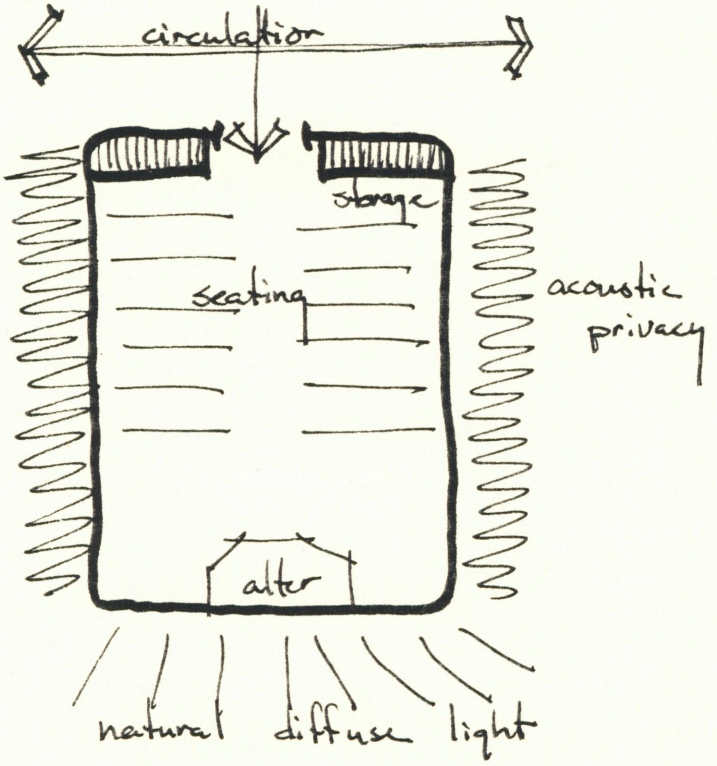
ZONE	-	INDOOR ACTIVITY
SPACE/ACTIVITY	-	CRAFTS
NUMBER OF USERS	-	8 - 10
ACTIVITIES	-	sewing, knitting, ceramics, sculpture, painting
CONSIDERATIONS	-	should be flexible enough to accommodate various activities
EQUIPMENT	-	chairs, tables, work counters, sink, storage cabinets
AREA REQUIRED	-	25' x 20' 500 sq. ft.
LEGAL/SAFETY	-	
ENVIRONMENTAL	-	view to outdoors, task lighting, hvac
FUNCTIONAL RELATIONSHIP	-	adjacent to secondary circulation and other public spaces



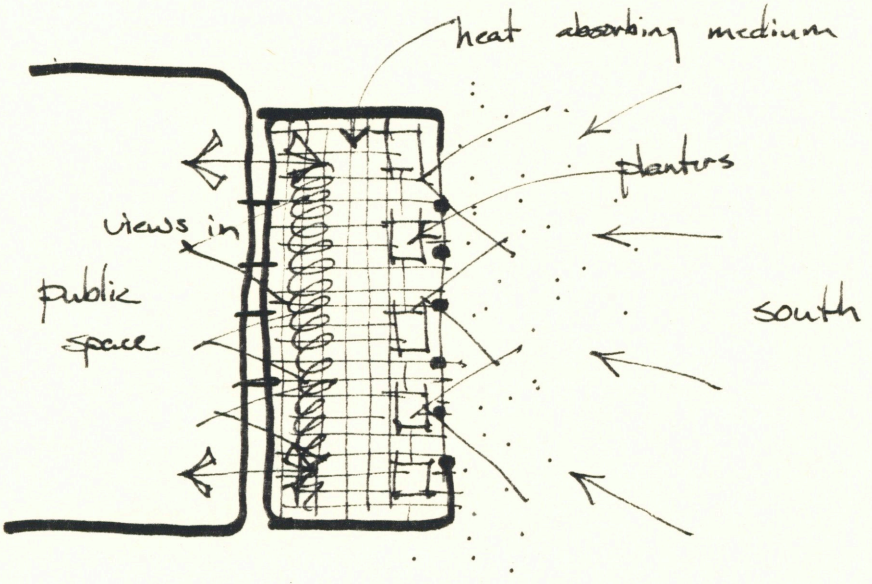
ZONE	-	INDOOR ACTIVITY
SPACE/ACTIVITY	-	MEETING/TV-CINEMA
NUMBER OF USERS	-	10 - 30
ACTIVITIES	-	small group meeting, watch TV or movies, lectures, classes
CONSIDERATIONS	-	adequate seating, ability for total darkness, quiet, enclosed space
EQUIPMENT	-	comfortable chairs and couches, projection screen, blackboard, lecturn
AREA REQUIRED	-	20' x 16' 320 sq. ft.
LEGAL/SAFETY	-	
ENVIRONMENTAL	-	hvac, curtains, acoustical separation
FUNCTIONAL		
RELATIONSHIP	-	adjacent to public spaces, washrooms, circulation, etc.



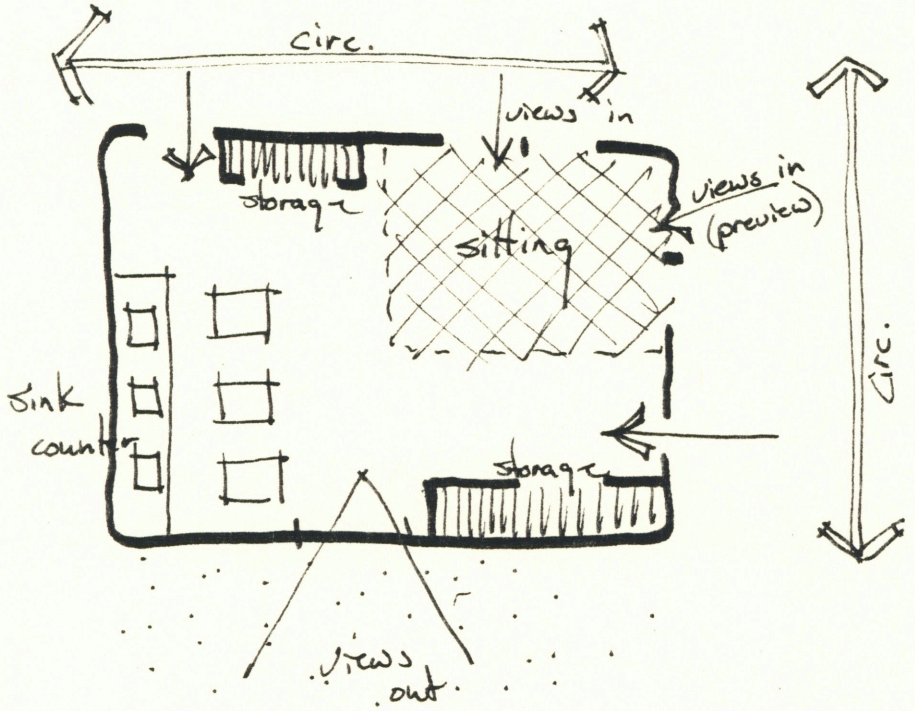
ZONE	-	INDOOR ACTIVITY
SPACE/ACTIVITY	-	CHAPEL
NUMBER OF USERS	-	2 - 10
ACTIVITIES	-	contemplation, reaffirmation of faith, private services
CONSIDERATIONS	-	serene, tranquil setting, provide environment conducive to the practice of religious faith, non-demoninational
EQUIPMENT	-	pews, alter, knee boards
AREA REQUIRED	-	10' x 15' 150 sq. ft.
LEGAL/SAFETY	-	
ENVIRONMENTAL	-	adjustable lighting, acoustic segregation, hvac
FUNCTIONAL RELATIONSHIP	-	private location out of main circulation pattern, adjacent to quiet functions or isolated



ZONE	-	INDOOR ACTIVITY
SPACE/ACTIVITY	-	GREENHOUSE
NUMBER OF USERS	-	20 - 40
ACTIVITIES	-	growing small potted plants, conversation, pruning, watering
CONSIDERATIONS	-	has potential for social interaction on year-round basis, warm, moist, connection to outdoors
EQUIPMENT	-	potting tables, water hose, tool storage cabinet, chairs
AREA REQUIRED	-	12' x 25' 300 sq. ft.
LEGAL/SAFETY	-	uniform ground plane and pathway
ENVIRONMENTAL	-	shading devices and vents, heat storage mass, and humidity control
FUNCTIONAL RELATIONSHIP	-	adjacent to public spaces, southern exposure, allow space to extend interior, access to outdoors



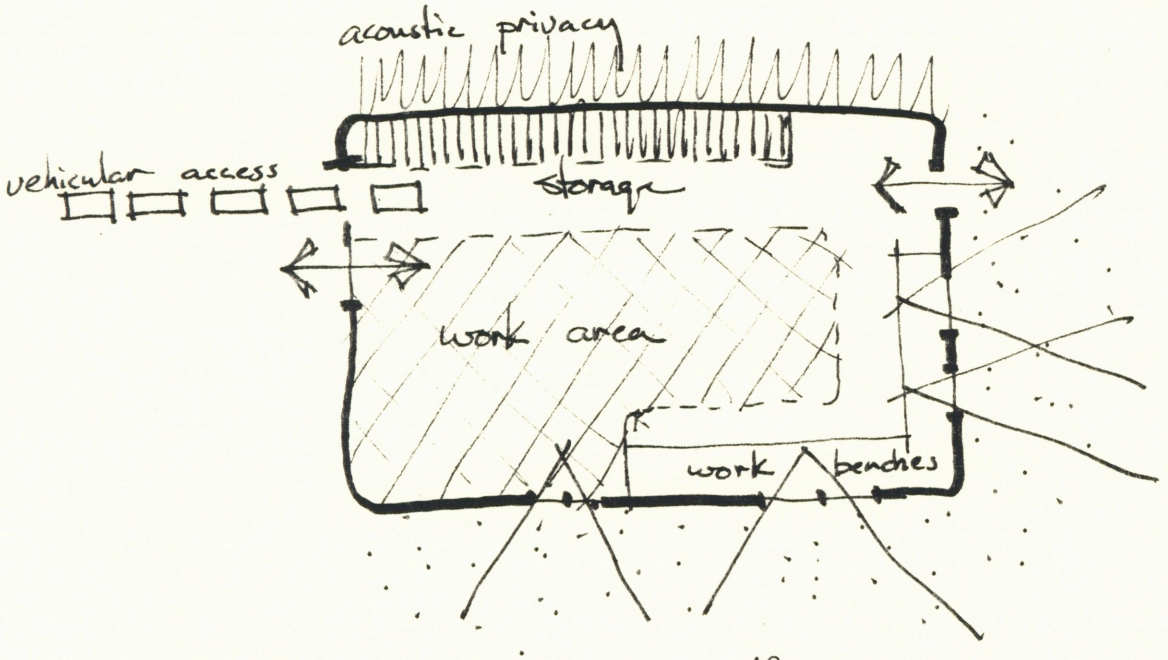
ZONE	-	INDOOR ACTIVITY
SPACE/ACTIVITY	-	BEAUTY/BARBER SHOP
NUMBER OF USERS	-	3 - 6
ACTIVITIES	-	haircuts, perms, facials, etc.
CONSIDERATIONS	-	provide for both men and women, will be scheduled at different times
EQUIPMENT	-	3 barber chairs, 2 hairdryers, 3 barber sinks, sofa, and magazine rack
AREA REQUIRED	-	18' x 24' 432 sq. ft.
LEGAL/SAFETY	-	to meet codes
ENVIRONMENTAL	-	view to outdoors, well lighted, hvac
FUNCTIONAL RELATIONSHIP	-	adjacent to secondary circulation, close to vertical circulation and allowance for "private" entry



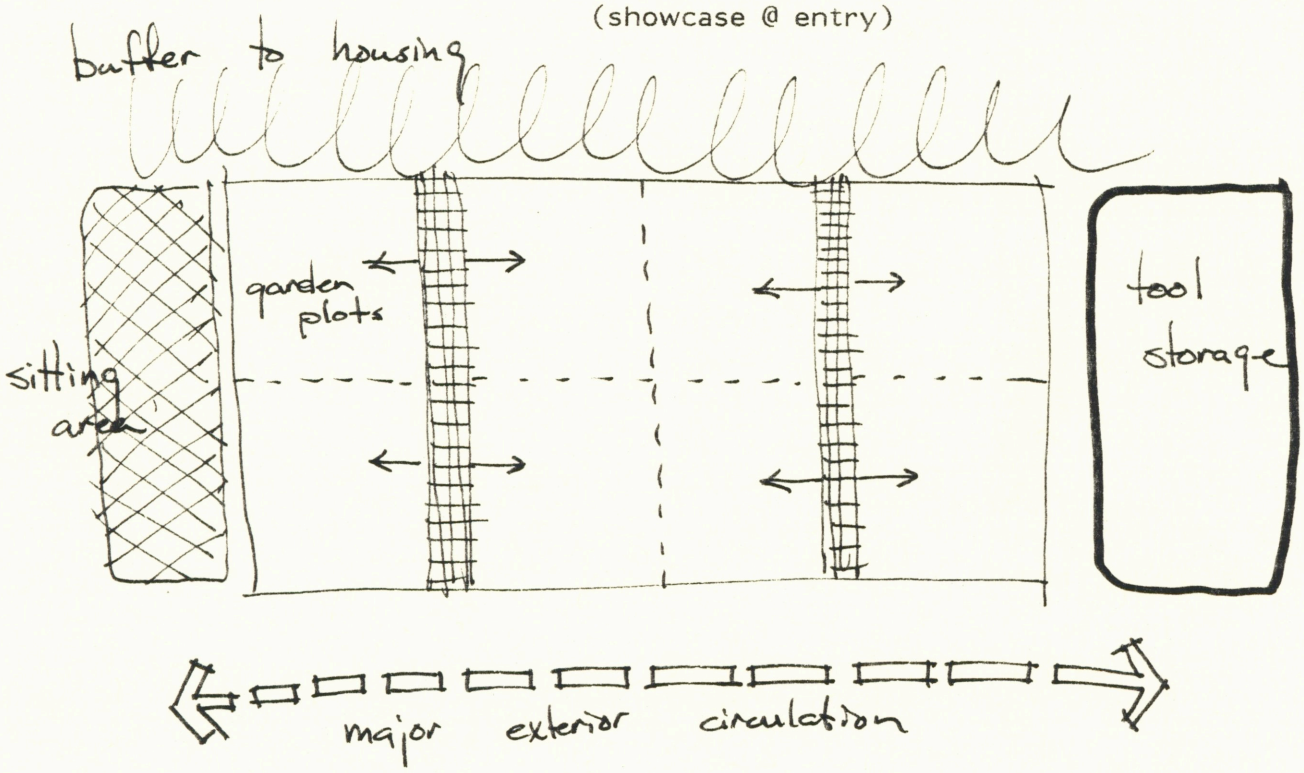
outdoor activity

- SHOP
- GARDENS

ZONE	-	OUTDOOR ACTIVITY
SPACE/ACTIVITY	-	SHOP
NUMBER OF USERS	-	4 - 6 at once
ACTIVITIES	-	mechanical work, woodshop, general repair, and small project construction (i.e., bird-houses, mailboxes, etc.)
CONSIDERATIONS	-	workshop context, primarily male users, detached as a garage shop
EQUIPMENT	-	hand tools only - work benches, jacks, vise, storage, overhead door
AREA REQUIRED	-	16' x 25' 400 sq. ft.
LEGAL/SAFETY	-	alarm buzzer, hvac
ENVIRONMENTAL	-	natural and artificial light, heated, bright, warm and rough
FUNCTIONAL RELATIONSHIP	-	could be detached, adjacent to service road, and administrative storage or garage, visual and acoustical barrier to public outdoor spaces



ZONE	-	OUTDOOR ACTIVITY
SPACE/ACTIVITY	-	GARDENS
NUMBER OF USERS	-	15 - 30
ACTIVITIES	-	growing flowers and vegetables
CONSIDERATIONS	-	provide ample circulation, water, and tool storage
EQUIPMENT	-	tool storage, seating
AREA REQUIRED	-	30 spaces @ 100 sq. ft. ea. = 3,000 sq. ft.
LEGAL/SAFETY	-	
ENVIRONMENTAL	-	southern exposure, outdoors
FUNCTIONAL RELATIONSHIP	-	could be located anywhere, could provide destination point, social excuse, activity area, separate areas for flowers vs. vegetables (showcase @ entry)



housing

- COMMON DESIGN GUIDELINES
- CONGREGATE APARTMENTS
- LOW-INCOME INDEPENDENT APARTMENTS
- MEDIUM-INCOME INDEPENDENT APARTMENTS
- SHARED UNITS
- VISITOR ACCOMMODATIONS

COMMON DESIGN GUIDELINES

All housing units should address three primary design criteria.

1. The environment must make sense.
2. The environment must offer potential for exploration.
3. The environment should accommodate a choice of lifestyles.

Following is a space by space analysis of common design principles, furnishing and standards constant in all the dwelling unit types. The spaces include:

- entry/exit
- food preparation
- dining
- living
- sleeping/dressing
- personal hygiene
- private outdoor area
- storage utility

ENTRY/EXIT

- should be a place, not merely an opening in the wall
- provide direct access to food preparation, storage, and living area
- provide indirect access to dining, personal hygiene and sleeping/ dressing
- provide for "porch" area with option for sitting, display and personalization
- provide flexibility for various levels of privacy (i.e., window with curtains, dutch doors, and peep holes

Furnishings - 3'0" x 2'-2" minimum closet, chair or bench

Spatial Characteristics - 3'-6" to 4'-0"

- provide wall space, shelves, or small table area for display of personal objects
- no direct view to bath, sleeping, or sink

FOOD PREPARATION

- provide direct access to dining
- provide visual screen from living and dining
- provide small eating counter in kitchen
- provide visual and audio access to dining, entry/exit, and "porch"
- lower than normal cabinets and counters
- orient food preparation area to outdoors with morning sun if possible

furniture/equipment - sink, range, refrigerator, dishwasher if possible

spatial characteristics - provide adequate lighting, and spatial distinction from dining

DINING

- provide direct access to living and food preparation
- provide indirect access to entry/exit, and private outdoors
- no direct access to sleeping and personal hygiene
- provide views to outdoors
- provide adequate seating area

congregate - 12 people maximum

independent - 4 people minimum

furnishings - dining table 3'-0" x 3'-0" minimum

3'-6" dia. minimum

dining chairs 1'-6" x 1'-6"

buffet or storage 1'-6" x 3'-6"

spatial characteristics - ceiling height 7'6" minimum

permanent dining table location

open cabinets to food preparation

LIVING

- provide for conversation, entertaining, reading, television viewing, contemplation, lounging
- provide direct access to dining, private outdoor, and entry/exit
- provide indirect access to food preparation, personal hygiene, storage, sleeping/dressing
- orientation and views to outdoors
- provide substantial uninterrupted wall length

furnishings -	couch	3'-0" x 6'-10"
	2 easy chairs	2'-6" x 3'-0"
	1 television set	1'-4" x 2'-8"
	one table	1'-6" x 2'-6"
2-bedroom units add:		
	easy chair	
	desk	1'-8" x 3'-6"
	desk chair	1'-6" x 1'-6"

spatial characteristics - provide flexibility in furnishability

width = 12'-0" minimum

higher ceiling may enhance space

SLEEPING/DRESSING

* The elderly make greater use of the bedroom than any other age group, except babies.

- provide direct access to personal hygiene and personal clothing storage
- provide indirect access to food preparation and storage utility
- no direct access to entry/exit, living and dining

furnishings -	two twin beds	3'-3" x 6'-6" or
	one double bed	4'-9" x 6'-6"
	one dresser	1'-6" x 4'-4"
	one chair	1'-6" x 1'-6"
	one table	1'-6" x 2'-6"
	two night stands	1'-6" x 1'-6"
	one portable TV	

spatialal characteristics - avoid dimension of less than 9'-6"

PERSONAL HYGIENE - *Safety is primary concern

- 20% minimum handicapped units
- provide direct access to bedroom
- provide indirect access to living spaces
- provide emergency call system
- provide outward opening doors with privacy locks
- provide non-slip, easily maintained floor surfaces
- provide storage

furnishings - lavatory basin 3'-6" x 3'-6"

water closet 2'-6" x 4'-4"

tub and/or shower 2'-6" x 5'-0"

spatial characteristics - vertical surfaces free from sharp corners and ledges

- views to outdoors and natural light not necessary

PRIVATE OUTDOOR AREAS

- provide direct access to main living area
- provide separation from public outdoor areas
- maximize views on and off site while maintaining privacy
- 30% sun in spring, summer, fall
- provide shelf for plants 24" to 30"
- provide swinging access door with low threshold

furnishings - outdoor chairs, planters

spatial characteristics - overhead protection desirable

- where private balconies are not provided; provide community balcony

STORAGE/UTILITY

- provide storage either at central location or in each unit
- space should be screened from living areas yet maintain easy, safe access
- central location should be adjacent to major circulation and locked with dwelling unit key

furnishings and spatial characteristics

- should be at least 12 sq. ft. and 100 cu. ft. in volume per dwelling unit
- 30" door minimum
- well lighted and easily cleaned

ZONE	-	HOUSING
SPACE	-	CONGREGATE APARTMENTS
NUMBER OF USERS	-	1
ACTIVITIES	-	preparing small meals, entertaining, reading, resting, watching television, personal hygiene, writing, etc.
CONSIDERATIONS	-	bright, lively, environment that provides maximum opportunity for meaningful and active lifestyle
EQUIPMENT	-	(see Common Design Principles)
AREA REQUIRED	-	500 - 580 sq. ft.
LEGAL/SAFETY	-	conform to applicable codes
ENVIRONMENTAL	-	hvac, maximize natural light, views to outdoors
FUNCTIONAL RELATIONSHIP	-	indirect access to common facilities within congregate setting, direct access to vertical and horizontal circulation, access to outdoor spaces (private and public)
COMMENTS	-	congregate apartments shall provide similar amenities as independent apartments only in smaller sq. footage (i.e., food preparation, bedroom and bath)

ZONE	-	HOUSING
SPACE	-	LOW-INCOME INDEPENDENT APARTMENTS
NUMBER OF USERS	-	1 - 2
ACTIVITIES	-	activities appropriate to independent, socially active lifestyle
CONSIDERATIONS	-	environment that provides maximum opportunity for meaningful and active lifestyle
EQUIPMENT	-	(see Common Design Principles)
AREA REQUIRED	-	600 - 650 sq. ft.
LEGAL/SAFETY	-	conform to applicable codes
ENVIRONMENTAL	-	hvac, maximize natural light, views to outdoors, natural cross ventilation
FUNCTIONAL RELATIONSHIP	-	adjacent to primary circulation, access to outdoors (public and private) exterior connection to congregate building

ZONE	-	HOUSING
SPACE	-	MEDIUM-INCOME INDEPENDENT "HOUSES"
NUMBER OF USERS	-	2
ACTIVITIES	-	activities appropriate to independent socially active lifestyle
CONSIDERATIONS	-	environment atrractive to elderly home owners wishing to escape the growing burdens of home ownership, yet remain active and vital
EQUIPMENT	-	(see Common Design Principles)
AREA REQUIRED	-	750 - 800 sq. ft.
LEGAL/SAFETY	-	conform to applicable codes
ENVIRONMENTAL	-	hvac, natural light, views
FUNCTIONAL RELATIONSHIP	-	provide connection (aesthetically, socially, and by scale) to existing neighborhood. To be intimately integrated into cohesive site organization
COMMENTS	-	provides option for elderly tenants who don't economically qualify for low-income apartments

ZONE	-	HOUSING
SPACE	-	SHARED HOUSING
NUMBER OF USERS	-	2 - 4
ACTIVITIES	-	activities appropriate to small group living in an independent socially active lifestyle
CONSIDERATIONS	-	combine private and semi-private functions to accommodate unrelated individuals in shared "house"
EQUIPMENT	-	(see Common Design Principles)
AREA REQUIRED	-	900 - 1,000 sq. ft.
LEGAL/SAFETY	-	conform to applicable codes
ENVIRONMENTAL	-	hvac, natural light, views
FUNCTIONAL RELATIONSHIP	-	integrated within independent medium-income housing and integrated into holistic site organization
COMMENTS	-	provides additional choice in living arrangement

ZONE	-	HOUSING
SPACE	-	VISITOR ACCOMMODATIONS
NUMBER OF USERS	-	1 - 2 adults 2 children maximum
ACTIVITIES	-	short term living accommodations for visiting family and friends; kitchen, bath, 2 bedrooms, living
CONSIDERATIONS	-	should have location to provide privacy for visitors, yet maintain close proximity to visited person/people, provide direct parking
EQUIPMENT	-	(see Common Design Principles)
AREA REQUIRED	-	750 - 800 sq. ft.
LEGAL/SAFETY	-	conform to applicable codes
ENVIRONMENTAL	-	hvac, natural light, view outdoors
FUNCTIONAL RELATIONSHIP	-	visual control by management periphery of activity area

space summary

SPACE SUMMARY

ADMINISTRATION		
Manager's office		200 sq. ft.
Manager's apartment		900 sq. ft.
Health Service/Nurse's office		80 sq. ft.
House cleaning service		
Exam room		100 sq. ft.
Maintenance and storage		300 sq. ft.
Janitor/employee lounge		150 sq. ft.
Washrooms	2 @ 40 sq. ft.	80 sq. ft.
	subtotal	1810 sq. ft.
COMMUNITY DINING		
Dining room for 50 people		750 sq. ft.
Kitchen		250 sq. ft.
Chef's office		80 sq. ft.
	sub-total	1080 sq. ft.
PUBLIC		
Porch/foyer/lobby		400 sq. ft.
Lounge		300 sq. ft.
Mailroom		100 sq. ft.
Laundry		210 sq. ft.
Washrooms	2 @ 80 sq. ft.	160 sq. ft.
	sub-total	1170 sq. ft.

INDOOR ACVITITY		
Library		225 sq. ft.
Crafts		500 sq. ft.
TV-Cinema		320 sq. ft.
Chapel		150 sq. ft.
Greenhouse		300 sq. ft.
Beauty/barber		432 sq. ft.
	sub-total	2327 sq. ft.
OUTDOOR ACTIVITY		
Shop		400 sq. ft.
Garden Tool Storage		425 sq. ft.
	sub-total	825 sq. ft.
	Total	7212 sq. ft.

HOUSING

Congregate apartments	25 @	580 each	14,500
Independent apartments	130 @	650 each	84,500
Independent "houses"	40 @	800 each	32,000
Shared units	5 @	1000 each	5,000
	200		

Congregate/Community Center	Total	21,712 sq. ft.
+ 20% mech. & circ.		4,340 sq. ft.
	sub-total	25,052 sq. ft.

Independent apartments		84,500 sq. ft.
+ 15 % mech. & circ.		12,675 sq. ft.
	sub-total	97,175 square feet

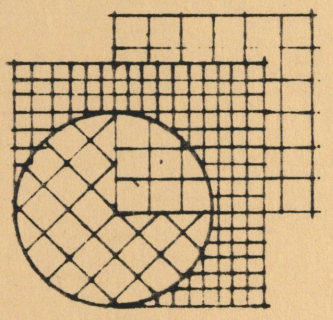
Independent houses		32,000 sq. ft.
+ 10% mech. & circ.		3,200 sq. ft.
	sub-total	35,200 sq. ft.

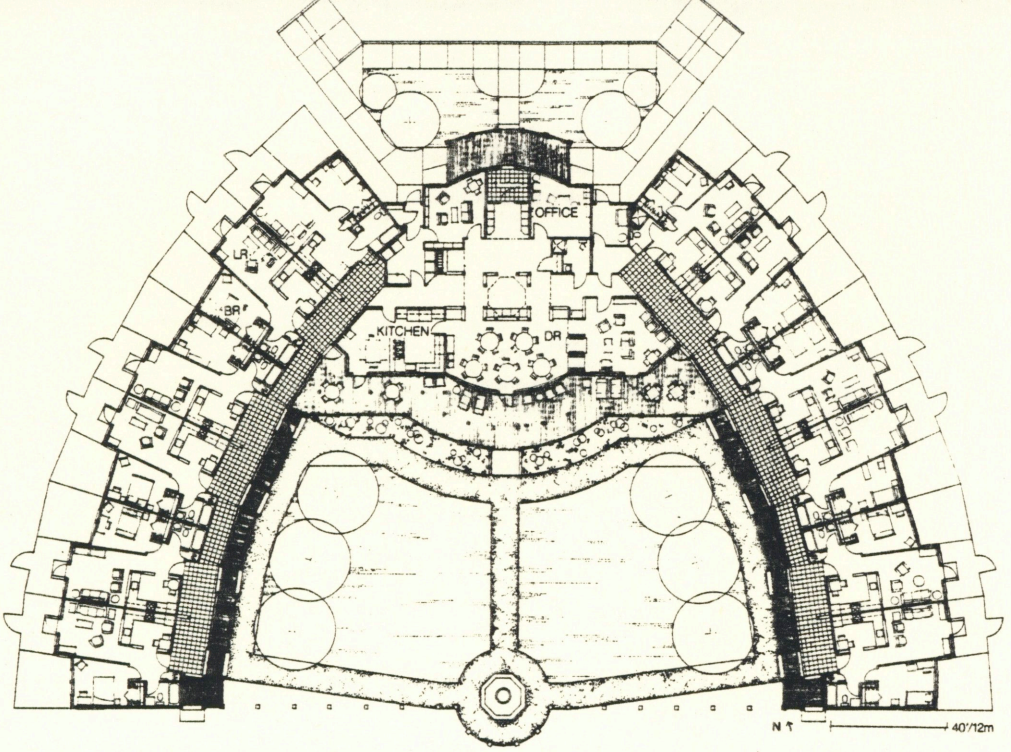
Shared units		5,000 sq. ft.
Total Building Coverage		163,427 sq. ft.
Total Parking Coverage		66,500 sq. ft.
Summary by percentage of Total Site		522,720 sq. ft.
Building	31.3%	
Parking	12.7%	
Open Area	56%	

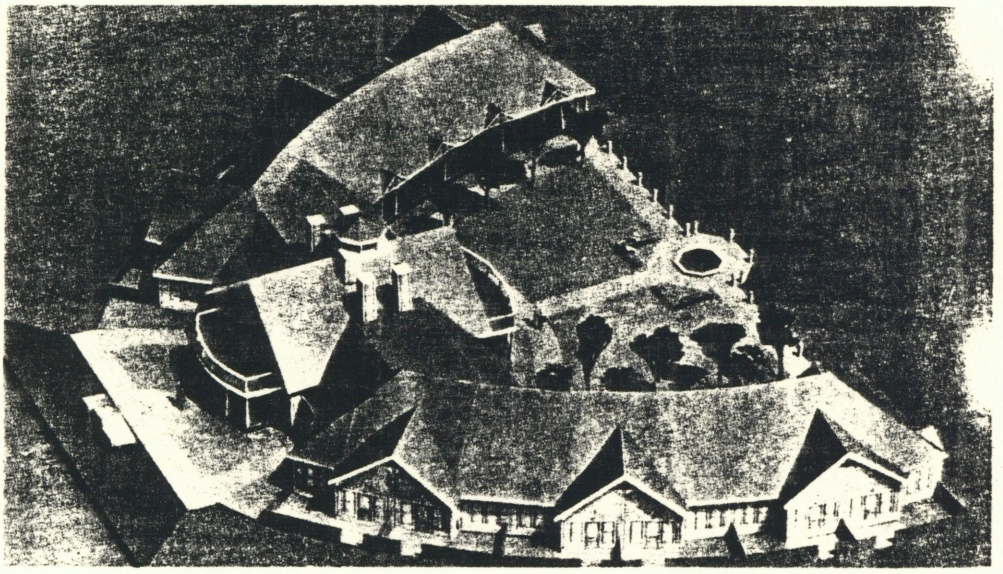
* assuming single story structures

* streets, drives, and sidewalks are not included

CASE STUDIES



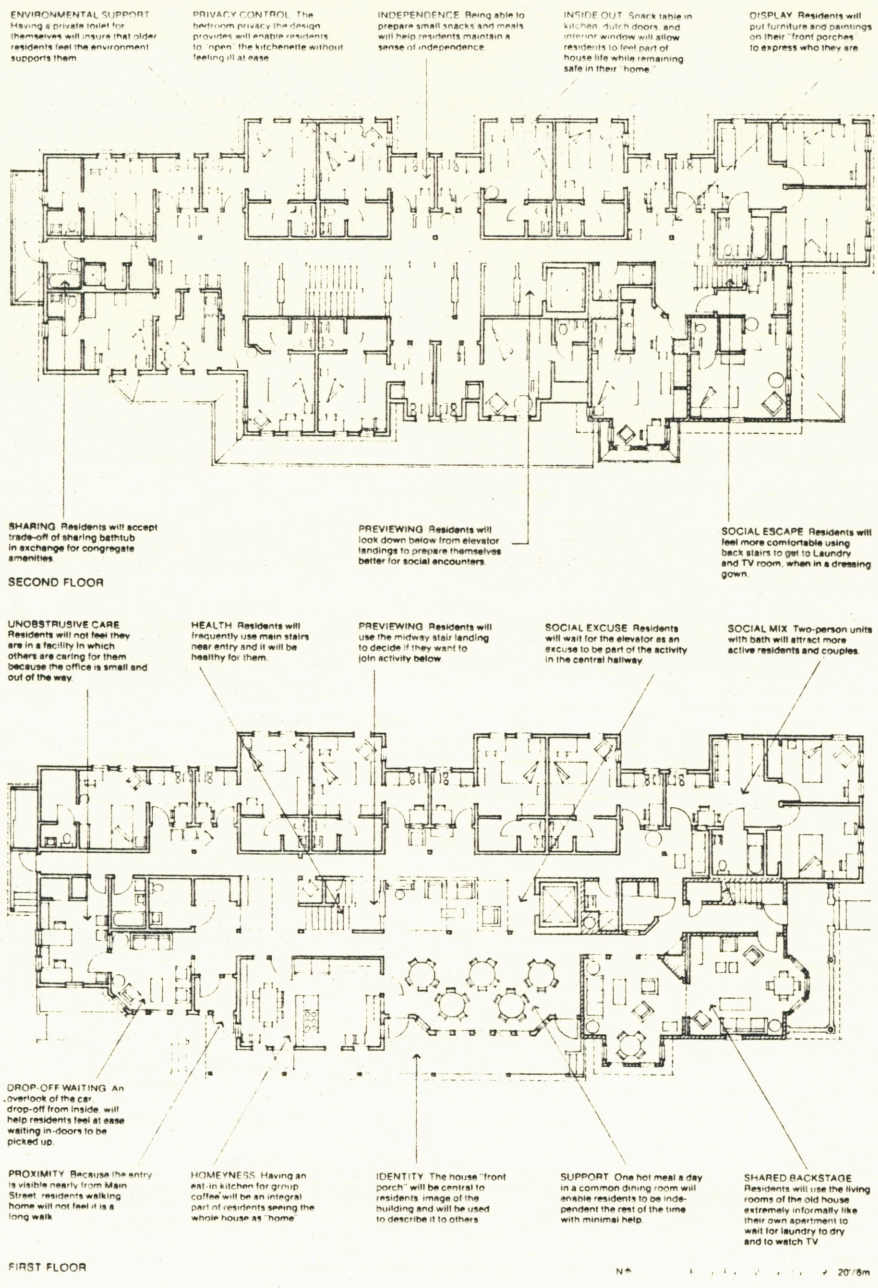




ANNIE MAXIM CONGREGATE CARE FACILITY
Rochester, Massachusetts

Issues:

- southern courtyard
- porches (indoor and outdoor)
- front yard/backyard
- common facilities
- strong entry
- strong form
- sense of community
- provisions for privacy and personalization
- common outdoor space
- drop off



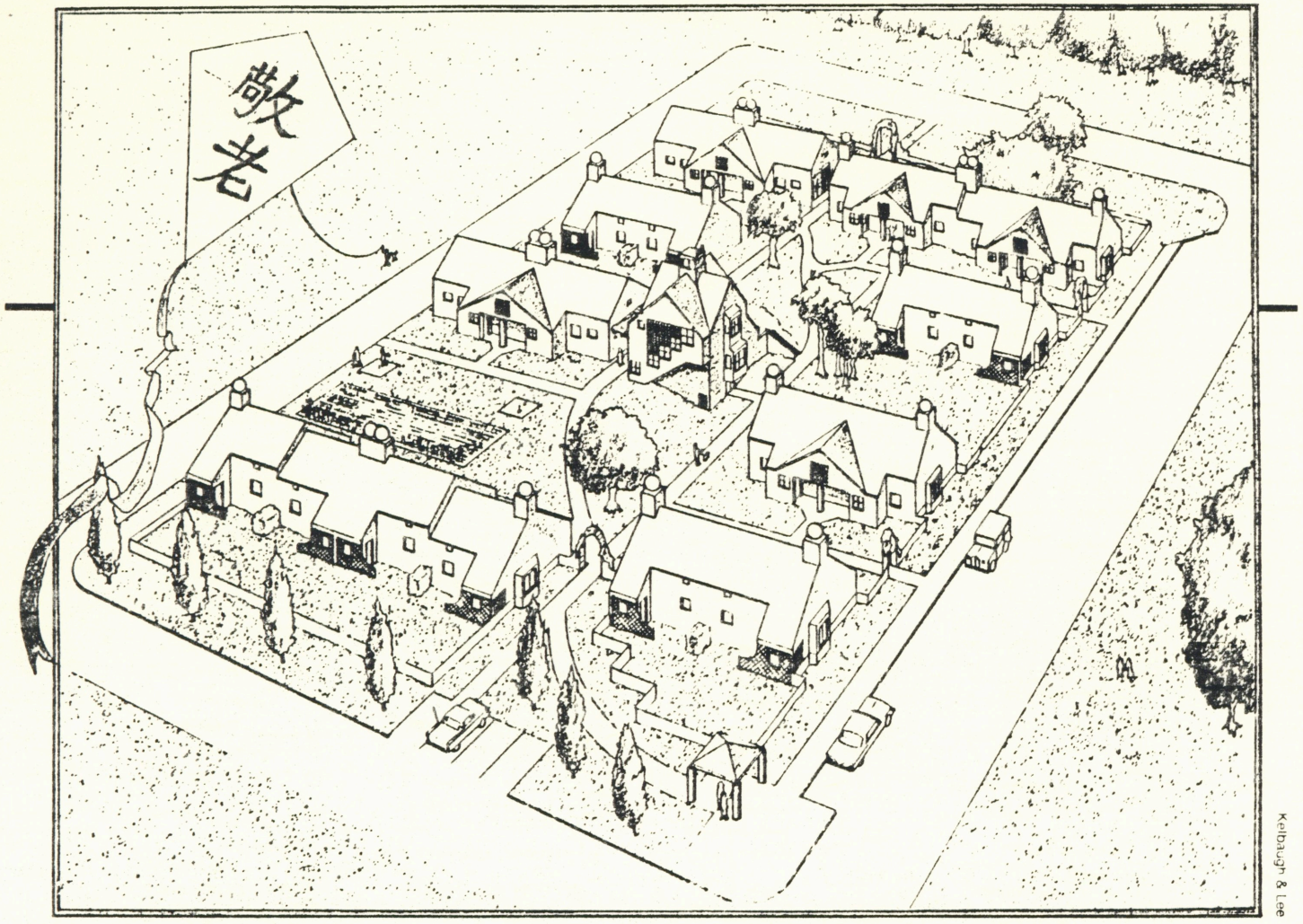
CAPTAIN CLARENCE ELDRIDGE HOUSE
Hyannis, Massachusetts

Issues:

- porch (indoor and outdoor)
- contextural form and materials
- indoor corridor becomes a "room"
- addresses social issues of aging (see above)
- provisions for privacy and personalization
- shared showers/baths



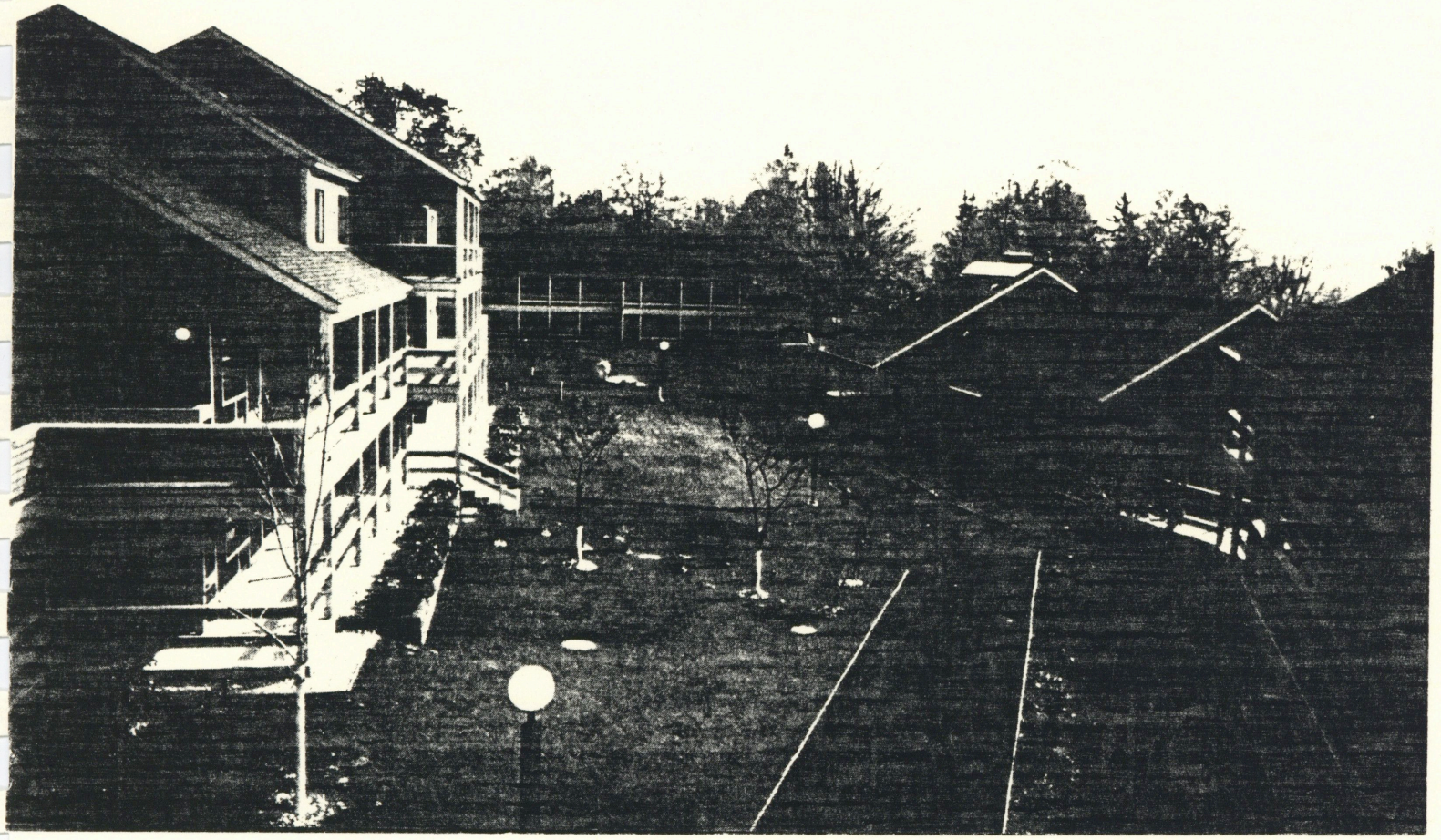




ROOSEVELT SENIOR CITIZEN HOUSING
Roosevelt, New Jersey

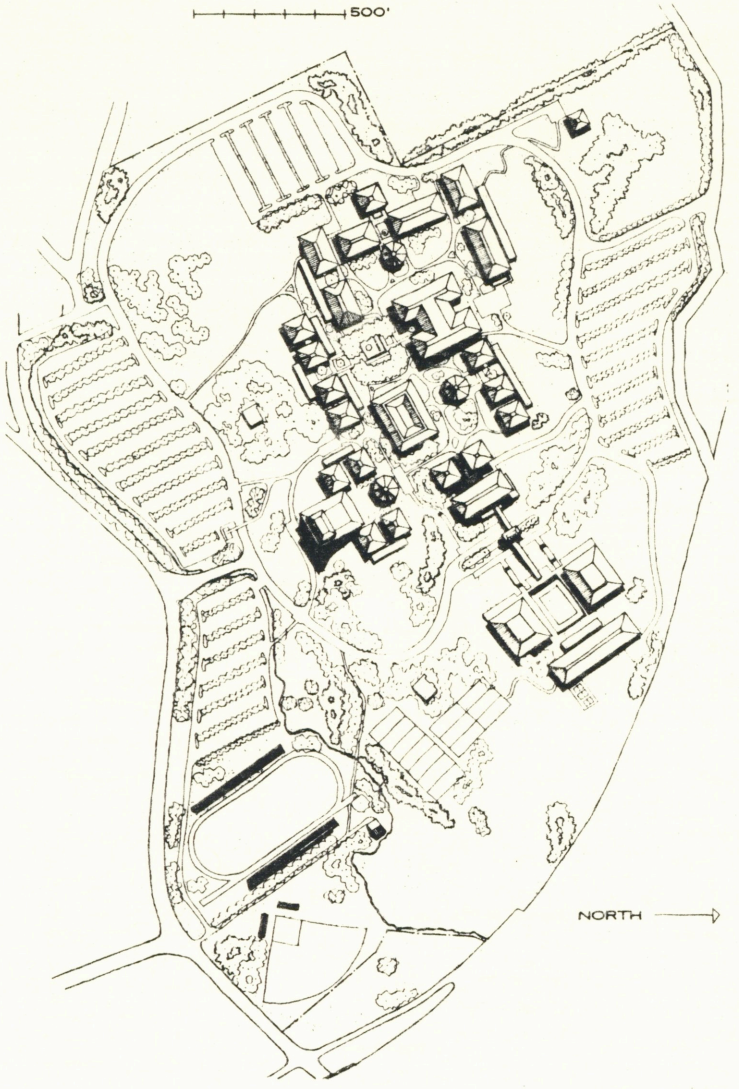
Issues:

- duplex and four-plexes
- clean, crisp design
- solar emphasis
- perimeter parking
- community center
- outdoor common areas
- somewhat organic paths
- continuity in form, materials, and detail
- garden



HEATON COURT HOUSING
Stockbridge, Massachusetts
Issues:

- campus plan
- permieter parking
- gardens
- common outdoor space
- continuity in form, material and detail
- covered walkways
- front and back of units (ventilation, views, ownership)
- absence of apartment building image

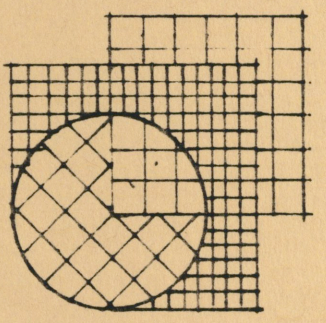


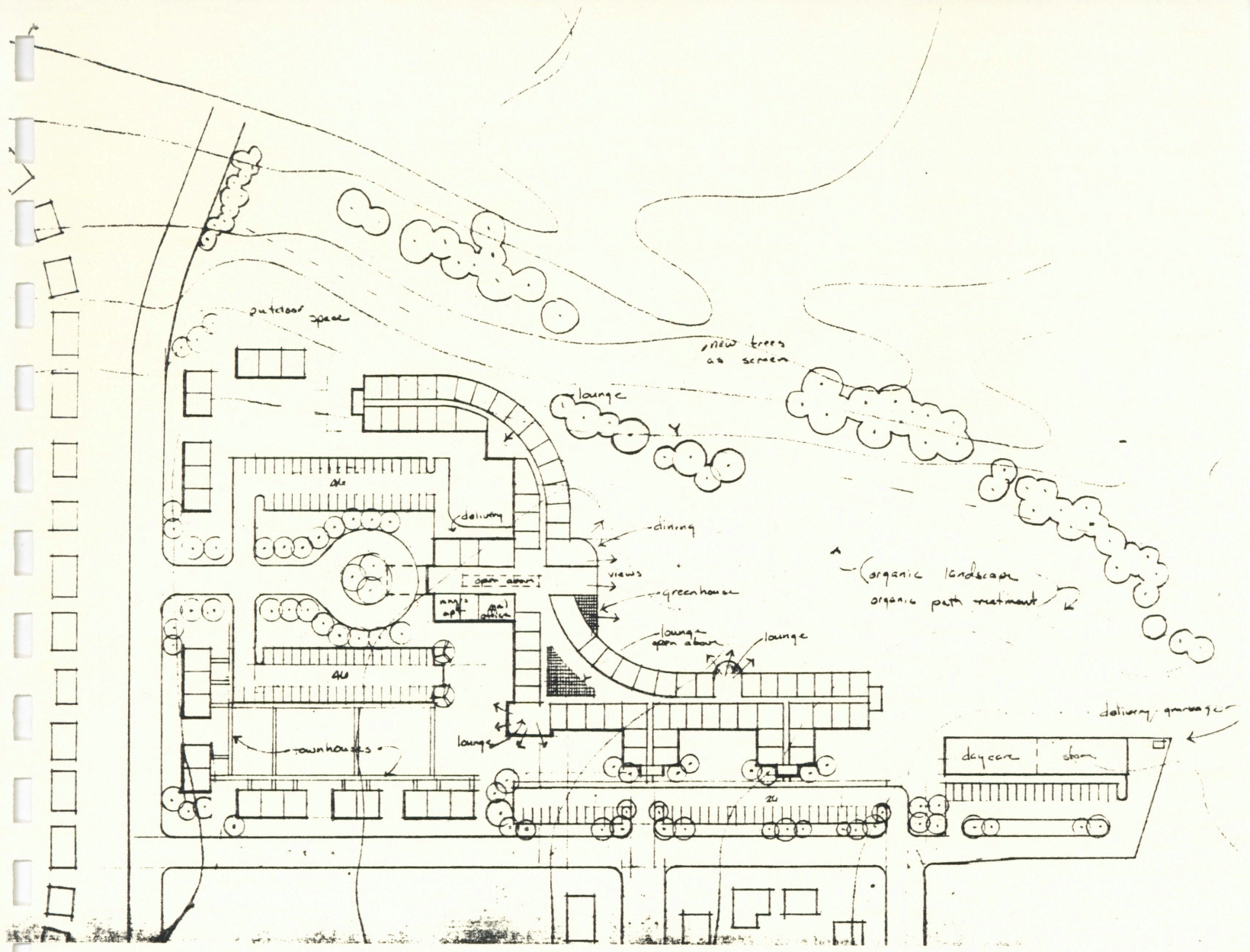
FOOTHILLS COLLEGE
Los Altos Hills, California

Issues:

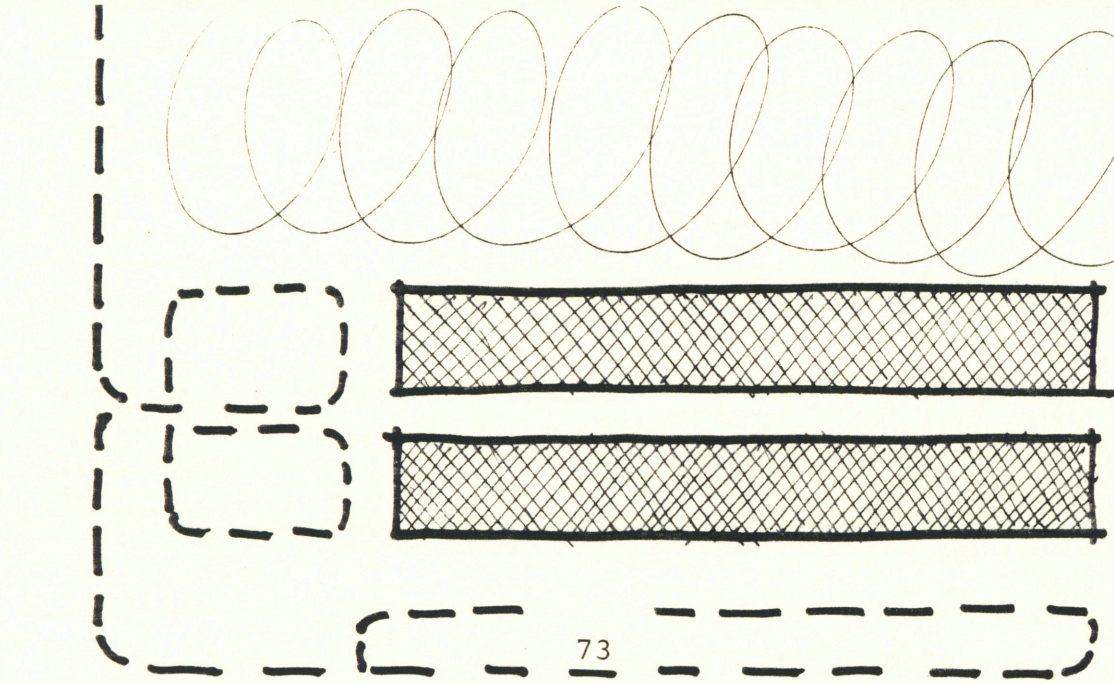
- campus plan - organic landscape with ordered buildings
- continuity in form, scale, texture and detail
- perimeter parking
- outstanding pedestrian circulation pattern
- variety of outdoor spaces
- logical organization
- strong entries
- protective overhangs provide circulation area in inclement weather
- scale of project relates to context

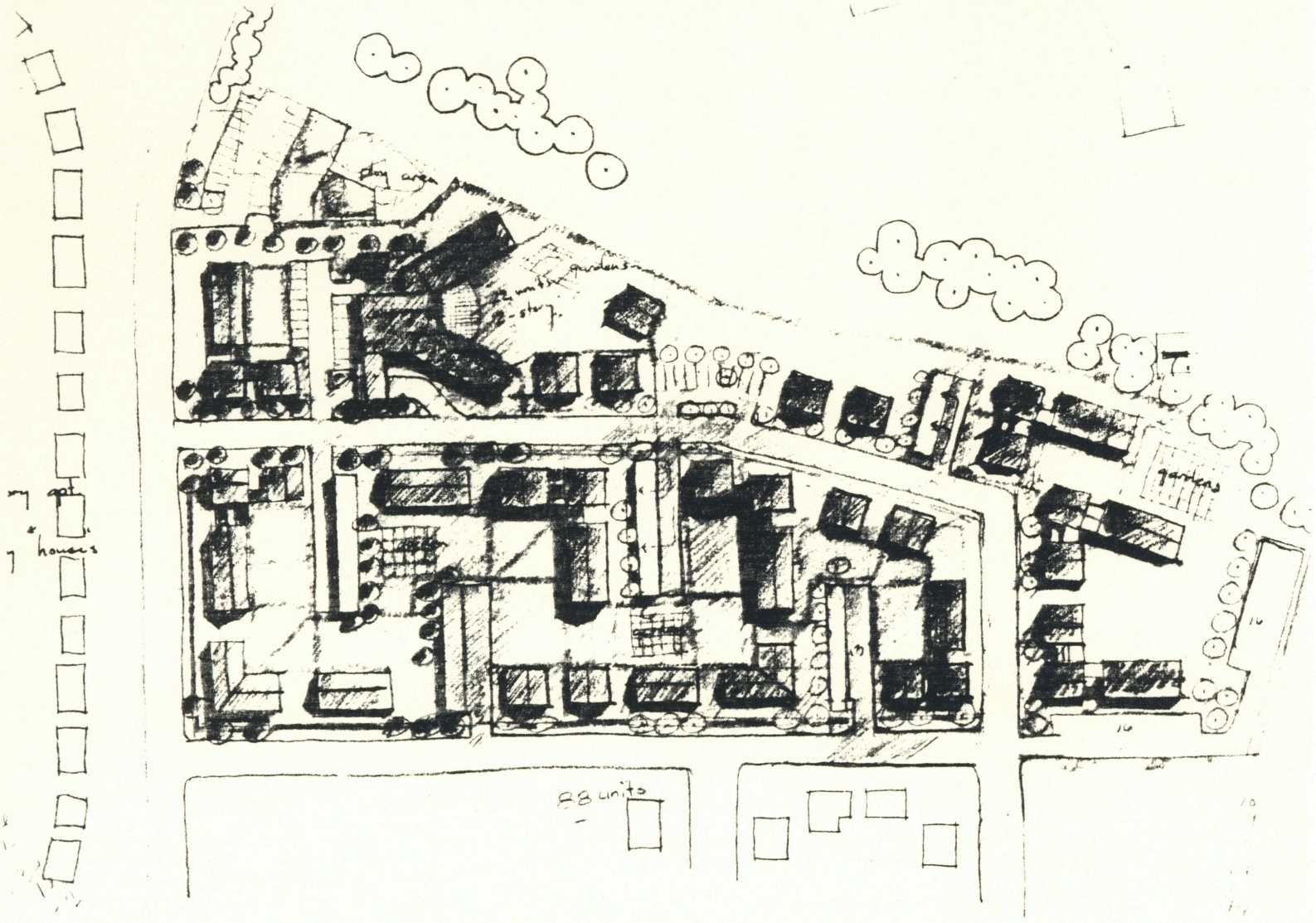
SCHEMES



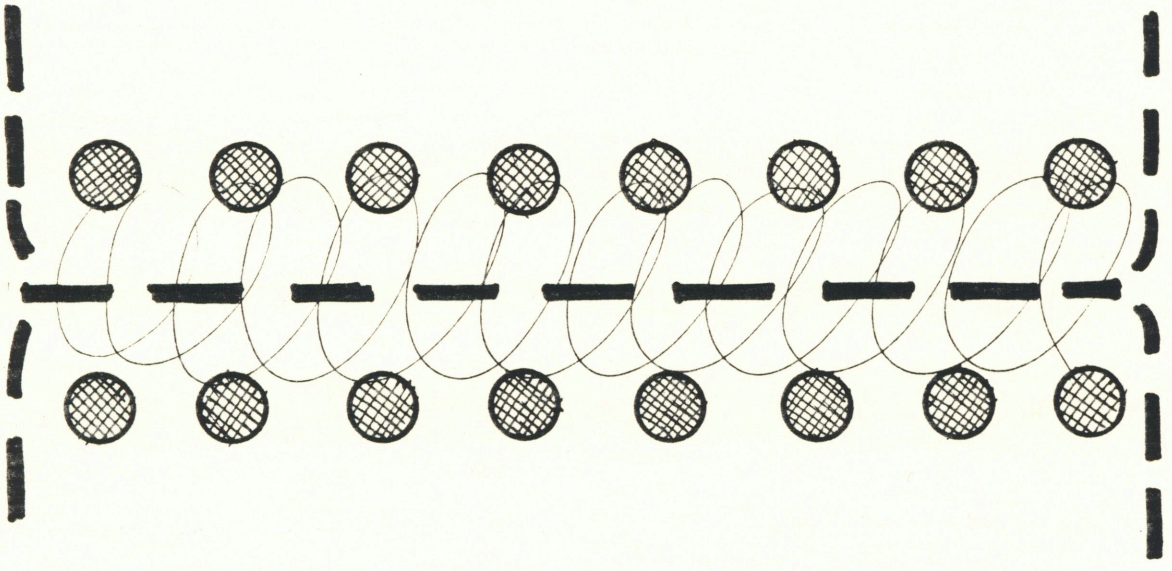


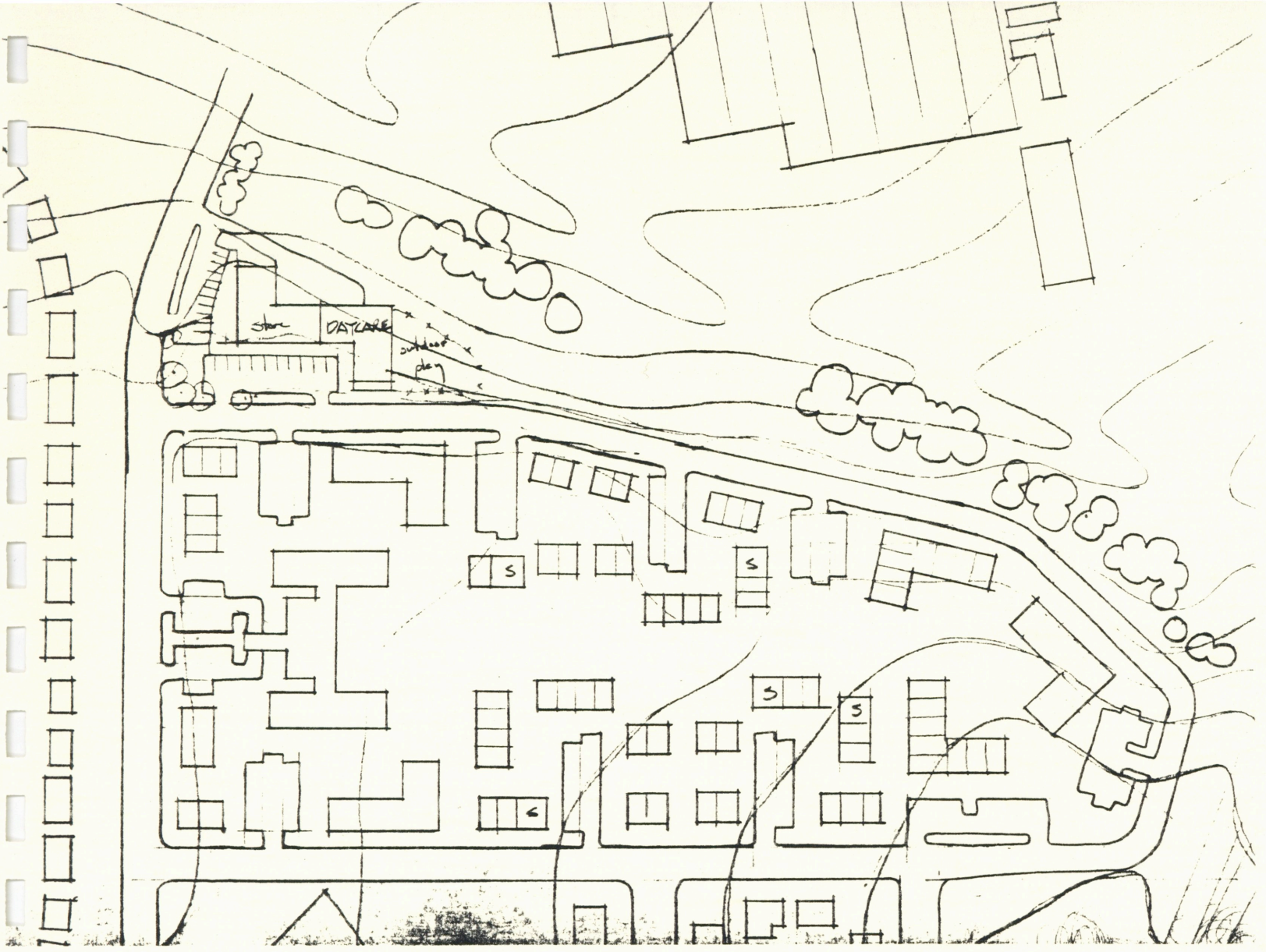
single building scheme



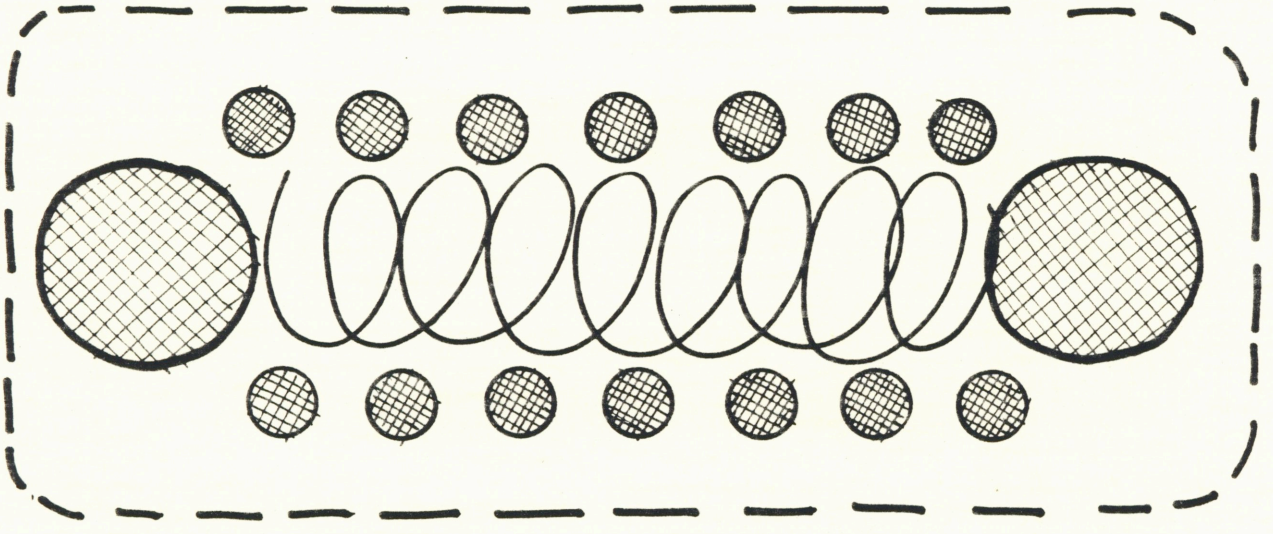


street scheme

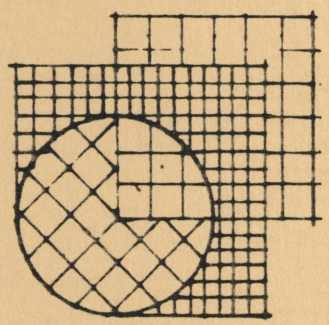




mall scheme



DESIGN



SELECTED BIBLIOGRAPHY

"Building Types Study 501: Housing the Aging." Architectural Record. v. 161, May 1977, pp. 122-138.

Carstens, Diane T. Site Planning and Design for the Elderly. N.Y., Van Norstrand Reinhold, 1985.

Central Mortgage and Housing Corporation. Housing the Elderly. 2nd ed. Ottawa, Ontario, 1972.

'Energy for the Elderly." Progressive Architecture. v. 64, April 1983, p. 40.

Housing The Elderly: The Development and Design Process. By Isaac Green and others. New York, Van Norstrand Reinhold, 1975.

Harkness, Sarah P., and Groom, James N. Building Without Barriers For The Elderly. New York Watson-Guptill Publications, 1976.

Jordan, Joe J. Senior Center Facilities: An Architect's Evaluation of Building Design, Equipment and Furnishings. Washington, D. C., The National Council on the Aging, Inc. 1975.

Lynch, Kevin, and Hack, Gary. Site Planning 3rd ed. Cambridge, Mass., The MIT Press, 1984.

Lynch, Robert J. Specifications for Making Buildings and Facilities Accessible and Usable by Physically Handicapped People. Scottsdale, Arizona, ANSI Digest of A117.1, 1981.

Massachusetts Institute of Technology. Dept. of Architecture. Shared Spaces in Housing For The Elderly. Cambridge, Mass., 1963.

Massachusetts Institute of Technology. Dept. of Architecture. Private Space: Habitability of Apartments for the Elderly. Cambridge, Mass., 1978.

"Post-occupancy Study Leads to Insights on Elderly Housing." Architectural Record. v. 166, Sept. 1979 pp. 67-76.

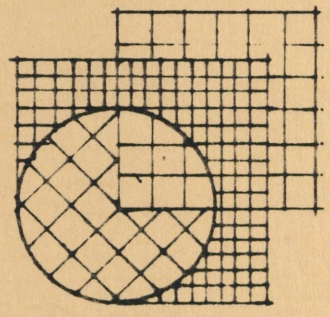
Robinette, Gary O. Barrier Free Exterior Design; Anyone Can Go Anywhere. New York, Van Norstrand Reinhold, 1985.

Rush, Richard. "The Age of the Aging." Progressive Architecture. v. 62, Aug. 1981. pp. 59-63.

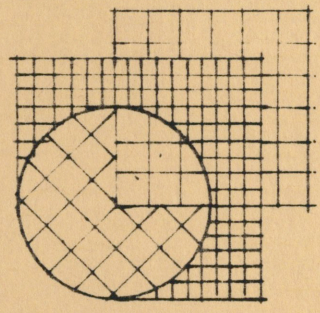
"Who's Taking Care of Our Parents?" Newsweek. May 6, 1985, pp. 60-73.

Zeisel, John, and others. Low Rise Housing For Older People: Behavioral Criteria for Design. Washington, D.C., U.S. Government Printing Office, 1977.

APPENDIX

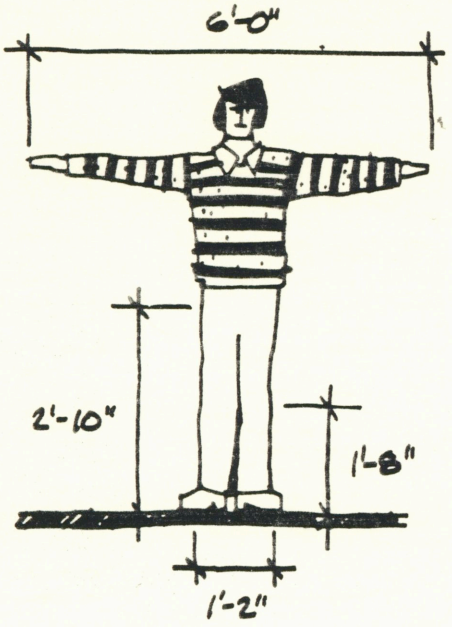


HANDICAPPED CONDITIONS

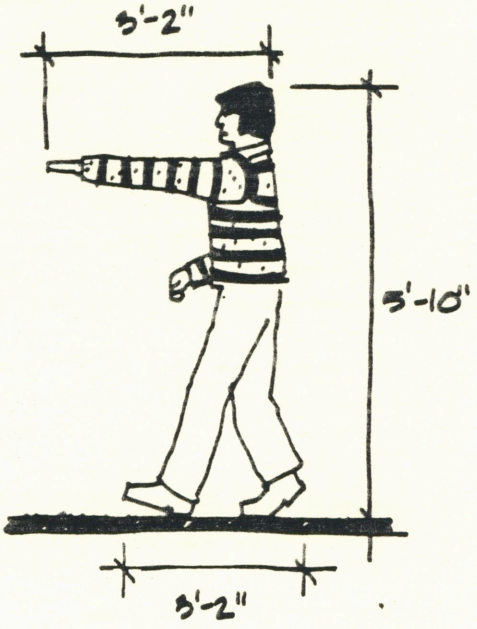


exterior

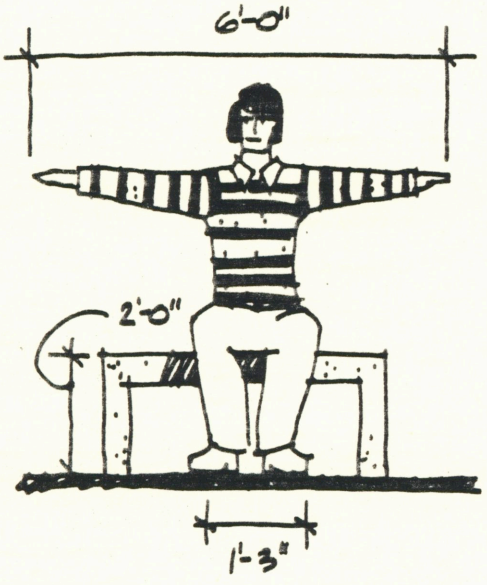
Dimensions for a Normal Human Figure



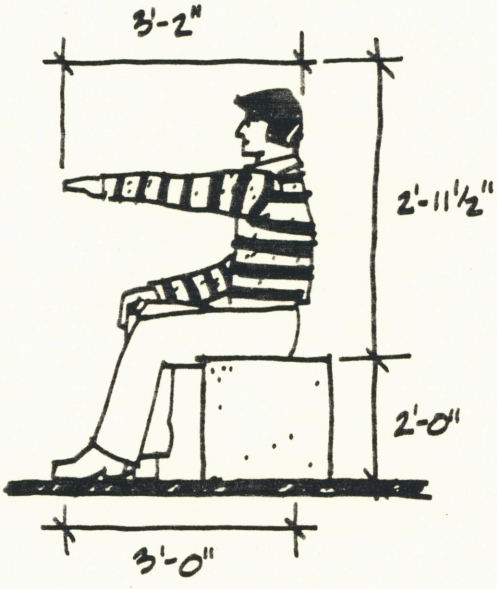
1. Standing, Lateral Reach



2. Walking, Forward Reach



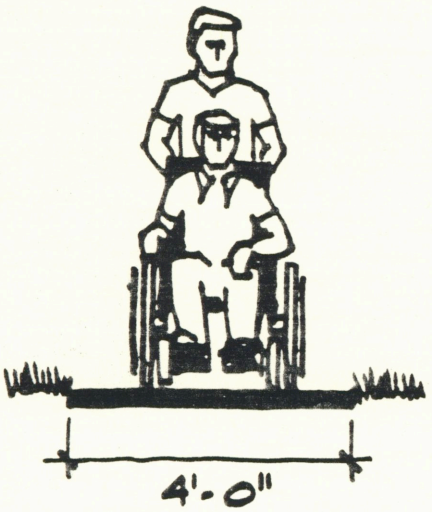
3. Sitting, Lateral Reach



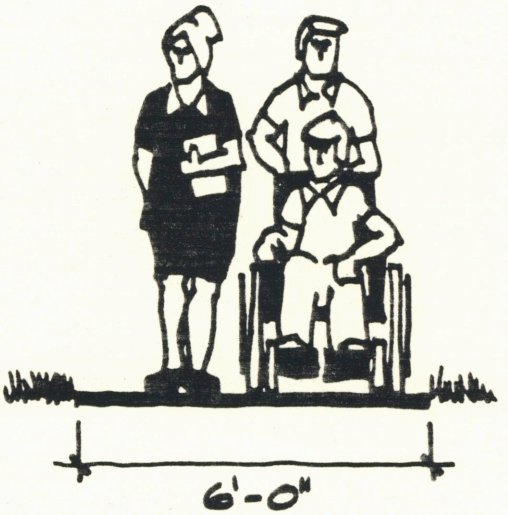
4. Sitting, Forward Reach

* taken from BARRIER FREE EXTERIOR DESIGN by GARY O. ROBINETTE

Recommended Widths for Straight-Line Travel

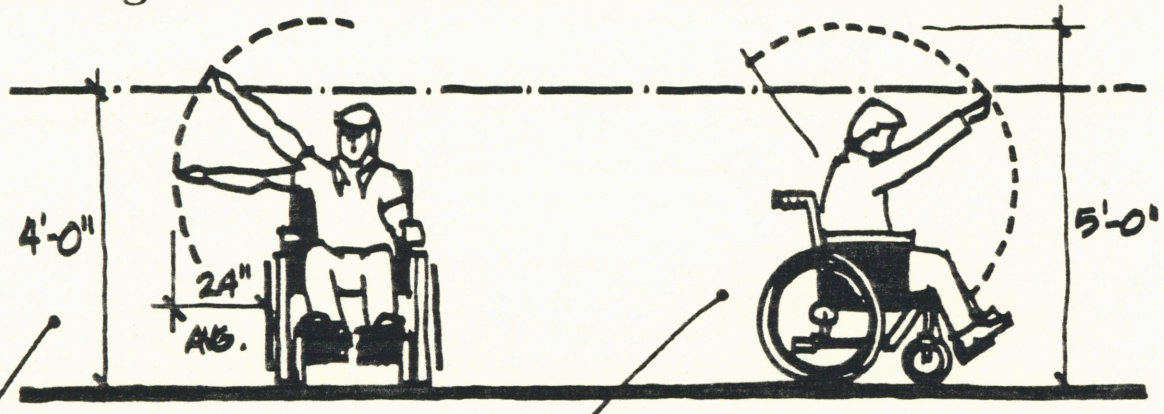


RECOMMENDED ONE-WAY



RECOMMENDED TWO-WAY

Average Reach Limits for Adults in Wheelchairs

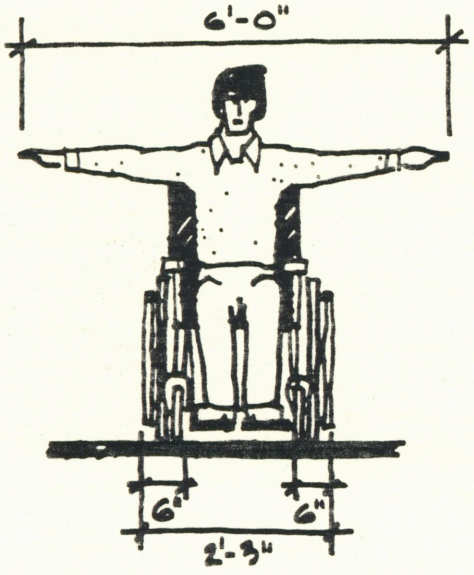


4'-0" MAXIMUM HEIGHT FOR SWITCHES, LEVERS, HANDLES, ETC.

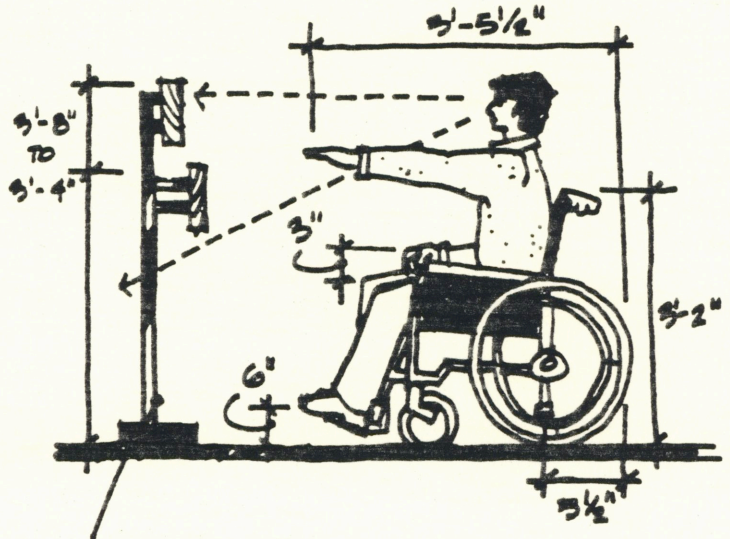
5'-0" AVERAGE MAXIMUM REACH FOR ADULTS IN WHEELCHAIRS.

* taken from BARRIER FREE EXTERIOR DESIGN by GARY O. ROBINETTE

Dimensions for Wheelchair-Bound People

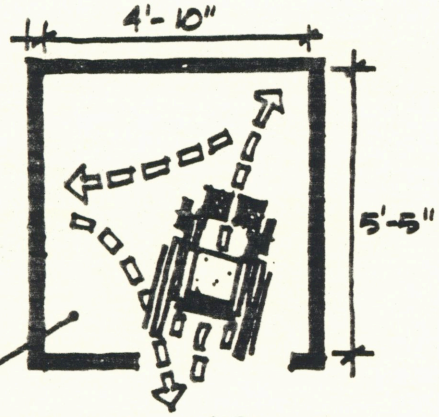


1. Lateral Reach/Width



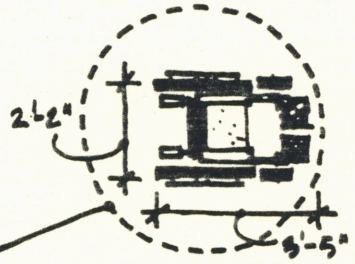
■ HANDRAILS AND RAILINGS BETWEEN 3'-4" AND 3'-8" WILL BE DIRECTLY BLOCKING THE VISION OF CHAIR-BOUND PEOPLE.

2. Forward Reach/Length



■ SMALL CHAIRS REQUIRE A RETANGULAR SPACE APPROXIMATELY 4'-10" x 5'-5" TO EXECUTE A THREE-POINT TURN.

3. 3-Point Turns



■ SMALL CHAIRS REQUIRE A CIRCLE WITH A MIN. DIAMETER OF 64" (5'-4") TO MAKE A PIVOT TURN.

4. Circular Turns

* taken from BARRIER FREE EXTERIOR DESIGN by GARY O. ROBINETTE

Outdoor Ramps

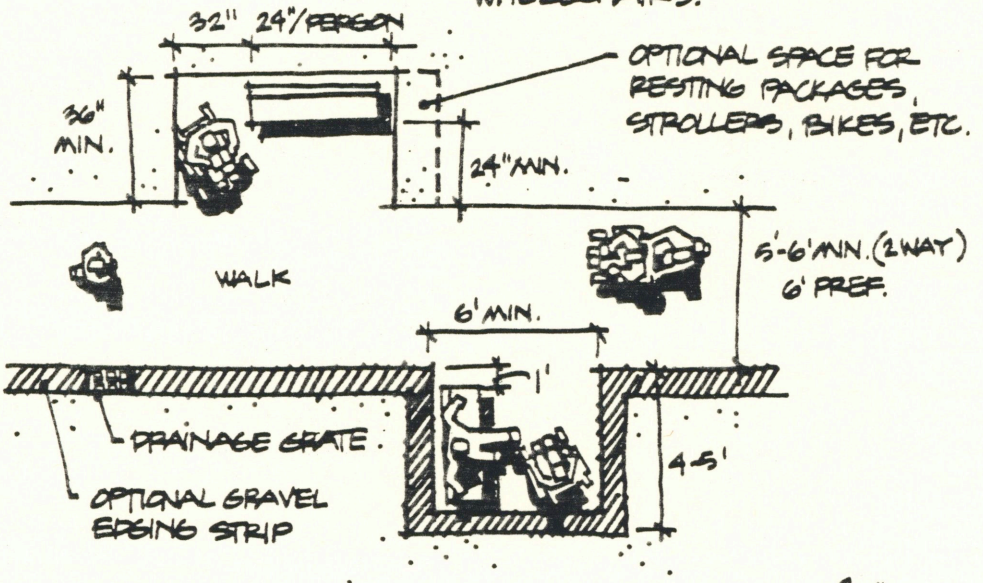


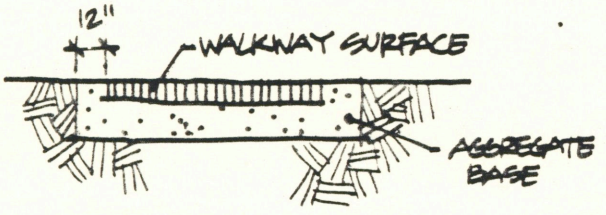
- PLANT MATERIALS SHOULD BE LOCATED SO THAT SHADOWS DO NOT PREVENT SUN FROM MELTING SNOW AND ICE ON RAMP SURFACES.
- PROVIDE MIN. AVG. OF 5 FOOTCANDLES LIGHT AT ALL RAMP AND STAIR LOCATIONS.
- RAMP WIDTHS VARY ACCORDING TO DESIGN SITUATIONS. PREFERRED MINS. ARE:
  - 1 WAY - 3' MIN. WIDTH
  - 2 WAY - 6' MIN. WIDTH
- MAX. LENGTH 30' BETWEEN LANDINGS
- HANDRAILS SHOULD EXTEND A MIN. 18" BEYOND TOP AND BOTTOM OF RAMP.
- 5'-0" MIN. CLEAR SPACE AT BOTH TOP AND BOTTOM OF RAMP.
- PROVIDE 2" HIGH CURB AT EDGE OF RAMP SURFACE FOR USE BY SMALL WHEELED VEHICLES OR WHEELCHAIRS AS EMERGENCY WHEEL STOPS.

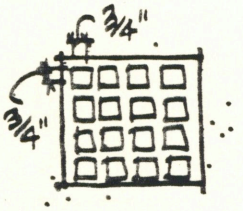
* TAKEN FROM BARRIER FREE EXTERIOR DESIGN GARY O. ROBINETTE

Rest Areas Along Walkways

- WHERE HANDICAPPED INDIVIDUALS ARE FORCED TO WALK LONG DISTANCES OR ENCOUNTER STEEP GRADES, (+5%), REST AREAS SHOULD BE PROVIDED.
- PROVIDE MIN. 24" SETBACK IN FRONT OF BENCHES TO KEEP LEGS AND PACKAGES OFF WALK.
- PROVIDE MIN. 36" SETBACK FOR WHEELCHAIRS.







- AGGREGATE EDGING STRIPS SHOULD BE USED ONLY WITH VERY FINE AGGREGATES, OTHERWISE, NARROW WHEELS OF BIKES AND WHEELCHAIRS WILL FLOW DOWN INTO SHOULDER, POSSIBLY SPILLING RIDER.
- MOUNT ALL DRAINAGE GRATES, MANHOLES, ETC. FLUSH WITH ADJACENT SURFACES.
- GRATE OPENINGS SHOULD BE 3/4" SQUARE OR LESS.

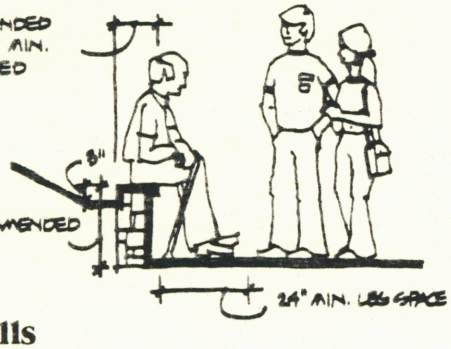
1. Gravel Edges/Shoulders

2. Drainage Grates

* taken from BARRIER FREE EXTERIOR DESIGN by GARY O. ROBINETTE

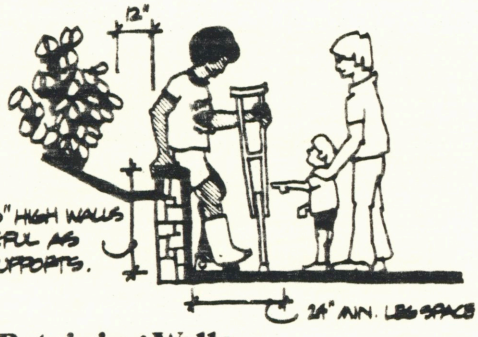
Wall Considerations

- A 5° DROP BEHIND SEAT WALLS IS RECOMMENDED TO KEEP DRAINAGE FROM RUNNING ONTO SEAT SURFACES.
- 8" RECOMMENDED SEAT WIDTH MIN. 12" PREFERRED
- 17"-18" RECOMMENDED SEAT HT. 20" MAX.



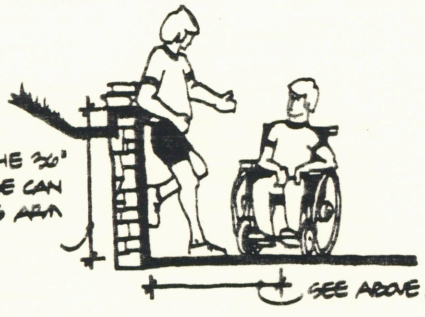
1. Seat Walls

- A 12" SETBACK IS RECOMMENDED BETWEEN THE REAR OF WALLS AND ADJACENT SHRUBBERY.
- 24" TO 28" HIGH WALLS ARE USEFUL AS REST SUPPORTS.



2. Low Retaining Walls

- PROVIDE 24" MIN. SPACE IN FRONT OF WALLS TO KEEP LEGS OFF ADJACENT WALKWAY. (36" FOR WHEELCHAIRS)
- WALLS IN THE 36" TO 40" RANGE CAN BE USED AS ARM SUPPORTS.

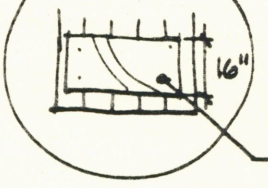


3. Retaining Walls Above Waist Height

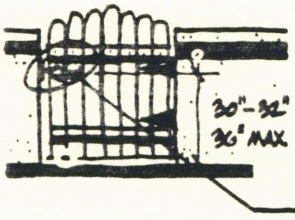
Gate Recommendations



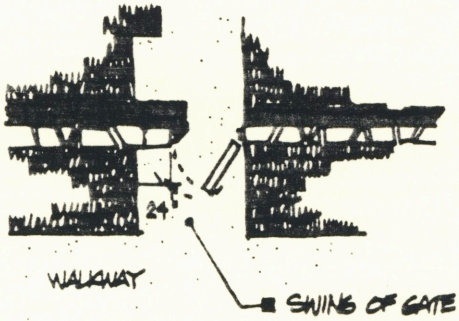
- GATE OPENINGS SHOULD HAVE A MINIMUM CLEAR OPENING SPACE OF 32".



- METAL KICKPLATES USED BY PEOPLE IN WHEELCHAIRS AND ON CRUTCHES AS AN AID TO OPEN GATES AND DOORS.



- HORIZONTAL LEVERS ARE EASIER TO OPERATE THAN ARE KNOBS OR THUMB LATCHES.

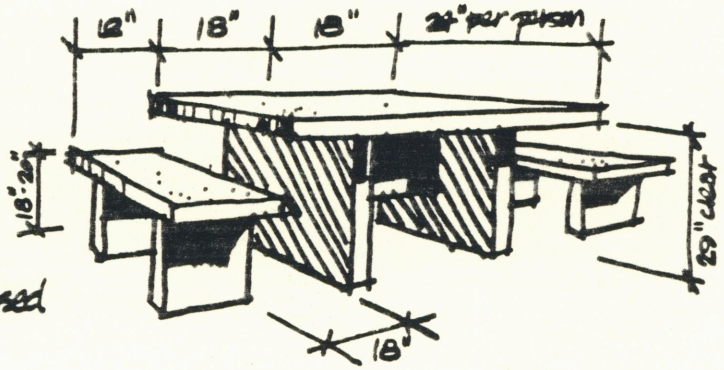


- SWING OF GATE SHOULD NOT PENETRATE ADJACENT WALKWAYS.

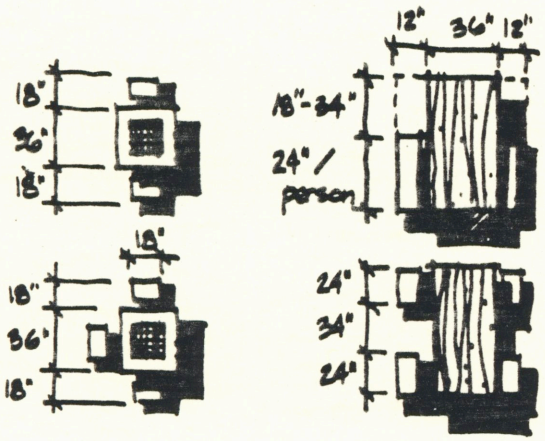
* taken from BARRIER FREE EXTERIOR DESIGN by GARY O. ROBINETTE

Site Furniture

Outdoor Tables



- Table widths @ 18"/person.
- Table lengths @ 24"/person.
- Table heights @ 29"-33" avg.
- Round off or chamfer all exposed corners or sharp edges.
- Keep table tops smooth with no recesses that might hold water or food particles.
- Provide 18" clear leg space under table; measure from outside of table top to nearest support or table leg, etc.

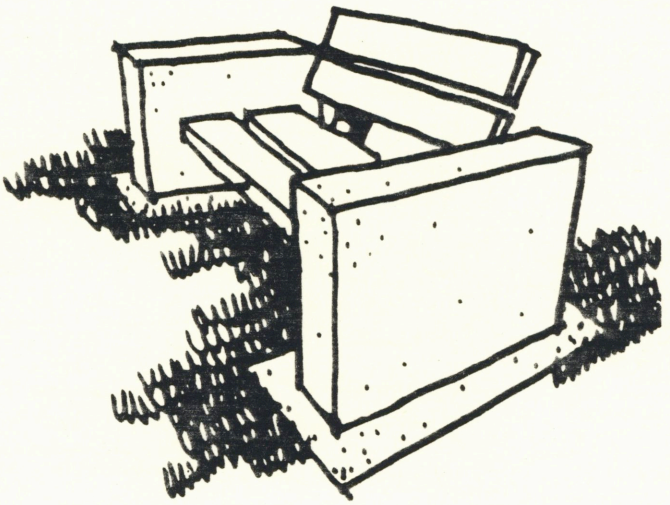


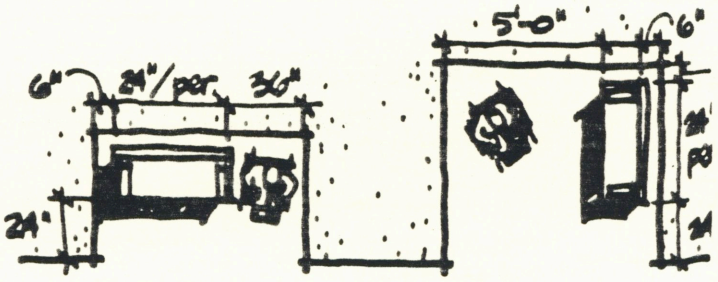
Game Tables **Picnic Tables**

* taken from BARRIER FREE EXTERIOR DESIGN by GARY O. ROBINETTE

The following data represents design recommendations in regard to the most commonly used elements of site furniture. The criteria shown are intended to enhance the use of specific types of furniture by a greater diversity of people.

1. **Tables:**
   - **a.** Tables should be constructed with a clear space between the ground and bottom edge of the table of at least 29". This allows wheelchair dependent people to pull up beneath the tabletop.
   - **b.** A lateral space of at least 34" is necessary to account for the width of a wheelchair.
   - **c.** At least some tables intended for public use should be located on hard surface paved areas. Mothers with children in strollers or carriages, people who are physically restricted in their movements, and wheelchair dependent people are better able to gain access to these tables.
2. **Seating:**
   - **a.** Seating should be provided adjacent to paved areas, along walks, near the tops and bottoms of major ramps and stairs, and where otherwise deemed appropriate. It should not be located within a traveled way where it would create an obstruction.
   - **b.** Seat heights in a given area should be uniform and at a height from the ground of 18" to 20".
   - **c.** Seats should be designed with back supports and arm rests. Aside from being desirable from a standpoint of comfort, they also provide support for people rising up off the seat.
   - **d.** Seating should be constructed to support a minimum of 250 lbs. for each person they are designed to accommodate.
   - **e.** A space of 5'-0" should be allowed between the front of a seat and the nearest obstacle. A space 36" wide between ends of benches, or at the end of one bench, allows



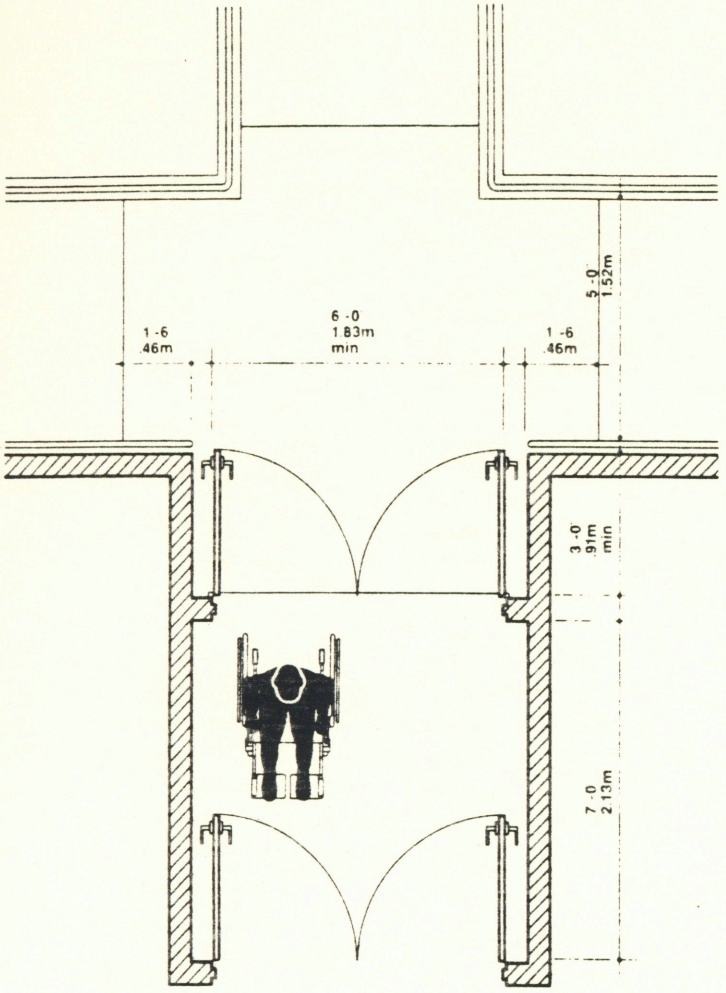


Space Around a Bench

- PROVIDE 24" SETBACK TO KEEP LEGS FROM INTERRUPTING ADJACENT PEDESTRIAN TRAFFIC
- A 36" MIN SPACE SHOULD BE PROVIDED TO ALLOW FOR WHEELCHAIRS.

* taken from BARRIER FREE EXTERIOR DESIGN by GARY O. ROBINETTE

interior



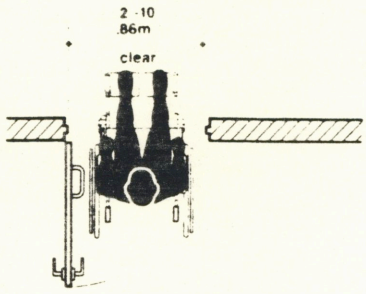
Entrance vestibule with ramps

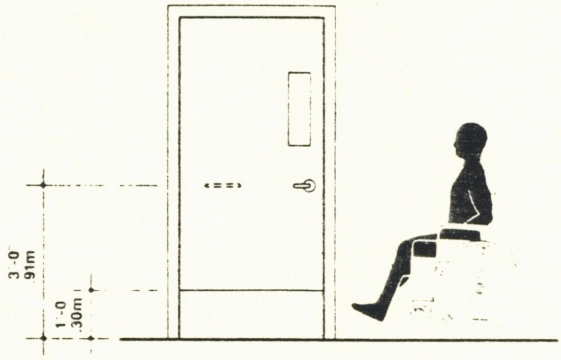
¼" = 1'0"

Entry

The disabled should be able to enter a building through primary entrances and not service areas. Buildings should not have revolving doors or turnstiles as the sole means of entry since they are not passable by the chairbound and are hazardous to the ambulant disabled and the blind. All entrances that also serve as emergency exits should be accessible to and usable by the chairbound. In a multistory building, at least one accessible entrance should lead to an elevator.

* from BUILDING WITHOUT BARRIERS
SARA P. HARKNESS
JAMES M. GROOM, JR.





Side-hinged
swinging door
¼" = 1'0"

Doors and Doorways

Doorways should be wide enough to allow easy passage for a wheelchair. Some codes specify a 34"/86 cm clear opening width for doorways. Although this is more than is needed for the wheelchair to pass through the opening, less space requires greater precision in the wheelchair operation and restricts the space needed by the person's arms and hands in turning the wheels. The wheelchair needs more room if turns have to be made.

Each leaf of a double-leaf door should be wide enough so that only one door needs to be open to allow passage of a wheelchair.

A level space or platform at least 5'0"/1.52 m wide should extend a minimum of 1'0"/0.30 m on either side of a doorway to allow the disabled to maneuver the wheelchair while opening or closing the door. The best arrangement is a level platform that extends 1'6"/0.46 m on the side toward which the door opens.

* taken from BUILDING WITHOUT BARRIERS
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JAMES N. GROOM, JR.

Corridors, Passageways, and Floors
Corridors and passageways should be wide enough for a wheelchair to make a 180-degree turn in a continuous movement.

For changes of level, there should be a ramp or a lifting device, such as an inclinator.

Floors should have flat, nonskid surfaces. Carpets should be well fitted to the floor; they should be inset to lie flush with adjacent surfaces. Carpets with deep piles or padding should be avoided as they make passage difficult for both the chairbound and the ambulant disabled.

Elevators
Elevators should be provided in all public buildings of two or more levels since the chairbound disabled can use them independently, whereas they cannot manage escalators and stairs without assistance. At least one elevator should be large enough for a wheelchair and should have access to the main lobby and entrance, main circulation corridor, and other public areas.

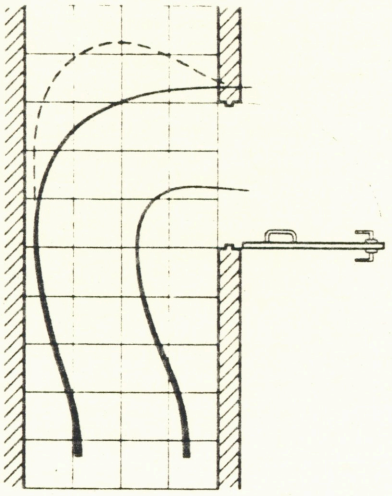
Elevator controls and safety devices should be low enough to be within the diagonal reach of a person in a wheelchair. These may be either on the front or the side wall of the elevator. As mentioned, braille symbols and single raised letters and numbers should be located next to standard buttons in the elevator cab and at each floor on the elevator door frame (see The Blind).

Some chairbound people enter into and exit from elevators with large (usually rear) wheels first to avoid the possibility of catching the small wheels in the gap between the floor and the elevator cab. The gap should not be more than ⅜"/1 cm.

Automatic leveling should be required so that there is no difference between the levels of the floor and the elevator cab.

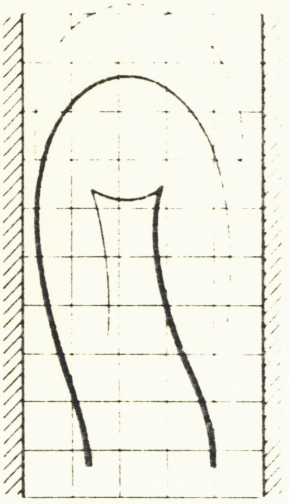
The interior dimensions of the elevator cab should allow a wheelchair to enter, turn 180 degrees, and exit easily.

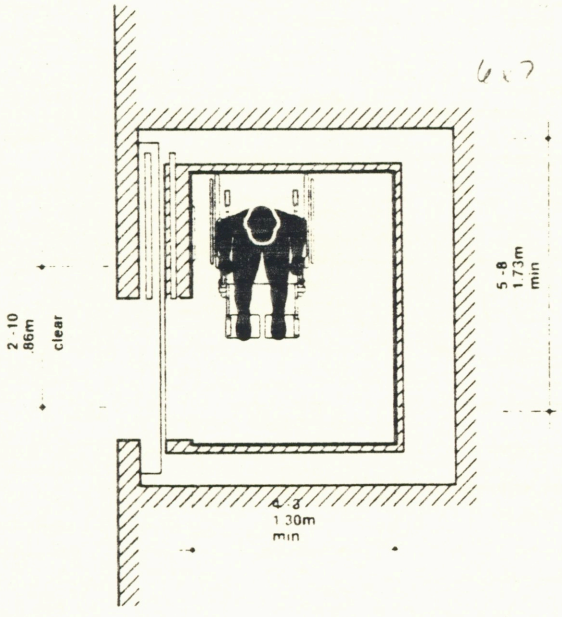
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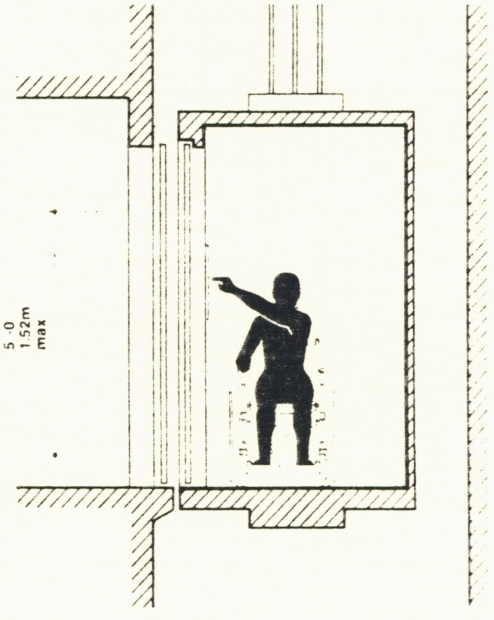
Wheelchair space for turning; dotted line represents line of footrest travel

¼"=1'0"





Plan



Section

Elevator

¼"=1'0"

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Building Controls
It is important that the chairbound be able to reach controls throughout a building without having to ask for help. One of the principal differences between the requirements of the chairbound and the ambulant disabled is in the area of reach (see The Chairbound Disabled. Area of Reach). The seated position of the chairbound gives them an area of reach that is lower than that of a standing person. Therefore, the height of important controls, equipment, and storage areas should be in the range common to both the chairbound and the standing ambulant disabled.

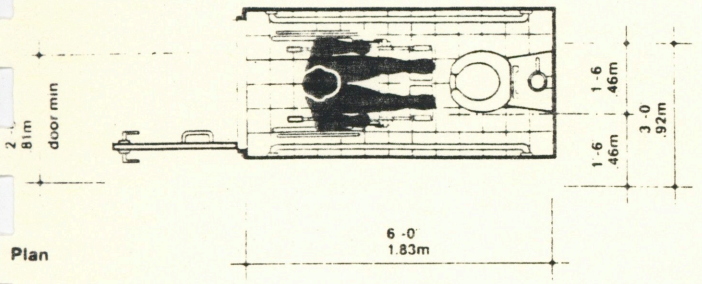
Controls, such as light switches, thermostats, electrical outlets, fire alarms, call buttons, air conditioner controls, window hardware, and drapery pulls, should be easy to use and placed no higher than 4′0″/1.22 m above the floor, within the area of reach that is common to both the chairbound and the ambulant disabled.

Shelves and Counters
So that there can be some part of a storage wall suitable for the chairbound, the ambulant disabled, and the ablebodied, all of whom have different minimum and maximum areas of reach, shelves should be full height from floor to ceiling. The usual system of shelves above and below counters does not make use of the space directly above the counter, the most convenient height for disabled people. A full wall of shelves therefore offers some storage within reach for the ambulant and the chairbound disabled.

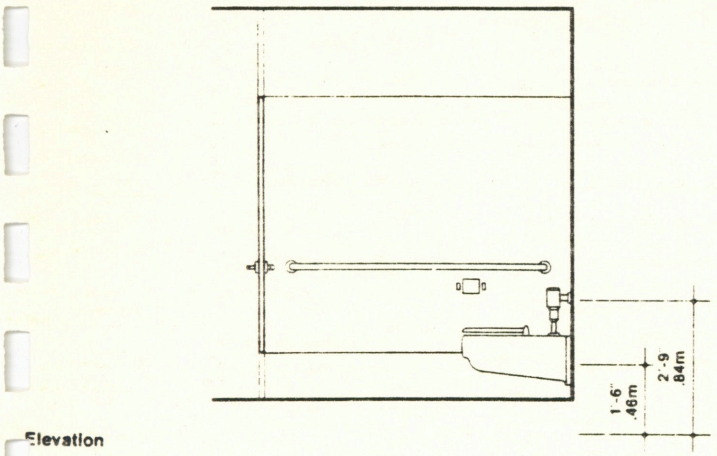
Where a writing surface is required, as, for example, in a bank or library, at least one 30″/76 cm- to 33″/84 cm-high counter or tabletop should be provided for the chairbound. There should be clearance below the counter or tabletop to give the chairbound knee space under the writing surface so that they can position themselves close to it.

Public Telephones
At least one public telephone in a building should be set low enough to be readily accessible to people in wheelchairs. When a telephone is set low for the chairbound it can be easily used by other people if a folding seat is provided in the booth or enclosure. If booths are provided, they should be 4′0″/1.22 m to 5′0″/1.52 m deep and wide enough to accommodate a wheelchair. A wall-hung telephone with a ceiling- or wall-mounted baffle wall on each side is also satisfactory.

* taken from BUILDING WITHOUT BARRIERS
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JAMES N. GROOM, JR.



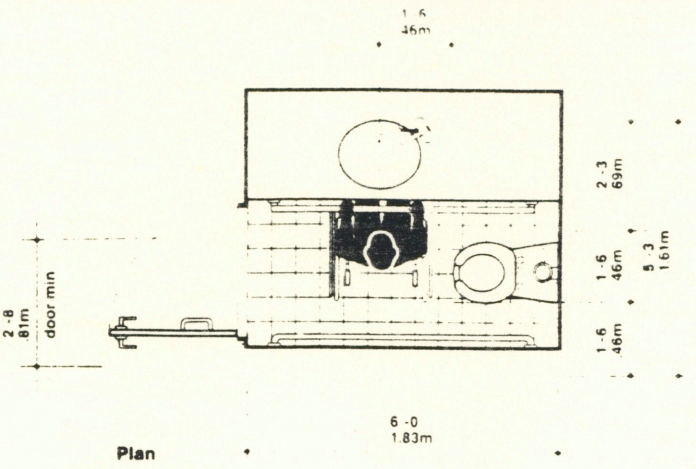
Plan



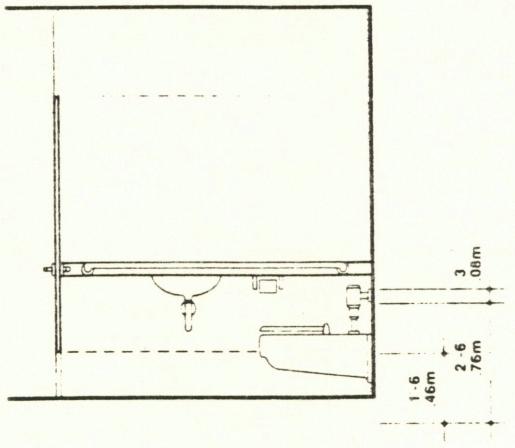
Elevation

Minimum toilet stall for the disabled—more suitable for the ambulant than the chairbound

¼"=1'0"



Plan



Elevation

Suggested restroom/lavatory 1: toilet stall (or lavatory) with washbasin; ample space for turning a wheelchair

¼"=1'0"

Arrangements

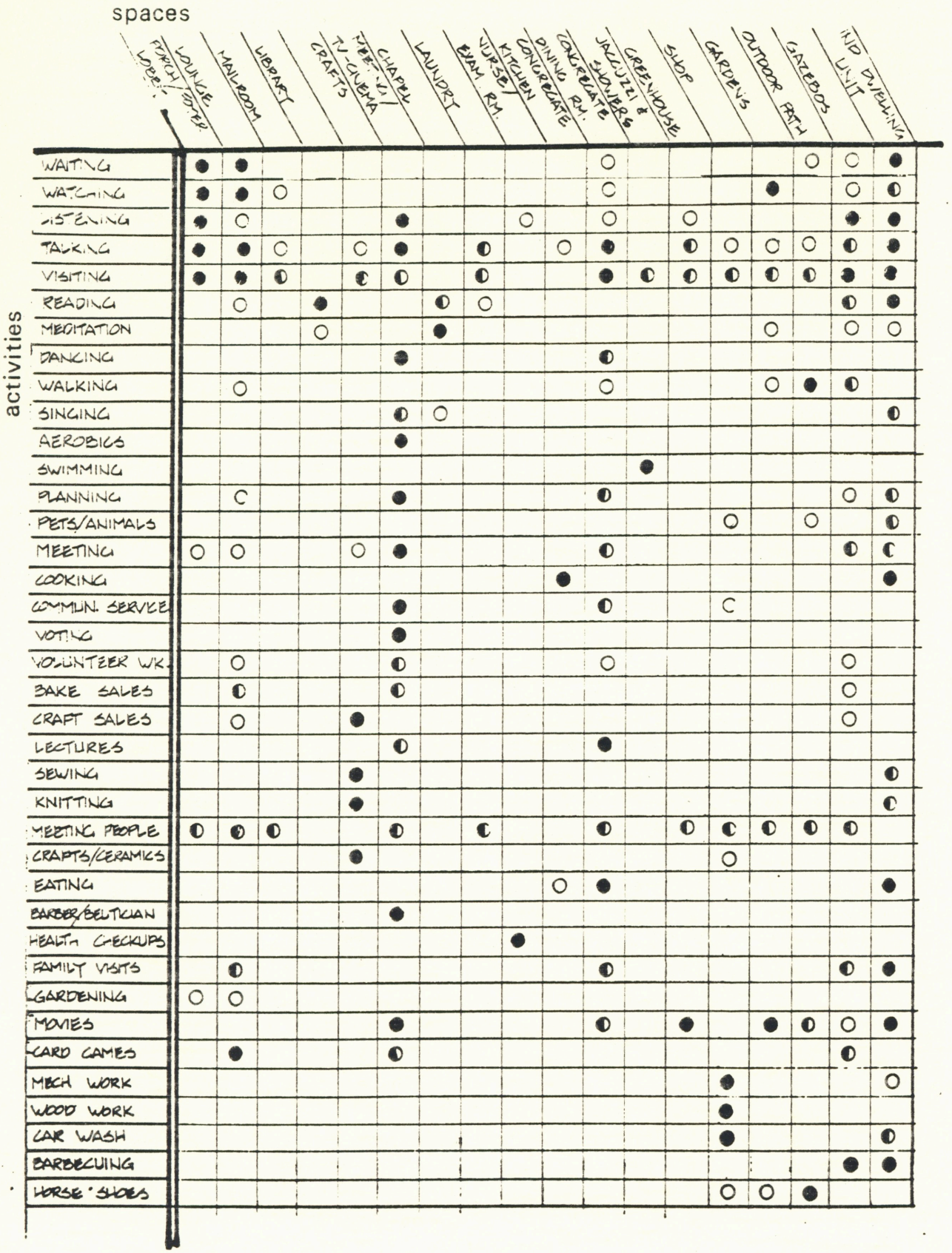
Several arrangements of toilets with grab bars are possible and code requirements differ from state to state. The least expensive and most widely used arrangement provides long grab bars attached to the side walls on either side of a 3'0"/0.91 m-wide toilet stall. This arrangement serves the ambulant disabled very well and is usable by many of the chairbound. However, it requires a transfer from either the front or the rear of the wheelchair.

An often recommended variation of this arrangement provides a set of grab bars attached to and cantilevered from the wall behind the toilet. Again, this arrangement serves the ambulant disabled very well. But we do not recommend it for the chairbound since it requires a front or rear transfer, with the added disadvantage that the grab bars cannot be as long as they could if they were attached to the side walls.

Our suggested Restroom/Lavatory 1 is, we think, a great improvement over the standard 3'0"/10.91 m-wide stall recommended in many codes. It includes a built-in washbasin and counter in the stall or lavatory within reach of the seated position on the toilet. The space under the counter allows knee space so that a wheelchair may be positioned for a diagonal transfer (much easier for most chairbound people than front transfer). The long grab bars are the same as for the standard 3'0"/0.91 m-wide stall. This is an attractive arrangement that both the able-bodied and the disabled could find helpful.

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JAMES N. GROOM, JR.

ACTIVITY – SPACE MATRIX



CHECKLIST OF PHYSIOLOGICAL CHANGES WITH AGE AND SOME DESIGN IMPLICATIONS

Sensory Process and Perception

Age-related sensory losses occur with vision, hearing, taste, touch, and smell. One possible and practical design response to these losses is to load the environment with redundant sensory clues. This includes special attention to:

1. the quality and quantity of light
2. the use of color (brighter colors and those in the orange-yellow-red spectrum are easier to distinguish)
3. contrasts of light and dark shadows and advancing and receding colors as they distort depth perception
4. the intensity and pitch of sounds (lower-pitched sounds are more easily heard)
5. tactual cues that may be more easily "read."

Central Nervous System and Cognitive Functions

Although many cognitive functions do not change with age, concept formation ability and reaction time may be reduced. To facilitate orientation and promote safety, special attention must be given to:

1. decreased concept formation ability affecting orientation or way-finding.
2. slower reaction time
3. difficulty in distinguishing and interpreting background noises from foreground sounds

Muscular and Skeletal Systems

Muscular strength, agility, and fine motor control may diminish with age. The reduced resiliency of the skeletal system requires attention to safety, security, and environmental negotiability, as injury may be more devastating for older people. These have special implications for the design of:

1. ground surfaces and changes in elevation
2. facilities requiring fine and/or gross muscle movement

Temperature Adaptation

The reduced ability to adapt to changes in temperature requires amenities and detailing for temperature moderation/control.

Disease

Susceptibility to chronic diseases restrains activity. Special considerations for health-related problems include:

1. providing easy access to nearby restrooms
2. providing options for those with various levels of reserve/energy
3. limitations on fine motor control and gross movements due to arthritis

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