

THESIS PROGRAM

A CAMP FOR HANDICAPPED AND NONHANDICAPPED YOUTH IN  
CUCHARA, COLORADO

by

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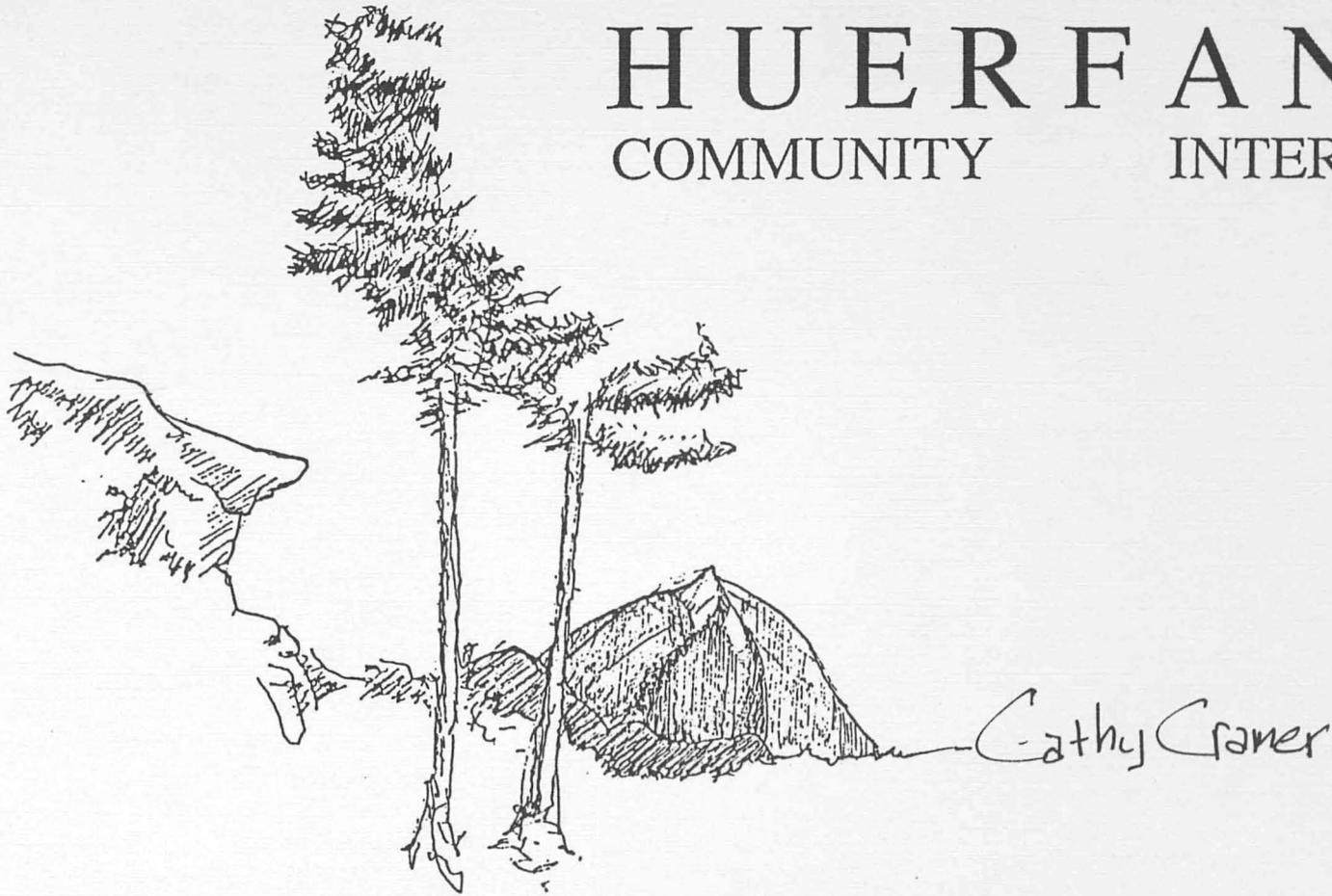
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CAMP  
HUERFANO  
COMMUNITY INTERFACE





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## issues

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## Introduction

## **introduction**

This book presents guidelines for the design of a camp for handicapped and non-handicapped youth to be located at Cuchara, Colorado. The primary function of the facility would be hosting a six, two-week sessions of summer camp. But, it would also be available for retreat, convention, educational and other groups, as well as individuals and families. Goals of this project include:

- strengthening the Cuchara-La Veta economy
- designing for all senses
- designing an accessible recreation environment which is free in the sense that it can be used by handicapped persons, with or without the aid of others
- designing with the environment; maximizing plant and wildlife habitats as well as man's
- using free energy to help supplement and replace electricity and natural gas



Figure 1- "Landscape Form" from "Landscape Form" by G. C. Hartshorn, 1939. The image shows a landscape with a prominent peak, likely a mountain range, and is used to illustrate the concept of landscape form.

## issues

Studying anything out of context gives false impressions and inaccurate insights. Just as a sentence taken from a paragraph in a book can not be fully understood, architecture can not be understood without an understanding of its environment. The following issues attempt to put this summer camp in context of the....

...the world.

Biological identity each form of life by its kingdom, phylum, class, family, genus and species. This level of identification to the life degree, gives some indication of the variety of known life, but even within a species each individual differs from the others.

The life dwells on a surface of great variety as well. The earth's landforms include the peaks of the Himalayas, the Great Plains of North America, the desert sands of the Sahara and the waters of the Pacific.

Down life and the landscape are constantly changing, though to slow by a man's life span. Man progresses through life at least speed compared to the growth changes taking place within a decade and the reorganization of landscapes. Therefore, from man's point of view the world appears to be unchanging. However, scientific methods with a knowledge of their cyclical and processes of development leads to a better understanding of the earth.

...the world.

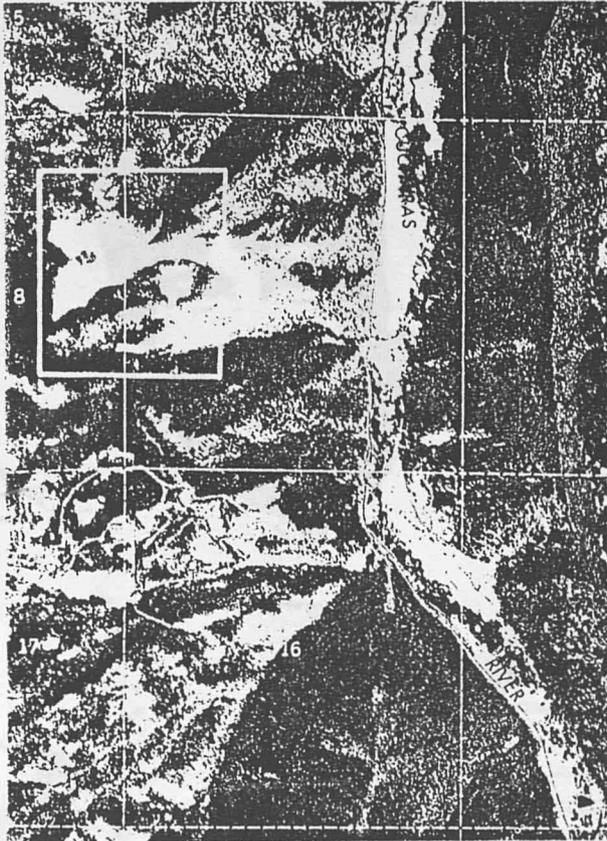


Figure 1-- "Cucharas Pass" Orthophotoquad, 1979, advance print. U. S. Geological service. Proposed site outlined in white.

## One

## planet earth

Earth's ability to support life sets it apart from other planets in this solar system.

Unlike other planets known to man in nineteen-hundred and eighty-seven, earth is an inhabited one. Life is abundant and varied, ranging from the smallest single-organism to mosses and algae, human beings and the largest whale.

Biologists identify each form of life by its kingdom, phylum, order, family, genus and specie.<sup>1</sup> This level of identification, to the fifth degree, gives some indication of the variety of known life, but even within a species each individual differs from the others.

This life dwells on a surface of great variety as well. The Earth's landforms include the peaks of the Himalayas, the Great Plains of North America, the desert sands of the Sahara and the waters of the Pacific.

Both life and the landscape are constantly changing, caught in time by a each man's life span. Man progresses through life at light speed compared to the genetic changes taking place within a species and the restructuring of landforms. Therefore, from man's point-of-view, the world appears to be unchanging. However, observing landforms with a knowledge of their calendar and processes of development leads to a better understanding of the earth,

<sup>1</sup>Salvador E. Luria, Stephen Jay Gould, Sam Singer, A View Of Life, 1981, The Benjamin / Cummings Publishing Company, p. 662





Figure 2-- Dan W. Kennedy, Ph.D., David R. Austin, Ph.D. and Ralph W. Smith, Ph.D., Special Recreation: Opportunities for Persons with Disabilities, 1987, Saunders College Press

two

human life

Though humans consider themselves the highest form of life on the planet earth [1] and to have been given charge of its resources, they do not always use or manage the earth or its resources responsibly.

A person's life consists of activities, behaviors and relationships engaged in on the basis of needs, both physiological and personal. The degree to which one's needs are satisfied largely determines his perception of the quality of his life.

Biological requirements, such as sleep, food, drink, clothing, shelter, etc. are necessary for human survival. These were termed by Abraham Maslow as "deficiency needs" in his "Hierarchy of Needs". They also have been labelled "first floor needs" by several United Nations Symposia and defined in article 25:1 of the United Nations Universal Declaration of Human Rights:

Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing, medical care, and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age, or other lack of livelihood circumstances beyond his control.<sup>4</sup>

<sup>4</sup>President's Commission for a National Agenda for the Eighties, Report of the Panel on the Quality of American Life, The Quality of American Life in the Eighties, 1981, Superintendent of Documents, U.S. Government Printing Office, p. 13

Once these threshold requirements have been met, personal needs can be attended to. The satisfaction of these needs is subjective, having no direct relationship to material resources.

All the activities with which we attempt to meet these threshold and personal needs can be divided into six categories. Two categories include compulsory activities and four, optional types activities. Compulsory activities are necessary to meet physiological requirements. Optional activities promote happiness. Often however, an activity falls into different categories for different people and sometimes an activity overlaps categories. For example, a professional golfer may see playing golf as a work activity. While, a weekend golfer may consider golf a play activity. Another professional golfer may enjoy his work so much that it serves as play for him as well.

**therefore:**

facilitate those activities which result in the satisfaction of threshold needs while providing many opportunities for activities which lead to happiness.

Priority must be given to satisfying threshold needs [3] then happiness [6] can be pursued.



U.S. Government Printing Office: 1967

Dr. W. Kenneth Davis, Ph.D., David B. Davis, Ph.D., and John W. Davis, Ph.D., Social Psychology Department, The University of Michigan, 1967



Figure 3--Dan W. Kennedy, Ph.D., David R. Austin, Ph.D. and Ralph W. Smith, Ph.D., Special Recreation: Opportunities for Persons with Disabilities, 1987, Saunders College Press

### three threshold needs

Certain needs are required for the continuance of human life [2].

It is, generally agreed that until threshold needs are met we cannot move on to "higher needs".

Threshold needs include freedom from hunger, poverty, sickness, illiteracy, and undue fear about the impact of the hazards of life (such as accidents, personal attack, war, burglary, fire, natural disasters, toxic and hazardous substances.) John and Madga McHale write:

...many other quantities and qualities may define human needs in the larger sense, but without the physical minima, deterioration of the body restricts the mental vision and degrades the spirit. Deprived of basic shelter, on the edge of starvation, and without the rudiments of education no one can make relevant choices or seek personal fulfillment.<sup>5</sup>

Two types of activities serve to satisfy these basic needs are:

- 1) **biologically necessary activities:** sleeping, eating, drinking, eliminating, cleansing, exercising
- 2) **work:** activities which are necessary to obtain biological needs such as food, drink, clothing and shelter. (For those people whose wealth is such that they are not required to work to secure the means of subsistence, this set of "compulsory" activities is optional.)

<sup>5</sup>John and Magda McHale, Basic Human Needs: A Framework for Action, 1977, Transaction Books, p. 24

**therefore:**  
develop convenient spaces and facilities for activities which fulfill the threshold needs for human survival.

Human survival depends on physiological activities [4] and (for most people) work activities [5].



Figure 3--Ben W. Kennedy, Ph.D. and Ralph W. Smith, Ph.D. Research Assistant  
Quantitative for Persons with Disabilities 1987  
Sunderland College Press

John and Margie Smith, San Diego State University  
April 1977, unpublished work p. 14



Figure 4-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher

#### four physiological activities

The most basic threshold needs [3] support biological functions.

Physiological activities are necessary for the continuation of life. They support those functions which keep an organism's body alive.

A large percentage of the space in our dwellings is devoted to physiological activities. We have become accustomed to modern plumbing and a nearly sterile environment. However, as backwoods campers can attest to, these facilities themselves are not necessary to the support of life. A businessman checking into a hotel has different standards for measuring the quality of this habitat than the same man sleeping under the stars far from civilization.

therefore:

provide space and time for satisfaction of physiological needs according to user expectations and capabilities.

Activities such as sleeping [45], dressing [46], cleansing [47], eliminating [48], eating [52] and drinking [53] are biologically necessary.



Figure 5--Dan W. Kennedy, Ph.D., David R. Austin, Ph.D. and Ralph W. Smith, Ph.D., Special Recreation: Opportunities for Persons with Disabilities, 1987, Saunders College Press

Figure 6--Frank M. Robinson and Sandra Sholly Skinner, A Guide to Recreation for The Disabled Child, Adolescents in Camping, Adventure, and Community Life, 1985, Charles C. Thomas Publishers

## five

## work activities

Many physiological activities [4], like eating [52], drinking [53] and dressing [46] require products of value which must be exchanged for something of value. Work activities are the way this things are obtained.

Work activities support biologically necessary activities and, are therefore frequently engaged in.

A large portion of people's lives are spent at work activities. Some people find their work pleasant, but for too many it is simply toil. Work includes not only those activities by which persons make money, but activities such as cooking meals, and cleaning and maintaining clothing and shelter.

### therefore:

provide space for work activities which help to make them more enjoyable and less time consuming.

Work activities associated with organized camping [44] include medical [58], food preparation [56], cleaning and maintenance [59] and camp administration [54].



Figure 6-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher

## six

## happiness

Happiness is a measure of the "quality" of human life [2] which is possible only after threshold needs [3] have been met.

The pursuit of happiness is seen as a basic human right by most people.

The "Declaration of Independence of the United States of America" lists the pursuit of happiness among the "inalienable rights" of all people "endowed" to them "by their Creator". The pursuit of happiness can be provided by opportunities for personal growth, fulfillment, and self-esteem, including:

- opportunities to establish and maintain social bonds, with family, friends, community and co-workers
- opportunities to participate in and derive meaning from religious, civic, family and work activities
- access to sources of aesthetic and intellectual pleasure, including museums, concerts, public parks, libraries and participation in educational and other activities
- access to recreational activities such as hiking, athletics, reading and TV viewing<sup>6</sup>

<sup>6</sup>Op. cit., President's, pp. 14-15

Activities which promote happiness can be categorized by the following four sets of optional activities.

- 1) **leisure:** activities which improve the mind or character of the person participating in the activity
- 2) **play:** activities which are engaged in solely for the pleasure gained in the performance of the activity
- 3) **idling:** creative activities which consists of allowing thoughts to flow through one's mind with no particular direction
- 4) **meditation:** the contemplation of higher power or nature<sup>7</sup>

**therefore:**  
provide and support opportunities for the pursuit of happiness by all people

Happiness is found by participating in optional activities such as leisure [7], play [8], idling [9] and meditation [10].

Organized camping [44] provides opportunities to observe landforms [15], vegetation [18] and wildlife [19]; intellectual stimulus such as nature study with nature center [73] support; an open social environment [23]; opportunities for religious participation such as those taking place in a chapel [72]; directed play [8] activities such as, hiking [68], horseback riding [63], swimming [67].

<sup>7</sup>Mortimer J. Adler, A Vision of the Future, 1984, Macmillan Publishing Co., pp. 8-30



Figure 2-- Frank M. Robinson and Sandra Kelly Skinner  
A holistic perspective on the benefits of nature study in  
learning, recreation and community life 1983, Capra &  
Thomas Publishers

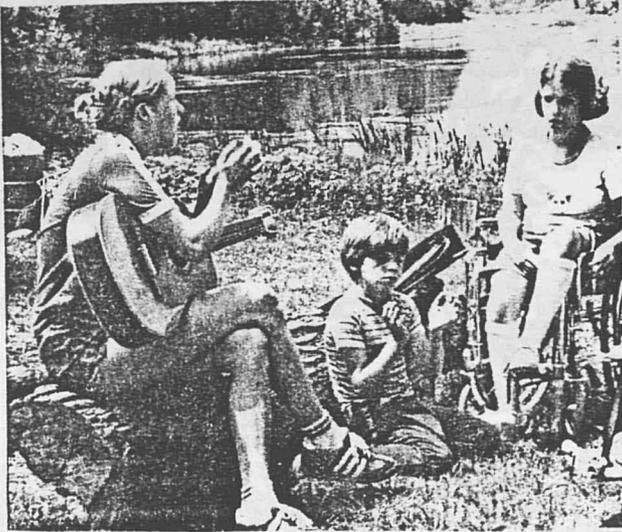


Figure 7-- "Easter Seal Guide to Choosing the Right Camp for Your Child"

## seven leisure activities

Many happiness [6] needs are met during uncommitted periods of time.

"Leisure" means different things to different people. Some see leisure as the enjoyment and satisfaction associated with free-time activities. Leisure, to others, represents a spiritual condition or state-of-mind emphasizing self-expression and perceived freedom. "Leisure lack' or the inability, for whatever reason, to achieve this positive, highly desirable state is seen as an impairment of the meaning and quality of life."<sup>8</sup>

Usually, the less an activity is like work, the more generally it is considered to be leisure.<sup>9</sup> Aristotle described leisure as "the state of being free from the necessity to labor." But, leisure is more than just the absence of work. Unemployment is not necessarily leisure. Leisure implies the freedom to choose between leisure and work. In fact, freedom is often seen as the mark of leisure and many definitions associate leisure with free time, relatively free of economic, social or physical constraints.

Western societies have historically sacrificed leisure to devote more time to money making activities. Recently, however, the values concerned with work and leisure have

<sup>8</sup>John Pigram, *Outdoor Recreation and Resource Mangement*, 1983, St. Martin's Press, p. 1

<sup>9</sup>Michael Bender, Ed.D., Steve A. Brannon, Ed.D., Peter J. Verhoven, Re.D., *Leisure Education Curriculum Goals Activities and Resources for the Handicapped*, 1984, College Hill Press, p. 1

undergone significant changes in North America. Work as a life focus

has combined with a newer leisure ethic leading to a "work hard/play hard" attitude.<sup>10</sup> Additionally, increased longevity, shorter work days and weeks, extended vacation time, better health, earlier retirement and labor saving technology have all contributed to more personal leisure time.

Though leisure and recreation are often considered synonymous, not all leisure time is spent on recreation. Leisure does not imply participation. Whereas, involvement is vital to the concept of recreation.<sup>11</sup>

Some people experience leisure within the context of their primary obligations. Thus, perception of leisure depends on individual circumstances. Leisure time overlaps other uses of time. For some people eating is a leisure activity, though it provides nourishment as well. For others, eating is an activity participated in only to satisfy biological needs. Despite these differences, for most people leisure remains linked with uncommitted time.

Still many persons continue to sacrifice their leisure time for work activities. These practices are often associated with physically-damaging stress which when coupled with a lack of play often has fatal results.

<sup>10</sup>John J. Bullaro and Christopher R. Edginton, Commercial Leisure Services: Managing for Profit, Service, and Personal Satisfaction, 1986, Macmillan Publishing Co., p. 3.

<sup>11</sup>Clayne R. Jensen, Outdoor Recreation in America, Fourth Ed., 1985, Burgess Publishing Co., p. 7

therefore:

attitudes including leisure as a part of everyday life should be taught, and opportunities for leisure activities provided.

Most leisure time is not spent on pure leisure, but on activities which fall into play [8], idling[9] and meditation [10] categories.

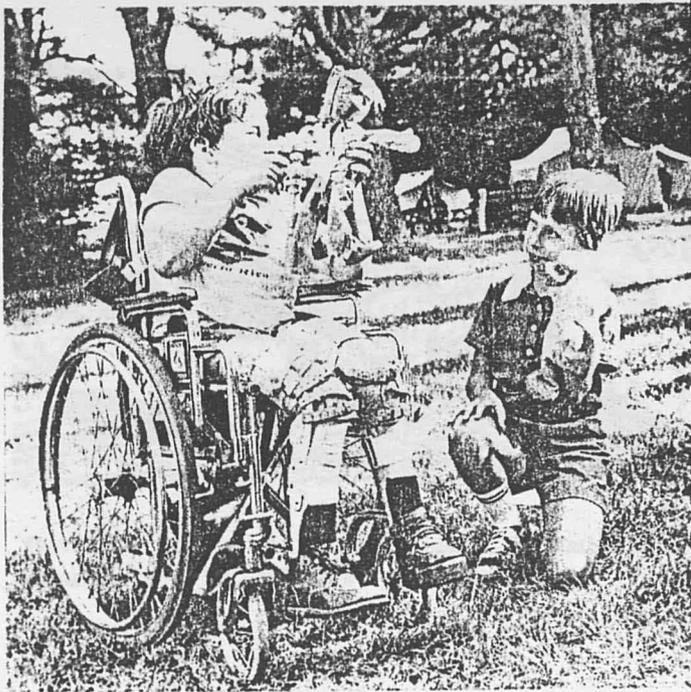


Figure 8-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher

## eight play

Happiness [6] is often experienced during recreational activities.

"The concept of the uniqueness and worth of each individual is a cornerstone in our culture....To the extent that we unfetter individuals and free them from the demands of work or duty, we allow them to be themselves."<sup>12</sup> Play is commonly considered that behavior which frees an individual. It is an activity which is not motivated by that which it will produce.

A person at play is not driven by external forces but is motivated from within.<sup>13</sup> And though play is an activity which does not set out to accomplish anything in particular, it has a very important part in personal growth. Joseph Levy describes the role of play in our development in this way:

Living in a state of play means living more humanly. In play we confirm our existence and affirm our worth.... the basic assumption is "that man is not born free; he is to become free."...Man must win his freedom; he must experience his freedom by living every moment to the fullest. To be free, and therefore to know play (know oneself), means to realize simultaneously the supreme importance and utter insignificance of our existence. To play means to accept the paradox of pursuing what is at once essential and inconsequential. Only in play can we totally commit ourselves to a goal that minutes later is forgotten or irrelevant....When

<sup>12</sup>Michael J. Ellis, Why People Play, 1973, Prentice Hall, p. 1

<sup>13</sup>Joseph Levy, Play Behavior, 1978, John Wiley & Sons, Inc., p. 1

we slip into play, we slip into a self experience where we can afford to "let go" and respond to ourselves, to others, and to the environment in an unpredictable, personal way. When we slip out of play, we slip into regimentation, lose our sense of personal freedom, and fail to see the incongruities of everything we hold to be important.<sup>14</sup>

Not only is play valuable for the personal development it produces but, people engaging in recreational pursuits find that this use of their free time results in better physical and mental health and greater personal fulfillment.<sup>15</sup>

**therefore:**

**provide play environments which free individuals to be themselves**

Many play activities are associated with organized camping [44] they include swimming [67], hiking[68], archery, softball, volleyball (multi-purpose playfield [69]), table tennis, dancing and fishing[71].



Figure 8-- Frank M. Anderson and Sandra Kelly Smith, A  
Harris Graduate in The Physical Child Education in  
Camping Recreation and Company Ltd. 1983, Chapter 3  
Thomas Publisher

<sup>14</sup>Op. cit., Levy, p. 1

<sup>15</sup>Op. cit., Bender, Brannon, Verhoven, p. 1

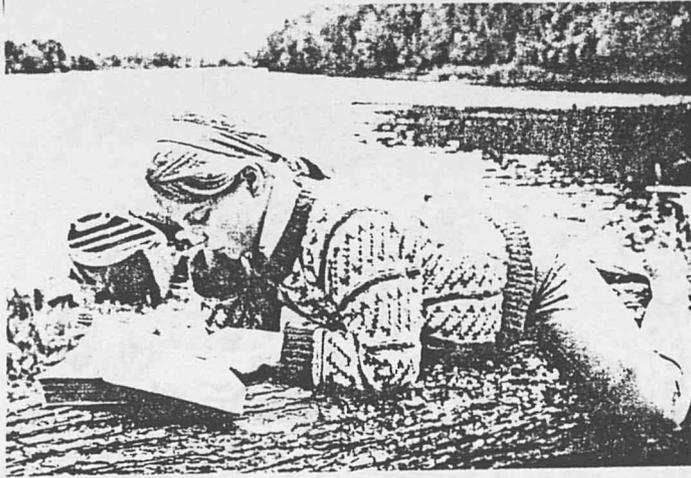


Figure 9-- Clayne R. Jensen, Outdoor Recreation In America, Fourth Ed., 1985, Burgess Publishing Co.

Figure 10-- Clayne R. Jensen, Outdoor Recreation In America, Fourth Ed., 1985, Burgess Publishing Co.

nine

idling

Idling activities are valuable in attaining what Abraham Maslow called "self-actualization," a deep sense of personal happiness [6]

"A poor life thus if, full of care, We have no time to stand and stare." "Leisure," W.H. Davis

Idling activities are among the most overlooked of all activities. Probably because when one is idling he appears to be doing nothing. Therefore, idling activities are not highly valued in western societies. However time spent idling or "processing", as it was called by Dioxades, can be a most creative, refreshing and productive experience.

therefore:

provide peaceful, private spaces which encourage thought.

Natural environment(s) [13] in which private spaces can be found, are very conducive to idling activities.



Figure 10-- Clayne R. Jensen, Outdoor Recreation In America. Fourth Ed., 1985, Burgess Publishing Co.

ten

environmental meditation

For happiness [6] and peace extending beyond earthly material concerns, one looks to a higher power in the universe.

Meditation attitudes vary from society to society and person to person.

Meditation can include contemplation of a supreme being or nature. It can be a social or private experience. In eastern societies meditation is often similar to idling. While, in the west meditation is often equated with worship. Meditation is an activity which requires time and is enhanced by silence.

therefore:

provide space for meditation according to the practices and desires of the persons who will be using the space. Associate this space with nature. Allow nature to freely flow through it.

In western societies meditation [10] activities often take place in a chapel [72].

therefore:

consider all the facets of an environment and its effects on the people it is designed for.

Environmental context consists of the natural environment [33], social environment [28] and the built environment [35]. People respond to the environmental context with individual systems [36].

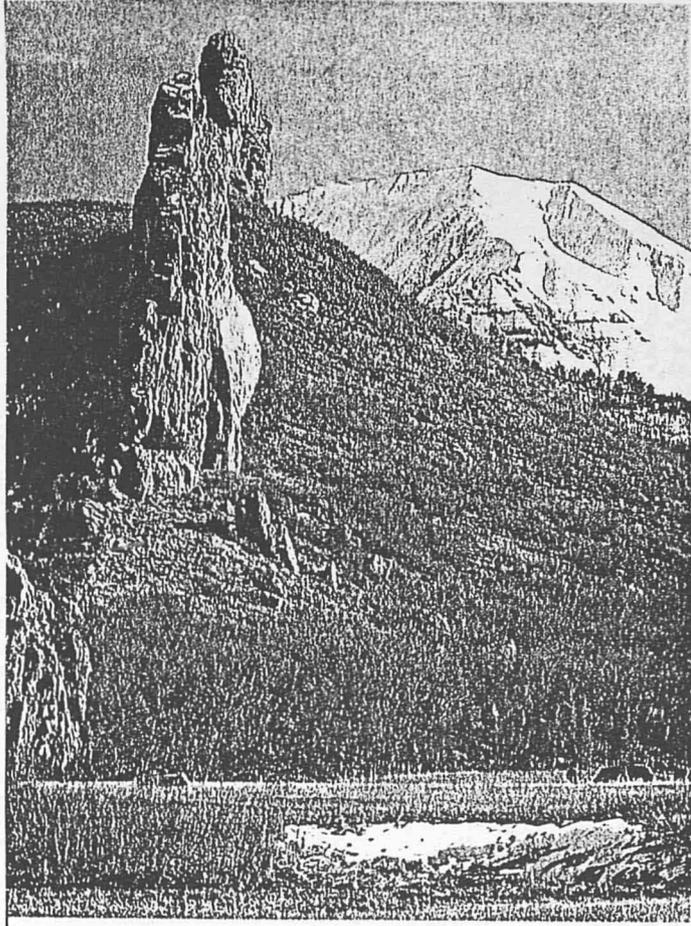


Figure 11-- The Devil's Stairstep with the West Spanish Peak in the distance. The Cucharan, Winter 1985

## eleven

## environmental context

The ability to satisfy one's threshold needs [3] and to pursue his happiness [6] depends upon his environmental context and individual capabilities [37].

Human life exists in diverse locations, within various political and social structures. This, the environmental context, defines one's quality of life in terms of quantity, method and style.

The impact of the environment on the lives of people is evidenced by the recent interest in studying and controlling it. Architects and city planners focus on the effect of physical organization of spaces and purposes. Human ecologists and geographers study how communities adapt and grow in their surroundings. Psychologists and sociologists attempt to design environments that will maximize personal functioning and competence. Psychiatrists and social workers believe that functional disorders are partially a result of dysfunctional social systems. They are interested in how social environments can lead to constructive handling of life crises.

### therefore:

consider all the facets of an environment and its effects on the people it is designed for.

Environmental context consists of the natural environment [13], social environment [23] and the built environment [35]. People respond to the environmental context with contrived systems [36].

Cuchara Valley is an environmental context [11] on the planet earth [1].

The unincorporated community of Cuchara is located on the southcentral edge of Huerfano County in south-central Colorado.

The 1,500 square miles of Huerfano County (Figure 13) encompass a wide variety of terrain from the Sangre de Cristo Range of the Rocky Mountains along its western and southern edges to the western-most portions of the Great Plains in the east. A rich multi-cultural heritage and diversity of lifestyles complement the geographic variety. Population densities range from small-town urban in the county seat of Walsenburg to sparsely settled rural.<sup>16</sup>

The Cuchara Planning Area shown in Figure 14, encompasses the Cuchara Water and Sanitation District, which includes about 2180 acres in the upper Cucharas River Valley. The Cucharas or Spoon River which cuts through the valley is vital to persons living downstream. For this reason it is important that the quality of the river's water be maintained.

Developed areas included are the community of Cuchara, Pinehaven and Spanish Peaks subdivisions and Cuchara Valley Resort ski area.

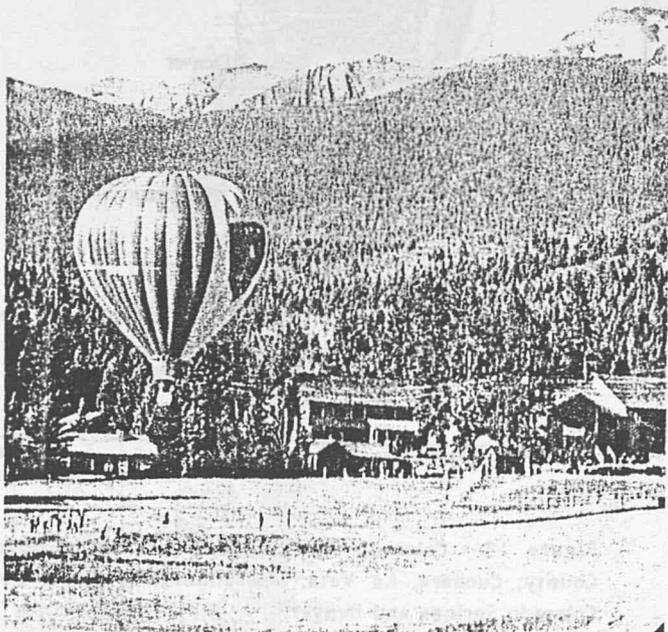


Figure 12-- The Timbers Hotel and restaurant from the North. The Cucharan, Winter 1985

<sup>16</sup>The Huerfano County Land Development Guide, January 1984, p. 1

The planning area is surrounded by the San Isabel National Forest, which is administered by the U.S. Forest Service. The open square, enclosing over 200 acres is now owned by Jack Casias.

The Valley can be reached in about one hour north west on Colorado State Highway 12 from Trinidad, or about 45 minutes travelling west on U.S. Highway 160 west then via La Veta, south on State Highway 12. Highway 12 is a two lane road. It has no shoulder. Its condition is maintained by the county. Other maintained roads in the area are all gravel. These include 421 to sulphur Springs, 364 to Aguilar and the road leading to Cuchara Valley resort

**therefore:**

manage the resources of the Cucharas Valley in such a way as to preserve them and allow people to get maximum enjoyment from the area.

The uniqueness of Cuchara Valley is a result of the combined effects of the natural environment [13] and social environment [23].

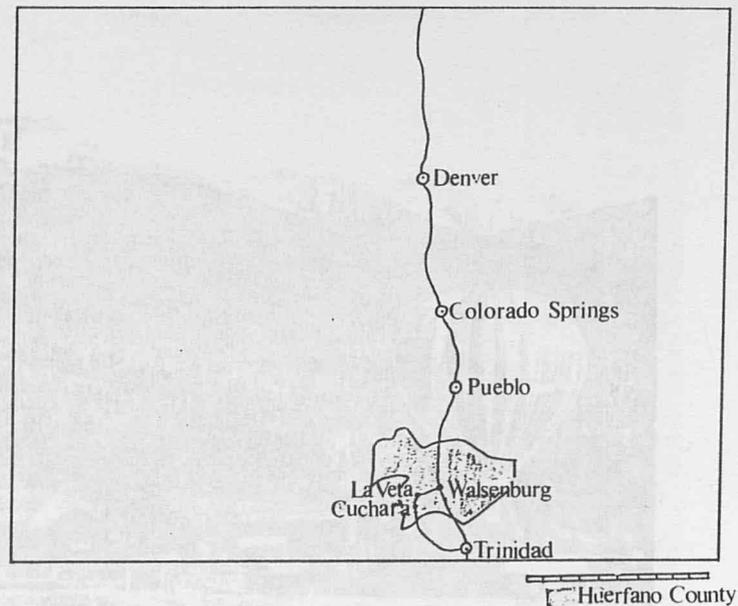


Figure 13-- Colorado state showing location of Huerfano County, Cuchara, La Veta, Walsenburg, Trinidad, Pueblo, Colorado Springs and Denver.

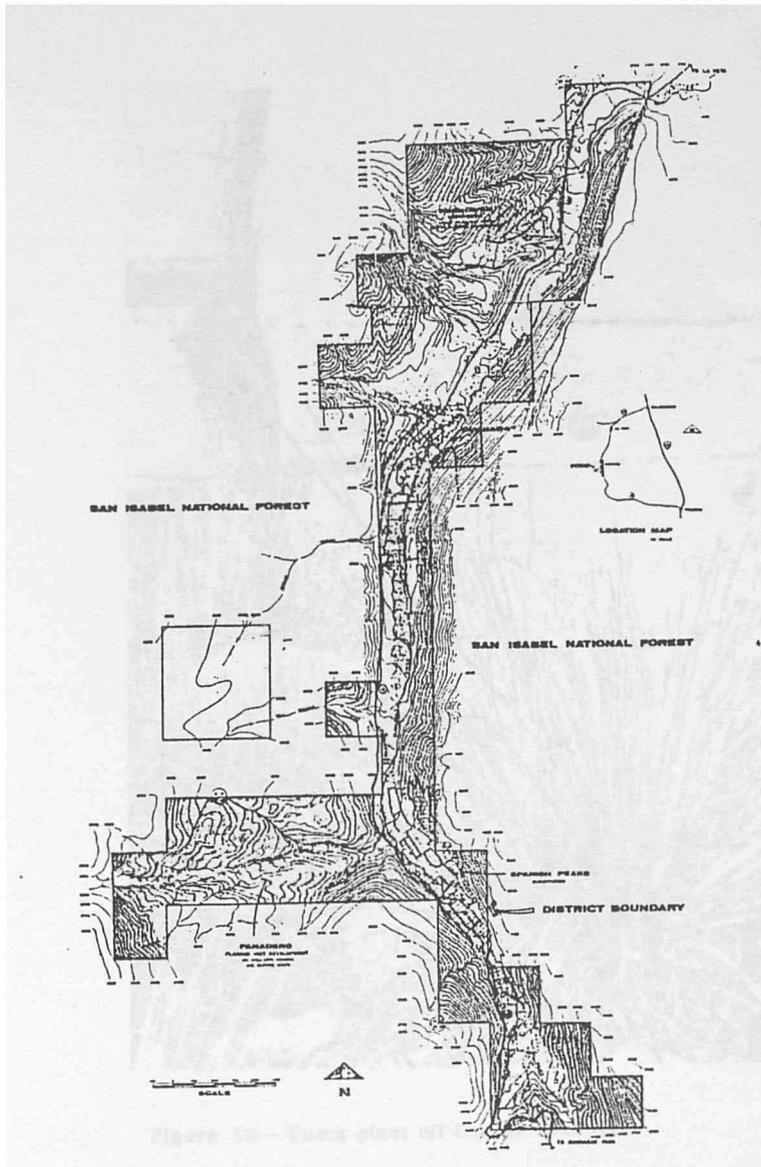


Figure 14-- Cuchara Planning Area. The Huerfano County Land Development Guide, January 1984

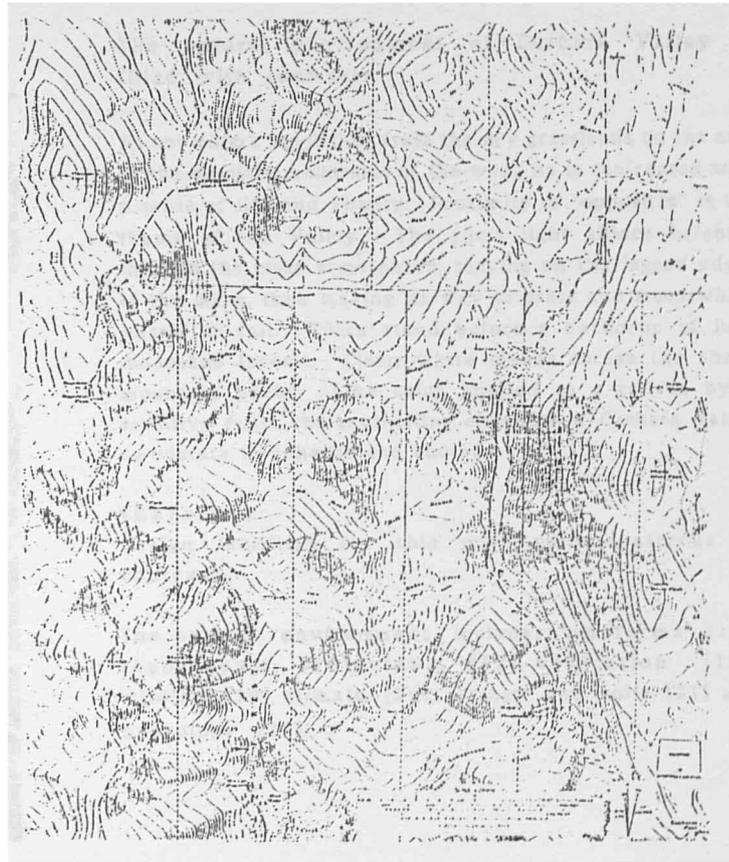


Figure 15-- Intersection of USGS quadrangle maps: Cuchara, Cuchara Pass, McCarty Park and Trincher Peak.

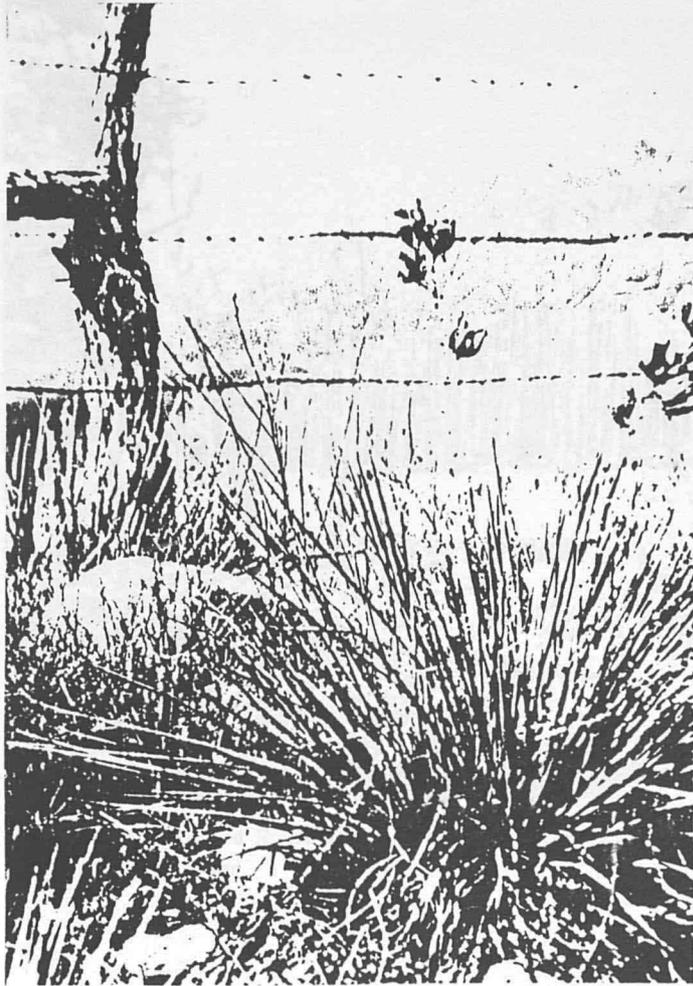


Figure 16-- Yucca plant off County Road 421.

### thirteen

### natural environment

The natural environment [13] is commonly recognized as part of the environmental context [11].

The natural environment of Cuchara Valley is filled with contrasts.

As one enters the Valley from the dry grasslands on the east or the desolate mountains of the west, he is confronted with a sense of life and vitality. Proximity of "opposites" is the theme of the Valley. The sun's light shines brightly through the clear atmosphere, playing on the jagged edges of the dikes, then making its way to grass and trees which soften its fall. Yucca stand before a backdrop of lush mountane forests. Clean white clouds caress the sharp mountain peaks. Like color applied to a canvas by a sensitive artist, the contrasting elements of Cuchara Valley co-operate to enhance one another.

therefore:

design facilities for this area using patterns of contrast.

The natural environment includes landforms [15], topography [16], views [17], vegetation [18], wildlife [19], climate [20], geology and soils [21] and hydrology [22].



Figure 17-- Haunted House Meadow, adjoining proposed site in northwest corner.

#### fourteen

#### jack casias property

Jack Casias donated 207 acres of land on Park Mountain to the Huerfano County Society for the Advancement of the Handicapped.

Located just north of Cuchara Valley Resort, this property lies between 8920 and 9200 feet above sea level, about 400 feet from the valley floor on Park Mountain. This parcel of land is entirely surrounded by the San Isabel National Forest. Slopes range from two to forty percent grade. There are two creeks on the site, Hill Branch which cuts across the southeast corner and a branch of Spring Creek which begins in the central part of the site and flows north and west. Figure 18 shows the site and possible access from the Cuchara Valley Resort road, formerly a "pack trail" along Baker Creek.

#### therefore:

develop a camp for handicapped persons on the Casias property.

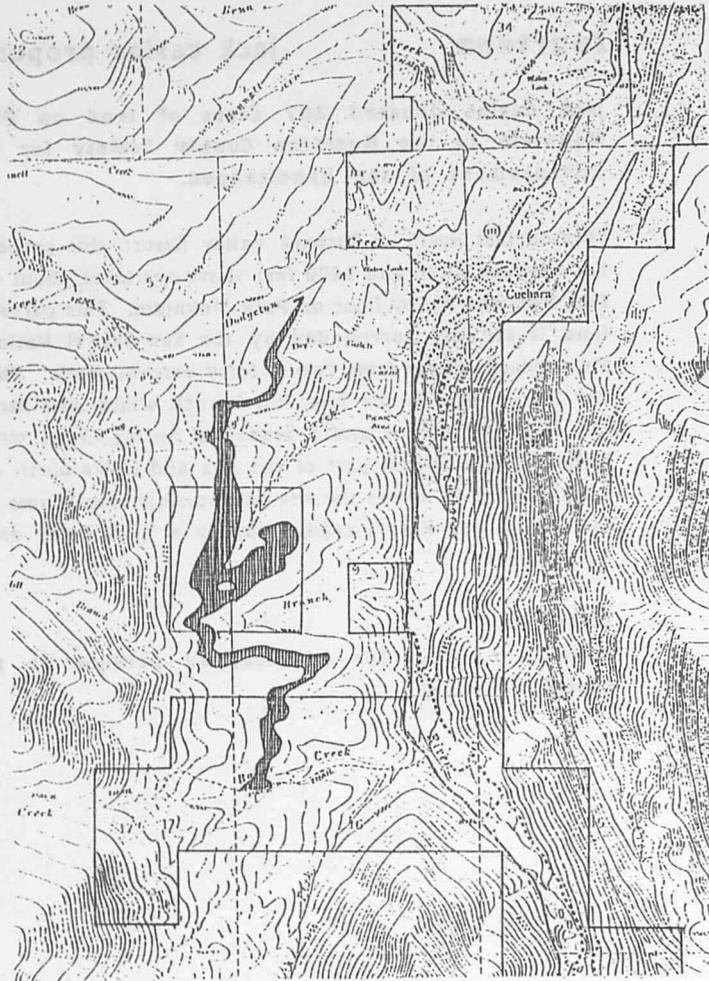


Figure 18-- Proposed site and part of Cuchara Planning area. Hatched area illustrates access corridor. No access north from the valley. Good access to the south from Baker Creek Road leading to Cuchara Valley Resort.



Figure 19-- West Spanish Peak. The Cucharan, Winter 1985

## fifteen landforms

Unique opportunities for observing the formation processes of the planet earth [1] are found in the Cuchara Valley [12].

Geological phenomena of the Cuchara Valley provides examples of geological processes unlike those found anywhere else in the world.

Many millions of years ago<sup>17</sup> an eruption of the Spanish Peaks cracked open the earth's crust along lines radiating in all directions, leaving the peaks at the convergence of numerous basalt dikes (Figure 20) which formed as lava congealed in the cracks. Erosion has left some of these dikes standing as high walls.<sup>18</sup> Nowhere else are dikes found in these patterns, in such rock type, or in such great length, height abundance or beauty.<sup>19</sup>

Known as *Las Cumbres Españolas* by the Spainards and *Huajatolla* (Wa-ha-toy-ah), "Breasts of the World" by the Indians, the Spanish Peaks (Figure 19) can be seen as far as away 100 miles. The West Peak, 13,623 feet, and East Peak, 12,708 feet, rise 7,000 feet above the eastern plains and about 1,000 feet above the peaks in the Sangre de Cristo range to the north and west. Because of this the Spanish peaks were a landmark for early explorers, such as, Juan de Ulibarri, Juan Bautista de Anza, Lieutenant Zebulon Pike, Colonel John C. Fremont, and Captain John Gunnison.

<sup>17</sup>"Colorado's Cuchara Valley", Cuchara Tourist Association , 1986

<sup>18</sup>Op. cit. Sullivan, p. 112

<sup>19</sup>Op. cit., "Colorado's Cuchara Valley"

There have been many myths and legends about the Peaks. Including those of supernatural beings and gods inhabiting them. There have always been rumors of gold have been ever present, but no significant finds have ever been made.<sup>20</sup>

Other features of the landscape which serve as local landmarks include the Devil's Stairsteps, a dike consisting of a series of giant steps. Profile Rock, a sharp and jagged dike, has been said to portray the profiles of George and Martha Washington, Thomas Jefferson and an Indian. Other common analogies include a train on a trestle, a rearing horse and a running deer.

The Dakota Rock Wall has been nicknamed by geologists "Rock Wall" and "the backbone of the Rockies" because its character is recognizable from Canada to Mexico.<sup>21</sup> In fact, it was once thought to be a continuous formation along the entire eastern slope of the Rocky Mountains. The section through the Cuchara Valley, which is not part of the dikes radiating from the Spanish Peaks,<sup>22</sup> is the longest virtually unbroken section of the wall, extending for about sixty miles. Highway 12 passes through The Gap which, before the road builders widened it, was just wide enough to accommodate the river and a narrow road.<sup>23</sup>

Goemmer's Butte (Figure 21), also known as the Devil's Thumb and The Sentinel, because of its position as the apparent guard to the entrance of the Valley, is a volcanic

<sup>20</sup>Pamela Pemberton, "La Veta - Cuchara Tour Map and Guide", 1982

<sup>21</sup>Op. cit. "Colorado's Cuchara Valley"

<sup>22</sup>Op. cit., Pemberton

<sup>23</sup>Op. cit., "Colorado's Cuchara Valley"

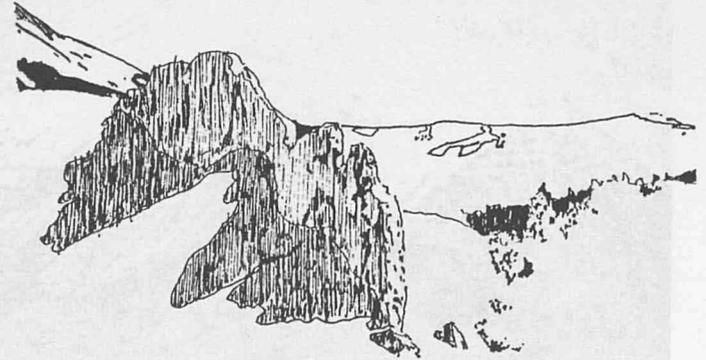


Figure 20-- One of the many dikes in the Cuchara area.

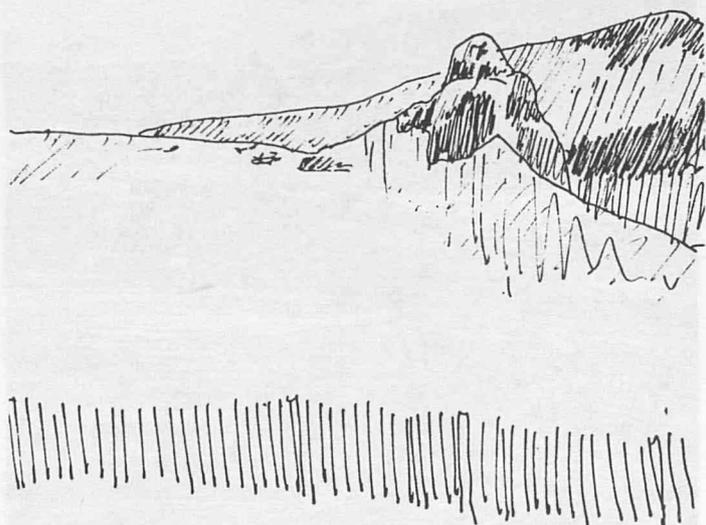


Figure 21-- Goemmer's Butte from the northeast.

plug. With a diameter as great as 900 feet and an elevation of 8,043 feet it stands 500 feet above the valley floor surrounding it.

**therefore:**

these formations should be protected from unnatural forces which could lead to destruction or loss of beauty. Development should occur with minimum grading.

opportunities should be provided for viewing and exploring this formations such as organized camping [44] and hiking [68].

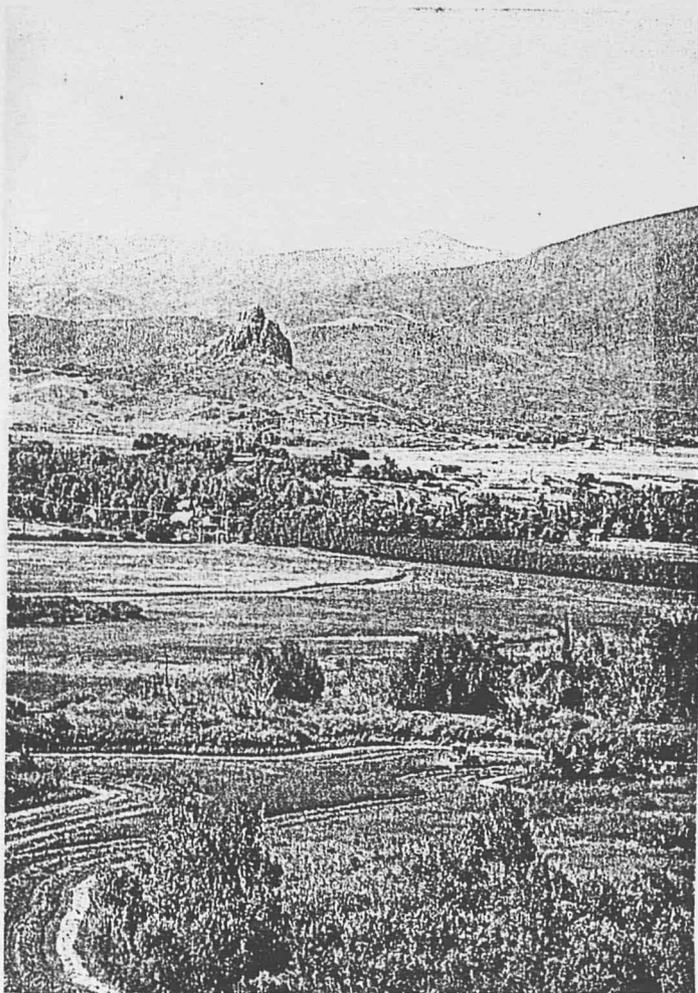


Figure 22-- Approaching Goemmer's Butte from the southeast.

## sixteen

## topography

Landforms [15] are described by their topography.

Slopes on the Jack Casias property range from less than 2 to more than 40 percent.

As Figure 23 indicates, about 22 acres of the proposed camp site, mostly centrally located has a grade of 3 percent or less. The areas along the streams and in the southwest corner are the steepest.

### therefore:

site buildings and play areas on parts of the site with 3 percent and less slope.

vegetation [18] and wildlife [19] habitats should be located in areas of greater slope.

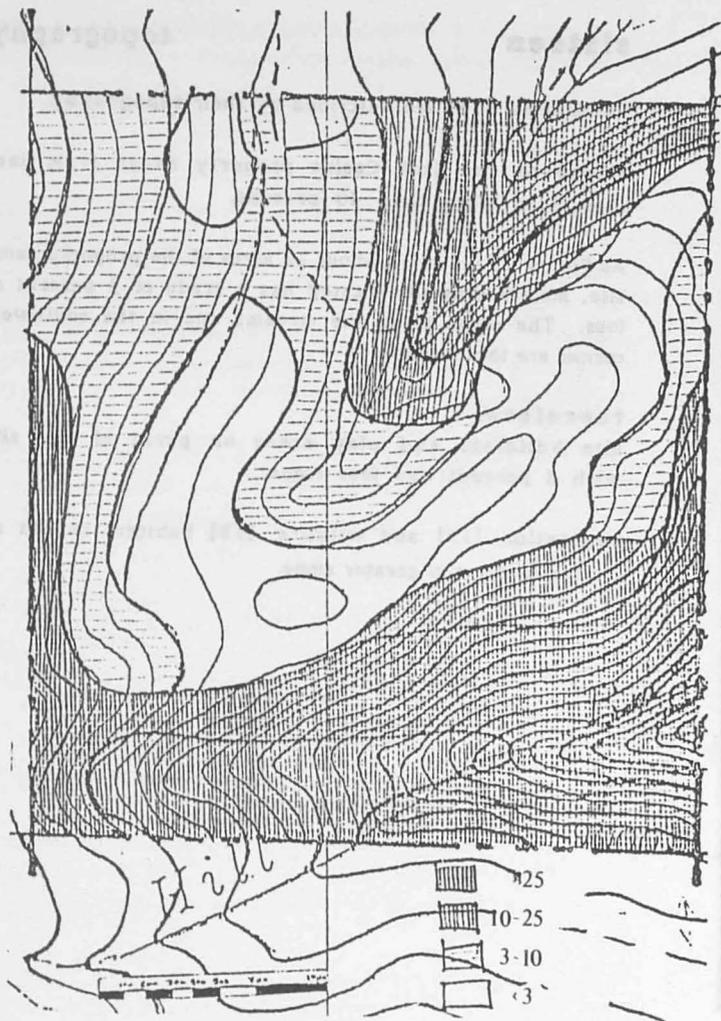


Figure 23-- The Jack Casias property showing slopes by percent.

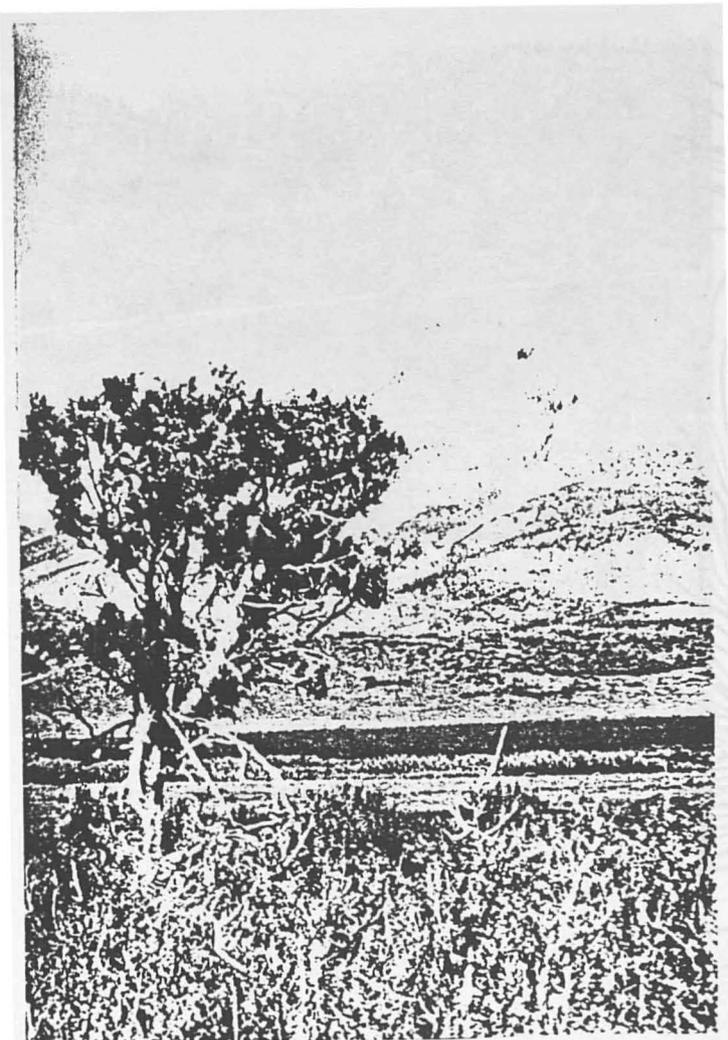


Figure 24-- View towards Spanish Peaks from County Road 421.

## seventeen

## views

The natural environment [13] provides views from the site, as well as onto it.

There are many good views from the site to other areas of Cuchara Valley. Though, the site can not be seen well from the roads or hiking trails now in the area it does provide good views from one area of the site to another.

From the site the West Spanish Peak can be seen from parts of the site (Figure 25) as can Baker Mountain. There is no direct view to the road or other evidence of the man-made environment.

### therefore:

according to Figure 25 make use of the various views on the site especially the Spanish Peak. Since it is such an important landmark and part of the resident culture.

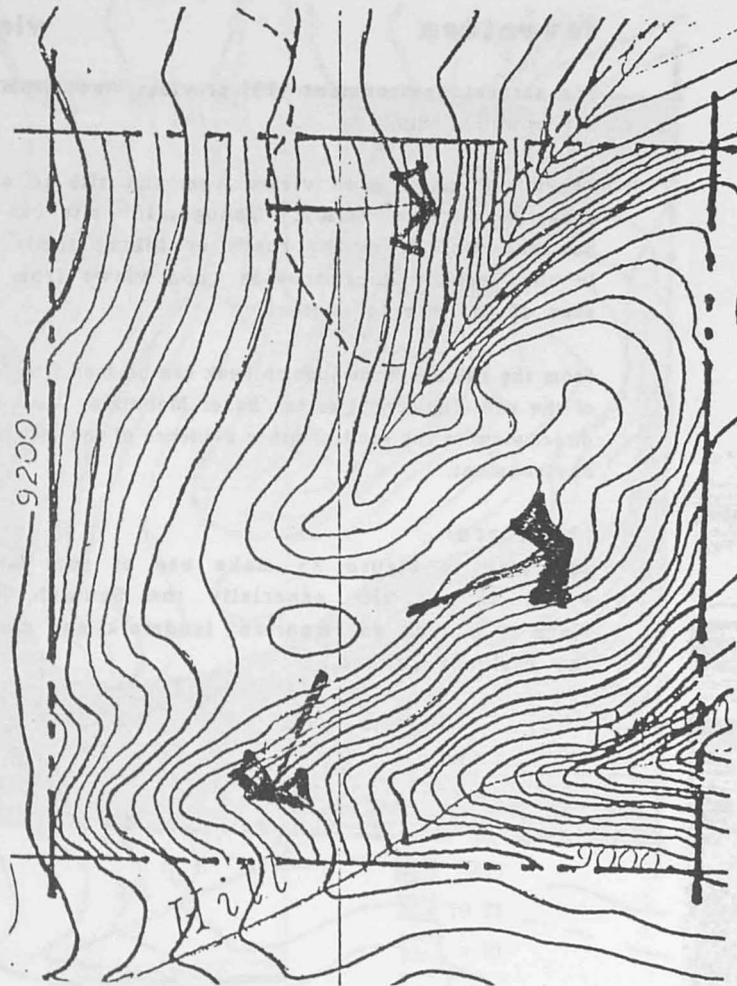


Figure 25-- Map showing major views from the proposed site.

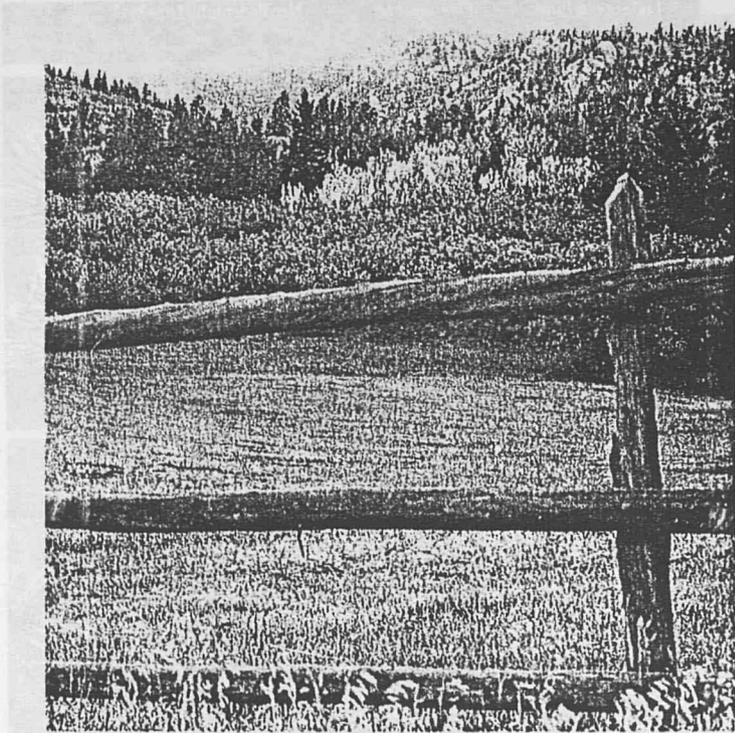


Figure 26-- The Cucharan, Winter 1985

## eighteen

## vegetation

The natural environment's [13] plant life provides oxygen for the satisfaction of the physiological activities [4] of human life [2] and wildlife. [19].

Moss, grass, shrub, tree and flowering plants flourish on the site.

As shown in Figure 27, the open areas on the site are on some of the flattest areas of the site. About 12 acres of the site with slopes less than 3 percent are grassland.

### forest types

Mixed stands of trees occur on the site. These include Lodgepole Pine (Figure 28), Douglas-fir (Figure 29), Ponderosa Pine (Figure 30), Subalpine Fir (Figure 31), Engelmann Spruce (Figure 32), White Fir (Figure 33), Blue Spruce (Figure 34), Quaking Aspen (Figure 35) and Willow (Figure 36).<sup>24</sup>

### douglas-fir

Douglas-fir is a long lived species, valued for its wildlife habitat diversity, scenic quality and cover for big game winter range. It is a climax species which reproduces from seed. Without treatment, stands mature and die, but perpetuate the Douglas-fir type.

<sup>24</sup>U.S. Department of Agriculture, Soil Survey of Huerfano County Area, Colorado, 1983, pp. 21,29,56,57



Figure 27-- Map of Jack Casias property showing major vegetation types.

Lodgepole Pine *Pinus contorta* Needle length: 1 1/2-2 1/2"

Sierra Montane, Rocky Mountain Montane, and Subalpine forests



Figure 28

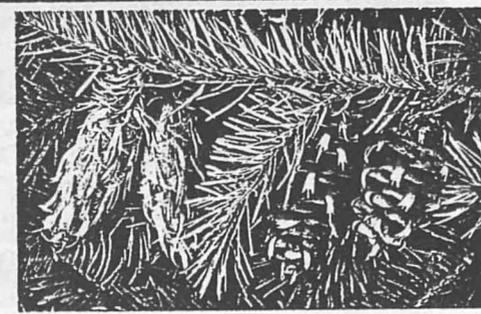


Douglas-fir *Pseudotsuga menziesii* Cone length: 2-3 1/2"

Northwest Coastal, Sierra Montane, and Rocky Mountain Montane forests



Figure 29

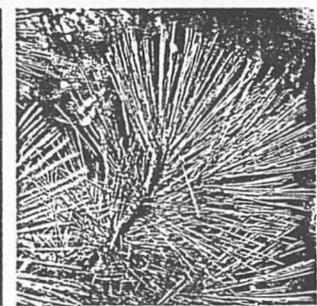


Ponderosa Pine *Pinus ponderosa* Needle length: 4-8"

Sierra Montane and Rocky Mountain Montane forests



Figure 30



Subalpine Fir

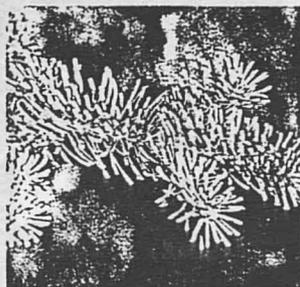
*Abies lasiocarpa*

Needle length: 1-1 1/4"

Subalpine Forest



Figure 31



Blue Spruce

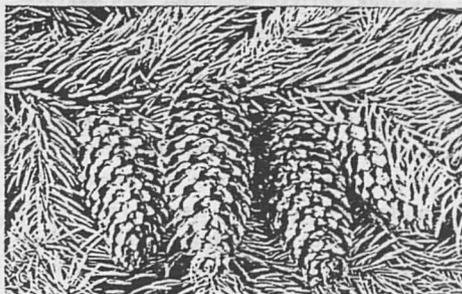
*Picea pungens*

Cone length: 2 1/4-4"

Rocky Mountain Montane Forest



Figure 34



Engelmann Spruce

*Picea engelmannii*

Cone length: 1 1/2-2 1/2"

Rocky Mountain Montane and Subalpine forests



Figure 32



Quaking Aspen

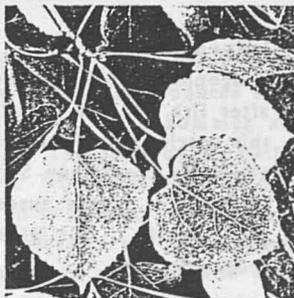
*Populus tremuloides*

Leaf length: 1 1/4-3"

Rocky Mountain Montane, Rocky Mountain Montane, and Subalpine forests



Figure 35



White Fir

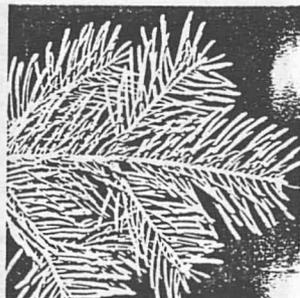
*Abies concolor*

Needle length: 1 1/2-2 1/2"

Sierra Nevada and Rocky Mountain Montane forests



Figure 33



Bebb Willow

*Salix bebbiana*

Leaf length: 1-3 1/2"

Rocky Mountain Montane Forest



Figure 36



### aspen

Aspen is an important visual feature in the landscape, creating variety of color and texture. Aspen forests are prime elk calving and deer fawning habitat. This is especially true on south slopes within one-quarter mile of water. Deer and elk use aspen under six feet for forage. They use taller aspen for thermal and hiding cover. Aspen sprouts above snowcover are critical to winter diets in some areas. More songbirds are observed in aspen forests than coniferous forests. Aspen regenerate almost exclusively through root sprouting. Trees within one clone are very homogeneous, in size, color, growth and resistance to disease. Without disturbance, much aspen will convert to coniferous forests in 100 to 200 years. A primary method of disturbance to initiate sprouting is fire.

### lodgepole pine

Lodgepole pine is usually one of the first species to grow after fire. In the long-term absence of major disturbance this species will be replaced by more shade tolerant species, generally Engelmann Spruce and Subalpine Fir. This type of forest is highly susceptible to attack by the mountain pine beetle. Mistletoe also infects large amounts of lodgepole pine.

### engelmann spruce / subalpine fir

Engelmann Spruce and Subalpine Fir represent a climax plant community, valued for wildlife habitat, watershed protection and production and wood products. The spruce/fir type reproduces by seed. It will reproduce itself naturally if not treated. A natural disturbance will usually result in reversion to aspen or Lodgepole Pine.

Colorado Pinyon *Pinus edulis* Cone length: 1½-2"

Pinyon-juniper Woodlands



Figure 37

Rocky Mountain Juniper

*Juniper scopulorum*

Leaf length: ¼"; scalelike

Rocky Mountain Montane and Subalpine forests

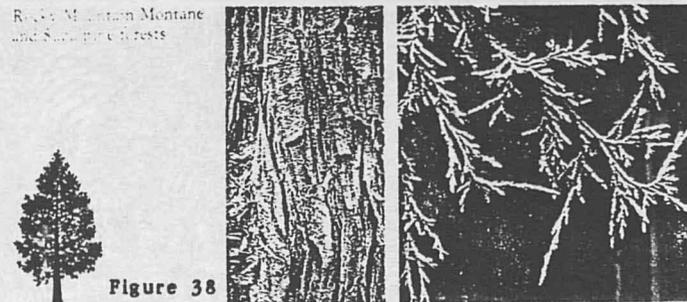


Figure 38

Kinnikinnick

*Arctostaphylos uva-ursi*

Flower width: ¼"

Northwest Coastal, Rocky Mountain Montane, and Subalpine forests

Flowers  
Bloom in late spring to early summer

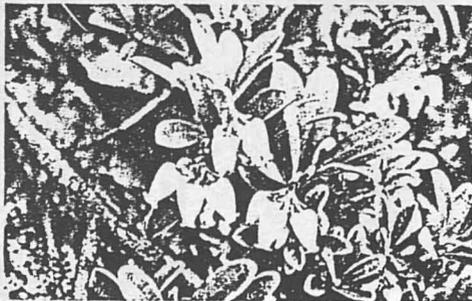


Figure 39

Kinnikinnick

*Arctostaphylos uva-ursi* Fruit width:  $\frac{3}{8}$ "

West Coastal, Rocky Mountain Montane, and Subalpine forests

Fruit  
Matures in summer



Figure 40

Shrubby Cinquefoil

*Potentilla fruticosa*

Flower width: about 1"

Rocky Mountain Montane and Subalpine forests

Flowers  
Bloom June-August



Figure 41

Creeping Oregon Grape

*Berberis repens*

Flower width: about  $\frac{1}{2}$ "

Rocky Mountain Montane Forest

Flowers  
Bloom March-June



Figure 42

#### ponderosa pine

Ponderosa Pine usually grows in pure stands, but can be associated with aspen and Douglas-fir. Fire suppression in recent years has resulted in the build-up organic litter, making seed conditions less favorable for Ponderosa Pine. Pinyon (Figure 37) and Juniper (Figure 38) are understory trees of the Ponderosa Pine.

#### riparian

Riparian vegetation occurs along the streams. Willows and sedges are common here. These areas located adjacent to the streams and springs, are small in total area but, represent important wildlife habitat and serve as sediment traps to help purify runoff water.<sup>25</sup>

#### shrubs

The low, matted, Kinnikinnick (Figures 39,40) plant is also found here. It has dark green leaves and produces small pink flowers in the late spring and early summer and bright, red berries late summer. The Shrubby Cinquefoil (Figure 41) has a yellow flower which blossoms in June through August. It adapts well to cultivation. The Creeping Oregon Grape (Figure 42) grows from a creeping underground rhizome, its stems surfacing here and there in the woods. The Oregon Grape produces clusters of small yellow flowers which blossom from March to June and chalky-blue berries which are edible.<sup>26</sup> Other shrub type

<sup>25</sup>United States Department of Agriculture and The U.S. Forest Service, Land And Resource Management Plan: Pike and San Isabel National Forests: Comanche and Cimarron National Grasslands, 1984, Pueblo, Colorado, p. 11-58

<sup>26</sup>Stephen Whitney, The Audobon Society Nature Guides: Western Forests, 1985, p. 86-93

plants on the site include Western Serviceberry (Figure 43), Western Chokeberry (Figure 44) and Mountain Snowberry (Figure 45). Shrub habitat is especially valuable as winter range for big game.<sup>27</sup>

#### GRASSES

Grasses in the area include Tufted Hairgrass, Slender Wheatgrass, Arizona Fescue, Mountain Muhly, Parry Oatgrass, Mountain Brome, Nodding Brome, Prairie Junegrass, and Needlegrass. Baltic Rush along with Nebraska Sedge, Ovalhead Sedge and Elk Sedge grasses grow along the streams.<sup>28</sup>

#### therefore:

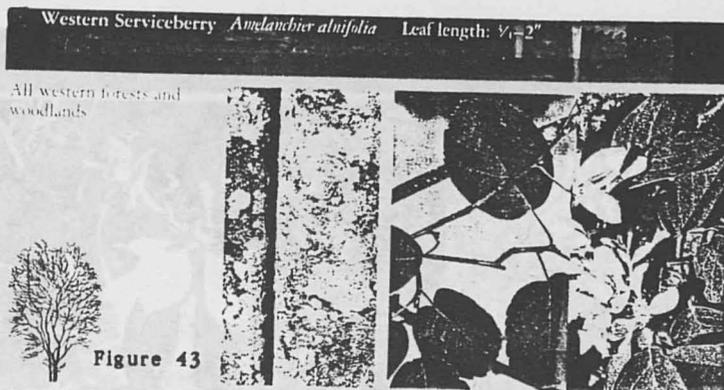
preserve and maintain a variety of forest types and wildlife habitats. Since such a wide variety of plant forms exist naturally on the site make use of these rather than bringing in new plant strains. Control the spread of Oregon Grape near built facilities and playfields.

Aspen near camp areas will invite songbirds, but should be carefully watched for potential damage to landscaping and foundations because of their rhizome method of growing. Use fire management and firewood gathering to control habitat variety.

hiking [68] and horseback riding [63] trails should lead through many types of ecosystems.

<sup>27</sup>Op. cit., Land And Resource Management Plan: Pike and San Isabel National Forests: Comanche and Cimarron National Grasslands, p. 11-22

<sup>28</sup>Op. cit., Soil Survey of Huerfano County Area, Colorado, 1983, p. 96



Common Chokeberry *Prunus virginiana* Fruit diameter:  $\frac{1}{4}$ - $\frac{1}{8}$ "

Northwest Coastal, Sierran Montane, and Rocky Mountain Montane forests: Woodlands

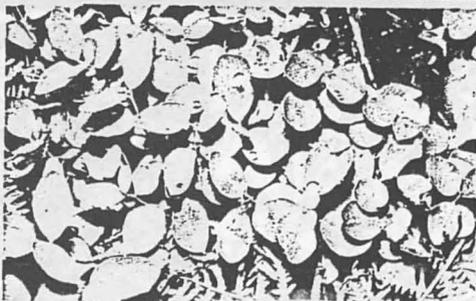
Fruit  
Matures in summer



Mountain Snowberry *Symphoricarpos oreophilus* Fruit length: about  $\frac{1}{8}$ "

Subalpine and Rocky Mountain Montane forests

Fruit  
Matures in fall, remaining attached in winter



Figures 28-45 from Stephen Whitney, The Audobon Society Nature Guides: Western Forests



Figure 46-- Western Tanager on Dodgeton Trail.

## nineteen

## wildlife

Wildlife depends on the vegetation [18] of the natural environment [13] for food and cover.

Brush, rock, meadow, aspen stands and coniferous forests provide an assortment of wildlife habitats in the area.

Many types of wildlife seek cover in some type of forest and leave this for less dense areas where they feed. All wildlife require food, cover and a source of water all within a reasonable distance of each other. This "reasonable distance" changes depending on the animal's size and speed.

Figure 47 illustrates the location of general types of summer wildlife habitat on the site.

### large mammals

The bounding gait of the Mule Deer (Figure 48) makes it well-suited to the rough terrain where it seeks food and cover. On the other hand, the White-tailed Deer (Figure 49) is a more graceful runner. Open woods and brush on gentler terrain are well-liked by him. The Elk (Figure 50) moves to higher elevations in the summer where it grazes high meadows and parklands. In the winter, however, it moves to the lower parks and shrublands and onto the site.

Mountain Lions (Figure 51) are the chief natural predators of the deer family. Hunting alone, the Mountain Lion sticks mostly to Mule Deer and White-tailed Deer. Smaller predators, such as the Coyote (Figure 52), Bobcat (Figure 53) and Wolverine (Figure 54) take fawns when they can. The

Grizzly Bear (Figure 55) hunts mostly Ground Squirrels (Figure 60) and Marmots (Figure 56). The Grizzly is more of an omnivore than a predator and roots and berries make up a big part of his diet.

The Grizzly Bear likes the open country, frequenting parks and woodlands at elevations near 12,000 feet. Black Bears (Figure 57), agile climbers, live in the forests, feeding mainly on grasses, roots, bulbs, berries and other vegetation. They also raids hives for bees and overturn logs in search of insects.<sup>29</sup>

The alpine habitats of elevations above the site, 12,000 to 14,000 feet, support elk, bighorn sheep and mountain goats.<sup>30</sup>

#### rodents

Albert's Squirrel (Figure 58) and the Red Squirrel (Figure 59) can be found living among the trees. There is little competition between the species because Albert's Squirrel stays mainly in Ponderosa Pine, where it feeds on pine seeds. While the Red Squirrel prefers forests of spruce and fir, its diet consisting mainly of green cones and the seeds of these conifers. The Least Chipmunk (Figure 60) scurry about on the ground searching for berries, seeds, insects and other edibles, part of which they store for the winter.

<sup>29</sup>Op. cit., Whitney, pp. 93-97

<sup>30</sup>Op. cit. Land And Resource Management Plan: Pike and San Isabel National Forests: Comanche and Cimarron National Grasslands, 1984, Pueblo, Colorado, p. 11-19

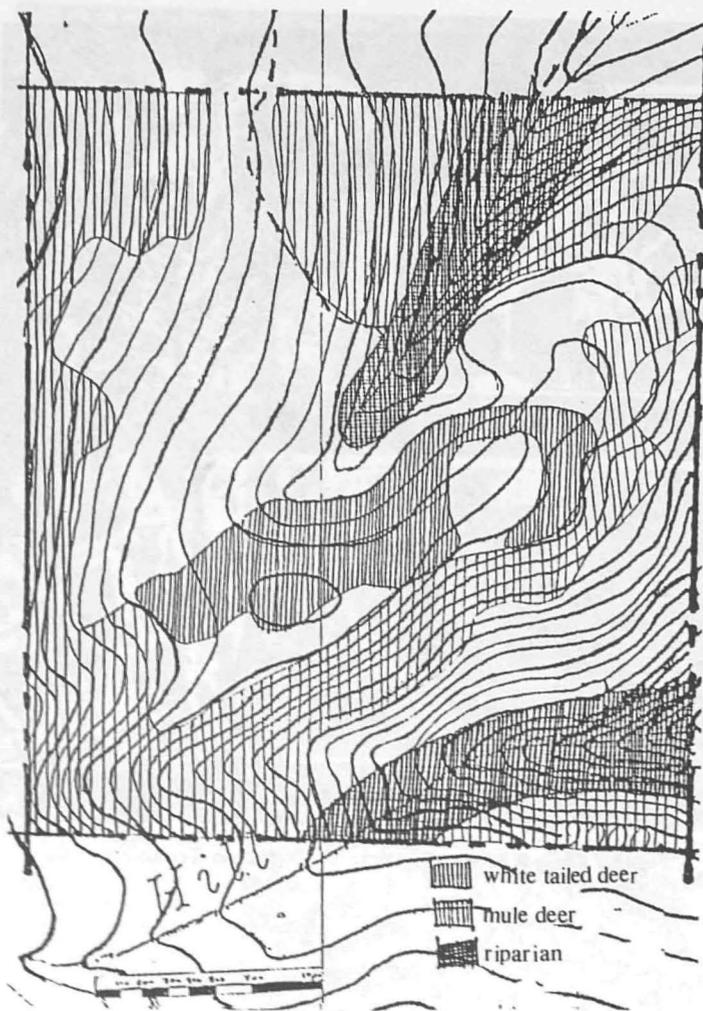


Figure 47-- Map of Jack Casias property showing wildlife habitat types.

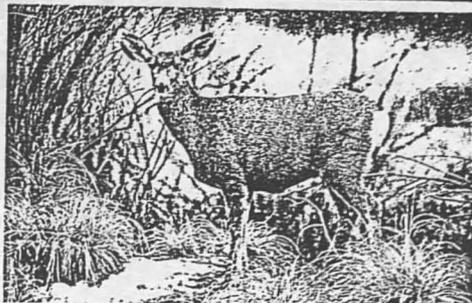
Mule Deer

*Odocoileus hemionus* Length: 3½–6½'

All western forests and woodlands



Figure 48



White-tailed Deer

*Odocoileus virginianus* Length: 4½–6½'

Northwest Coastal and Rocky Mountain Mountain forests



Figure 49



ELK

*Cervus elaphus* Length: 6½–9½'

Northwest Coastal, Rocky Mountain Mountain, Subalpine forests



Figure 50



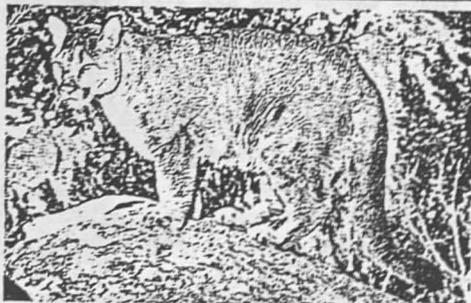
Mountain Lion

*Felis concolor* Length: 59¼–108"

All western forests and woodlands



Figure 51



Coyote

*Canis latrans* Length: 41¼–52"

All western forests and woodlands



Figure 52



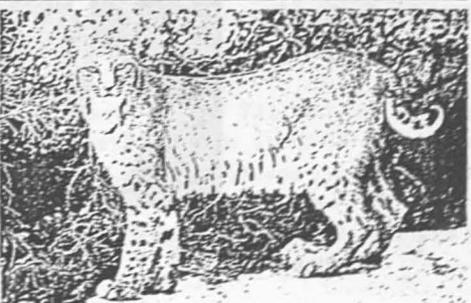
Bobcat

*Felis rufus* Length: 28–49¼"

All western forests and woodlands



Figure 53



Wolverine

*Gulo gulo*

Length: 31½–44½"

All western conifer forests



Figure 54

Grizzly Bear,  
including Brown Bears

*Ursus arctos*

Length: 6–7'

Northwest Coastal, Rocky  
Mountain Montane, and  
Subalpine forests



Figure 55

Yellow-bellied  
Marmot

*Marmota flaviventris*

Length: 18½–27½"

Sierran Montane, Rocky  
Mountain Montane, and  
Subalpine forests



Figure 56

Black Bear

*Ursus americanus*

Length: 4½–6½'

All western forests and  
woodlands



Figure 57

Abert's Squirrel

*Sciurus aberti*

Length: 18¾–23"

Rocky Mountain Montane  
Forest

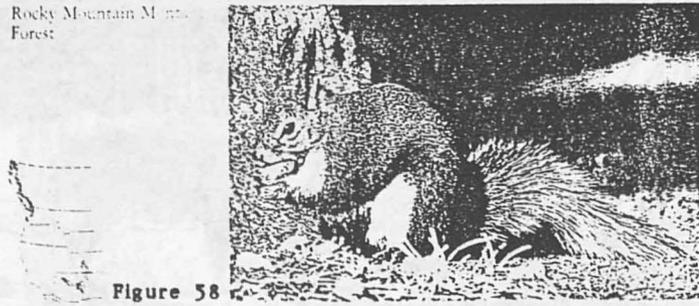


Figure 58

Red Squirrel

*Tamiasciurus  
hudsonicus*

Length: 10¾–15½"

Rocky Mountain Montane  
and Subalpine forests



Figure 59

**Least Chipmunk***Eutamias minimus*Length: 6 $\frac{1}{8}$ –8 $\frac{1}{8}$ "

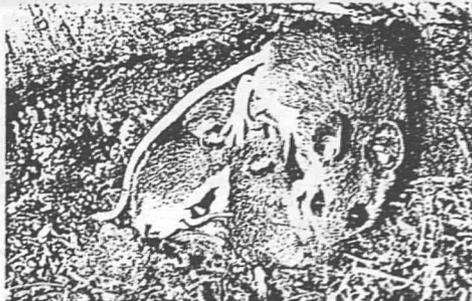
Rocky Mountain Montane Forest, Piñon-juniper, and Great Basin Subalpine woodlands

**Figure 60****Snowshoe Hare***Lepus americanus*Length: 15–20 $\frac{1}{2}$ "

Northwest Coastal, Sierra Montane, Rocky Mountain, and Subalpine forests

**Figure 61****Deer Mouse***Peromyscus maniculatus* Length: 4 $\frac{1}{4}$ –8 $\frac{1}{4}$ "

All western forests and woodlands

**Figure 62**

Rarely seen, the Snowshoe Hare (Figure 61) nests in scrapes or depressions under shrubbery, feeding on greenery and berries in the summer and bark and buds in the winter. Small shrews are also common but not often seen. They feed in brief shifts, both day and night.

The largely nocturnal Deer Mouse (Figure 62) is abundant in the area. The Bushy-tailed Woodrat (Figure 63) also feeds at night, staying close to its nest, built in a rock pile. Voles (Figure 64) are common in grassy areas, where their presence is detected by runways leading from burrow openings to feeding areas. The reproductive capacity of these animals leads to dramatic population explosions, followed by periods of collapse, during which few voles are present.

The two largest rodent inhabitants, the Porcupine (Figure 65) and Beaver (Figure 66), both feed extensively on the bark of trees. The Porcupine eats diverse vegetable matter in the summer. But in the winter he retires to the tops of conifers, where he subsists entirely on the inner bark, often girdling the tree to get it. Beavers prefer the bark of aspens, which they cut down to obtain food and construction materials for its dams and lodges.

**birds**

The Dark-eyed Junco (Figure 67), Hermit Thrush (Figure 68) and Blue Grouse (Figure 69) all feed and nest on the ground.

Jays (Figure 70), grosbeaks (Figure 71), and the Yellow-rumped Warbler (Figure 72) forage at all levels of the forest, frequently descending to the ground for insects and other food. The Chipping Sparrow (Figure 73), "Red-shafted" Flicker (Figure 74), Robin (Figure 75), Swainson's

Bushy-tailed Woodrat *Neotoma cinerea* Length: 11½–18½"

All western conifer forests



Figure 63

Long-tailed Vole *Microtus longicaudus* Length: 6½–10½"

All western conifer forests



Figure 64

Porcupine *Erethizon dorsatum* Length: 25½–36½"

All western conifer forests  
Pinyon-juniper woodlands

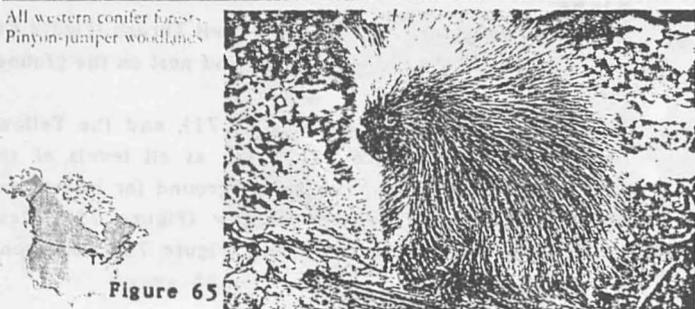


Figure 65

Beaver *Castor canadensis* Length: 35½–46"

Most western forests and woodlands



Figure 66

Dark-eyed Junco *Junco hyemalis* Length: 5–6½"  
"Oregon" Junco

All western conifer forests



Figure 67

Hermit Thrush *Calburnus gittatus* Length: 6½–8"

All western conifer forests



Figure 68

Blue Grouse

*Dendragapus obscurus* Length: 15½–21"

All western conifer forests



Figure 69

255 Gray Jay

*Perisoreus canadensis*  
p. 466

Length: 10–13"

Northwest Coastal, Rocky  
Mountain Montane, and  
Subalpine forests



Figure 70

Black-headed  
Grassbeak

*Pheucticus  
melanocephalus*

Length: 6½–7¾"

Northwest Coastal, Rocky  
Mountain Montane, and  
Sierran Montane forests;  
Woodlands



Figure 71

Yellow-rumped  
Warbler

*Dendroica coronata* Length: 5–6"

All western conifer forests



Figure 72

Chipping Sparrow

*Spizella passerina*

Length: 5–5½"

All western conifer forests;  
Oak Woodlands



Figure 73

248 Northern Flicker

*Colaptes auratus*  
p. 463

Length: 12½–14"

All western forests and  
woodlands

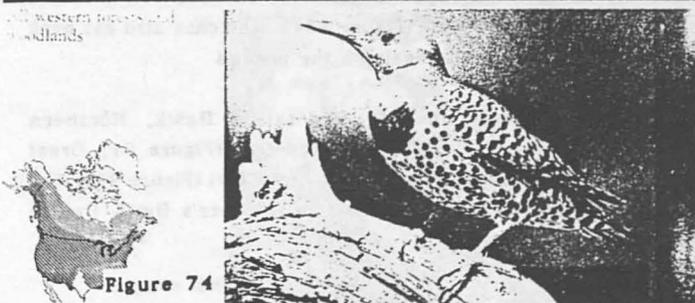


Figure 74

Thrush commute from their homes in shrubs and trees to the forest floor for food.

Some birds travels are reversed, they nest on the ground and feed in higher vegetation. These include the Orange-crowned Warbler (Figure 77) and Song Sparrow (Figure 78).

Flycatchers have special perches from which they go forth to catch insects, returning repeatedly to the same spot. The Western Flycatcher (Figure 79) chooses shady openings beneath trees for its perch, while the Western Wood-Pewee (Figure 80) and Western Tanager (Figure 81) opt for sunnier levels in coniferous and deciduous trees, and the Olive-sided Flycatcher (Figure 82) works from the highest tree tops.

Warblers, such as MacGillivray's (Figure 83) and the Yellow Warbler (Figure 84) along with chickadees, wrens, kinglets and vireos (Figure 85) glean insects from foliage and branches.

Woodpeckers frequent tree trunks, but feed mostly on branches. They control bark beetles and other destructive bark insects, and drill large cavities in trees for nests which are subsequently used by other birds and mammals too. The Brown Creeper (Figure 86) and the Red-breasted (Figure 87) and Pygmy (Figure 88) nuthatches also eat bark insects but find their meals on the ground.

Principal raptors include Red-tailed Hawk, Northern Goshawk (Figure 90), Flammulated Owl (Figure 91), Great Horned Owl (Figure 92) and Long Eared Owl (Figure 93). The Goshawk, Sharp-skinned Hawk and Cooper's Hawk live in

279 American Robin *Turdus migratorius* Length: 9-11"  
p. 477



285 Orange-crowned Warbler *Vermivora celata* Length: 4½-5½"  
p. 480

All forests except  
Subalpine, Oak  
Woodlands, and Chaparral



302 Song Sparrow *Melospiza melodia* Length: 5-7"  
p. 488

Northwest Coastal, Sierran  
Montane, and Rocky  
Mountain Montane forests;  
Woodlands



 Western Flycatcher *Empidonax difficilis* Length: 5½-6"

All western conifer forests



Figure 79



 Western Wood-Pewee *Contopus sordidulus* Length: 6-6½"

All western conifer forests;  
Oak Woodlands



Figure 80



Western Tanager *Piranga ludoviciana* Length: 6-7½"

All western conifer forests



Figure 81

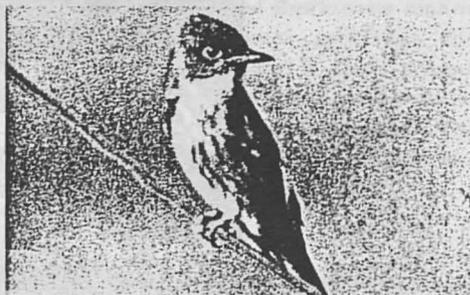


 Olive-sided Flycatcher *Contopus borealis* Length: 7-8"

All western conifer forests



Figure 82



MacGillivray's Warbler *Oporornis tolmiei* Length: 4½-5½"

All western conifer forests  
except Subalpine Forests  
and Chaparral



Figure 83

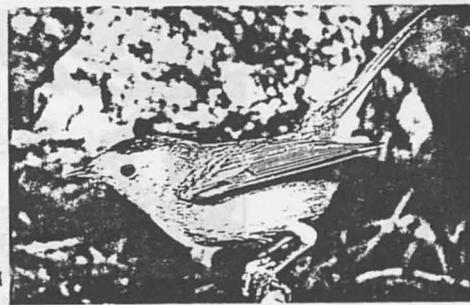


Wilson's Warbler *Wilsonia pusilla* Length: 4½"

All western conifer forests;  
Woodlands



Figure 84



Figures 78-86 from Stephen Whitney, *The Audubon Society Birds of the Western United States*

Solitary Vireo *Vireo solitarius* Length: 5-6"

All western conifer forests  
except Subalpine  
Woodlands



Figure 85

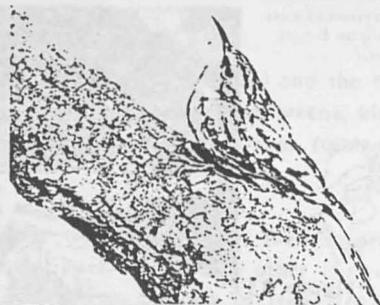


Brown Creeper *Certhia americana* Length: 5-5 1/4"

All western conifer forests



Figure 86



Red-breasted Nuthatch *Sitta canadensis* Length: 4 1/2-4 3/4"

All western conifer forests



Figure 87



Pygmy Nuthatch *Sitta pygmaea* Length: 3 1/4-4 1/2"

Sierran Mountain and Rocky  
Mountain-Montane forests



Figure 88



Northern Goshawk *Accipiter gentilis* Length: 20-26"

All western conifer forests



Figure 90



Flammulated Owl *Otus flammeolus* Length: 6-7"

Rocky Mountain Conifer  
Forest



Figure 91



Great Horned Owl *Bubo virginianus* Length: 18-25"

All western forests and woodlands



Figure 92



Long-eared Owl *Asio otus* Length: 13-16"

All western forests and woodlands



Figure 93



Northern Pygmy-Owl *Glaucidium gnoma* Length: 7-7½"

All western conifer forests, Oak Woodlands



Figure 96



Figures 48-96 from Stephen Whitney, The Audobon Society Nature Guides: Western Forests

forest and woodland chiefly preying on song birds. All have short, broad wing spans giving them agility for rapid flights among the trees. The Red-tailed Hawk nests high in conifers ranging upslope to soar over parklands and woodlands near the timberline, where it finds ground squirrels and other rodents. Owls take enormous quantities of rodents and a few birds, reptiles and amphibians. The Pygmy Owl (Figure 96) feeds during the day on insects and lizards, and is often mobbed by small forest birds.<sup>31</sup>

therefore:

with knowledge of indigenous species behaviors and habitat needs develop the site for wildlife and human use.

The possibility of persons seeing wild animals while hiking [68] or horseback riding [63] is increased if good a variety of good wildlife habitats are provided.

<sup>31</sup>Op. cit., Whitney, pp. 93-97

Solitary Vireo

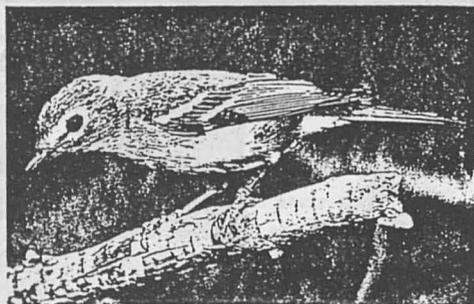
*Vireo solitarius*

Length: 5-6"

All western conifer forests  
except Subalpine  
Woodlands



Figure 85



Brown Creeper

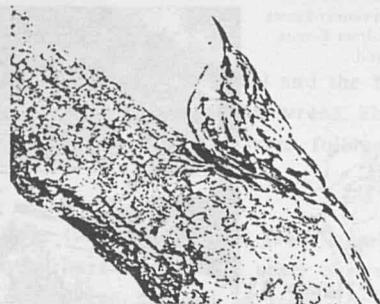
*Certhia americana*

Length: 5-5½"

All western conifer forests



Figure 86



Red-breasted  
Nuthatch

*Sitta canadensis*

Length: 4½-4¾"

All western conifer forests



Figure 87



Pygmy Nuthatch

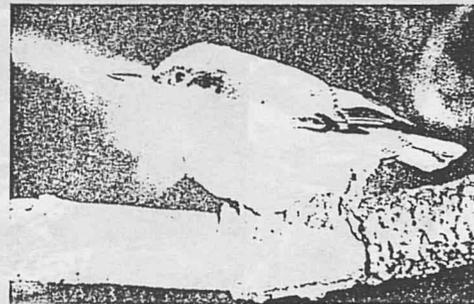
*Sitta pygmaea*

Length: 3¼-4½"

Sierran Mountain and Rocky  
Mountain Montane forests



Figure 88



Northern Goshawk

*Accipiter gentilis*

Length: 20-26"

All western conifer forests



Figure 90



Flammulated Owl

*Otus flammulus*

Length: 6-7"

Rocky Mountain Conifer  
Forest



Figure 91



Great Horned Owl *Bubo virginianus* Length: 18-25"

All western forests and woodlands



Figure 92



Long-eared Owl *Asio otus* Length: 13-16"

All western forests and woodlands



Figure 93



Northern Pygmy-Owl *Glaucidium gnoma* Length: 7-7 1/2"

All western conifer forests, Oak Woodlands



Figure 96



Figures 48 96 from Stephen Whitney, The Audobon Society Nature Guides: Western Forests

forest and woodland chiefly preying on song birds. All have short, broad wing spans giving them agility for rapid flights among the trees. The Red-tailed Hawk nests high in conifers ranging upslope to soar over parklands and woodlands near the timberline, where it finds ground squirrels and other rodents. Owls take enormous quantities of rodents and a few birds, reptiles and amphibians. The Pygmy Owl (Figure 96) feeds during the day on insects and lizards, and is often mobbed by small forest birds.<sup>31</sup>

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The possibility of persons seeing wild animals while hiking [68] or horseback riding [63] is increased if good a variety of good wildlife habitats are provided.

<sup>31</sup>Op. cit., Whitney, pp. 93-97

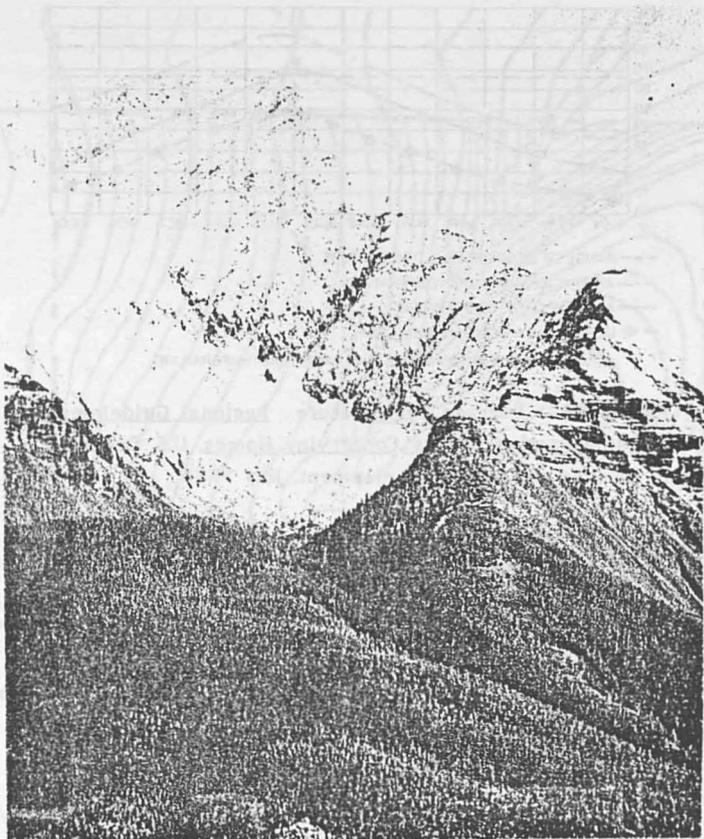


Figure 97-- West Spanish Peak. The Cucharan, Winter 1985

## twenty

## climate

The configuration of Cuchara Valley [12] as well as, weather patterns of the entire Planet Earth [1] influences the climate of the area.

The climate of the Cucharas River Valley is characterized by warm summers and cold winters.<sup>32</sup> The weather is subject to sudden changes due to storms travelling west to east. The brunt of these storms, however is usually taken by the west-facing slopes protecting the valley. Cuchara experiences large temperature changes from summer to winter, as well as day-to-night.<sup>33</sup>

### temperature

Wide seasonal variations of temperature occur with monthly averages from less than 20°F in January to 65°F or more in August (Figure 98).<sup>34</sup> Temperature varies greatly from day to night as well. Generally cold air flows to lower elevations and is trapped leaving intense cold air pools in canyons, river valleys and low spots in flat terrain.<sup>35</sup>

<sup>32</sup>Wilderness Study Area Report: Spanish Peaks, San Isabel National Forest, Huerfano and Las Animas Counties, Colorado, 1979, p. C-122

<sup>33</sup>"Climate", Huerfano County, Colorado County Information Service, Cooperative Extension Service, Colorado State University, 1973

<sup>34</sup>Op. cit., Wilderness Study Area Report, p. C-122

<sup>35</sup>Op. cit., "Climate"

### solar radiation

The area receives 70% or more of the available sunshine. Solar angles for the Cuchara Valley are shown in Figures 99 and 100. At twelve-noon on June 21, the summer solstice the sun is at an altitude 76° from the horizon. The sun's altitude on December 21, the winter solstice is 29° from the horizon. South-facing slopes are shown on the map in Figure 101.

### frost and freeze

Potentials for frost damage varies with the soil type. Risk of frost damage is high in flood plains along the streams (Figure 102). Frost damage risks are moderate for all other soils on the site.

### humidity

Humidity increases as one goes into the mountains. The average humidity in the area is shown in Figure 103.

### precipitation

The high mountains on the west block atmospheric moisture originating from the Pacific, therefore the primary source of moisture is the Gulf of Mexico. This transport of atmospheric moisture from the Gulf of Mexico is not consistent and varies greatly from year to year. Precipitation is higher in the mountains and spring snow melt helps to insure adequate water supplies for the area. Average precipitation for the area is shown in Figure 104.

The majority to the area's precipitation is received in spring and early summer. Precipitation is lowest in the winter. Evidence of the infrequent occurrence of southerly winds to bring Gulf moisture.

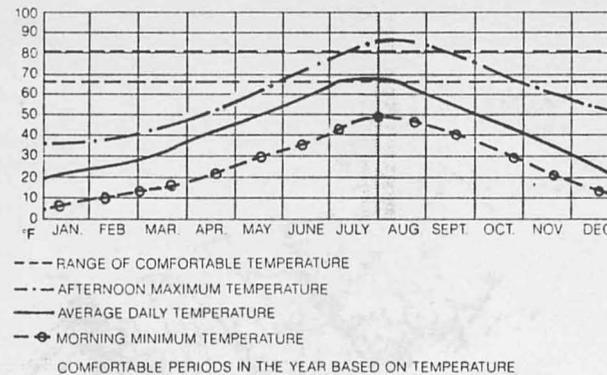


Figure 98-- Average Temperature. Regional Guidelines for Building Passive Energy Conserving Homes, U.S. Department of Housing and Urban Development, July 1980

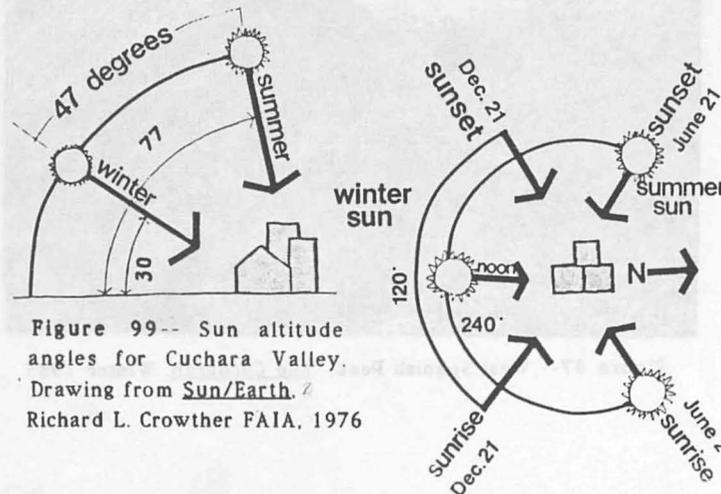


Figure 99-- Sun altitude angles for Cuchara Valley. Drawing from Sun/Earth, Richard L. Crowther FAIA, 1976

Figure 100-- Sun azimuth angles for Cuchara Valley. Drawing from Sun/Earth, Richard L. Crowther FAIA, 1976

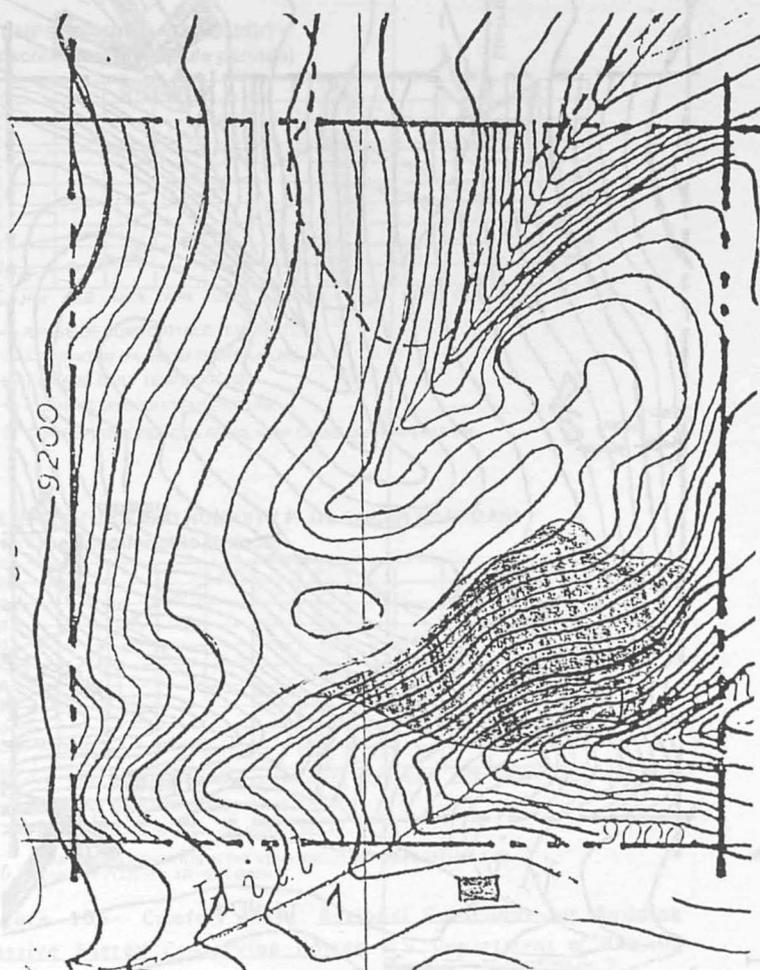


Figure 101-- Southern slopes of proposed site shown in shaded area.

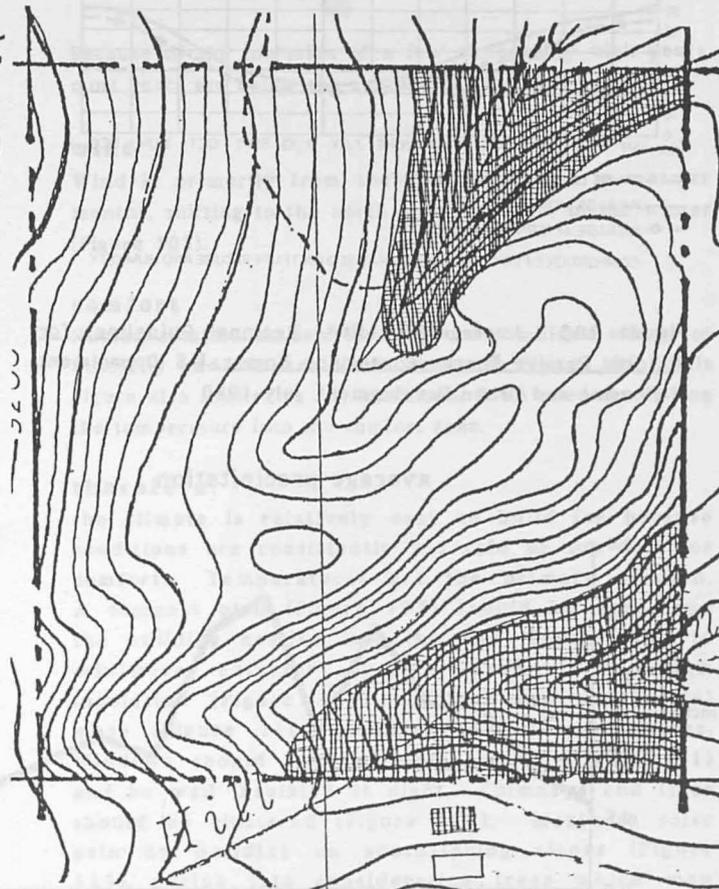


Figure 102-- Illustration of soil freeze hazards on the proposed site.

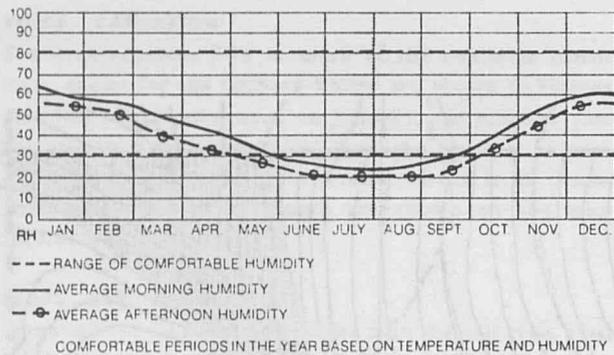


Figure 103-- Average humidity. Regional Guidelines for Building Passive Energy Conserving Homes, U.S. Department of Housing and Urban Development, July 1980

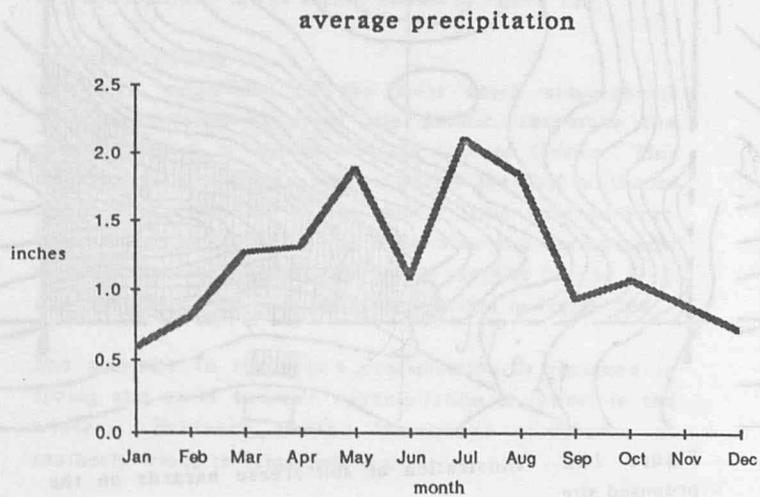


Figure 104-- Average precipitation for Cuchara area.

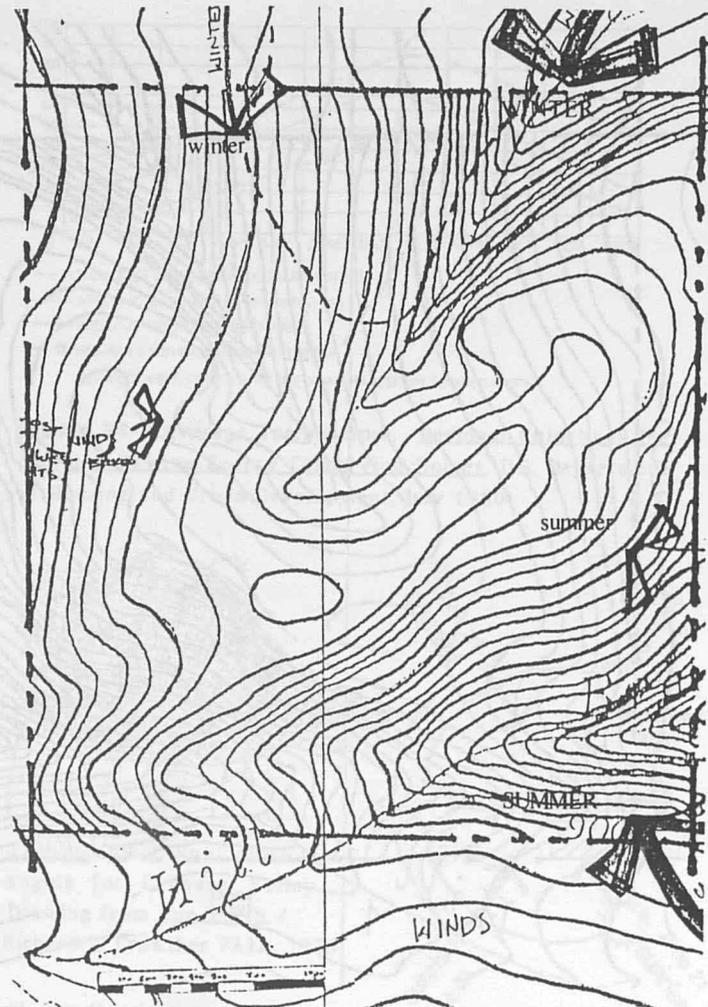
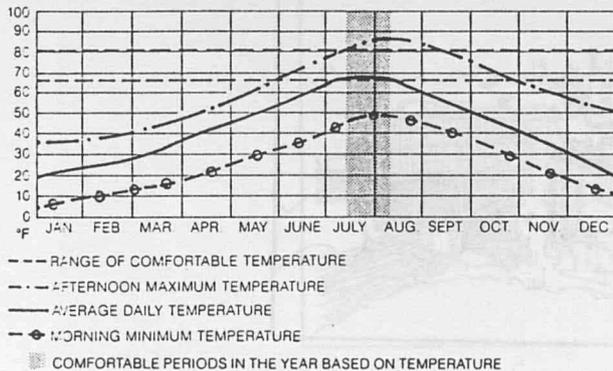
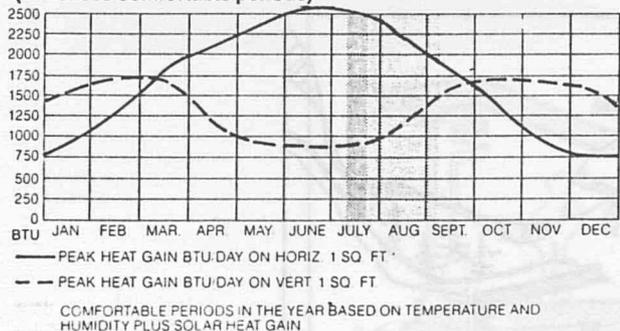


Figure 105-- Map illustrating seasonal winds on Jack Casias property.

**TEMPERATURE AND HUMIDITY  
(decreases comfortable periods)**



**TEMPERATURE AND HUMIDITY PLUS SOLAR HEAT GAIN  
(increases comfortable periods)**



**Figure 106--** Comfort chart. Regional Guidelines for Building Passive Energy Conserving Homes, U.S. Department of Housing and Urban Development, July 1980

In the Spring and Summer winds from the south and solar radiation combine to produce convective showers.

Because of the inclusion of a few abnormally high years, most years are below the average precipitation records.

**wind**

Wind is primarily from the south and east in warmer months, shifting to the north and northwest in the winter (Figure 105).

**comfort**

Human comfort as described by the combined effects of humidity and temperature is shown in Figure 106. This Figure also illustrates the additional Btu's needed to bring the temperature into the comfort zone.

**therefore:**

the climate is relatively easy to build for because conditions are consistently too cold or too cool for comfort. Temperatures are the primary concern. A compact plan (Figure 107) should be used, and the building nestled into the site (Figure 108) to minimize exterior surface area. Thorough insulation (Figure 109) and the use of thermal mass (Figure 110) modifies temperature swings. Windows should have multiple glazing (Figure 111) and be well insulated at night. Chimneys and flues should be clustered (Figure 112). Maximize solar gain by building on south-facing slopes (Figure 113), taking into consideration trees which may block the winter sun. Along with massive materials, dark colors and rough textures (Figure 114) on building exteriors maximize heat

absorption. Finally, use landscaping to protect the buildings from winter winds (Figure 115).

The way buildings relate to the climate of the natural environment [13] effects the comfort of human life [2] (Figure 113).

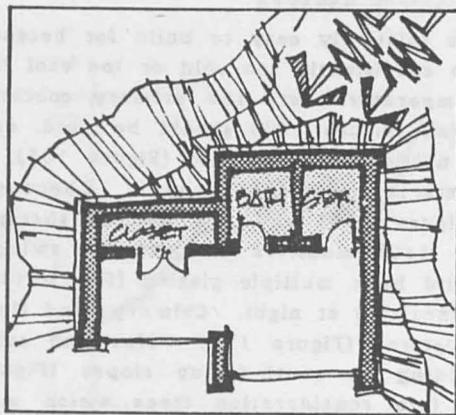


Figure 107

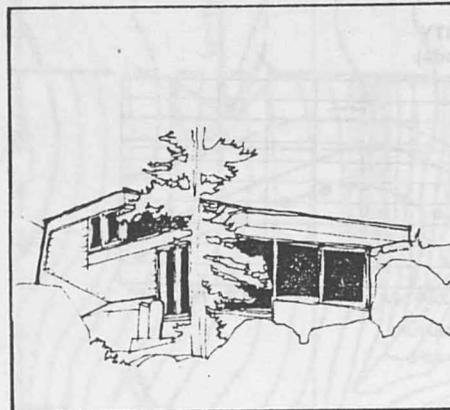


Figure 108

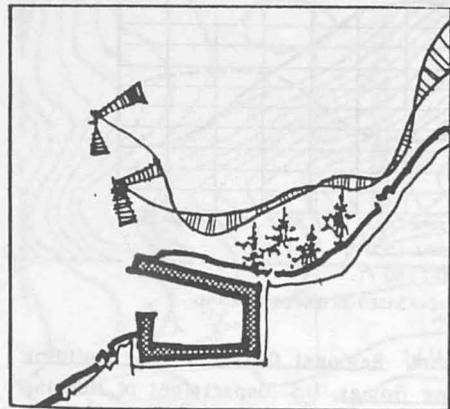


Figure 109

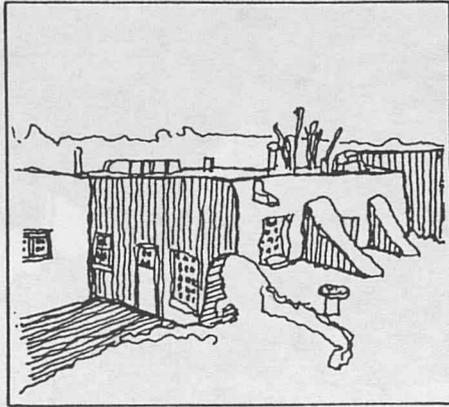


Figure 110

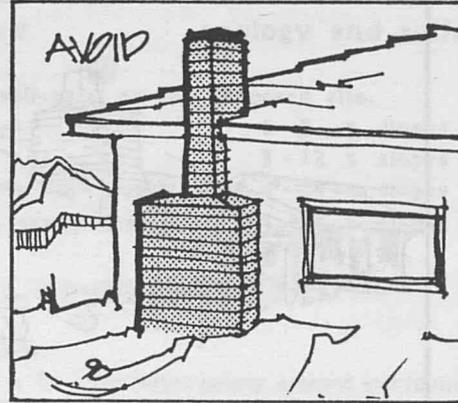


Figure 112

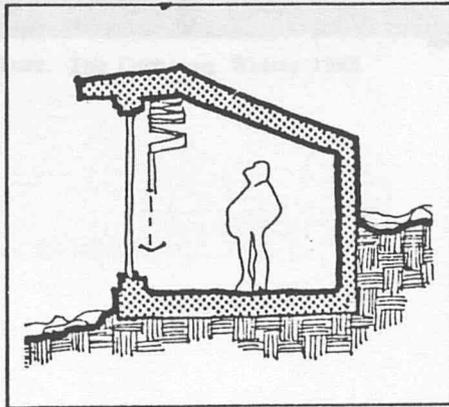


Figure 111

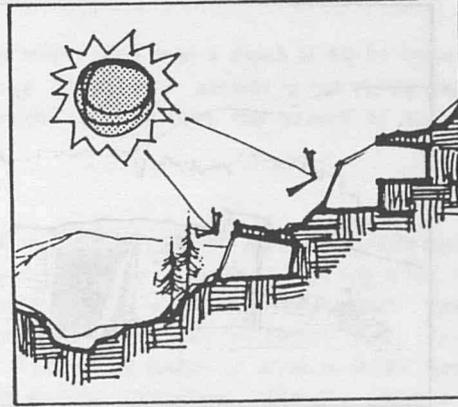


Figure 113

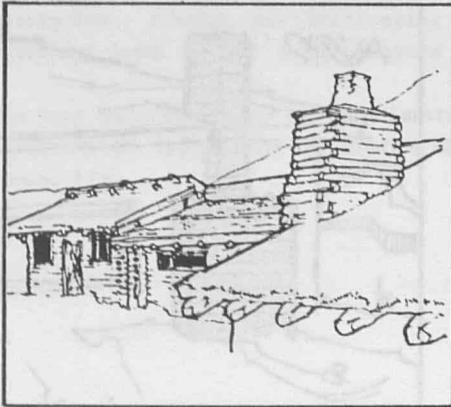


Figure 114

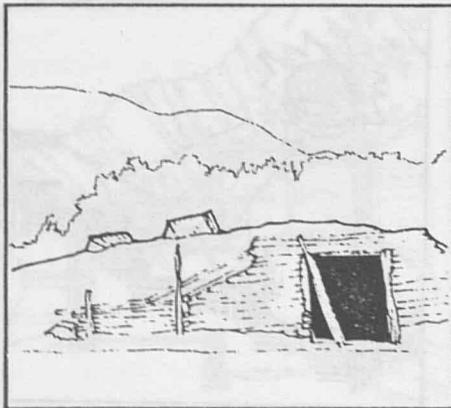
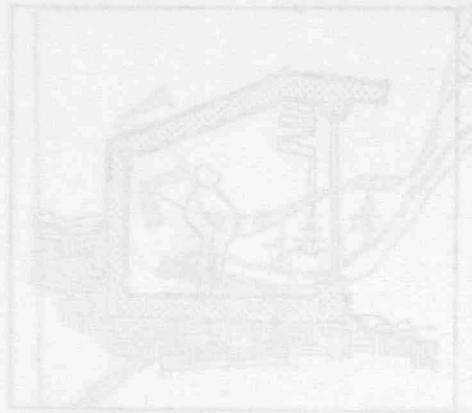
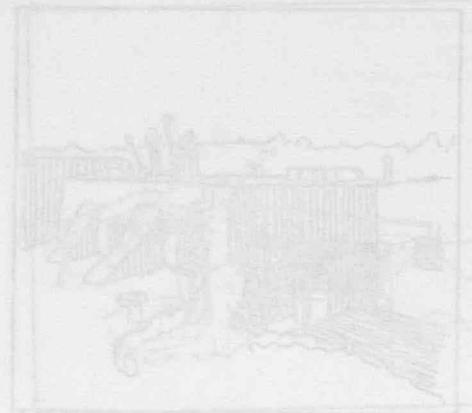


Figure 115

Figures 107-115 from Regional Guidelines for Building Passive Energy Conserving Homes, U.S. Department of Housing and Urban Development, July 1980

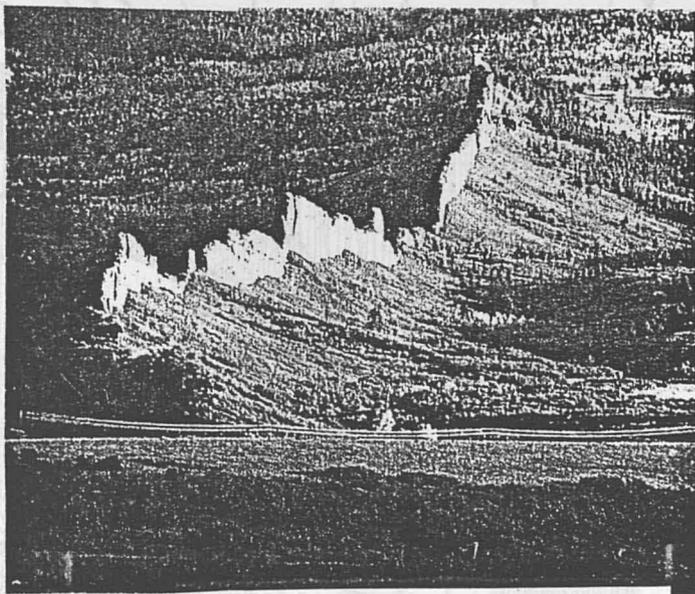


Figure 116-- Profile Rock. The Cucharan, Winter 1985

## twenty-one geology and soils

Four types of soil exist on the proposed site.

Collegiate loam	1 - 3 % slopes
Trag loam	3 - 12 % slopes
Uinta-Lakehelen fine sandy loam	4 - 25 % slopes
Leadville fine sandy loam	25 - 55 % slopes

The distribution of these soils is indicated in Figure 117.

### collegiate loam

Collegiate loam is a deep somewhat poorly drained soil found near the two streams. The native vegetation is mainly riparian. The surface layer is typically dark grayish brown loam about 31 inches thick. The substratum to a depth of 60 inches or more is gleyed and mottled, very gravelly sand. The soil is neutral throughout.

The seasonal high water table is at a depth of 12-36 inches from March to June. During thaw periods in the spring and early summer runoff is slow, but the hazard of water erosion is slight.

### trag loam

Trag loam is a deep, well drained soil on benches and foot slopes. Grasses are the native vegetation. The top layer is very dark, grayish brown loam about 8 inches thick. The subsoil is a sandy clay loam about 50 inches thick. The substratum to a depth of 60 inches or more is sandy clay loam. The soil is neutral throughout. Runoff is medium, making the hazard of water erosion moderate to very high.

#### **uinta-lakehelen fine sandy loams**

Uinta-Lakehelen fine sandy loams are found on mountains and benches. The native vegetation is coniferous forest. The Uinta soil is deep and well drained. The surface layer covered with a mat of forest litter is a brown fine sandy loam about 3 inches thick. The subsurface layer is pinkish gray sandy loam about 12 inches thick. The subsoil is sandy clay loam about 37 inches thick. Below this the a sandy clay loam forms the substratum to a depth of 60 inches or more. The soil is neutral throughout. Runoff is rapid. The hazard of water erosion is high to very high.

The Lakehelen soil is moderately deep and well drained. The surface is typically covered with a mat of partially decomposed needles and twigs. The surface layer itself is pinkish gray fine sandy loam about 4 inches thick over a light reddish brown fine sandy loam about 8 inches thick. The subsoil is extremely cobbly sandy loam about 16 inches thick. Sandstone is at a depth of about 28 inches. This soil is slightly acid to a depth of 4 inches, medium acid to 12 inches, and slightly acid below that depth. Runoff is rapid. The hazard of water damage is high to very high.

#### **leadville fine sandy loam**

Leadville fine sandy loam is a deep, well drained soil on mountainsides. The native vegetation is coniferous forest. The surface is covered with a mat of partially decomposed needles and twigs, typically 2 inches thick. The surface layer is light reddish brown fine sandy loam about 10 inches thick. The upper part of the soil is very stony loam about 12 inches thick. The lower part is extremely stony clay loam about 17 inches thick. Below this to a depth of about 60 inches or more is extremely stony sandy loam. The



Figure 117-- Map illustrating distribution of soils of proposed site.



Figure 120-- Private pond near Cochran community, Colorado's Cuchara Valley, Cochran Tourist Association, 1955

soil is medium acid to a depth of 22 inches and neutral below. Runoff is very rapid, making the hazard of water erosion very high<sup>36</sup>.

**therefore:**

Collegiate loam is poorly suited to building development because of the high seasonal water table and the hazard of flooding.

Trag loam is well suited to building development. However, the soil should be protected from erosion during site development.

Gently sloping areas on the lower side of slopes covered by Uinta-Lakehelen fine sandy loams are well suited to building development. However, the large amount of rock fragments in the soil makes excavation difficult. Disturbing only the part of the site used for construction will reduce the risk of erosion.

Leadville fine sandy loam is poorly suited for building development because of its steepness and stoniness.

<sup>36</sup>Op. cit., Huerfano County Soil Survey

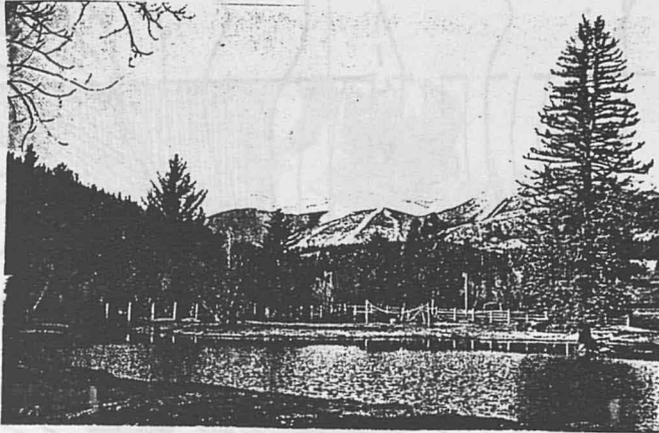


Figure 120-- Private pond near Cuchara community. "Colorado's Cuchara Valley", Cuchara Tourist Association, 1986

## twenty-two hydrology

Water is essential for satisfaction of biological needs (physiological activities[4]) of human life [2], wildlife [19] and vegetation [18].

Water quality data indicates that water quality exceeds the limits established by the state. The main value of the water in the area is its high quality, free flowing nature for wildlife and recreation. The water is used downstream for agricultural and domestic purposes.

Cuchara lies within the Apishpa River watershed. Streams in the area are classified by the state as Class I recreation water, Class I cold water aquatic life, municipal water supplies and agricultural water. The water production for this area is about .4 acre-feet of water per acre.

Two streams cross the site (Figure 121). These are the Hill Branch, flowing across the southeast corner, and a tributary of Spring creek in the northeast. In the northcentral part of the site spring and early summer runoff often collects in the shallow sandstone formations.

Depth to the water table ranges from 1.5 feet to more than six feet. The water table depth associated with Collegiate soil is 1.5 to three feet. The water table is more than six feet below all other soil types on the site.

therefore:

develop the site in a way that preserves the high quality of the water for on site and downstream use. Do not build in areas of natural drainage or surface water.

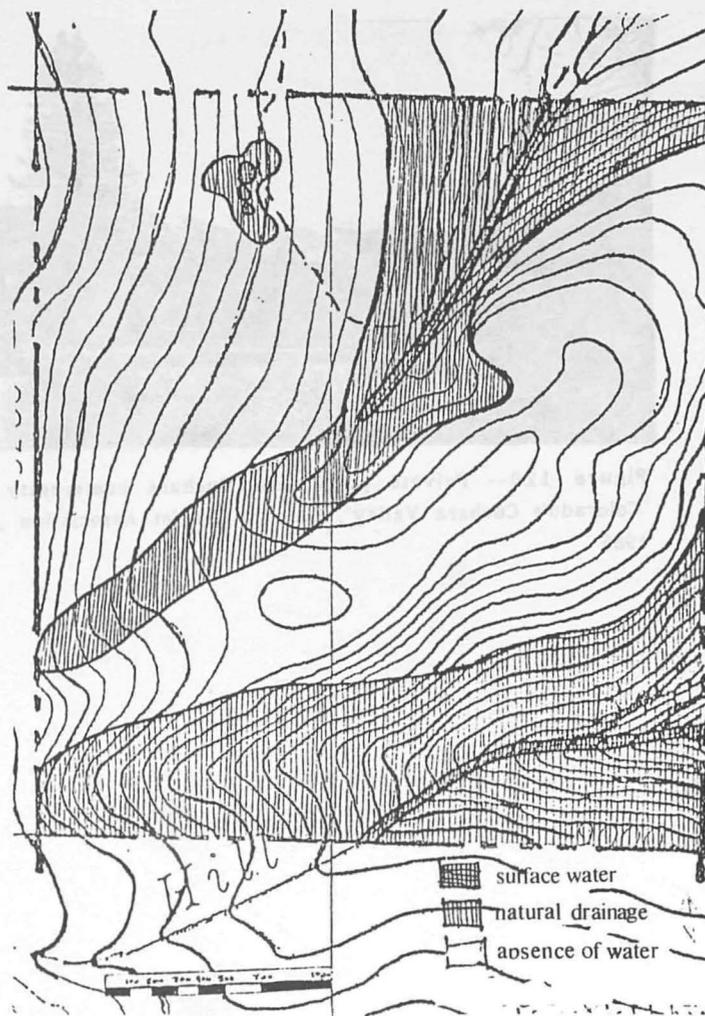


Figure 121-- Map of proposed site showing surface water and natural drainage channels.



Figure 122-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation and Community Life, 1985, Charles C Thomas Publisher

## twenty-three social environment

The social environment associated with play[8] is open. Other physiological activities [4] and work activities [5] have different social environments.

Social groups greatly impact our individual lives.

We are born in organizations, educated by organizations, and many of us spend much of our lives working for organizations. We spend much of our time paying, playing, and praying in organizations. Most of us will die in an organization, and when the time comes for burial, the largest organization of all -- the state -- must grant official permission.<sup>37</sup>

Most of us intuitively believe that the social climate significantly impacts the people functioning in it. Almost every social organization including, families, business organizations, and schools attempt to maximize "desirable" behavior and minimize "undesirable" behavior.<sup>38</sup>

The similarities and dissimilarities of the backgrounds of members of a group largely determine the atmosphere of an environment. Most of us choose friends who are close to our own age, educational level, ethnicity and attitudes. We usually feel more comfortable when we share these characteristics and others like them with most of the people

<sup>37</sup>A. Etzioni, Modern Organizations, Prentice-Hall, Englewood Cliffs, N.J., 1964, p. 24

<sup>38</sup>ibid, p. 320

in a group. This allows us to infer dominant values, concerns and ideologies of persons in the group.<sup>39</sup>

Groups with particular configurations create different social climates. Morale is influenced by size of organization, subunit size, supervisory ratios, automation and a teamwork approach. The social atmospheres created by different structural properties influence the behaviors and attitudes of people in groups.<sup>40</sup> The optimum group structure varies depending on the purpose and goals of the organization.

**therefore:**

Social climates can be said to have personalities much the same as people do. Just as some people are more supportive than others, some social environments are more supportive than others. There are people who feel a strong need to control others. Similarly, social environments can be controlling and rigid.

The social environment of organized camping [44] should be open and supportive.

<sup>39</sup>Rudolf H. Moos, The Human Context: Environmental Determinants of Behavior, 1976, John Wiley & Sons, Inc., p. 285

<sup>40</sup>*ibid.*, p. 278



Figure 121 - Map of organized camping site showing social and physical environment.



**Figure 123** Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher

## twenty-four GROUP group size

The number of people in a social environment [23] influences the "personality of that environment."

Most people instinctively feel that small size groups are more desirable than large size.

Throughout history there has been a consensus about the negative effects of large size. Aristotle felt that democracy could not work effectively in large states where citizens did not know "one another's characters." Karl Marx reasoned that the lack of interaction between employers and employees in large bureaucracies led to conflict between capital and labor and misunderstanding between management and workers. Emile Durkheim put it this way, "...small scale industry...displays a relative harmony between worker and employer. It is only in large scale industry that these relations are in a sickly state."<sup>41</sup>

But, "small" size differs according to the purpose of the group. Enrollment at summer camps ranges from 20 to several thousands at one session. Resident camps which accept handicapped campers vary in size from 244, Central Oklahoma Christ Camp; Cougar Camp in Richmond, Texas, capacity 200; Camp Ellowi, Cedar Hill, Texas, capacity 90; and Soroptimist, Argyle, Texas, capacity 80; to Easter Seal Camp in Oklahoma City, Oklahoma, capacity 40; and even smaller<sup>42</sup>.

<sup>41</sup>Op. cit., pp. 257-258

<sup>42</sup>1987 Parents' Guide to Accredited Camps. American Camping Association

therefore:

a camp should be small enough that everyone can be familiar with the others. For camp which serves many handicapped children develop a facility for 80 or less campers.



Figure 123 Frank M. Robinson and Sandra Stein, Director  
A Public Recreative On The Handicapped Activities In  
Camping Activities and Community Life 1967, Chapter 2  
Thomas Publisher

110 of 127 122  
The following information is presented in the following order:  
1. The name of the organization, its address, and its telephone number.  
2. The name of the person who provided the information, and his or her title.  
3. The date the information was provided.

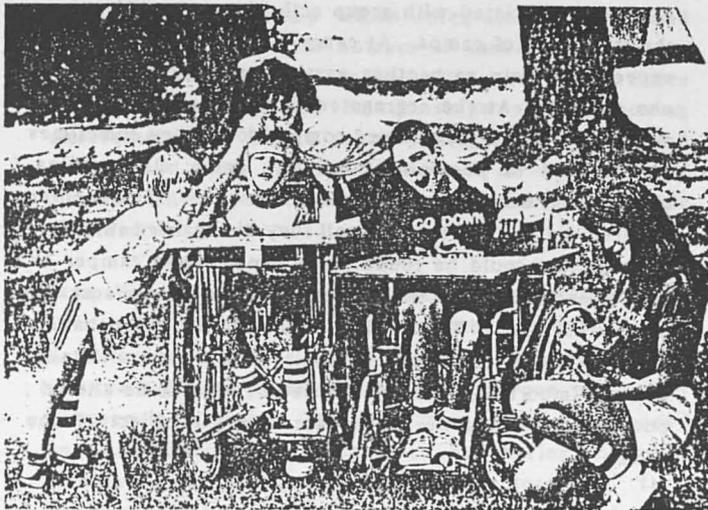


Figure 124 Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher

## twenty-five group composition

The mix of people in a social environment [23] affects its direction and what it accomplishes.

The similarities and differences of the persons making up a social group greatly influences the group's capabilities and attitudes, as well as the growth potential and feeling of acceptance or non-acceptance of each individual.

On a personal level, knowing other people in an environment share certain experiences and problems can give a more balanced perspective and serve as a foundation for building strong, supportive relationships. On the other hand, an aggregate of persons with differing backgrounds, can, using the experiences of the group itself, build relationships which open the doors for understanding and provide opportunities for personal growth.

Camps for the handicapped began as seasonal convalescent homes in the late nineteenth century. In 1926 Dr. Elliot Joslin opened a camp near Boston for diabetic children from his clinic. His and other camps like it were well-attended. There were always close ties with a clinic and follow up with parents.<sup>43</sup> From these roots in segregation other handicapped camps sprung up throughout the United States. Though the Civil Rights Movement caused some regular camps to accept a small number of handicapped

<sup>43</sup>Eleanor Eells, History of Organized Camping: The First 100 Years, American Camoing Association, 1986, pp. 53, 99

children along with their non-handicapped clientele. Only recently have some camps sought to develop a truly integrated experience.<sup>44</sup>

In 1969 and 1970 Susan Schmidt Dibner, Ph.D. and Andrew S. Dibner, Ph.D. studied the differences between special camps and camps which accepted a few mildly handicapped campers. Camp Woodland, a coed camp for children with all types of handicaps and Camp Hiawatha a girls camp and Camp Sequoia a camp for boys which both had a few handicapped campers participating in their programs.

At Camp Woodland there was an emphasis on helping campers and camper / staff cooperation. Counselors were willing to help campers whenever they were needed but not willing to have the campers perform at less than their ability.

At the regular camps campers were responsible for themselves. Whereas campers were always accompanied by a counselor or other staff member at the special camp. Because of this constant surveillance, counselors were familiar with each child's capabilities and allowed the campers freedom of movement if not developing responsibility. Woodland campers gave assistance with the goals of the camper in mind, not in order to expedite matters. Unnecessary assistance was seen as a hindrance to the campers development of independence and greater self esteem. Therefore, at Camp Woodland campers were encouraged to do as much as possible for themselves.

<sup>44</sup>Earl H. Miller, Camping With Persons With Handicapping Conditions, Discipleship Resources, 1982

Attitudes associated with group activities were different at the two types of camps. At camp Woodland children were expected to help each other participate not compete with one another. At the segregated camps handicap campers adjusted better if they valued competition. They sometimes participated in parades beating a drum at marching, cheering or umpiring at baseball. (However, if the other children did not agree with a call they disregarded it.) If no suitable role could be found for a handicapped camper he was sometimes asked not to play. Unlike campers at the integrated camps, Woodland campers did not mind having severely disabled persons on their team because winning was not important. The rules sometimes had to be altered, but helping everyone participate was the object of the game.

At the regular camps, campers were reprimanded for asking about a child's handicap. However at the special camp handicaps were openly discussed, allowing the children themselves to explain how they could participate in activities. Counselors often started discussion about a handicap. Could the child use the disabled arm well enough to carry a ball? Once the child made it clear how he or she wished to participate the rules were changed to accommodate him.

Though they had different philosophies, both types of camps attempted to create homogeneous groupings within which normalcy was obtainable by all campers. However, their definitions of normalcy and participation differ.<sup>45</sup>

<sup>45</sup>Dibner, Susan Schmidt, Ph.D. and Andrew S., Ph.D., Integration or Segregation for the Physically Handicapped Child, 1973, Charles C Thomas Publisher, p.3

Camp Share is a camp which integrates all ages and handicaps. However, the number of handicapped persons and non-handicapped persons is about equal. Camp Share focuses on one-to-one relationships and improving understanding. The high percentage of handicapped persons and camp philosophies creates an atmosphere of openness and opportunities to discuss handicaps and other problems.

Camp Warren is an integrated summer camp for youngsters. It also involves equal numbers of handicapped and non-handicapped campers. "The process of integration", says the camp director, "does not happen between groups but between individuals." The association of the handicapped and non-handicapped is achieved by sharing the same facilities and participating in activities together. It is hoped that this association will carry over to their lives after camp.<sup>46</sup>

Bender, Brannon and Verhoven point out that it is social skill problems which often prevent successful mainstreaming of handicapped persons into the community. They suggest that leisure interactions between non-handicapped and handicapped should improve social skills and attitudes of both groups. Camping provides informal opportunities that cannot be duplicated elsewhere for handicapped and able-bodied children to integrate socially.

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<sup>46</sup>Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation and Community Life, 1985, Charles C Thomas Publisher, p. 182

Basically, each type of camp, segregated, mainstream (regular camp with a few handicapped campers) and integrated (equal numbers of handicapped and non-handicapped), has certain advantages of its own. Which is best, depends on the child's needs, wants and capabilities.

Special camps for the handicapped offer children an escape from the prejudices caused by lack of understanding and freedom to be themselves. But, segregated camps can lead to dependence. They may also fail to contribute significantly to the child's life after camp. He may still avoid participation in activities at school, where he must cooperate with non-handicapped children.

Regular camps which accept a few handicapped campers encourage competition and better simulate the "real world", as far as population composition and challenges in overcoming physical and attitudinal barriers. Sometimes though, at regular camps, handicapped campers are left out or ignored or asked to leave if they are slowing down or hindering the game in any way. And, they tend to teach social roles, rather than maximize functional ability because they emphasize appearing normal in order to obtain social acceptance.

Camps with an essentially equal number of handicapped and non-handicapped campers offer openness similar to segregated camps, while providing exceptional opportunities for social interaction between people with different abilities. However, this population mix makes it difficult at times to develop programs and activities which are fun and challenging to all campers.





Figure 126-- Dan W. Kennedy, Ph.D., David R. Austin, Ph.D. and Ralph W. Smith, Ph.D., Special Recreation: Opportunities for Persons with Disabilities, 1987, Saunders College Press

## twenty-six supervisory ratios

The purposes of a group, as well as, the group size [24] and group composition [25] influence the best supervisory ratio.

Supervisory ratios effect group productiveness and member satisfaction.

Supervisory ratios are referred to as the span of control. The total number of supervisory levels is based on the span of control. An organization which has many levels of supervision relative to its size is considered "tall"; as opposed to a "flat" organization which has few levels. Many people think a flat structure leads to more satisfaction in an organization. This is because each supervisor is responsible for a large number of subordinates and individual workers have a fair degree of autonomy in decision making, unlike a tall structure which has a high ratio of supervisors to subordinates.

When considering a camp a tall structure with a high staff (supervisor) to camper ratio is best. Camps which serve handicapped persons need even more counselors per camper than regular camps. However, a camp with an integrated population requires fewer counselors because non-handicapped campers can take some of the burden off the staff by providing necessary assistance that would otherwise be given by a staff member. This does not however imply that some campers are responsible for other campers' needs. The first priority is that all campers have fun and experience personal growth.

At the MDA Camp in Perry, Kansas, a segregated camp, each camper is accompanied by a full time attendant. And the counselor to camper ratio is greater than one to one<sup>47</sup>. Camp Hope, also a special population camp, tries to have one counselor per three higher functioning campers and two counselors per camper with multiple handicaps.<sup>48</sup> At Camp E.C.H.O., disabled children host a non-disabled neighbor or school chum. There is about one counselor per every two campers at E.C.H.O.<sup>49</sup> The Lions Camp in Kerrville, Texas is a special camp. Counselors live with the campers at a one to three ratio. Activity leaders and other staff provide a total staff to camper ratio of about one to two.

**therefore:**

design for a camp with a ratio of staff to campers of one to two. Live-in counselors will be at a ratio of one staff member to three campers. However at least two counselors should work together in case two persons are necessary to assist a camper or in case an emergency requires one to leave in search of additional help.

<sup>47</sup>Interview July 14, 1987, Laura Cramer, attendant Perry, Kansas, MDA Camp July 5-11, 1987

<sup>48</sup>Op. cit., Miller p. 5

<sup>49</sup>Op. cit., Robinson and Skinner, p. 185



Figure 126-- Dan W. Kennedy, Ph.D., David R. Acker, Ph.D., and Ralph W. Baker, Ph.D., Special Education Consultants for Persons with Disabilities, 1987, Southern College Press



Figure 127-- "Easter Seal Guide to Choosing the Right Camp for Your Child"

## twenty-seven population

The basis of an area's social environment [23] is its population.

The population of Cuchara and, the entire Spanish Peaks Human Resource Unit fluctuates throughout the year.

### spanish peaks human resource unit

This region shown in Figure 128 is comprised of Huerfano County and part of Las Animas County. Major communities in the area are Trinidad, Walsenburg and La Veta. Population in the area is about 21,000 persons. Trends indicate it will remain low and possibly decrease to around 19,000 by the year 2010.<sup>50</sup>

### problems

Lack of employment is the primary factor holding population down. The greatest number of jobs occur in services, trade, government and agriculture. In March 1981, the unemployment rate in the area was 5.2 percent.<sup>51</sup> Coal mining, once a major activity is not expected to recover in the near future. Income associated with low employment opportunities is low. Per capita income in the area in 1980 was \$6,407 as compared to \$7,160

<sup>50</sup>Op. cit., Wilderness Study Area Report, p. C-143

<sup>51</sup>Op. cit., Land And Resource Management Plan: Pike and San Isabel National Forests: Comanche and Cimarron National Grasslands, p. 11-29

for the state.<sup>52</sup> Tourist trade through the summer, along with increasing winter recreational opportunities, is helping to offset declines in other areas of employment.<sup>53</sup>

#### composition

The population consists of 55 percent Anglo, 44 percent Spanish American and 1 percent other races.<sup>54</sup> The median age is approximately 29.4 years compared to 26.2 years for the state of Colorado. Disabled or handicapped persons make up about two percent of the population.

Purposes of the population include ranching, farming, coal mining, mine operation, government, business and industry, recreation, tourism and fuelwood cutting.<sup>55</sup> Ranching and agricultural related activities are a dominant force in the lives of the residents. However, during the summer an influx of seasonal residence owners move into the La Veta, Cuchara and Stonewall areas. But, the high percentage of Spanish Americans, continues to influence lifestyles based on the adherence to traditional cultural activities and customs.

#### attitudes

Attitudes, beliefs and values reflect the ethnic origins of the population. Attitudes are generally conservative. Family ties are strong and closely associated with the land. The people care and are very concerned about what happens to the land and its resources.<sup>56</sup>

<sup>52</sup> 1980 U.S. Census, Colorado

<sup>53</sup> Op. cit., Wilderness Study Area Report, p. C-141

<sup>54</sup> 1980 U.S. Census, Colorado

<sup>55</sup> Op. cit., Land And Resource Management Plan, p. 11-25

<sup>56</sup> Op. cit., Wilderness Study Area Report, p. C-143

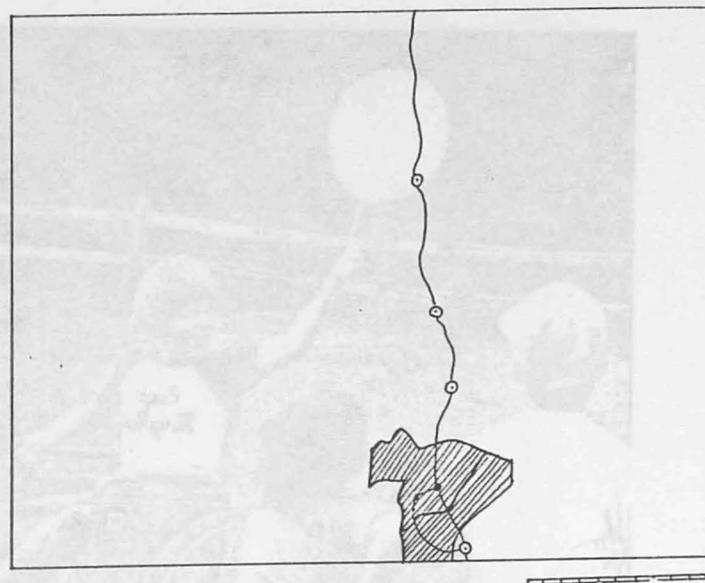


Figure 128-- Map showing Spanish Peaks Human Resource Unit. United States Department of Agriculture and The U.S. Forest Service, Land And Resource Management Plan: Pike and San Isabel National Forests: Comanche and Cimarron National Grasslands, 1984, Pueblo, Colorado

### **cuchara**

The population of the Cuchara area is variable and difficult to estimate. Water taps show that there are 375 water-served residences in Cuchara Valley. This figure excludes the 444 approved multi-family units at Baker Creek ski-area.

Close to 60 percent of the platted single family lots in the valley have been improved with residences. However, the majority of these dwellings are not occupied year-round. The permanent population in the area is estimated at 150 to 200 persons with an additional 500 to 600 persons during summer and winter peaks. Consequently the total population is estimated to vary over the year between 150 to 800 or more persons.

In 1970 the permanent resident population was estimated to be sixty persons and the peak seasonal population about 300.<sup>57</sup>

### **problems**

The small size of the resident population and difficulties brought by winter and requires the people to work together. And the residents are well known to one another. Community gatherings often find the people of Cuchara and La Veta together.

<sup>57</sup>Op. cit., Huerfano County, pp. 46-47

### **attitudes**

Art is highly valued. Many artists and craftsmen live in the area. The influence of the Spanish culture is evident in their work, samples of which can be viewed in the La Veta art gallery owned by the Friends of the Arts Guild.

The rich history of the area is also held dearly by the resident population. The Spanish Peaks, themselves a landmark to Indians and early explorers, are the basis of many legends and have been the target of many gold and silver prospectors. The Fort Francisco Museum, owned by the Huerfano County Historical Society was originally built by Colonel John M Francisco in 1876.<sup>58</sup>

### **therefore:**

capitalize on the wealth of art and history in the area and the population's value of it.

<sup>58</sup>Op. cit. "Colorado's Cuchara Valley"





Figure 129-- Dan W. Kennedy, Ph.D., David R. Austin, Ph.D. and Ralph W. Smith, Ph.D., Special Recreation: Opportunities for Persons with Disabilities, 1987, Saunders College Press

## twenty-eight organizations

Organizations support and are supported by the population[27].

Social activities in the Cuchara Valley area are associated with family, school and church interests. Low populations in the region cause the people to be close knit and aware of local events.<sup>59</sup>

### government

County and local officials are personally known and respond directly to the people's needs. The Huerfano County Board of County Commissioners is located in Walsenburg. The Cucharas Sanitation and Water district governs water use in the area.

### jurisdiction

The 2,180 acres of the Cuchara area are surrounded bounded by the San Isabel National Forest which is under the jurisdiction of the U.S. Forest Service. The Forest Service regulates all activities within the Forest and is concerned with development occurring adjacent to it.

### education

There are no public schools in the Cuchara area; students are transported by bus to the primary and secondary schools in La Veta. Postal services are provided by a Post Office located in the Cuchara Country Store.

<sup>59</sup>Op. cit., Wilderness Study Area Report, C-146

**public protection**

Law enforcement is provided for Cuchara by a part-time Huerfano County Sheriff's Department deputy who resides in the Cuchara area. The closest detention facility is located in La Veta. Fire protection is also provided by the La Veta fire protection district, which stations two light-duty trucks with slip-on tank packages in Cuchara.<sup>60</sup>

**therefore:**

integrate the camp with the surrounding national forest. Take advantage of local services. Nearby fire protection services will lower insurance rates.



Figure 159 - Dan W. Kennedy, Ph.D., David E. Justice, Ph.D., and Ralph W. Smith, Ph.D., Special Extension Generalists at Fort Collins, Colorado, 1987, examining the Cuchara area.

<sup>60</sup>Op. cit., Huerfano County, p. 80



Figure 130-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life. 1985, Charles C Thomas Publisher

## twenty-nine policies

Organizations [28] create policies to protect landforms[15], views [17], vegetation [18], wildlife [19], geology and soils [21], hydrology [22] and population [27].

Huerfano County develops goals and policies for the Cuchara area as the town is unincorporated.

Among the long range policies of Huerfano County which apply to the Cuchara area are:

- 1) Increase employment opportunities and family incomes which are, at the present far below that of the Colorado average
- 2) Publicize the wealth of historical and prehistorical remains in the county to develop and promote tourism
- 3) Capitalize on scenic vistas, mountain recreation and tourist activities to provide new employment opportunities for residents and help develop a more diversified and stable economy
- 4) Encourage the use of earthen based construction methods and other solar based heating techniques
- 5) Encourage the clustered, compact, logical development patterns of the unincorporated areas of the county to minimize public service costs

Huerfano County goals for the Cuchara planning area include:

- 1) Construction of a centralized sewage collection and treatment facility as population growth indicates and as local financial capability and grants-in-aid become available
- 2) Upgrade existing central water supply system as population growth dictates and funds become available
- 3) Upgrade the local road system to county standards and place improved roads on the county's network of maintained secondary roads
- 4) Provide specialized snow removal equipment and a law enforcement substation with full-time staff
- 5) Support the development of an economically stable and esthetically pleasing year-round recreational complex
- 6) Create a growth monitoring system that will enable local and county officials to track the rate, location and intensity of growth
- 7) Make a variety of housing types and styles available to promote the emergence of a balanced, diversified recreational community
- 8) Establish a school site in the upper Cucharas Valley
- 9) Establish local planning ability in the upper Cucharas Valley

**therefore:**

develop a facility which will provide additional employment opportunities and help diversify the economy (policy 1.3). To capitalize on the history and prehistory (policy 20), natural environment [12], geology and soils [21] and artistic wealth of the area develop a learning center in conjunction

with the camp. This can also help integrate the community and camp and be an additional tourist attraction for the area (policy 2.3). This could be used as a school site as well (goal 8).



Figure 100-- Frank M. Robinson and family skiing  
Skinner, A Historic Perspective on the District of  
Columbia in Camps, Recreation and Community Life  
1987, Charles E. Thomas Publisher

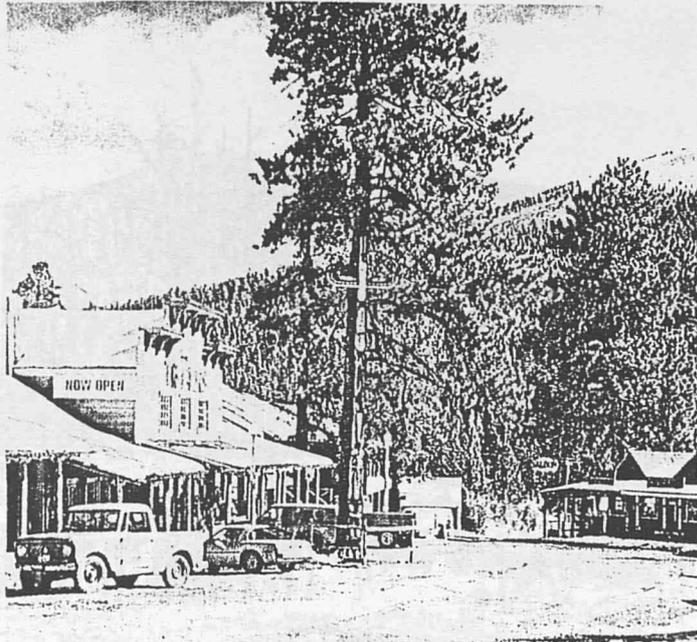


Figure 131-- Timber's Restaurant. "Colorado's Cuchara Valley", Cuchara Tourist Association , 1986

## thirty building regulations

Organizations [28] develop building regulations to make the built environment [35] safe and enjoyable for human life [2].

Buildings are to meet the Uniform Building Code and local regulations and restrictions.

### local building requirements

- 1) all buildings, towers, poles, silos and other structural features shall be sited, constructed and finished in a manner to cause minimum disruption of scenic views
- 2) structures including roofs and roof appurtenances shall be limited to materials, textures, colors and tones that blend harmoniously and inconspicuously with the indigenous landscape.
- 3) Towers and antennae, unless wholly screened from highway view, are prohibited, as are buildings and other structures that block, impede or otherwise obstruct or infringe on mountain, plains and valley views<sup>61</sup>

### therefore:

the facility to should conform to the standards of the UBC. Also, buildings should have exterior colors and textures which blend with the natural environment []. Avoid tall structures.

<sup>61</sup>Op. cit., Huerfano County, p. 84





Figure 132-- Shallow surface water in northwest corner of proposed site.

### thirty-one water regulations

In order to protect human life [2] and the natural environment[13] regulations must be placed on water use.

Developers shall be responsible for the design of drainage and erosion, sedimentation and flood control facilities required to direct and control all permanent and seasonal water.

- 1) drainage systems shall be based on consideration of the drainage basin as a whole.
- 2) development shall take place in such a way as to cause minimal erosion problems
- 3) natural vegetation shall be preserved adjacent to streams, rivers, lakes and reservoirs and the planting of trees and bushes is encouraged in open areas.
- 4) all road cuts and fills shall be replanted or reseeded with grasses suited to the environment
- 5) a fifty foot strip measured horizontally from the identifiable high water mark on each side of a running stream or creek shall be preserve in its natural state with the exception of footpaths, bridges, irrigation structures, drainage and erosion control structures, flood control devices and outdoor recreation fixtures.<sup>62</sup>

therefore:

disturb natural drainage patterns as little as possible.

<sup>62</sup>Op. cit., Huerfano County, pp. 122-124

## Water Regulations

In order to protect human life and the natural environment, regulations must be placed on water use.

Developers shall be responsible for the design of drainage and erosion, sedimentation and flood control facilities required to direct and control all runoff and excess water.

(1) drainage systems shall be based on consideration of the drainage basin as a whole.

(2) development shall take place in such a way as to cross natural drainage patterns.

(3) natural vegetation shall be preserved subject to erosion control laws and regulations and the planting of trees and shrubs is encouraged in open areas.

(4) all road cuts and fill shall be retained or treated with erosion control in the development.

(5) a 10% foot wide vegetated buffer strip shall be provided on each side of a drainage system or creek shall be provided in its natural state with the exception of drainage structures, erosion control devices and erosion control structures, flood control devices and erosion control structures.

Section 12

## Interiors

Interior design, drainage, patterns as well as possible.

for information see 111-112



Figure 121 - Shallow surface water in western corner of proposed site.

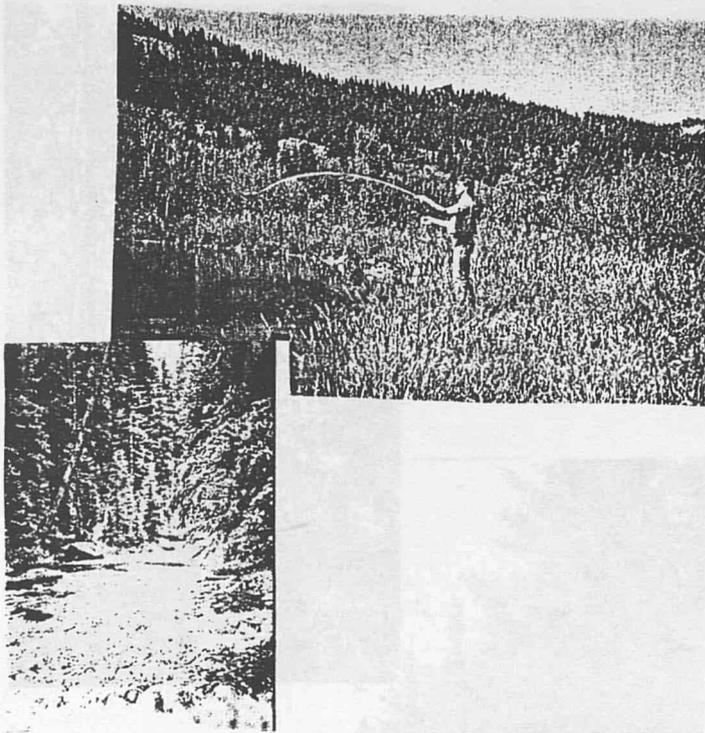


Figure 133-- "Colorado's Cuchara Valley", Cuchara Tourist Association, 1986

### thirty-two sewage disposal regulations

Sewage disposal regulations work with water regulations [31] to preserve water quality.

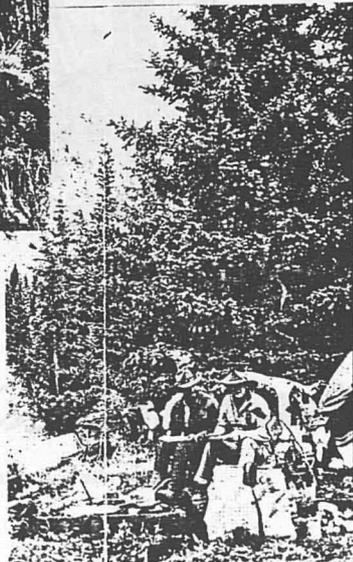
No final plat shall be approved by the Board of Commissioners unless or until an economical and practical method of sanitary sewage disposal is available.

- 1) facilities which can not be practically or economically connected to a community or centralized sewage disposal system shall be provided with an on-lot disposal system before occupancy.
- 2) there shall be a minimum of eight feet between the ground surface and ground water level in the area of a sewage disposal system, based on the high annual water level.
- 3) any on-site waste disposal system shall be at least 100 feet from any water supply well and at least 50 feet from any stream or water course.
- 4) soils having a percolation rate faster than 5 minutes per inch or slower than 60 minutes per inch shall not be used for sewage disposal systems.
- 5) land rated as having severe limitations for septic tank absorption fields by the U.S. Conservation Service shall not be used for waste disposal systems.

#### therefore:

use natural slopes for drainage fields, below the facility and away from streams.





thirty-three

value

Land value is based on the economy [34] and attitudes of the population [27]

Land value in the Cuchara area is high.

The total 2,180 acres of the Cuchara Planning Area was valued at \$3,396,840 in 1982, with a projected annual increase of 13.6 percent, making the 1987 value approximately \$6,426,385. Adding another 6 percent per year for inflation brings the total to \$8,312,487. Therefore the estimated value of one acre in 1987 is \$3,813, making the 207 acre site worth about \$789,290. If trends continue the value of this property would be \$1,350,300 in 1990, \$8,086,153 in 2000 and \$48,423,228 in 2010.

therefore:

be grateful that the land was donated. Build without destroying the land to retain its value.

Figure 134-- "Cuchara Valley Resort"

Value

thirty-three

Land value is based on the economy (14) and standard of the population (15).

Land value in the Census area is 111.

The total 1,128 acres of the Census Planning Area was valued at \$1,100,000 in 1961 with a projected annual increase of 1.5 percent during the 1967 value approximately \$1,128,000. Adding another 2 percent per year for inflation brings the total to \$1,151,400. Therefore the value of one acre in 1967 is \$1,020.00. If trends continue the 107 acre site worth about \$109,140. It trends continue the value of this property would be \$1,150,000 in 1990 \$1,150,000 in 2000 and \$1,150,000 in 2010.

Conclusion:

It is concluded that the land was acquired. It will be without destroying the land in terms of value.



Figure 134 - Census Value Report

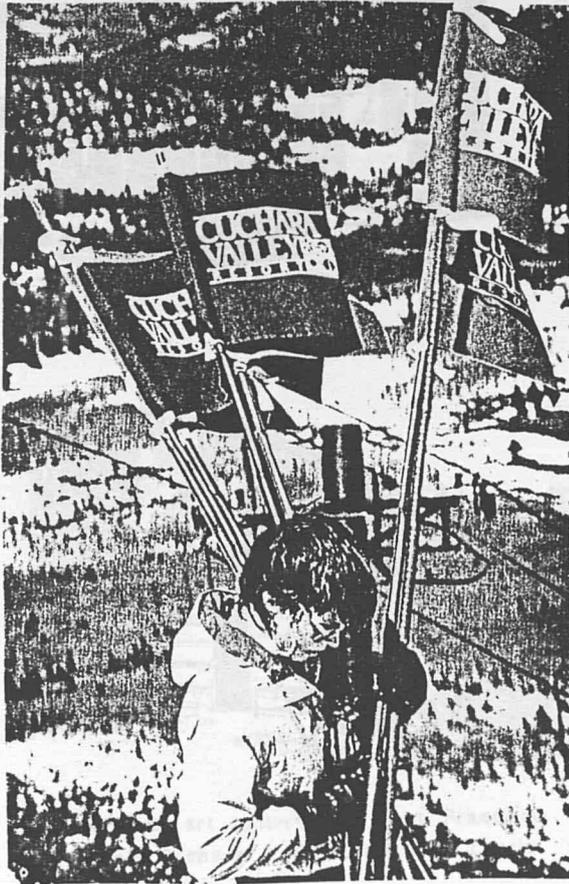


Figure 135-- "Cuchara Valley Resort"

### thirty-four economy

The economy is largely dependent on the use of the area's geology and soils [21] and the demand for these minerals and agricultural products in other areas of planet earth [1].

Cuchara and the nearby town of La Veta, unlike much of Colorado, have weak economies. Many dollars have been invested to develop the area with little success. Most notably a ski-resort which has yet to net a profit in its short, five year existence. Though many residents find it necessary to hold two or three jobs to live in the area year-round, they remain, held by the beauty of the landscape and a friendly and cohesive population. Development has taken place but Cuchara-La Veta is not yet overcommercialized, retaining a rustic charm which stems from several cattle ranches in the region. Though, leisure related business is fairly good during summer months and the few people familiar with the area return year after year, winter activities have yet to become popular.

Huerfano County's economy has historically been based in agriculture and mineral extraction. Today, these two industries remain the foundation of the county's economy. Unfortunately, these industries are dependent upon externally determined marketplaces. Sudden changes in these distant markets cause correspondingly large fluctuations in the population and prosperity of Huerfano County. This has resulted in the county's cyclical economic

pattern of prosperity and depression. Despite a chronically depressed agricultural market, the economy of Huerfano County has benefitted recently from renewed mineral extraction and increasing recreational activities.

The economic problems in Huerfano County such as, chronic unemployment and underemployment, lack of jobs for youth and women, a low prevailing wage scale, depressed commodity prices, high rural transportation costs, high energy costs and less than ample or reliable supply of water are widely recognized.<sup>63</sup>

Opportunities and advantages which can be capitalized upon to lead to economic improvement include the area's geology, geography and recreational potentials.

**therefore:**  
capitalize on the natural environment and recreational potential in ways which will help improve the area's economy.

Huerfano County's economy has historically been based in agriculture and mineral extraction. Today, these two industries remain the foundation of the county's economy. Unfortunately, these industries are dependent upon extremely deteriorated marketplaces. Today's changes in these distant markets cause correspondingly large fluctuations in the population and prosperity of Huerfano County. This has resulted in the county's economic stagnation.

<sup>63</sup>Op. cit., Huerfano County, p. 90



Figure 133 - Cochise Valley Ranch



### thirty-five built environment

Cuchara's built environment is not expansive.

The built environment in the Cuchara Planning area includes the Cuchara county store and Timbers restaurant and hotel in the Cuchara community, Vietti's restaurant, The Kountry Kitchen near Cuchara Camps, Cuchara Valley Resort, residences of the Cuchara community, Pinehaven and Spanish Peaks subdivisions.

therefore:  
build in an unobtrusive manner.



Figure 136-- La Veta art gallery and Fort Francisco Museum. "Colorado's Cuchara Valley", Cuchara Tourist Association, 1986

Figure 137-- Also showing utility decisions in San Isabel National Forest. United States Department of Agriculture and The U.S. Forest Service, Land and Resource Management Plan, Big and San Isabel National Forests, Comanche and Cimarron National Grasslands, 1987, Pueblo, Colorado



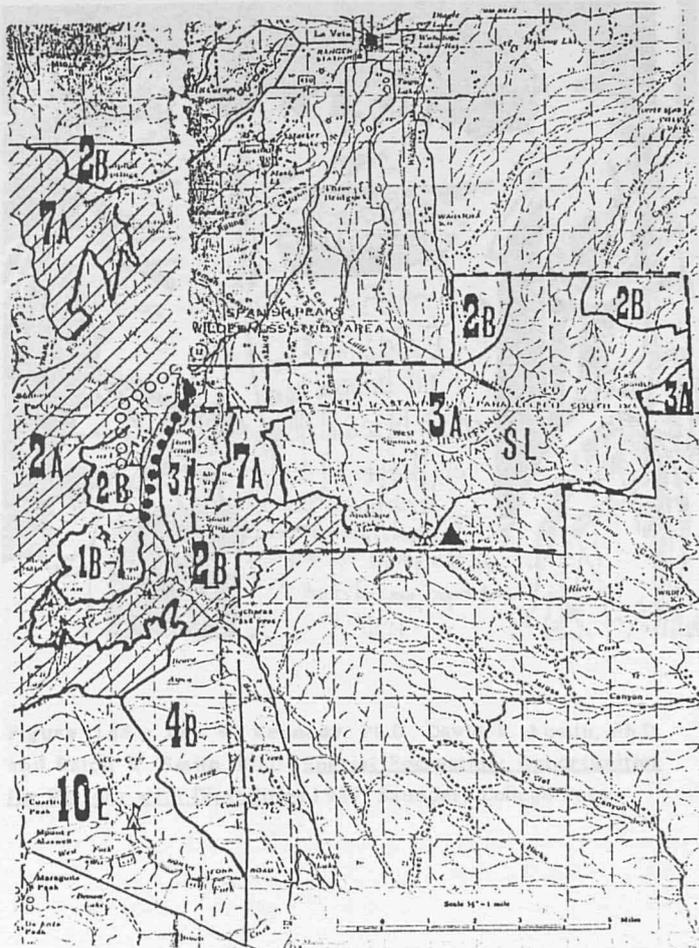


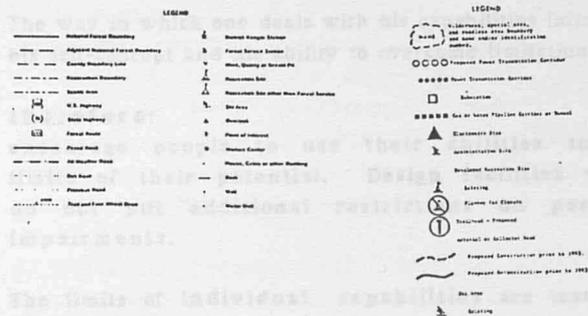
Figure 137-- Map showing utility corridors in San Isabel National Forest. United States Department of Agriculture and The U.S. Forest Service, Land And Resource Management Plan: Pike and San Isabel National Forests; Comanche and Cimarron National Grasslands, 1984, Pueblo, Colorado.

thirty-six individual systems

Utility companies furnish electricity, telephone communications and water to the area. Gas is supplied by individual tanks.

Present and proposed utility corridors of the San Isabel National Forest are shown in Figure 137. The present power transmission corridor comes very near the site. The proposed corridor passes through the site.

therefore: take advantage of relatively easy utility connections.



Systems

Figure 117

Utility companies furnish electricity, telephone communications and water to the area. Gas is supplied by individual tanks.

Present and proposed utility corridors in the San Isabel National Forest are shown in Figure 117. The present power transmission corridor crosses very near the site. The proposed corridor passes through the site.

Advantages:  
 Takes advantage of relatively easy utility connections.

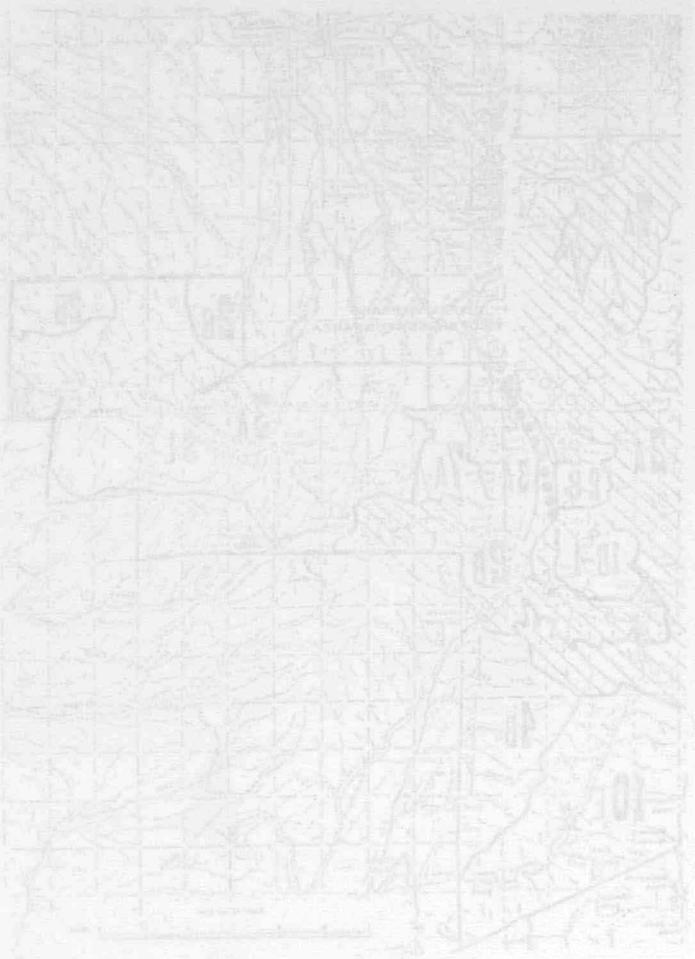


Figure 117--Map showing utility corridors in San Isabel National Forest, United States Department of Agriculture and The U.S. Forest Service, Land and Resource Management Plan, 1984 and San Isabel National Forest Corridor and Transmission National Corridor 1984-1985, Bureau of Land Management.



Figure 138-- Dan W. Kennedy, Ph.D., David R. Austin, Ph.D. and Ralph W. Smith, Ph.D., Special Recreation: Opportunities for Persons with Disabilities, 1987, Saunders College Press.

## thirty-seven individual capabilities

A person's happiness [6] depends largely upon his acceptance and utilization of his individual capabilities.

Everyone has their own special talents and personal limitations. However, goals and dreams do not always coincide with one's strengths and weaknesses. But, with a dream and perseverance the seemingly impossible can be accomplished.

An individual's capabilities include those which are intellectual, emotional, physical and social. No one is without limitations and strengths. These differ from person to person. It is these differences which give each person their individuality.

The way in which one deals with his capabilities influences his self-concept and his ability to overcome limitations.

therefore: with handicapped persons which encourage people to use their abilities to the limits of their potential. Design facilities which do not put additional restrictions on personal impairments.

The limits of individual capabilities are tested in organized camping [44] experiences.



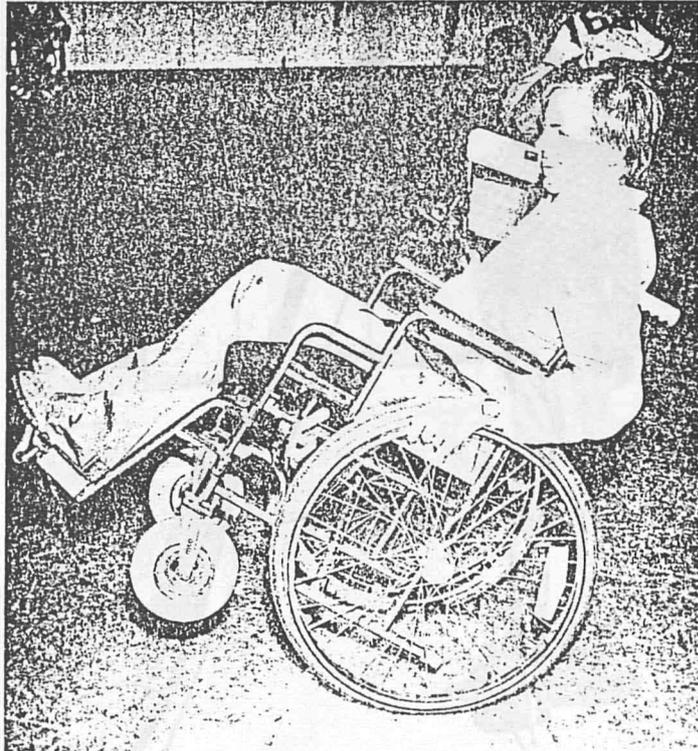


Figure 139-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

### thirty-eight physical limitations

Persons with physical handicaps are often more limited by there environmental context [11] than their individual capabilities [37].

Physically disabling conditions include visual, hearing motor impairments.

Persons with disabilities are usually very able to overcome them with other strengths and talents. However, they often find obstacles in the attitudes of those people around them who fail to recognize their capabilities. The built environment also presents barriers. When poorly designed, facilities can make it difficult for some individuals to participate as fully as they could otherwise.

therefore:

strive to change the public's attitude toward handicapped persons by allowing them to share experiences with handicapped persons which demonstrate their individuality and abilities. Design the built environment to allow full participation by all persons.

An organized camping [44] experience which allows handicapped and non-handicapped persons to share experiences in groups and one-on-one is a good way to begin changing some negative attitudes.

Handicapped persons who play [8] with non-disabled persons in their community are also good educators.

## Physical limitations

Persons with physical handicaps are also more likely to have environmental contact with their individual capabilities [37].

Especially disabling conditions include visual, hearing, motor impairments.

Persons with disabilities are usually very able in various areas with other strengths and talents. However, they often find obstacles in the attitudes of those people around them who fail to recognize their capabilities. The social environment also presents barriers. When poorly designed facilities can make it difficult for some individuals to participate at all in their social activities.

Therefore, efforts to change the public's attitude toward handicapped persons by allowing them to share experiences with handicapped persons which demonstrates their individuality and abilities. Design the built environment to allow full participation by all persons.

An organized campaign [44] sponsored which offers handicapped and non-handicapped persons to share experiences in groups and one-on-one is a good way to begin changing some negative attitudes.

Handicapped persons who play [45] with non-disabled persons in their community are the best educated.



Figure 138 -- Frank M. Robinson and Sandra Kelly  
Stinson. A Holistic Perspective on The Disabled Child.  
Applications in Campus Recreation and Community Life.  
1982. Charles C Thomas Publisher.

## thirty-nine visual impairments

Visual impairments vary from low vision to the inability to detect light. Mobility methods differ depending on the degree of sight loss.

### definition

- Legal blindness is defined as having measured vision of 20/200 or less, in the better eye, with corrective lenses. In other words, a person who is legally blind can see at 20 feet what an average viewer can see at 200 feet. A person with a visual field less than 20 degrees is also legally blind.
- Most people with visual impairments have some vision. Only about 5 percent of the persons classified as legally blind have no vision or light perception (totally blind).
- Most visual impairments are present at birth, but people with after birth visual impairments are usually able to create mental images based on their prior sight.
- Language, motor and cognitive development are unaffected by visual deficits, as long as the visually impaired person's environment does not hamper the development of these skills.
- Most people with visual impairments do not read Braille. The majority of those who do, read much more slowly than a sighted person. Few Braille readers exceed 150 words per minute.



Figure 140-- Richard L. Welsh and Bruce B. Blasch, Editors, Foundations of Orientation and Mobility, 1980, American Foundation for the Blind.

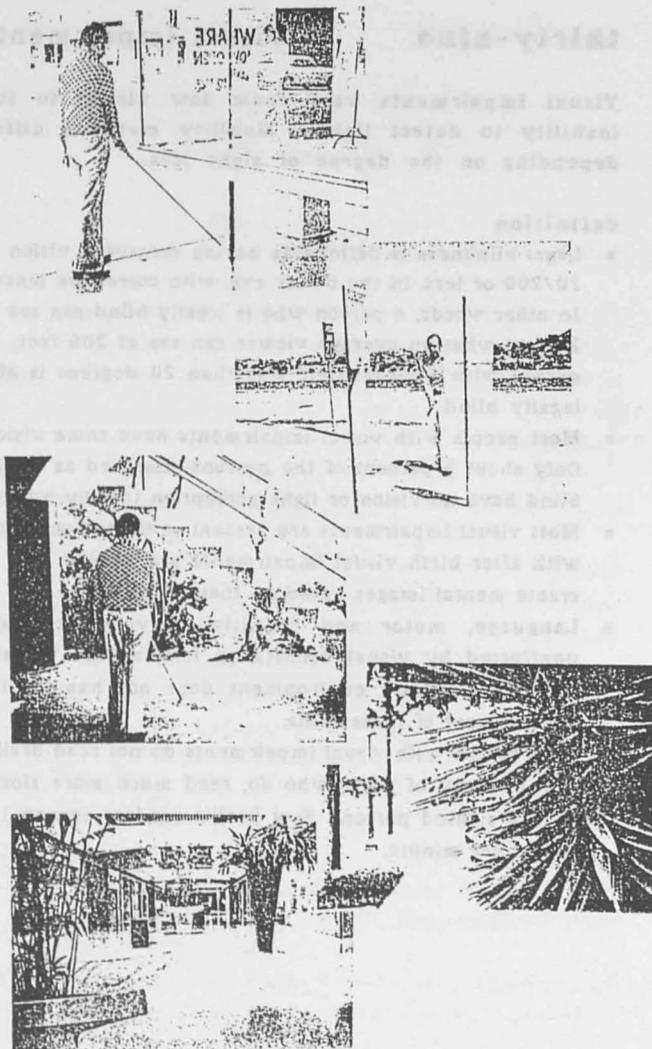


Figure 141-- Travel Hazards. Richard L. Welsh and Bruce B. Blasch, Editors, Foundations of Orientation and Mobility, 1980, American Foundation for the Blind.

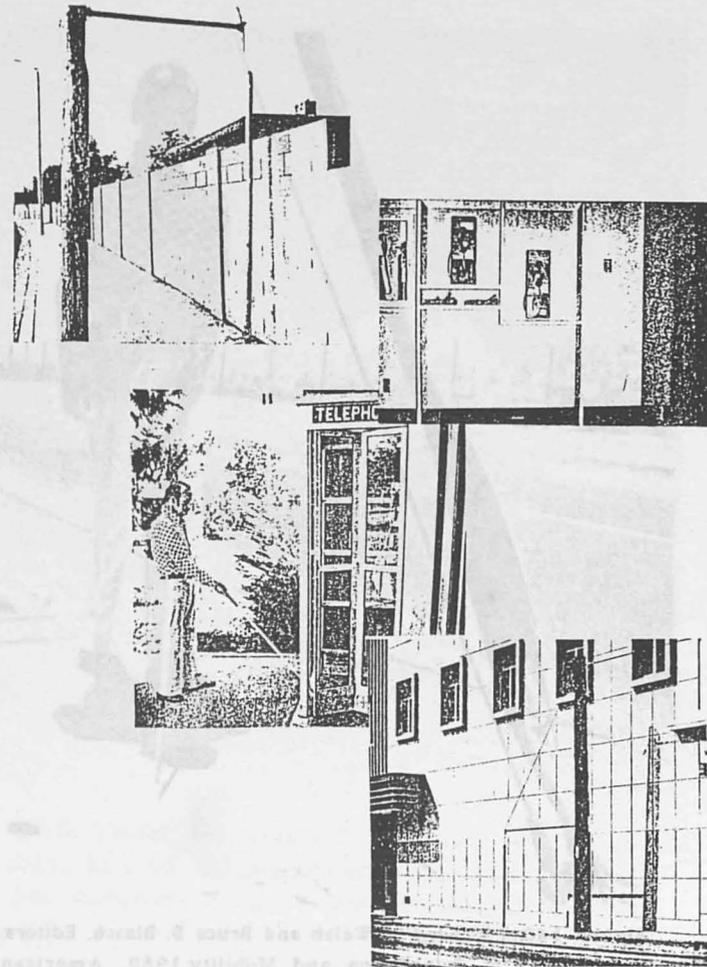


Figure 142-- Modifications for safety. Richard L. Welsh and Bruce B. Blasch, Editors, Foundations of Orientation and Mobility, 1980, American Foundation for the Blind.

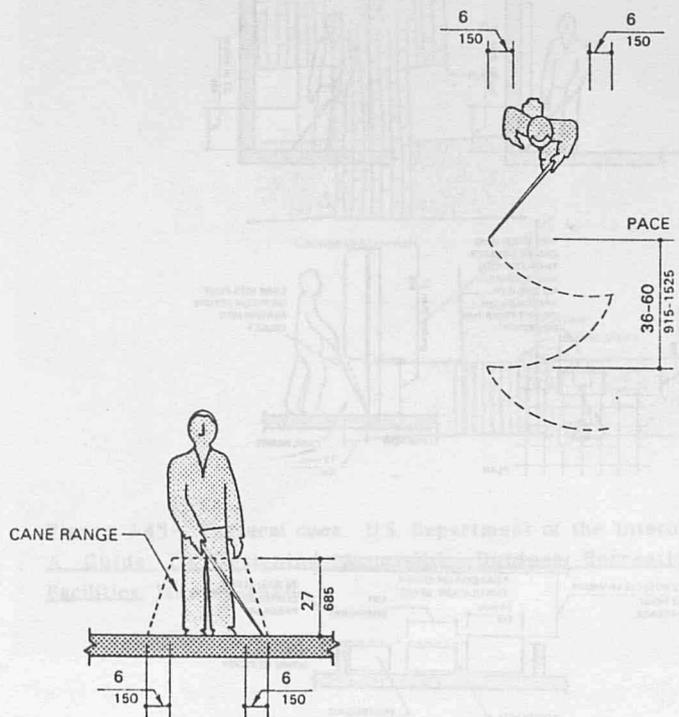


Figure 143-- Long cane techniques. American National Standards Institute, American National Standard for Buildings and Facilities, 1986.

- Some visually impaired persons, especially children, exhibit mannerisms known as "blindisms." These include small and large body movements such as head shaking, eye pressing and body rocking.<sup>64</sup>

#### design parameters

Environmental design for persons with low vision depends on what type of orientation aid they use. Most persons use canes for independent travel. To design for them the distinction between "obstacle" and "hazard" is important. An obstacle (Figure 142) is an object or architectural element which can be detected and negotiated with standard long cane techniques. A travel hazard (Figure 141) is an object or architectural element in the path of travel that cannot be detected and negotiated with standard long cane techniques, such as metal cable supports for utility poles, some public telephones, some stairs and escalators, some store windows, incorrectly placed railings, irregular intersections with offset corners and curb ramps designed only with the wheelchair in mind. Guide dogs can detect these type of hazards. But, estimates indicate less than 5 percent of the persons requiring an orientation aid, use a guide dog.

To reduce the risk of danger to long cane users posed by wheelchair ramps, the ramps should have a different texture from the sidewalk and a lip of not more than 1/2 inch where the ramp meets the street. Additionally, curb ramp placement should be consistent -- at the same location at all intersections in a community.

<sup>64</sup>Dan W. Kennedy, Ph.D., David R. Austin, Ph.D. and Ralph W. Smith, Ph.D., Special Recreation: Opportunities for Persons with Disabilities, 1987, Saunders College Press p. 53-54

For persons with low vision, not requiring the use of long canes one of the most helpful design techniques is the use of color contrast as well as texture. Appropriate uses of these types of cues are indication of stairs and other changes in level and differentiating the middle and sides of hallways. Glare caused by light streaming in from large windows and reflecting off the floor or wall also creates danger for persons with low vision. Coatings can be applied to glass to soften light intensity. The problem of glare should also be considered when choosing wall and floor surfaces near windows.

Doors are often difficult to detect in large expanses of glass. Door frames and, if possible, the doors themselves should contrast with the wall in which they are set so they are not camouflaged. A contrasting floor color just in front of the door can be helpful as well.

Large areas of plate glass are potential hazards for all people. A contrasting color or decorative design at eye level can prevent dangerous contact with the glass.

Text on informative signs should contrast with the sign and the sign itself should contrast with its background so it can be located and read by persons with visual impairments. A letter height of at least two inches is recommended, in a Helvetica semi-bold print style.<sup>65</sup>

Tactile warnings should be used on doorknobs of doors behind which danger exists.

<sup>65</sup>Richard L. Welsh and Bruce B. Blasch, Editors, Foundations of Orientation and Mobility, 1980, American Foundation for the Blind, pp. 479-503

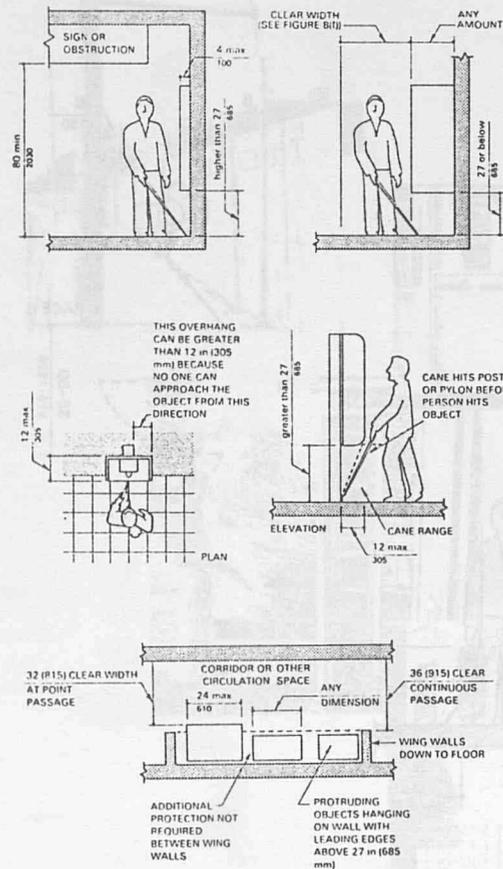


Figure 144-- Design applications for long cane users. ANSI, American National Standard for Buildings and Facilities, 1986.

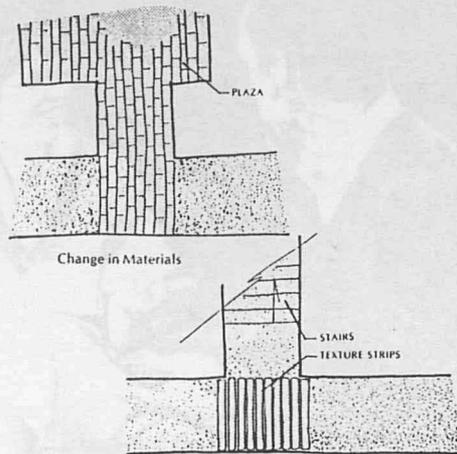


Figure 145-- Textural cues. U.S. Department of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, January 1980.

therefore: hearing impairments eliminate architectural and environmental travel hazards for those persons using long canes. Make use of contrast, texture and repetition to aid persons with visual impairments.

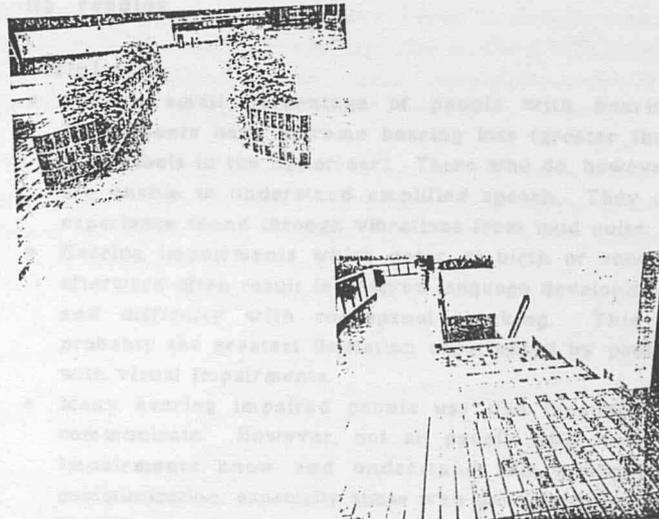


Figure 146-- Glare neutralizes the benefits of contrasting colors for persons with low vision. Richard L. Welsh and Bruce B. Blasch, Editors, Foundations of Orientation and Mobility, 1980, American Foundation for the Blind.

The following information was obtained from the
 records of the Bureau of the Census, Department of
 Commerce, for the years 1950 through 1954. It
 shows the number of persons who were employed in
 the various occupations in the United States during
 the period covered. The figures are in thousands
 of persons.

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 Commerce, for the years 1950 through 1954. It
 shows the number of persons who were employed in
 the various occupations in the United States during
 the period covered. The figures are in thousands
 of persons.



Figure 1-5 - Section view, U.S. Department of the Interior  
 A Guide To Building America's Future



Figure 1-6 - Section view, U.S. Department of the Interior  
 A Guide To Building America's Future



Figure 147-- "Gallaudet University Press, 1987", Catalog.

## forty hearing impairments

Integration into the social environment [23] is largely dependent one's communication skills.

Hearing impairments often make communication difficult. The hearing impairments of some persons can be overcome with the use of hearing aids. Others depend entirely on sign language or lip reading.

### definition

- Only a small percentage of people with hearing impairments have extreme hearing loss (greater than 90 decibels in the better ear). Those who do, however, are unable to understand amplified speech. They do experience sound through vibrations from loud noise.
- Hearing impairments which occur at birth or shortly afterward often result in delayed language development and difficulty with conceptual thinking. This is probably the greatest limitation experienced by people with visual impairments.
- Many hearing impaired people use sign language to communicate. However, not all people with hearing impairments know and understand this method of communication, especially those who developed hearing loss after early childhood.
- Hearing impaired children often appear hyperactive. But, frequently their behavior is a result of the difficulty they encounter trying to communicate with a "hearing world."
- Some hearing impaired people have damage to their semicircular canals, which help control balance.

Therefore, activities requiring balance may be difficult for them.<sup>66</sup>

Much like visually impaired persons, aurally handicapped people compensate for their hearing loss by relying more heavily on other senses. And while the tactile and audio environment especially important to the visually impaired person, the luminous environment is of increased importance to the hearing impaired. Also, just as the environment of persons with low vision require special attention to visual cues, persons with partial hearing need reduced background noise levels, including vibration, and frequency control to enhance their ability to understand speech.

Because warning systems are typically aurally based, the design of emergency warning and signal systems is crucial to the safety of hearing impaired persons. In order to alert the aurally handicapped the systems should include:

- 1) fire alarm and smoke detectors which activate strobe lights, vibrators, and / or variable-velocity fans.
- 2) fire alarm and other emergency reporting devices that do not require voice communication.
- 3) graphic messages confirming receipt of emergency signals, such as a sign in an elevator cab flashing "help is on the way" when a malfunction is reported.
- 4) visible as well as audible signals on security alarms.
- 5) warning lights that flash on when machines are running, or that signal when a machine has completed a task.

<sup>66</sup>Op. cit. Kennedy, Austin, Smith, p.54-55

Poor lighting can obscure or distort facial expressions, body movements and gestures that assist lip readers and make manual communication difficult. Lighting provisions for the deaf include:

- 1) providing as much natural light as possible in all buildings, with at least one window wall per room recommended.
- 2) avoiding backlighting on speakers and interpreters.
- 3) locating lighting to avoid casting shadows on speakers and interpreters.
- 4) controlling glare through proper placement, shielding or diffusion of light sources, including windows.

To reduce background noises site selection is important. The site should be away from major noise generators such as railroads, airports and major highways. Methods to control mechanical noise and vibration include:

- 1) insulating heating and ventilating ducts to control duct-borne fan noise. Silencers should be installed on vents near fans.
- 2) planning interior functions to provide buffer space between high and low noise areas.
- 3) insulating the floor, walls and ceiling of mechanical equipment rooms.
- 4) isolating vibration from mechanical equipment by spring-mounting transformers and using flexible duct to reduce vibration transmission.
- 5) regulating airflow velocities to control turbulence-induced noise.
- 6) selecting diffusers, grilles and registers that have low sound production ranges for terminal airflow.

- 7) do not place mixing boxes, pressure reducing valves, or similar equipment above porous ceilings where noise control is important.

Electrical interference can be reduced by installing anti-static carpet and providing adequate humidity. Avoid ultra-high frequency-sound security systems and low-cycle electric transformers, both of which cause problems for hearing aid users.

To improve the acoustic environment so those with residual hearing can use it to their fullest capabilities the following suggestions may be incorporated into facility design:

- 1) carpet floors wherever practical. A carpet with a minimum pile height of 1/4", laid without pad will contribute to noise reduction while allowing wheelchair mobility.
- 2) use sound absorptive ceiling materials.
- 3) place absorptive panels on walls so that no two parallel opposite surfaces are untreated.
- 4) install acoustical metal decks in gymnasiums and pool areas.<sup>67</sup>

**therefore:**

consider the hearing impaired in the development of a warning system. Insulate noise generators in buildings or areas where communication is important.

When siting the chapel [72] face the speaker into the sun.

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<sup>67</sup>Margaret Milner, "Breaking Through The Deafness Barrier: Environmental Accommodations for Hearing Impaired People", 1981, Gallaudet College Press

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Figure 148-- U.S. Department of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, January 1980.

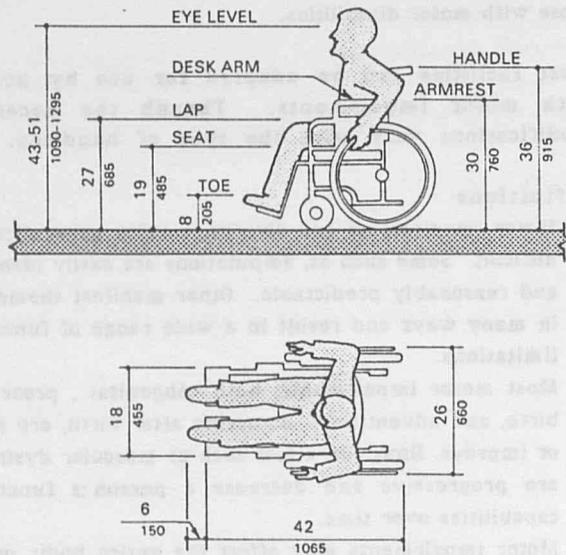
## forty-one motor impairments

The built environment [35] can present barriers to those with motor disabilities.

Most facilities can be adapted for use by persons with motor impairments. Though the necessary modifications vary with the type of handicap.

### definitions

- Motor impairments are diverse, making generalizations difficult. Some such as, amputations are easily identified and reasonably predictable. Other manifest themselves in many ways and result in a wide range of functional limitations.
- Most motor impairments, both congenital, present at birth, and adventitious, occurring after birth, are stable or improve. However, a few such as muscular dystrophy are progressive and decrease a person's functional capabilities over time.
- Motor impairments may affect the entire body, or one specific area. Common terminology for localized paralysis includes *monoplegia* (one extremity), *hemiplegia* (extremities on one side of the body), *paraplegia* (both lower extremities), and *quadraplegia* (all four extremities, perhaps involving head or trunk movement).
- Some people with motor impairments have an accompanying disabling conditions such as learning impairments, speech difficulties or seizure disorders. But, most people with motor impairments do not have multiple disabilities.



NOTE: Footrests may extend further for very large people.

Figure 149-- Wheelchair dimensions. ANSI, American National Standard for Buildings and Facilities, 1986.

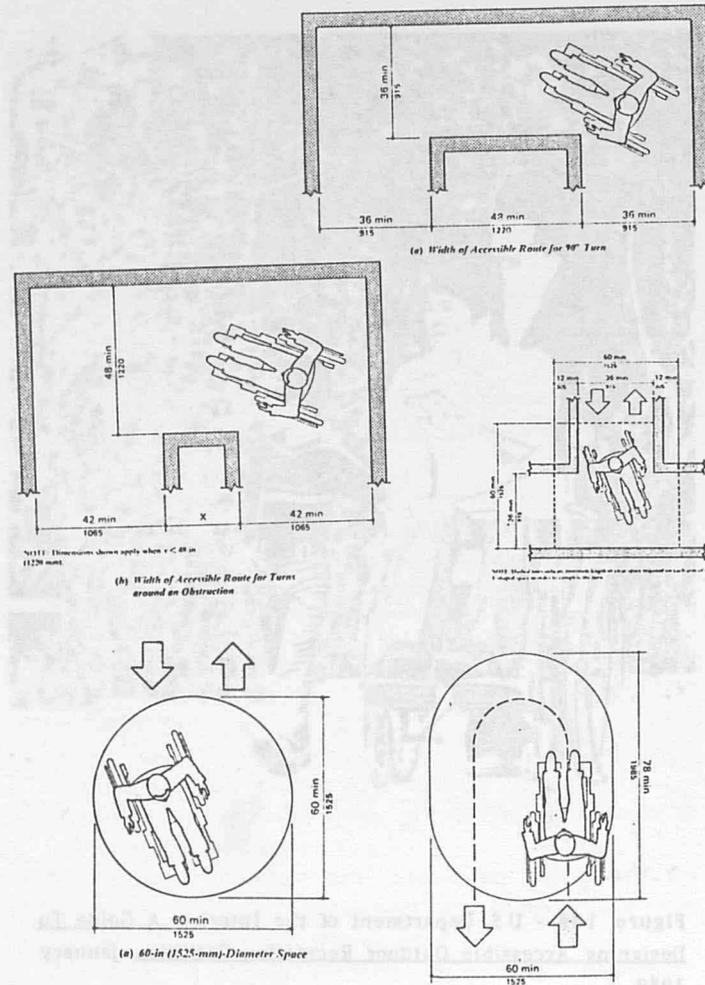


Figure 150-- Turning areas for wheelchairs. ANSI, American National Standard for Buildings and Facilities, 1986.

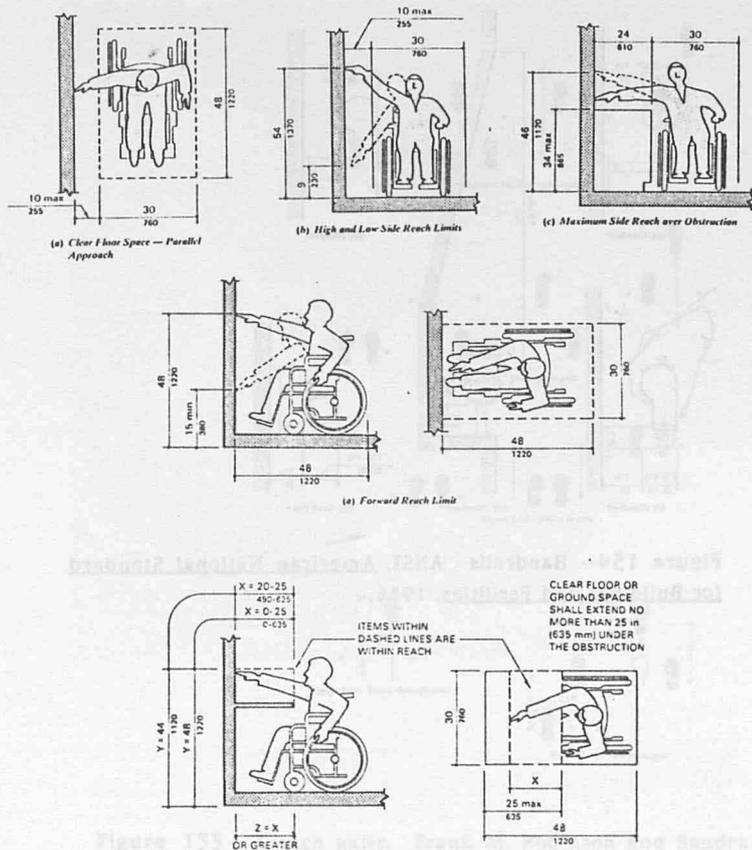


Figure 151-- Reach from a wheelchair. ANSI, American National Standard for Buildings and Facilities, 1986.

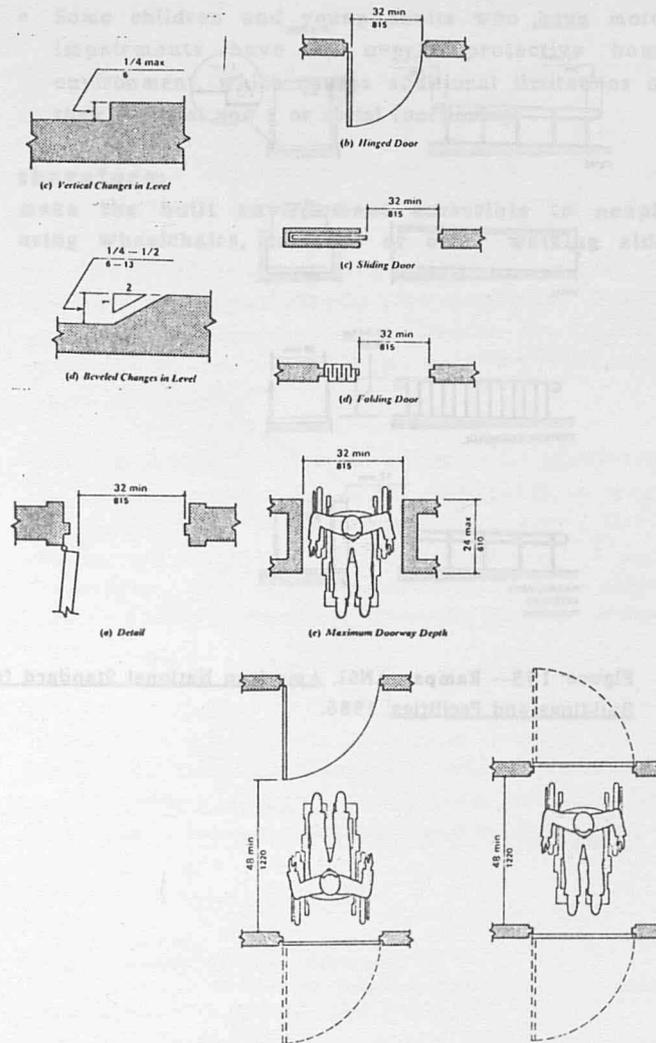


Figure 152-- Accessible doors. ANSI, American National Standard for Buildings and Facilities, 1986.

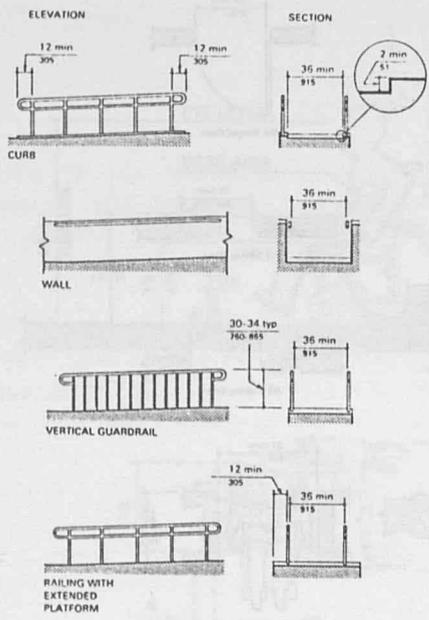


Figure 153-- Ramps. ANSI, American National Standard for Buildings and Facilities, 1986.

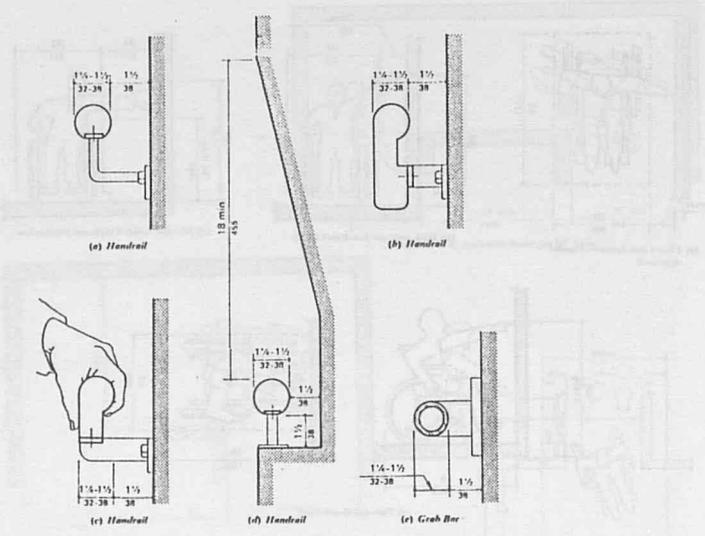
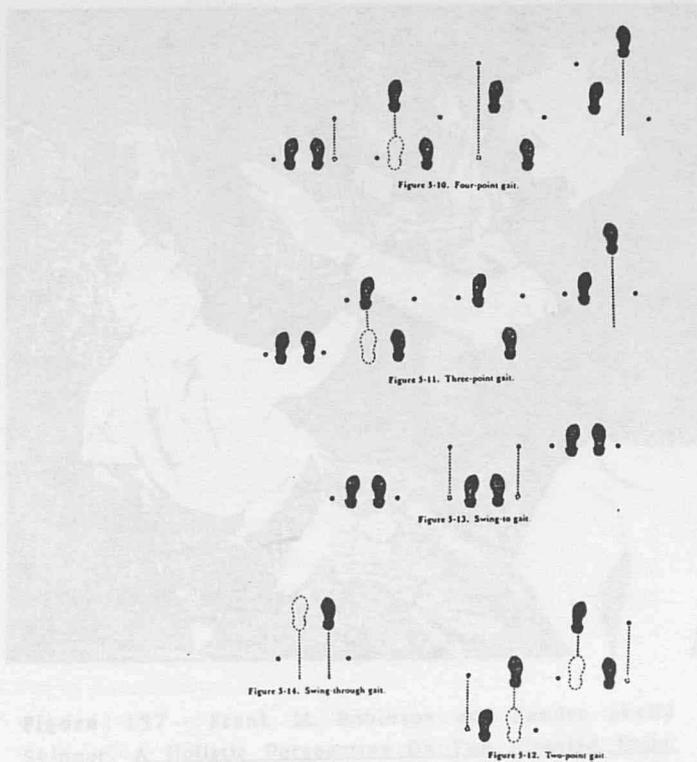


Figure 154-- Handrails. ANSI, American National Standard for Buildings and Facilities, 1986.



**Figure 155--** Crutch gaits. Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

- Some children and young adults who have motor impairments have an overly protective home environment, which causes additional limitations on their physical and / or social functioning.

**therefore:**

**make the built environment accessible to people using wheelchairs, crutches or other walking aids.**

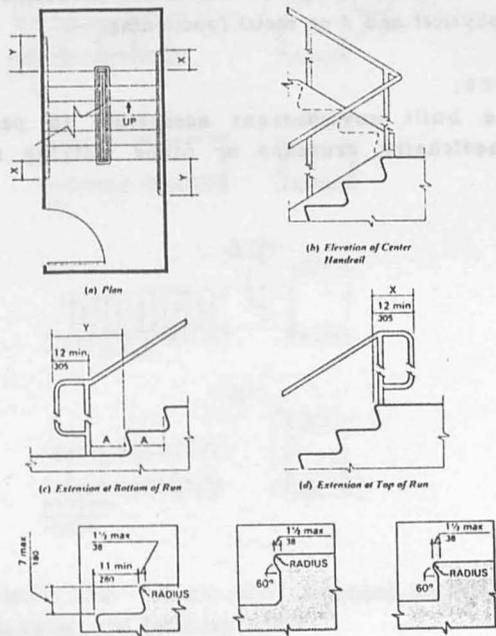


Figure 156-- Stairs. ANSI, American National Standard for Buildings and Facilities, 1986.



Figure 157-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

## forty-two                      handicapped and play

Individual capabilities [37] should not interfere with one's pursuit of happiness [6].

Recreation is important to the quality of life of disabled persons as it is to all people

The right to pursue leisure activities is a basic human and civil right long denied persons with disabilities. Disabled persons who do participate in recreation are especially vulnerable because they must rely on others in creating a leisure environment.<sup>68</sup>

Though it is widely recognized by recreation professionals that recreation should be for all people,<sup>69</sup> it is evident that persons with physical disabilities are still largely underserved by public recreation programs and parks departments. This neglect of special populations reflects society's history of neglect for those who do not fit society's norms.

Reasons for this poor service to the physically handicapped include, insufficient funds, inadequate facilities, and the lack of the skills and knowledge required to establish special programs. Oblivion to the need for such programs is also a barrier between the handicapped and recreation.

<sup>68</sup>Op. cit., Bender, Brannon, Verhoven, p. 24

<sup>69</sup>Thomas Stein, H. Douglas, Sessoms, Recreation And Special Populations, 1973, Holbrook press, Inc., p.193

Two types of barriers stand between handicapped persons and recreation. The first type and most easily eliminated are architectural. Attitudinal barriers, on the other hand, pose a much more difficult problem.

Attitudes of both handicapped and non-handicapped persons must be considered. Feeling they lack the necessary skills and knowledge to participate, handicapped persons often choose to remain on the sideline rather than join in recreational activities. Opportunities to play in non-threatening situations can help disabled individuals discover unknown talents. This, along with learning the skills required, can develop confidence and increase the likelihood of participating regularly.

Society's attitudes, stemming from ignorance, result in stigmatization, stereotyping, prejudice, discrimination and rejection of handicapped persons. Interaction between the handicapped and non-handicapped can help interrupt the "stigma-prejudice-discrimination pattern. The handicapped person who is able to fully participate helps to educate the non-handicapped. Leisure activities provide great opportunities for social interaction and may serve as a key to the independence of the handicapped.

An individual who is handicapped usually needs more individualized and direct learning experiences. They also often require greater opportunities for achievement and personal development in order to develop self-esteem and form healthy self-concepts. The fun, enjoyment and opportunities pursue one's own interests at one's own ability level inherent in play often result in improved self-acceptance, self-confidence and motivation that lead to continued personal development.<sup>70</sup>

Recently the concept of therapeutic recreation has expanded to include community services. However most people with disabilities do not require the therapy normally associated with therapeutic recreation, nor do they like to be stigmatized as recipients of therapeutic recreation services. As most people, members of special population groups simply want the opportunity to take part in recreation experiences.<sup>71</sup>

therefore:

recreation for physically disabled persons should be developed with the idea of providing fun and relaxation not therapy

Recreation opportunities and social interaction associated with organized camping [44] can help overcome negative societal attitudes at a young age (children and play [43]).

<sup>70</sup>Op. cit., Bender, Brannon, Verhoven, p.2,3

<sup>71</sup>Op. cit. Kennedy, Austin, Smith, p. 8

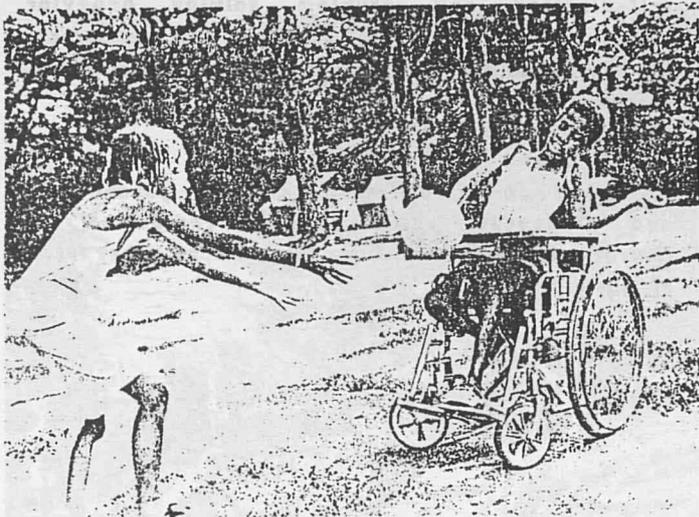


Figure 158-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

Figure 159 - Easter Seal Society

## forty-one children and play

Learning to participate in play [8] activities as a child helps a person to enjoy recreation later in life and integrate into his social environment [23].

Recreational experiences have repeatedly demonstrated their ability to promote and enhance the development of handicapped children.

The American Medical Association has said that recreation contributes to the promotion of health, the prevention of illness and further disability, the treatment of illness, and the rehabilitation of persons with physical, emotional, social and/or intellectual disability.<sup>72</sup>

Shall they be handicapped with feebleness, awkwardness, and helplessness in addition to blindness? The surroundings of the blind do not favor the development of activity, self-reliance, and independence... Without confidence, courage, and determination to go about freely in the world, there is no chance of success for the blind person, and that confidence and courage are given by the playground and gymnasium.

Charles Buell, 1951

Physical fitness is important for all children, and even more so for handicapped children because they often must expend more energy to do the same things as their non-handicapped peers. Most children's learning experiences are largely motor or physical in nature. If the handicapped

<sup>72</sup>Op. cit., Bender, Brannon, Verhoven, p.26

child is deprived of these experiences, he loses this initial opportunity for input, identification and understanding of his environment.

Early motor activity not only improves the child physically, but there is correlation between physical proficiency and cognitive development in disabled children. Poor motor development is usually not a result of the child's inability to perform, but a lack of exposure to, and experience in, motor activities.<sup>73</sup>

Physical and motor abilities of handicapped children vary, of course. However, research indicates that the physical and motor development may be affected by the environmental conditions resulting from their disabilities, including lack of opportunities for exploration and free play, institutionalization, isolation, and general deprivation of activity by over protective adults.

Regardless of their handicaps, children are more similar to their peers than dissimilar. The needs, interests and wishes of handicapped children are similar to those of non-handicapped children.

The greatest value of recreational activities, however, lies in their contributions to the emotional, psychological and affective development of handicapped children. Recreational activities such as swimming and camping, enhance self-image, cooperation, body-image, value and goal setting, self-help, social skills and adjustment, self-expressive freedom, acceptance by others, life experiences,

self-directed and problem solving behavior, inquisitiveness, emotional control and leadership. Recreation also positively affects intellectual cognitive and language development.<sup>74</sup>

**therefore:**  
providing opportunities to develop psychomotor and perceptual skills through recreation can improve his motor abilities as well as other areas of one's life.<sup>75</sup>

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<sup>73</sup>ibid, p.27

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<sup>74</sup>ibid, p.28

<sup>75</sup>ibid, p.27



Figure 159-- Easter Seal Society.

## forty-four organized camping

People experience a unique relationship with human life [2] and the natural environment [13] while camping.

Camping means different things to different people. To some it is camping alone in the backwoods. Others picture themselves in an airstream trailer in an RV park. Equipment ranges from primitive to highly sophisticated. "Organized camping" refers to carefully structured and supervised outdoor living experiences. The activities may be nature-based or indoor-oriented.

The American Camping Association (ACA) gives this definition of organized camping:

...a sustained experience which provides creative, recreational and educational opportunity in group living in the out-of-doors. It utilizes trained leadership and the resources of natural surroundings to contribute to each camper's mental, physical, social, and spiritual growth.<sup>76</sup>

Organized camping is a directed experience combining the opportunity to experience nature and the potential for group interaction. As Eleanor Eells states:

Somehow, the out-of-doors serves as a catalyst for group interaction which results in well-being seldom found elsewhere. The trust generated between adults and youth and the feeling of accomplishment within the camper group is difficult to understand, and, thus far, difficult to verify through research. Whatever the combination of ingredients,

<sup>76</sup> American Camping Association Standards, 1980, p. 8

something seems to happen at a camp that makes the campers feel good about themselves, about others, and about the environment in which they live.<sup>77</sup>

Camping is not for everyone, but only through personal experience can one discover the benefits of camping. Unfortunately, only about ten percent of youth with disabilities ever get the opportunity to experience camping.

**therefore:**

develop a camp to give more handicapped children the opportunity to experience nature and social interaction through organized camping.

an organized camping experience involves sequential activities and, should offer time and space for activities in all six need categories; provide for physiological activities [4] such as, sleeping [45], eating [52], drinking [53], eliminating [48], dressing [46], and cleansing [47], it should also provide space for work activities [5] such as food preparation [56], cleaning and maintenance [59].

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<sup>77</sup>Eleanor Eells. History of Organized Camping: The First 100 Years. American Camoing Association, 1986, p. 4



Figure 139--Eleanor Eells Society



Figure 160-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

## forty-five sleeping

Though the amount of sleep required varies from one person to another, the physiological need for sleep is well-established. If the need for sleep is not satisfied, a person, after time, will show signs, often irritability and restlessness.

Both campers and staff will sleep at night and during daytime rest periods. Some kind of bed is usually provided for each camper for this activity. However, the beds will not only be used for resting and sleeping, but it becomes the camper's room, or at least his own space for reading, writing, talking and dressing.

Whenever an environment is stimulating, both children and adults have difficulty sleeping. Some children, in particular, find it hard to settle down and sleep. Because it is not the nature of a child to lie quietly in bed while awake, talking and movement are inevitable. Deaf campers can not communicate in the dark and will use flashlights to summon assistance causing further disruption among the campers. Campers may also be frightened at night time especially if one misses his home and family.

During rest periods it is common to see the campers reading or writing letters on their beds while the counselor sleeps. Not because the counselor needs more sleep, but he or she has usually gotten less the night before.<sup>78</sup>

<sup>78</sup> Alice Van Krevelen, Children In Groups: Psychology and the Summer Camp, 1972, Wadsworth Publishing Co., 85-88

Sleep and rest periods may be interrupted by journeys to the bathroom or to get a drink of water. These trips may be made in the dark. Some persons will require the aid of a counselor or someone else. Others, though they may not require assistance, may wake an entire cabin in their clumsy, half-sleep state.

Sleeping areas must provide cross ventilation and adequate space: 40 square feet per person, 50 square feet per person using a walker, and 60 square feet per person using a wheelchair. There should be at least 6'-0" between the heads of sleepers, and 30" between the sides of beds. Each building used for housing campers or staff must have at least one additional exit in addition to the main door and a fire detection and alarm system. There should be a direct means of emergency exit to the outside from all sleeping floors above the ground floor. Persons with restricted mobility should be located on sleeping floors with at least one ground level exit and an accessible emergency exit.<sup>79</sup>

**therefore:**

the sleeping area should be laid out in such a way as to give free access to toilets and water supplies. It should offer enough separation to discourage disruption, yet the campers should be close enough together to feel safe and secure. The beds should be sturdy and have enough headroom to allow sitting upright.

<sup>79</sup>"Camp Standards Without Interpretation: Standards for Camp Accreditation", American Camping Association, 1984, I-A-8.9



Figure 100--Frank M. Robinson and Sandra Stealy Skinner. A Historic Perspective On The Physical Environment in Camps: Recreation and Community Life. 1982. Charles C. Thomas Publisher.

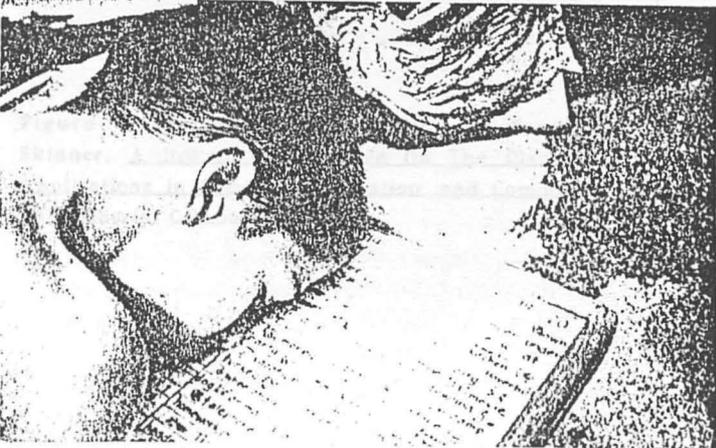
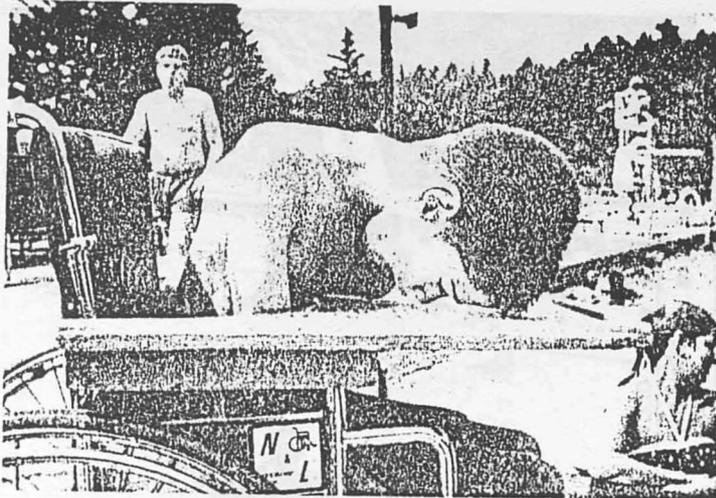


Figure 162-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

## forty-six

## dressing

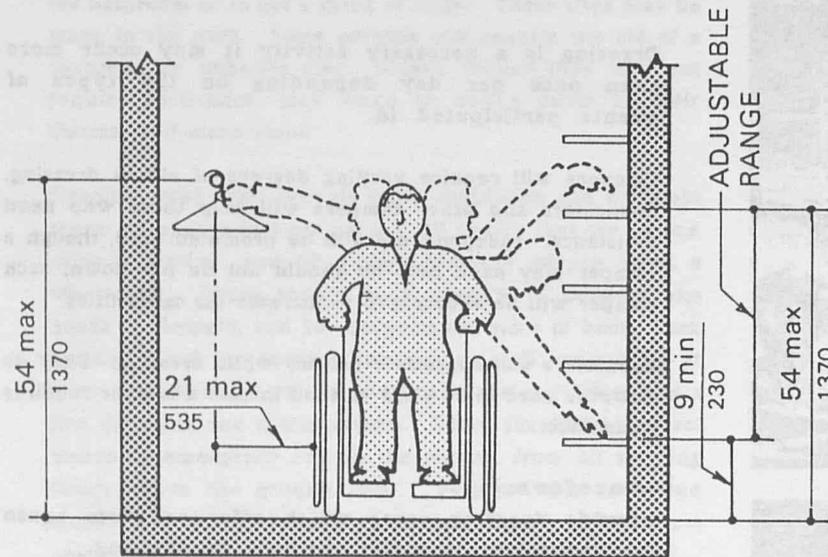
Dressing is a necessary activity it may occur more than once per day depending on the types of events participated in.

Campers will require varying degrees of aid in dressing. Counselors and other campers will help those who need assistance. Independence will be promoted. And, though a camper may need help he should not be put down, each camper will be encouraged to increase his capabilities.

Counselors will appreciate privacy while dressing. They do however need to be close at hand in case a camper requires assistance.

### therefore:

provide dressing areas which offer adequate space for counselors to assist campers in dressing.



**Figure 163--** Accessible storage area. ANSI, American National Standard for Buildings and Facilities, 1986.



Figure 164-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

## forty-seven

## cleansing

Most people prefer to keep themselves clean and like to bathe about once per day.

Though Americans are used to cleanliness and bathing often, clean can be a relative thing and bathing may not be desired as frequently during a camp. However, as organized camping is a group experience bathing will not be discarded.

Handwashing facilities should be available adjacent to the toilets at one wash basin per ten persons with a minimum of two basins for each facility serving more than five persons.<sup>80</sup>

Bathing facilities should offer easy access to wheelchairs etc. Bathing aids like benches, railings or other assistive devices should also be available. For camps specializing in serving persons with restricted mobility one showerhead or bathtub needs to be provided for each ten persons at the camp. It is important that there be enough warm water for everyone to bathe in the same time period. The water temperature should reach a maximum of 110°F. at all taps. Temperature regulating devices should be restricted to authorized personnel.<sup>81</sup>

<sup>80</sup>Op. cit., "Camping Standards", I-A-18,19

<sup>81</sup>Op. cit., "Camping Standards", I-A-20

therefore:

provide bathing and handwashing facilities near sleeping areas. Allow for extra showerheads since all persons will be bathing at one time but, not more than one per counselor. Provide 4 showerheads and 2 sinks in a bathing area serving 4 counselors and 12 campers. In staff areas allow 1 showerhead for every ten persons.

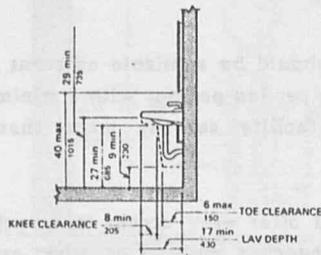


Fig. 31  
Lavatory Clearances

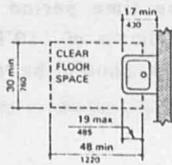


Fig. 32  
Clear Floor Space at Lavatories

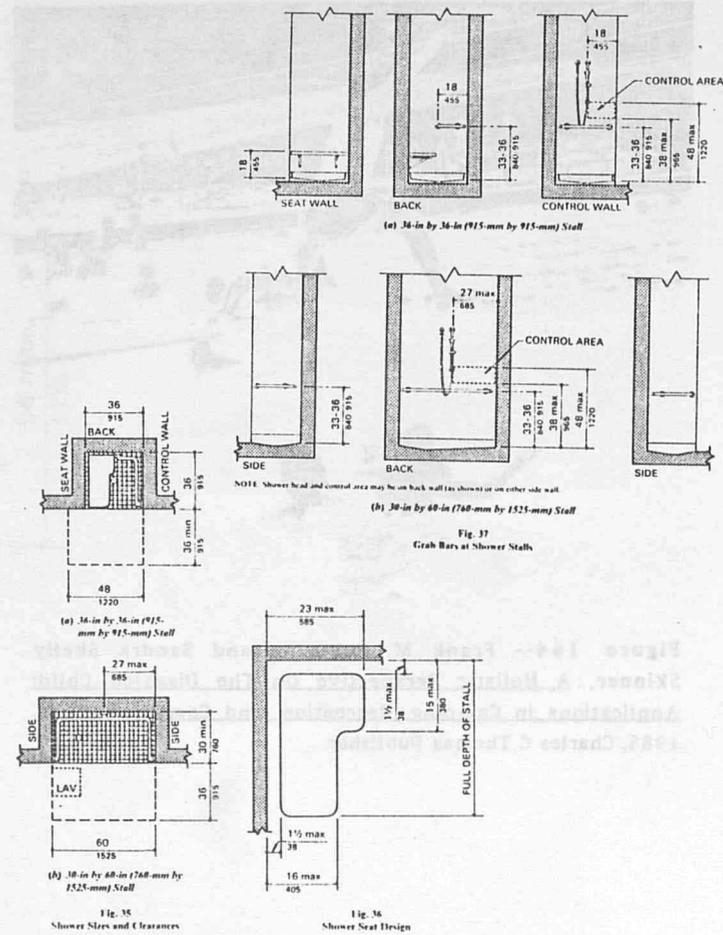


Figure 162-- Lavatory and shower facilities, ANSI, American National Standard for Buildings and Facilities



Figure 166-- Dan W. Kennedy, Ph.D., David R. Austin, Ph.D. and Ralph W. Smith, Ph.D., Special Recreation: Opportunities for Persons with Disabilities, 1987, Saunders College Press.

forty-eight

eliminating

Eliminating is a necessary activity and may occur at anytime of the day or night.

Toilets within the camper living areas and other toilets at the camp which serve the campers should offer wheelchair accessibility. Occasionally as many as three assistants will be needed to help a camper use the toilet<sup>82</sup>.

A resident camp with more than 10 percent of the camp population having restricted mobility must provide toilets in the following ratios 1 seat for every 8 females and 1 seat for every 12 males plus 1 urinal for every 30 males. In each toilet facility there should be at least 1 toilet with a door or curtain for privacy which can be used by all persons. Toilet facilities should be well ventilated and screened, clean and sanitary.<sup>83</sup>

Sewage should be disposed in a public sewage system or in a manner approved by health authorities.<sup>84</sup>

therefore:

for this facility provide 2 accessible toilets in each area housing 4 counselors and 12 campers.

<sup>82</sup>Interview July 14, 1987, Laura Cramer, attendant, Muscular Dystrophy Camp, Perry Kansas, July 5-11, 1987

<sup>83</sup>Op. cit., "Camp Standards", I-A-15,16

<sup>84</sup>Ibid, I-A-11

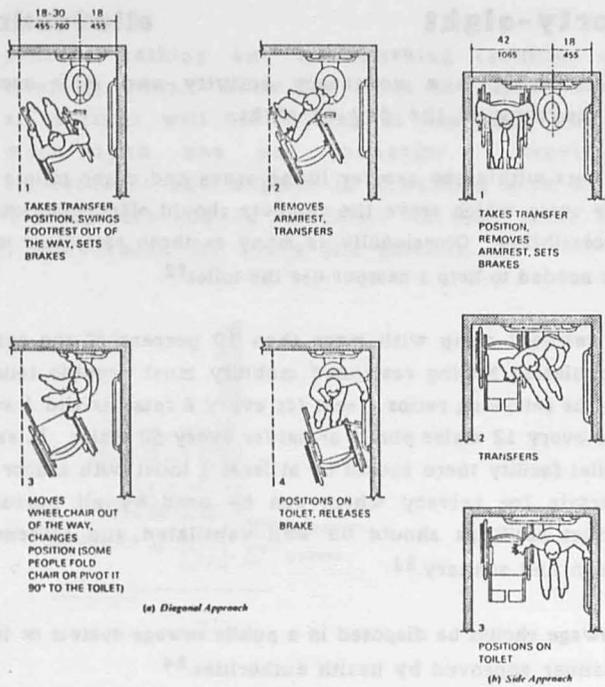


Figure 167-- Toilet transfers. ANSI, American National Standard for Buildings and Facilities, 1986.

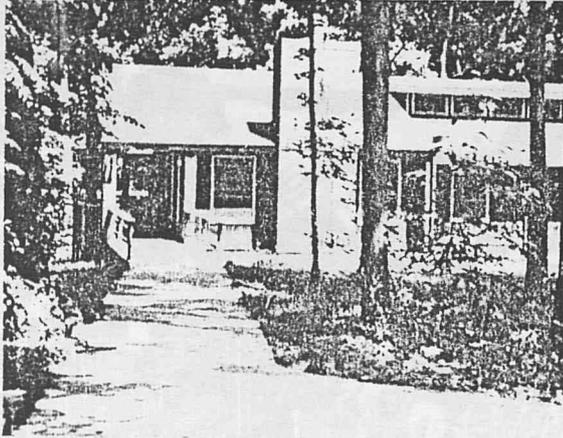


Figure 168-- Camper residence at Camp Bradley. Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

#### forty-nine camper residences

Spaces and facilities for sleeping [45], dressing [46], cleansing [47] and eliminating should be grouped together.

Camper residences should provide a centralized place for physiological needs such as sleeping, dressing, cleansing and eliminating. These areas should also have space for personal storage for both campers and the counselors living with them.

The counselors living with the campers should sleep in the same area. But, since counselor free time is often provided by the difference between the camper and counselor bedtimes, as at the Muscular Dystrophy Camp at Perry, Kansas<sup>85</sup>, a place where the counselors can stay awake without bothering the campers and yet remain close by is needed.

#### therefore:

Since the optimum size for dining groups is 8 and since 1 counselors per 3 campers are with the campers 24 hours per day, arrange cabin groupings in multiples of 8, 2 counselors and 6 campers, with shared toilet and bathing facilities and a counselor "lounge" for 16. Four cabin groups will provide a capacity of 48 campers.

<sup>85</sup>Op. cit., Cramer



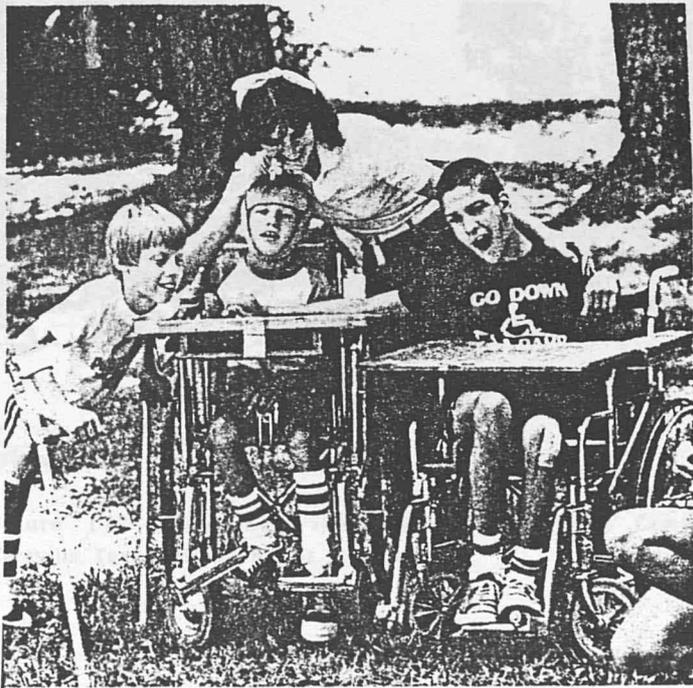


Figure 169-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

## fifty staff residences

Staff with similar duties to counselors, such as pool personnel, recreation and camping leaders, etc. and maintenance personnel, who do not live with the campers require living quarters as well.

Based on the requirement of 1 staff per 2 campers during activities (8, in addition to the 16 live-in counselors) plus 3 maintenance workers, 4 kitchen help personnel and 6 grooms, 21 beds will be needed. Separate areas should be provided for male and female staff. Groom areas should be near the stables. Designing these residences so they can be used by either sex and in such a way as a variable number of beds can be used, leaves it open to the camp director to use the spaces as necessary.

therefore:  
provide staff residences with at least 50 square feet per person in the sleeping dressing areas. These residences should also be accessible to persons with physical disabilities.



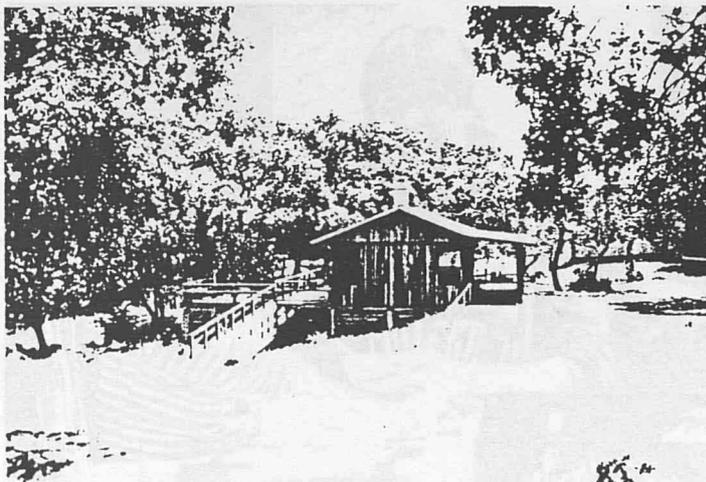


Figure 170-- Arts and crafts building, Texas Lions' Camp Kerrville, Texas. (Photo by Liz Toombs.)

## **fifty-one administrator residences**

Higher level staff who may be at the camp year-round or have other members of their family living with them during the camp sessions should be provided with private living quarters.

The camp director, nurse, physical therapist, dietician, cook, fishing director, recreation coordinator, head of maintenance, riding instructor and stable manager should be among those dwelling in these private quarters. These residences should have areas for sleeping, relaxing, eating, food preparation, dressing, cleansing and eliminating. They should also offer personal storage space.

### **therefore:**

A total of ten residences will be required. The camp director, stable manager and head of maintenance will remain at the camp site for most of the year so their residences should be equivalent to a modest size home, 1200-1500 square feet. The other seven residences will only be used by staff at certain times of the year and possibly leased to visitors during times when camp is not in session. These can be smaller than the camp director's residence 800-1000 square feet. Handicapped persons may fill these positions or lease these residences in the off season so they should be accessible.

1111-022 administrator residences

Eight level will also be at the camp year-round or have other members of their family lived with them during the camp sessions should be provided with private living quarters.

The camp director, nurse, physical therapist, dietitian, cook, kitchen director, reception coordinator, head of maintenance, utility supervisor, and maintenance should be among those dwelling in these private quarters. These residences should have more for heating, cooling, lighting, food preparation, cleaning, clothing, and other necessities. They should also offer personal storage space.

Personnel:

A total of ten residences will be required. The camp director, utility manager and head of maintenance will remain at the camp site for most of the year so their residences should be designated as a modular site home. 1500-1700 square feet. The other seven residences will only be used by staff as needed during the year and possibly used to return during times when camp is not in session. These can be smaller than the camp director's facilities 600-1000 square feet. Bathroom partitions may fit these positions or have these residences in the old session in that should be accessible.



Figure 170 - Arts and crafts building, Lewis Clark Camp, Lawrence Forest, (Board of the Federal)



Figure 171-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.



Figure 172-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

## fifty-two

## eating

Meals will be served three times a day at the camp.

Mealtime should be made as pleasant as possible. Sufficient time should be allotted to each meal to allow conversation between campers and counselors. Because mealtimes are usually family times, a camper who is prone to homesickness likely to experience it during meals. Strange food and impersonal service add to these feelings. The counselor helps by creating a happy atmosphere and including all the children in the conversation so their minds can not drift to thoughts of home.

Under no circumstances should a child be pressured to eat something he doesn't want. He may be given a small serving and urged to try it but never forced to eat.

A counselor is careful to play down talk about food or diets, likes and dislikes. For example, if one camper makes an obvious point of dieting, other children may do likewise and eat less than they should. Or a particular food may become unpopular because one camper expresses a dislike for it.<sup>86</sup> For this reason dining groups should be small. 8, 2 counselors and 6 campers, is small enough to facilitate conversation and yet large enough to use space economically.

<sup>86</sup>Op. cit., Krevelen, p.90

therefore:

the dining area of 2000-3000 square feet should be arranged in groups of 8, in a way so that all the persons at a table can be involved in one or two conversations.

Food preparation [56] should take place close to the dining hall.

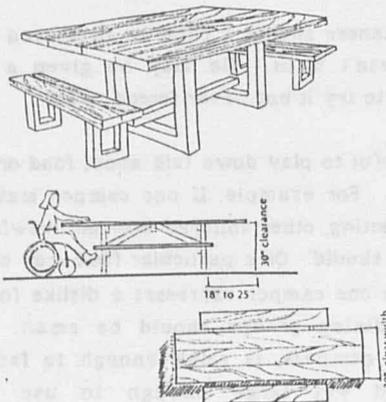


Figure 172-- U.S. Department of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, January 1980.

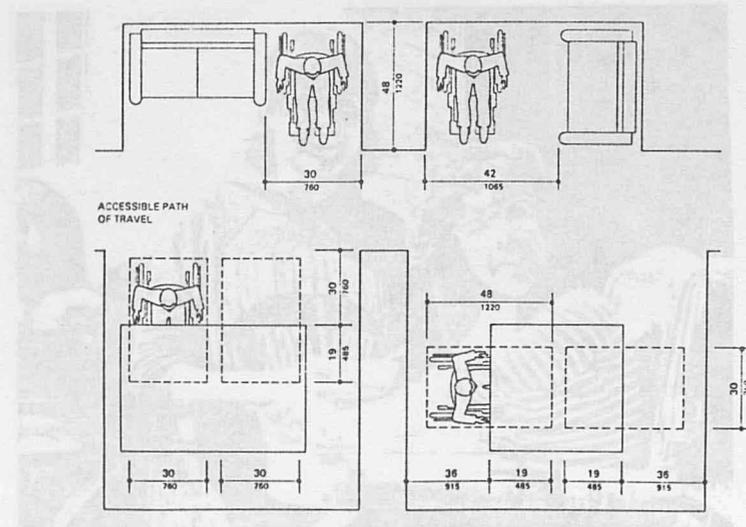


Figure 173-- Tables. ANSI, American National Standard for Buildings and Facilities, 1986.



Figure 174-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

### fifty-three

### drinking

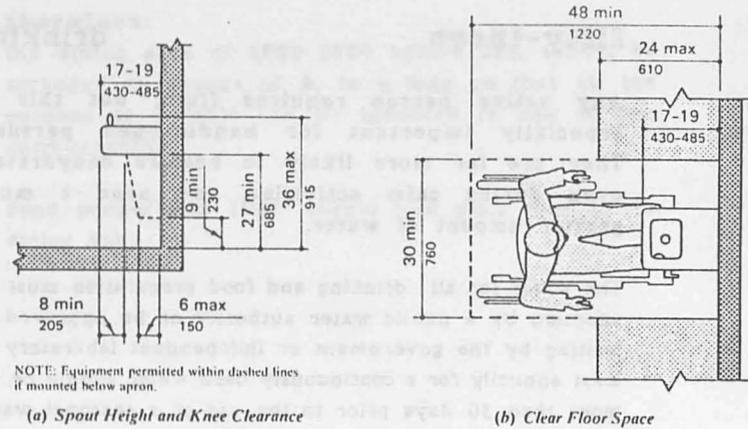
Any active person requires fluid, but this is especially important for handicapped persons. They are far more likely to become dehydrated, even during calm activities, and need a much greater amount of water.

The water for all drinking and food preparation must be supplied by a public water authority or be approved in writing by the government or independent laboratory at least annually for a continuously used water supply or, no more than 30 days prior to the use of a seasonal water supply by a camper or staff group.<sup>87</sup>

therefore:

provided drinking water in all camper living and activity areas.

<sup>87</sup>Op. cit., "Camp Standards", I-A-6



(c) Free-Standing Fountain or Cooler

(d) Built-In Fountain or Cooler

**Figure 175-- Drinking fountains. ANSI, American National Standard for Buildings and Facilities, 1986.**



Figure 176-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

## fifty-four camp administration

A well-run camp requires a well-run camp organization and qualified and cooperative staff.

The camp's administration, illustrated in Figure 177, is headed by the camp board of directors. The camp director is accountable to them, but is the one individual who takes responsibility for the camp's operation. He is aided by the camp secretary. Below the camp director are the nurse, physical therapist, dietician, recreation coordinator, stable manager and head of maintenance.

The cook will be responsible to the dietician. They will work together to develop camp meal plans. The 4 members of the kitchen staff will assist the cook.

The riding instructor, fishing director, pool manager and head counselors will report to the recreation coordinator. Each of the 4 head counselors will be responsible for 6 live-in counselors. The pool manager will be assisted by 3 other pool staff.

The 6 grooms will be directed by the stable manager. The stable manager and riding instructor will work together to choose mounts for each camper. The riding instructor will consult with the physical therapist in determining a riding program for handicapped campers.

The head of maintenance will be assisted during camp sessions by 2 other maintenance workers.

therefore:

design the camp and residences with the administration structure in mind. The recreation coordinator should have easy access to the pool, fishing area, stables, playfield and counselor living quarters. The riding instructor should be able to meet with both the stable manager and physical therapist.

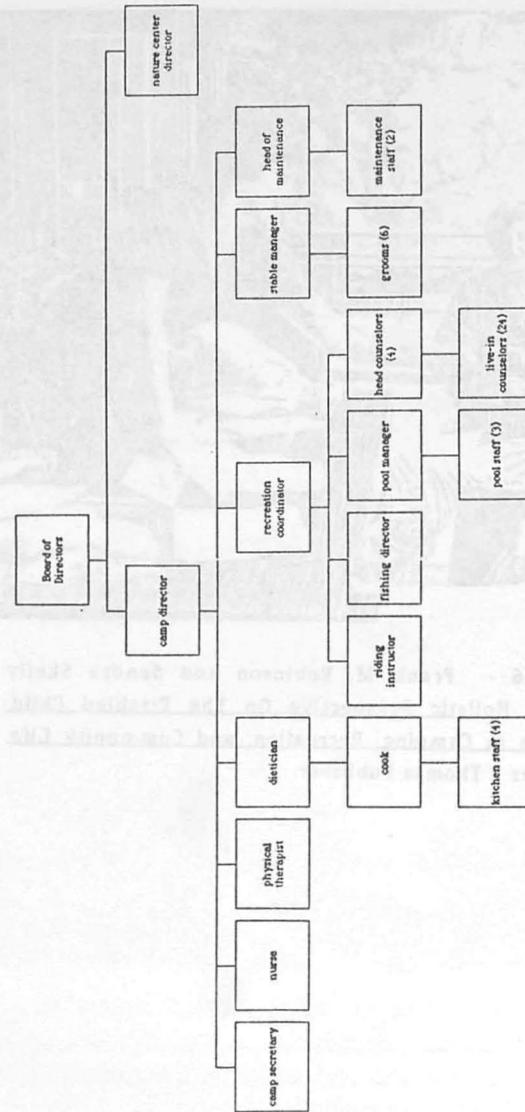


Figure 177-- Diagram of Camp Administration.

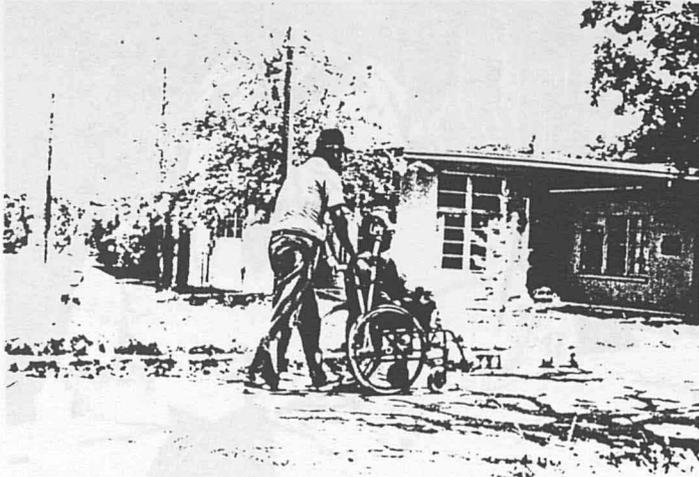


Figure 178-- Camp offices, Texas Lions' Camp Kerrville, Texas.  
(Photo by Liz Toombs.)

### sixty-three administrators' offices

The camp director will need a place from which to conduct business affairs. The secretary and recreation coordinator will need offices near the camp directors. An area for camp record storage will also be necessary.

#### camp director

Though a large portion of his time will be spent away from the office especially during camp sessions, the camp director will need a place where he can take care of camp business such as receiving and making phone calls answering mail, soliciting campers, screening potential staff members and keeping camp activity, maintenance and financial records.

He will use a desk, 4 chairs (1 for the camp director and 3 for guests), micro computer and printer, telephone, paper, pens and pencils. He will need a place to store books as well. He will require from 70 to 150 footcandles of light for his tasks. An adjustable light or overall-task lighting combination should be used. Storage for hard copies of records should be in or near this office.

#### camp secretary

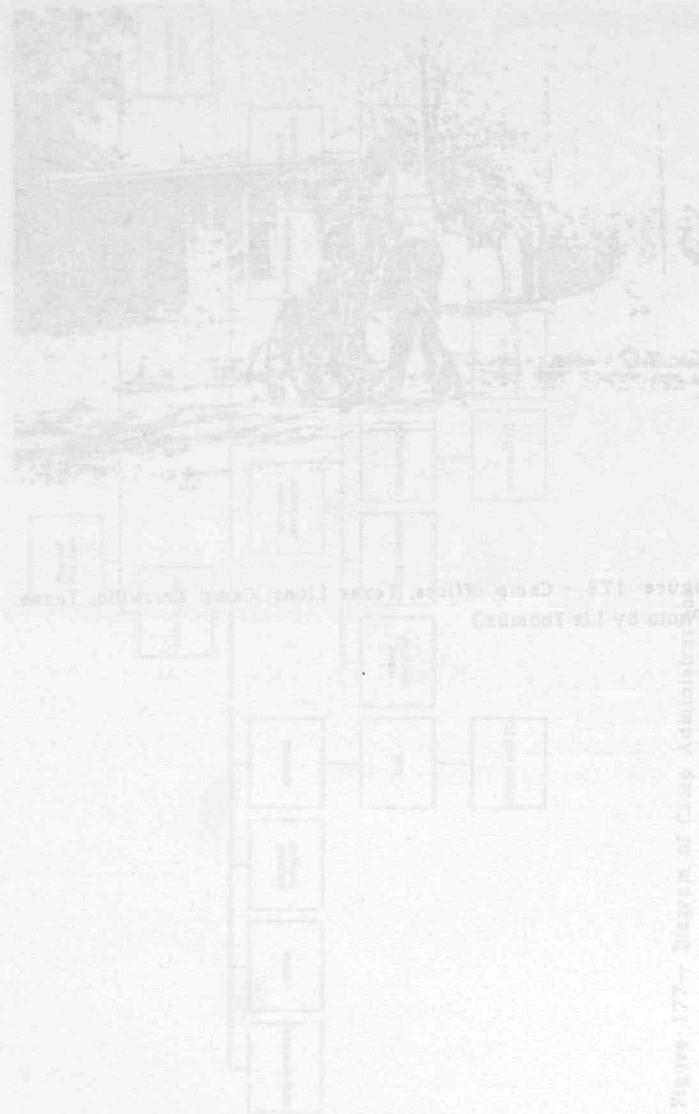
The camp secretary will keep the books, upkeep records and take care of some correspondence. He will need a desk, 2 chairs, computer, pens, pencils, paper, etc.

**recreation coordinator**

The recreation director is responsible for coordinating recreation programs and will hire or assist in hiring much of the staff. He will need a desk, 3 chairs, computer, pens, pencils, paper, etc.

**therefore:**

these offices must be accessible to handicapped persons. Provide the camp director with 250 square feet of office space, the camp secretary with 150 square feet and the recreation coordinator with 200 square feet. Also include 200 square feet of record storage.



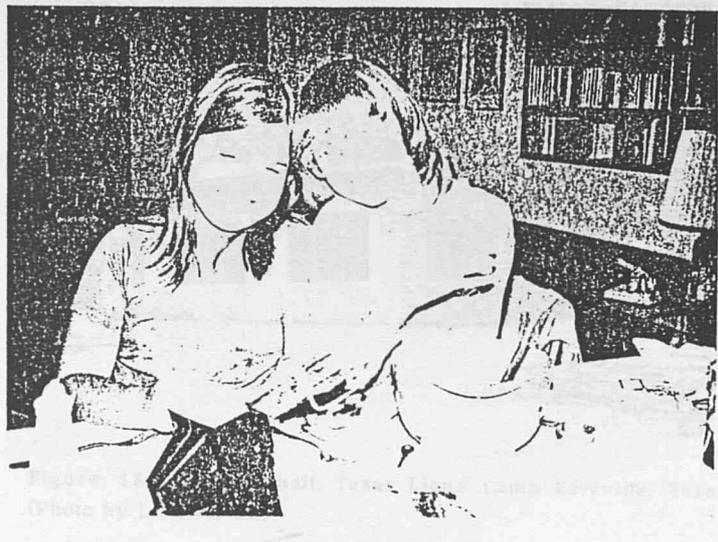


Figure 179 -- Frank M. Robinson and Sandra Skelley Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

## fifty-six

## food preparation

Food preparation is necessary for the camp's three meals per day.

Food preparation and storage areas will be maintained free of dirt and accumulated grease, well-lighted and ventilated and protected from rodents and vermins. Food will be kept off the floor. Perishable foods will be kept at a maximum 45° F. All refrigerators should have thermometers so the temperature can be checked and maintained.<sup>88</sup>

The dining area should allow freedom of movement at and between tables and be protected from problems with insects.<sup>89</sup>

The camp dietician, while his primary function will be planning nutritional menus and identifying and responding to special dietary needs of camp participants, will keep the following food records: menus, records and inventories of food supplies purchased. He will also be responsible for making sure the food service staff wear appropriate hair covers, nets or hats, and clean, neat practical clothing and that smoking does not occur in food preparation areas or dining areas during meal periods.<sup>90</sup>

Food service utensils may be cleaned and disinfected after each use. Food utensils should be protected from dust and contamination between use.<sup>91</sup>

<sup>88</sup> Ibid, I-B-31,32

<sup>89</sup> Ibid, I-B-34

<sup>90</sup> Ibid, I-B-34-37,40

<sup>91</sup> Ibid, I-B-38,39

All garbage and rubbish containing food wastes kept temporarily in the kitchen or dining areas will be kept in leak-proof, non-absorbent containers, covered with tight-fitting lids, when not in continuous use. Scheduled permanent disposal of garbage will prevent build-up beyond closed containers.<sup>92</sup>

**therefore:**  
provide 1400-1600 square feet for food preparation and storage.



Figure 179 - Frank M. Robinson and Sandra Kelly  
Kaiser, a Health Inspector, On The Dining Table  
Application to Campsite Selection and Construction  
1982, Charles E. Thomas Publisher

<sup>92</sup>Ibid, "Camping Standards", I-B-29,30

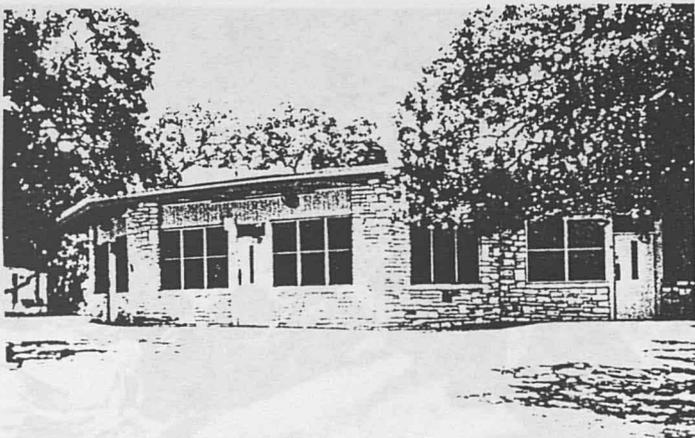


Figure 180-- Dining hall, Texas Lions' Camp Kerrville, Texas.  
(Photo by Liz Toombs.)

## fifty-seven

## dietician's office

The dietician will work with the cook to plan camp meal and will also supervise the diets of campers with special needs.

This staff member will meet with camper parent's, nurse and cook to gather information to plan meals which will be healthy for each camper. He will also supervise food preparation.

### therefore:

provide the dietician with an office of 150-200 square feet near the kitchen.

Figure 181-- Front M. Robinson and Sandra Brady Skelton, a Holistic Practitioner on the Director's staff, Acupuncture in Camps, Services, and Programs, 1991, 1993, Charles C. Thomas Publisher.

An office of 250-300 square feet will be shared by the nurse and physical therapist.

### therefore:

provide an area of 1000 square feet for medical activities.





Figure 181-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life. 1985, Charles C Thomas Publisher.

## fifty-eight cleaning and maintenance medical

The camp will have a physical therapist and a full time nurse. The therapist will be responsible for supervising or performing necessary therapy on the patients. He will also advise the riding instructor on camper's individual abilities and needs. The nurse will be in charge of other medical needs and minor accidents.

The therapy room needs work tables, lifting bars, bicycle machines, tape recorders, other tools. It must be well lighted and ventilated. The therapy along with the camp experience enhances improvement potential for the campers.<sup>93</sup>

The nurse will need an exam room and locked storage for medical supplies. A bed to keep sick campers should also be provided in this area.

An office of 250-300 square feet will be shared by the nurse and physical therapist.

### therefore:

provide an area of 1000 square feet for medical activities.

<sup>93</sup>Op. cit., Dibner and Dibner, p. 12

medical

Twenty-eight

The camp will have a physical therapist and a full time nurse. The therapist will be responsible for supervising or performing necessary therapy on the patients. He will also advise the physical instructor on camper's individual abilities and needs. The nurse will be in charge of other medical needs and minor accidents.

The therapy team needs work tables, lifting aids, straps, medical supplies, and other tools. It must be well lighted and ventilated. The therapy group with the camp experience substantial improvement essential for the camper's.

The nurse will need an exam room and medical storage in medical supplies. A bed to keep the camper from the provided in this area.

An office of 150-200 square feet will be shared by the nurse and physical therapist.

Physician's  
provide an area of 1000 square feet for medical activities.

100 sq. ft. office and storage room



Figure 181-- Frank M. Robinson and Sandra Kelly  
Station, A Health Care Station On The Disabled Camp  
Activities in Camps, Recreation and Community Life  
1987, Charles E. Thomas Publisher

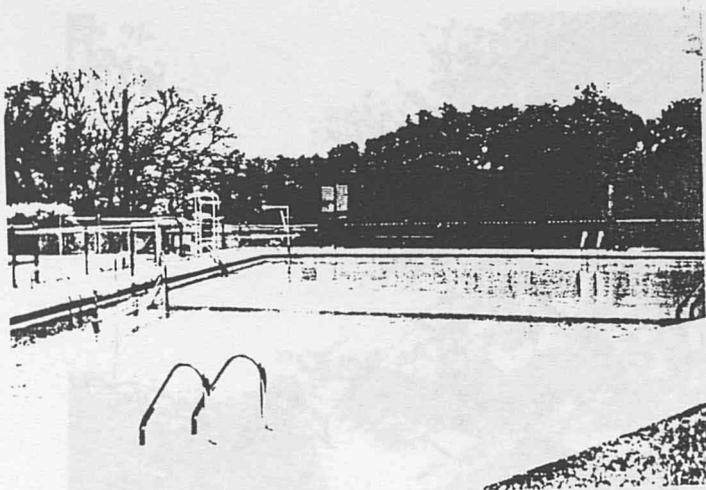


Figure 182-- Swimming pool, Texas Lions' Camp Kerrville, Texas.  
(Photo by Liz Toombs.)

### fifty-nine cleaning and maintenance

Proper maintenance and cleaning sustains property values, results in better opportunities for improvement and expansion loans, enriches a camp's programs, creates an atmosphere of cleanliness and wholesomeness giving parents a good impression of the camp, saves money, develops proper attitudes toward safety and encourages staff cooperation and increases staff moral.<sup>94</sup>

A systematic maintenance routine will be in effect to provide clean, safe, sanitary conditions throughout the camp. Garbage and rubbish disposal areas should be clean, safe and sanitary.<sup>95</sup>

The maintenance staff largely determines the success of the camp's maintenance plan. Three persons, skilled in tool handling, should have much the same attitude qualifications as other staff members. These persons should be integrated into the regular camp staff and not housed separately as has occurred in the past.

A Log Book is used which lists daily, weekly and monthly chores. In addition, anyone in the camp can request a repair or maintenance by informing the camp director or maintenance personal of its need. These are added to the

<sup>94</sup>Alan A. Nathans, B.S., M.A., The Handbook of Camp Maintenance, 1959, Association Press, pp. 17-18

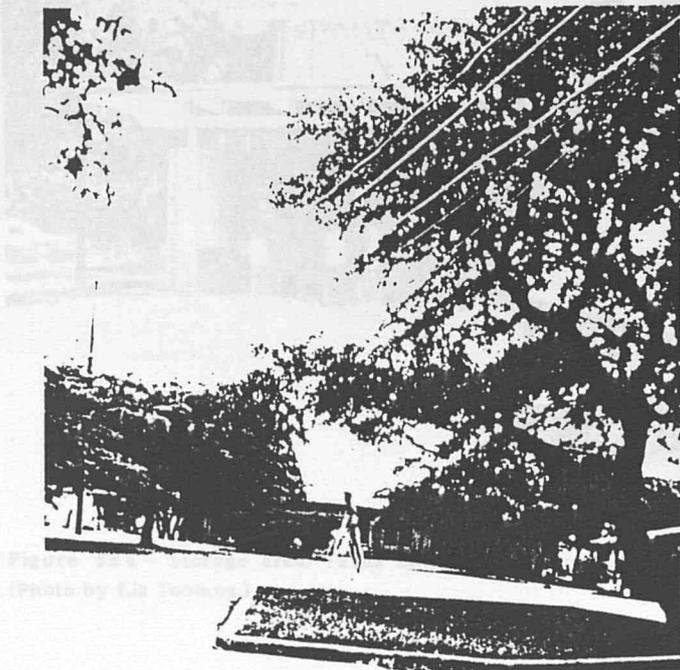
<sup>95</sup>Op. cit., "Camping Standards", i-A-14

Log Book as they are made known. The head of maintenance picks up the Log Book from the director each morning. He checks off duties as they are completed and notes the need for equipment, paper goods, chemicals and other materials throughout the day. At the end of the work day the Log Book is returned to the camp director.

**therefore:**  
instigate a regular cleaning and maintenance program.



Figure 183 - Swimming pool, Texas State Camp  
(Photo by L. L. Taylor)



sixty

supply storage

Supplies and equipment used by the maintenance staff such as paper goods, trash bags, insecticides, lawn mowers, etc. need to be stored securely and safely.

All gasoline, kerosene, explosives and flammable materials will be stored in covered, safe containers with the contents plainly labeled. This materials will be handled only by persons trained or experienced in their safe use.<sup>96</sup>

therefore:

provide a supply and equipment storage with 600 square feet of usable space.

Figure 183--Texas Lions' Camp Kerrville, Texas. (Photo by Liz Toombs.)

<sup>96</sup>ibid. I-B-17





Figure 184-- Storage area, Texas Lions' Camp Kerrville, Texas.  
(Photo by Liz Toombs.)

sixty-one

garage

A storage / maintenance area is needed for camp vehicles.

Three camp owned vehicles will be on site. These include, a pick-up (18' x 7'), and a suburban-type 4-wheel drive vehicle (20' x 7') and a smaller jeep (15' x 6'). The maintenance staff will use the vehicles more than other staff members and will be responsible for cleaning and maintaining them. A large grass cutter (20' x 9') will also be stored and maintained in this area. (all dimensions approximate)

therefore:

provide 1200 to 1500 square feet for vehicle storage.

Figure 184

Figure 184

A motor & maintenance area is needed for some vehicles.

Three camp owned vehicles will be on site. These include a pick-up (1971 & 72) and a subcompact (1970 4-wheel drive vehicle (1971 & 72) and a smaller jeep (1971 & 72). The maintenance staff will use the vehicles more than other staff members and will be responsible for cleaning and maintaining them. A large grass cutter (1971 & 72) will also be used and maintained in this area. (All dimensions approximate)

Equipment:  
provide 1500 sq ft space for vehicle storage.



Figure 184 - Storage area for maintenance vehicles.  
(Photo by L. Tompkins)

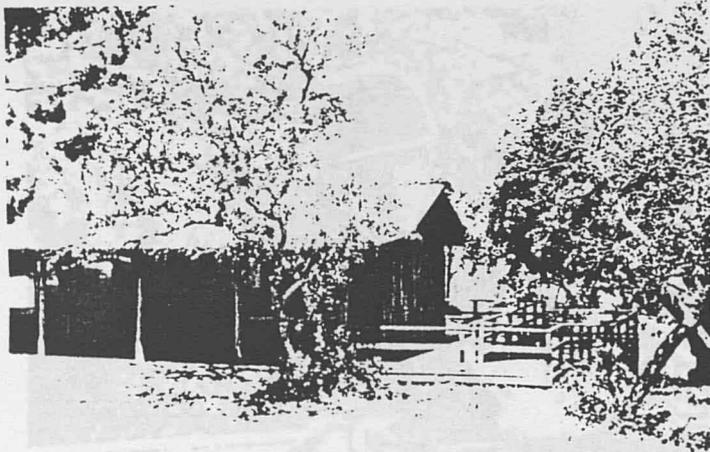


Figure 185-- Arts and crafts building, Texas Lions' Camp Kerrville, Texas. (Photo by Liz Toombs.)

## sixty-two

## horseback shop

There should be a shop, where a broken chair or anything, that is so greatly damaged that it can not just be screwed down or hammered back into place, can be repaired.

Though most repairs will be done on site some will require the use of large equipment to do correctly. This equipment should include a work bench, rip saw, drill press, band saw and router.

Hand tools, equipped with necessary safety devices, handled according to the manufacturer's instructions and maintained in good repair, will be used only by persons trained and experienced in their safe use.<sup>97</sup>

The shop may be combined with the maintenance supply and tool storage.

**therefore:**  
Provide a shop with 500 square feet of work area.

<sup>97</sup>ibid, I-B-18

shop

sixty-two

There should be a shop where a broken cable or anything that is so greatly damaged that it can not just be removed down or dismantled with the plate can be repaired.

Though most repairs will be done on the line with repairs the use of large equipment is to be avoided. The equipment should include a work bench, tin saw, drill press, sand saw and tinner.

Hand tools provided with necessary safety devices handling according to the manufacturer's instructions and restricted in good repair, will be used only by persons trained and experienced in their use and use.

The shop may be combined with the maintenance supply and tool storage.

Illustration:

Provide a shop with 200 square feet of work area.



Figure 157--Aids and cable building, Texas Line, Camp  
Karnville, Texas. (Plans by the Engineer)

1-1-18



Figure 186-- Dan W. Kennedy, Ph.D., David R. Austin, Ph.D. and Ralph W. Smith, Ph.D., Special Recreation: Opportunities for Persons with Disabilities, 1987, Saunders College Press.

## sixty-three horseback riding

Horseback riding is a good way for physically disabled persons to experience the natural environment [13].

Horseback riding is more than just fun for handicapped persons it can help them adjust to their disability by not only improving balance, coordination, posture, muscle tone and circulation but also their self-confidence, self-esteem, communication, tactile skills and interpersonal relationships.<sup>98</sup>

Therapeutic riding was established about 1950 in England and the Continent of Europe. However, riding programs in the United States are still rather new.<sup>99</sup> According to Jane Copeland, physical therapist at Pegasus riding school in Connecticut, "(Horseback riding) is a unique form of therapy. A person who is partially paralyzed can regain only a limited sense of movement in traditional therapies. On horseback, the rider is often able to locate her sense of gravity and find her balance. Some riders with cerebral palsy relax their spastic muscles; the stretching allows them to do things they've never done before." A physical therapist is needed to work with the program. Physician's approval must be obtained for each camper.

<sup>98</sup>Lida L. McCowan, "Riding For The Handicapped", reprinted from The Quarter Horse Journal, Amarillo Texas

<sup>99</sup>Lida L. McCowan, It Is Ability That Counts: A Training Manual on Therapeutic Riding for the Handicapped, 1972, Olivet College Press, p. 10

Horseback riding also helps handicapped persons psychologically. These children who often have not been allowed to make decisions about their own lives, find themselves able to control a horse. Some children who will speak to no one will speak to a horse.<sup>100</sup>

**therefore:**  
include horse back riding as part of an organized camping [44] experience for handicapped and non-handicapped children.



Figure 188 - Don W. Kennedy, Sr. and David R. Avon, Jr. and Jason W. Smith, Jr. at the Kennedy Family Farm, 1977. Courtesy: Kennedy Family Farm.

<sup>100</sup>Andrea Israel, "From Wheels to Wings," Women's Sports, November 1982, p. 36

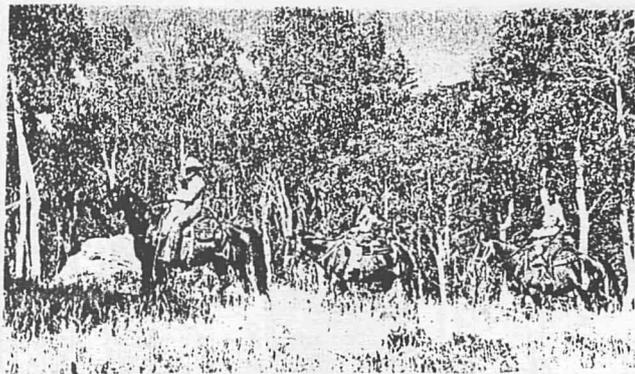


Figure 187-- "Colorado's Cuchara Valley", Cuchara Tourist Association, 1986

## sixty-four

## care of mounts

If given the proper care and immunization horses will remain healthier and happier, saving veterinary expenses and providing better dispositioned mounts.

The care of the horses involves feeding and watering horses, mucking out stalls, grooming horses, on the stable manager's day off usually horses are only feed and watered.<sup>101</sup>

Feed rations depend on size, work, and weather. In addition to their feed, horses will receive vitamins and salt. The feed itself consists of both hay and grain. The proportions of each will vary from horse to horse. Linseed oil and carrots are good diet supplements. Horses and ponies will always be fed from a feed tub.

Each horse will be ridden 2 hours in the morning by one group and 2 hours in the afternoon by another group of campers. Campers will be responsible for grooming their mounts. Campers needing assistance will be helped by a non-disabled camper.

### therefore:

have thirty horse to serve the campers and staff riding with them.

<sup>101</sup>Ibid., p. 13

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Figure 127 - Campsite, ...

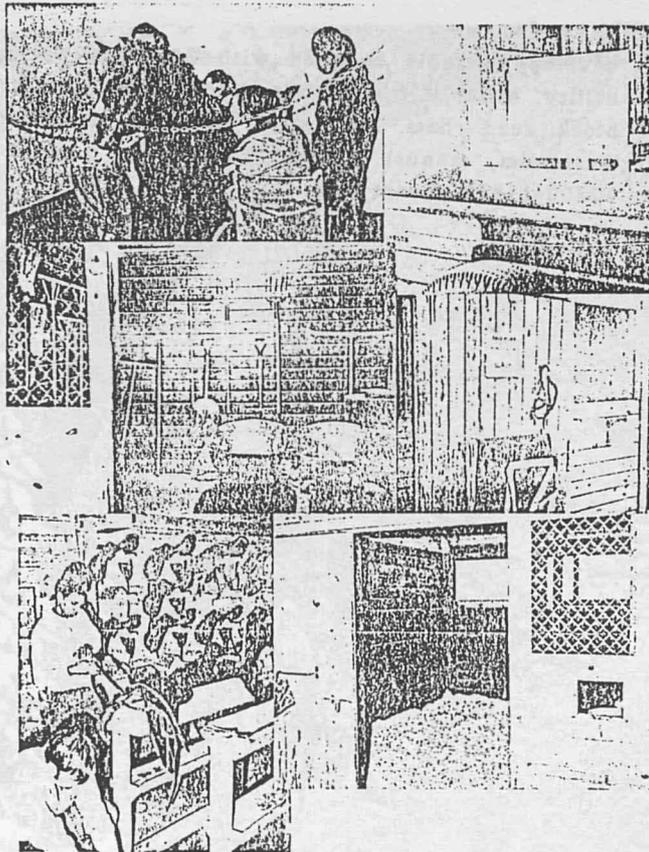


Figure 188-- Lida L. McCowan, It Is Ability That Counts: A Training Manual on Therapeutic Riding for the Handicapped, 1972, Olivet College Press

## sixty-five stables

Because of the extremely cold weather and their work load and groomed state horse should be provided with protection in the form of stables.

The stable should provide dryness, warmth, adequate ventilation free of drafts, good drainage, good lighting, both natural and artificial and a good water supply.

The ground on which the stable sits must be naturally well-drained and protected from north winds. At the same time avoid putting the stables where winds will blow across the stable to human living quarters.

A good size for the horse box (loose box) is 12 feet by 12 feet but may vary from 10 feet by 10 feet to 16 feet by 16 feet. One box should be provided for each of the 30 horses. In addition, there should be multi-purpose boxes which can be used for grooming, washing, shoeing, etc. at a ratio of 1 for every 5 horses. One sick box should be provided, away from the stable but in an area convenient for the stable manager and grooms, to check on and care for the sick horse. This box should be about 50 percent bigger than the other boxes. Total square footage for boxes should be 6000-9000 square feet

There should be a feed room, 200 square feet to store feed containers and a feed store to store sacks of food of 300 square feet and a connected hay and straw store, 4000 square feet.

There should also be a toilet and lavatory at the stable. This will require 200 square feet.

If equipment is protected and kept in excellent condition replacements will be less frequent. Saddles, bridles, blankets, grooming tools, stable tools, electric clippers should all be kept in the tack room. About 600 square feet will be required for tack.<sup>102</sup>

Lifting some handicapped campers from the ground to the back of a horse or pony is nearly an impossible task, but with the ramp mounting, even the most severely handicapped, is easy. The ramp is 16'-0" long, 4'-0" wide, with a top platform of 4'-0" by 6'-0". The distance between ramps is 30".<sup>103</sup> The mounting ramp will require 250-300 square feet

The manure bunker should be well away from the loose boxes but easily accessible. It should also be close to a road for easy collection. The manure will be used on site. 900-1000 square feet will be required for its storage.

A storage area of 250 square feet for the camp's horse trailer (20' x 6') should also be in the stable complex.

Gates and through which vehicles may pass should be 10 to 12 feet wide. Hand gates should be 4 feet wide with hunting latches to facilitate opening by a mounted rider.

<sup>102</sup>Peter C. Smith, "Horse Stables", Time Saver Standards For Building Types, 2nd ed., 1980, McGraw Hill Book Company, pp.1255-1259

<sup>103</sup>Op. cit. McCowan, p. 21

**therefore:**

develop a stable complex with 30 loose boxes, 6 utility boxes, 1 sick box, tack room, mounting block, feed room, feed store, hay and straw store, washroom, manure bunker and trailer storage of 12700-15850 square feet.

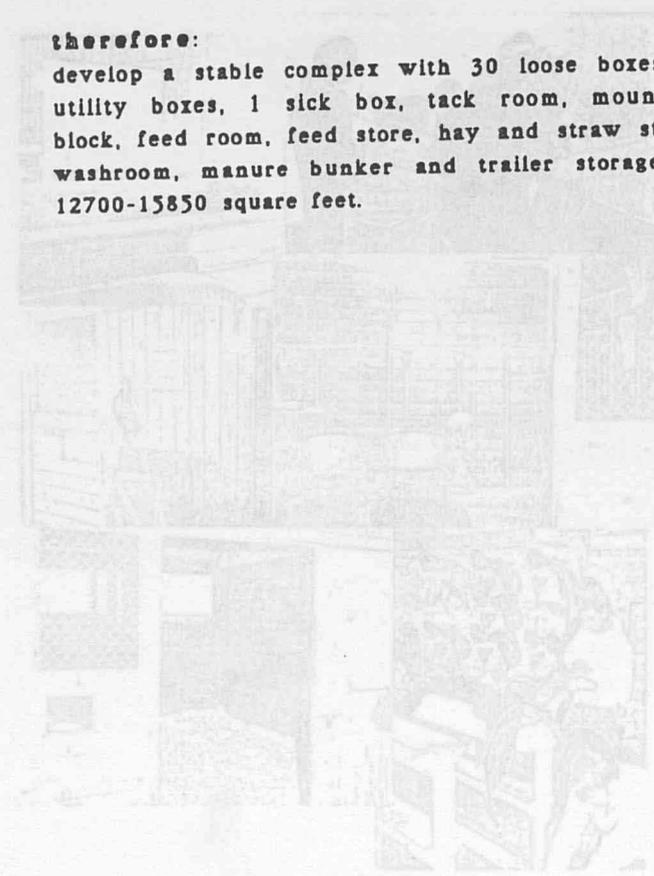


Figure 184 - Lisa J. McCowan, It Is Ability That Counts: A Training Manual on Therapeutic Riding for the Handicapped, 1973, Greer College Press



Figure 189--Lida L. McCowan, It Is Ability That Counts: A Training Manual on Therapeutic Riding for the Handicapped, 1972, Olivet College Press

## sixty-six      manager/instructor office

A stable manager will be responsible for running the stable.

The manager should know when the animals need to be shod, keep health records up to date, check that the work to be done is done everyday. Stable and grooming tools should be returned to their proper place. The manager should also check the tack for good repair and cleanliness. Three stable hands will assist him.

The riding instructor will keep records on each camper's riding skills, and other individual differences. He will work closely with the physical therapist to develop methods for each rider. Each morning the riding instructor will make a list of the mounts to be readied and gives it to the stable manager.<sup>104</sup>

The office for the stable manager and riding instructor should have a desk and chair for each, along with three side chairs to be shared by them. They will also need a place to store records, a telephone, book storage and storage for other office supplies. Their tasks will require 70 to 100 footcandles of light.

**therefore:**

provide an office of 200-250 square feet for the stable manager and riding instructor.

<sup>104</sup>ibid, p. 18





Figure 191-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life. 1985, Charles C Thomas Publisher.

## sixty-seven

## swimming

Swimming is a favorite summer activity of all children and especially loved by handicapped youngsters. All campers will participate in aquatic activities almost everyday and the pool will be a central part of the camp.

Swimming is a good activity for integrating handicapped and non-handicapped youngsters because the water gives many handicapped greater freedom of movement and helps equalize physical ability. Many activities can be undertaken in the pool, besides swimming, other exercises and games such as water polo, water volleyball, and water basketball can be participated in.

Pool entry for the handicapped may take several forms. Several types of mechanical lifts are available on the market. Removable types of lifts prevent children from playing on the lift when it is not in use. However, a lift is the least desirable form of entry.

Most disabled persons prefer to have the option of entering the water from a ramp with handrails or wide steps where they can also sit and relax. A ramp of 3'-0" wide allows an individual to grasp both rails at once. While a wider ramp allows 2 people to pass freely.<sup>105</sup>

<sup>105</sup>Nina M. Bunin, Project Director, A Guide To Designing Accessible Outside Recreation Facilities, 1980, Heritage Conservation and Recreation Service, U.S. Department of Interior, p. 34

Ramps also enable a person confined to a wheelchair to wheel a chair into the water until he can float off the chair. Wheelchairs which can be used in the water should be available near the ramp.<sup>106</sup>

Color and textural cues should be used to indicate edge and other areas of high risk to persons who are visually impaired. The surface around the pool and walkways should have a nonslip resistant surface for the protection not all users.

**therefore:**

design a swimming pool with ramp and shallow stairs for handicapped access, large enough to allow games such as water volleyball to be played in the pool.

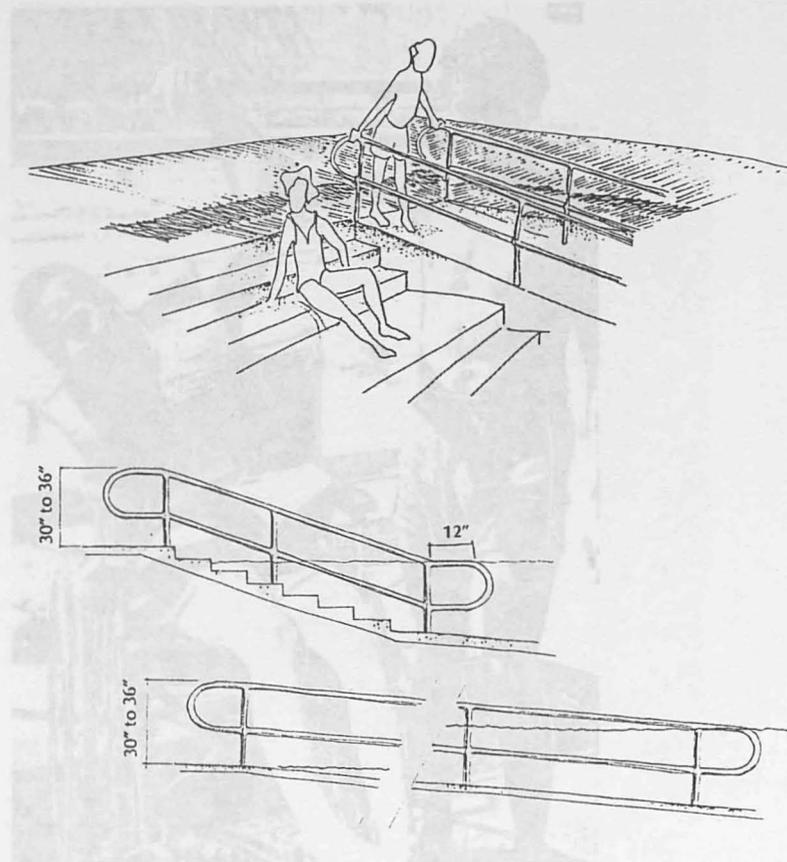


Figure 192-- U.S. Department of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, January 1980.

<sup>106</sup>Recreation Without Barriers: Design Criteria. Indiana Department of Natural Resources, Division of Outdoor Recreation, 1984, pp. 29-30



Figure 193-- "Wheel courses"

## sixty-eight

## hiking

Hiking trails should reflect the preferences and abilities of different people.

By offering trails from all five trail classes people of all abilities can enjoy hiking in their own way. Some may desire their hike to be physically challenging. Others may just want to take a stroll in the woods.

Trail surfaces in increasing order of difficulty include:

- concrete
- asphalt
- wooden planking
- solidly-packed, fine crushed rock
- well-compacted pea gravel
- bound wood chips
- coarse gravel
- rock
- unbound wood chips
- sand<sup>107</sup>

By using various combinations of trail surface, slope, width and rest areas a variety of trail difficulty may be developed.

**therefore:**

develop a system of trails on the campsite and extending into the national forest. Allow visitors handicapped and non-handicapped to use these trails

<sup>107</sup>Op. cit., Bunin, p. 16

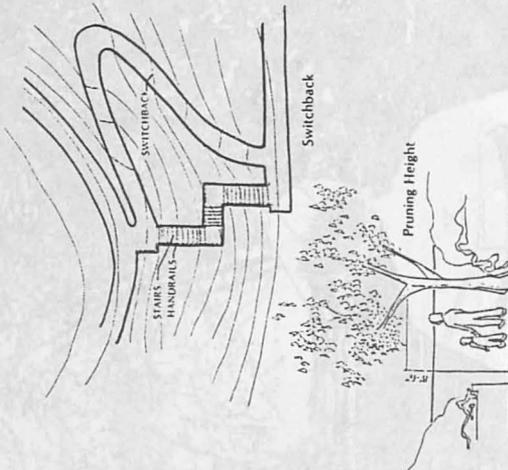


Figure 194,195-- U.S. Department of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, January 1980.

Trail Planning Classifications \*

Class of Trail	I	II	III	IV	V
Approx. Length of Trail	0 - 1/4 mile	1/4 - 1 mile	1 - 3 miles	3 - 10 miles	Over 10 miles
Rest stop Spacing and Types (Use natural materials whenever possible for benches, shelters, etc.)	100' - 150' benches, shelter, interpretation	200' - 300' **benches, shelter, interpretation	500' - 600' natural benches occasionally, interpretation	Rest area or interpretation every 1 mile	None - Unless extremely unique interpretation
Width of Trail	1-way: 4' 2-way: 6'	1-way: 3' - 4' 2-way: 4' - 5'	3' - 4'	2' - 3'	Undefined
Shoulder of Trail	1-1/2' grass; slight slope toward trail	Clear understory brush to 1' from trail; gradual slope either direction	Clear understory brush to 1' from trail; no abrupt dropoffs adjacent	Clear understory brush to 1/2' from trail	Undefined
Slope of Trail	1:50	1:20 with 5' level space at 100' intervals	1:12 with 5' level space at 30' intervals	1:8 with occasional level space when possible	Steps or Natural
Cross Slope	None	1:50 for max. of 30' and varied from one side of trail to other	1:25 for max. of 50', vary from side to side	1:20	Undefined
Surface of Trail	Concrete, asphalt	Asphalt, perpendicular wood planking, very fine crushed rock solidly packed	Firm surface, well compacted	Bound woodchips, class 5 gravel mixture coarse	Sandy, rough unbound wood chips, rocks
Trail Edge (Rails, curbs, etc. Use natural materials whenever possible.)	Curbs used where necessary for safety; 3' high rails for safety or for resting along lineal slope where necessary	Gradual ramping; rails for resting along lineal slope and to provide safety on cross slope or hazard area	Compacted earth level with trail edge; definite texture change. Rails for holding slope at steepest grade and for safety.	Texture change with immediate drop to natural terrain from trail edge. Rails used to guard hazard.	Nothing

\* Courtesy of Minnesota Department of Natural Resources  
 \*\* Benches may mean commercial type or a big log or boulders suitable for sitting.



Figure 196-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

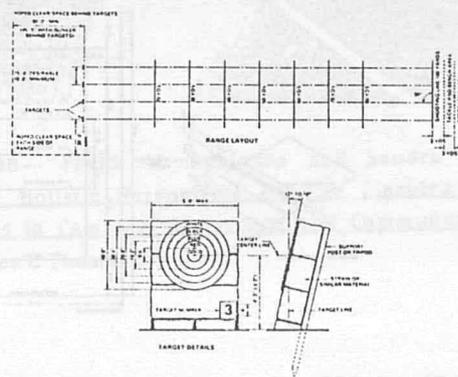


Figure 197-- Archery range and target dimensions. Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.

## sixty-nine multi-purpose playfields

An area which can be used for a variety of activities should be part of the camp.

Activities which might take place in this area include archery, softball, track and field, and volleyball.

### archery

The targets for archery are usually 30-100 yards for adults and 20-50 yards for juniors. It is preferable to have a background of dense trees, natural or manmade hills or protective shields. The area used for the archery should be fairly level, free from obstructions, sheltered from high winds and oriented north  $\pm 45^\circ$ . The minimum size for a range is 300 feet long by 15 feet between each targets. Minimum space required is 28,600 square feet. Target dimensions are shown in Figure 197.<sup>108</sup>

A hard surface path leading to the target area should be provided so that all campers can assist in retrieving arrows. However, hard-packed or cemented earth or some other "softer" surface around the landing area to protect the arrow tips.

### softball

Required space for softball is 62,500-90,000 square feet. Baselines are 60 feet for men and women and 45 feet for juniors. Pitching distance is 46 feet for men, 40 feet for women and 35 feet for juniors. Layout and backstop dimensions are shown in Figure.<sup>109</sup>

<sup>108</sup>"Recreation and Entertainment". Time Saver Standards For Building Types, 2nd ed., 1980, McGraw Hill Book Company, pp.1111

### track and field

A flat area is required for a variety of field and track events. The length should be sufficient for to have at least a 100 yard dash.

### volleyball

Volleyball is a popular team sport for people of all ages and abilities. It is played on a 60'-0" by 30'-0" court with a net (29'-6" by 3'-3") separating the two teams. A volleyball and net are the only equipment necessary for this game. But, more readily available and less expensive materials can be substituted such as a clothesline for a net and a beach ball for a volleyball. The game itself can be modified by varying the court size, number of players, ball type, net height, number of hits per side allowed or the method of volley.<sup>110</sup>

### therefore:

develop a fairly level field, at least 300 feet by 350 feet, which can be used for a variety of activities.

<sup>109</sup>ibid, p.1090

<sup>110</sup>Op. cit., Bender, Brannon, Verhoven, p.113

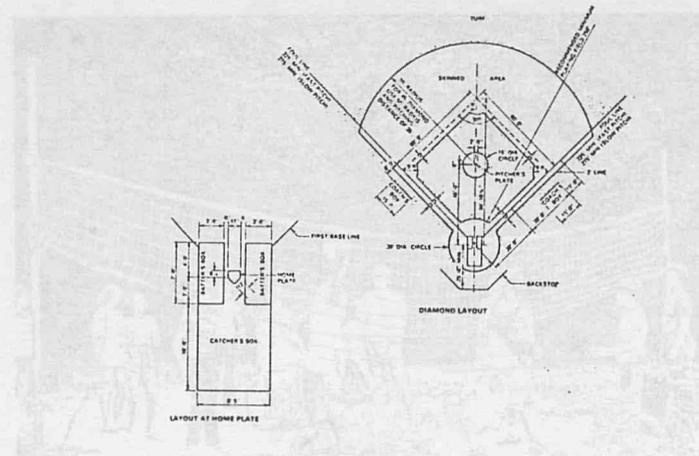


Figure 198-- Softball field and home plate layout. Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.

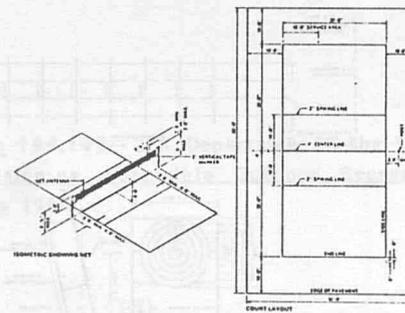


Figure 199-- Volleyball layout. Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.



Figure 200-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

Figure 201-- Don W. Kennedy, Ph.D., David E. Austin, Ph.D. and Ralph W. Smith, Ph.D., Social Recreation Opportunities for Persons with Disabilities 1987, Southern College Press

## seventy recreation room

The camp should have an area protected from the weather for recreation activities.

This activities may include table tennis, wheelchair dancing and performing. Wheelchair dancing will be the most space consuming activity of these, requiring 3500 square feet for all the people living at the camp site to participate.

### therefore:

include a space with an area of 3500 square feet. This function might be combined with dining and part of it partitioned off to provide a waiting area for mealtimes where table tennis and other activities can take place while waiting.





Figure 201-- Dan W. Kennedy, Ph.D., David R. Austin, Ph.D. and Ralph W. Smith, Ph.D., Special Recreation: Opportunities for Persons with Disabilities, 1987, Saunders College Press.

## seventy-one

## fishing

Fishing is an activity enjoyed by many people and can be easily enjoyed by the physically disabled.

A pier or platform should be provided in an area where one is likely to catch fish. The fishing area should be accessible by a firm-surfaced trail, flush with the pier surface. A bait shelf and arm/pole rest should be provided which can be used by seated fishermen. Measures should also be taken to prevent wheelchairs from rolling off the platform.

This is a good activity for individuals or groups to participate in during free time. But, the fishing area should be supervised at all times.

### therefore:

provide a fishing area with places where a wheelchair can come close to the water without danger of falling in. The area should be small enough to be supervised by one person.

## Fishing

## Seventy-one

Fishing is an activity enjoyed by many people and can be easily enjoyed by the physically handicapped.

A list of guidelines should be provided to the user when the activity is being used. The fishing line should be accessible at a low-reached level from the user's seat. A half-inch diameter line should be provided which can be used by seated fishermen. Bait should also be taken to prevent accidents from falling off the platform.

This is a good activity for individuals or groups to participate in during free time. The fishing area should be supervised at all times.

### Equipment:

Provides a fishing area with guides where a wheelchair can come close to the water without danger of falling in. The area should be small enough to be supervised by one person.



Figure 101 - Dan W. Kennedy, Ph.D., David S. Smith, Ph.D., and Brian W. Smith, Ph.D., Special Education Department, for research with Washington State University College Press.

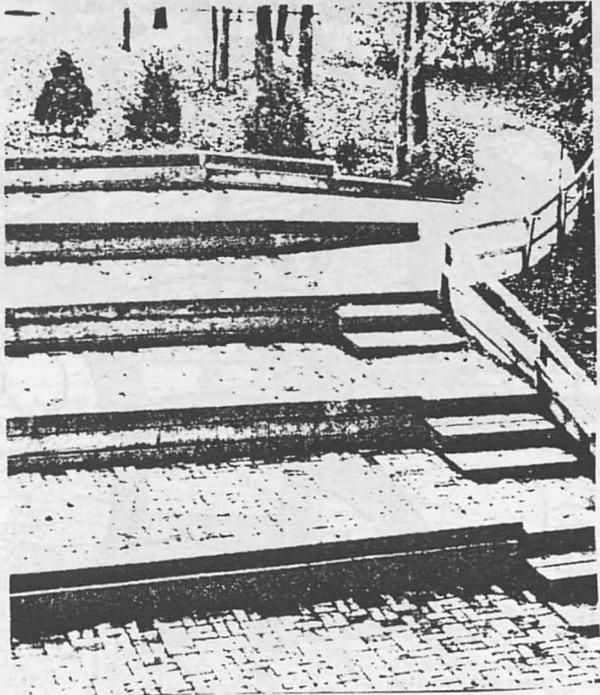


Figure 202-- U.S. Department of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, January 1980.

## seventy-two

## chapel

The camp should have a place for worship services, where group and individual meditation activities can take place.

This chapel should include nature as much as possible. It may also be used for other gatherings, as well as, worship services. This area will need 1500-2000 square feet.

**therefore:**  
develop an open air, amphitheater type chapel.



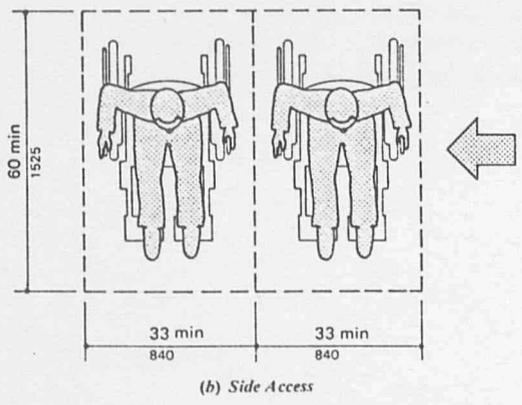
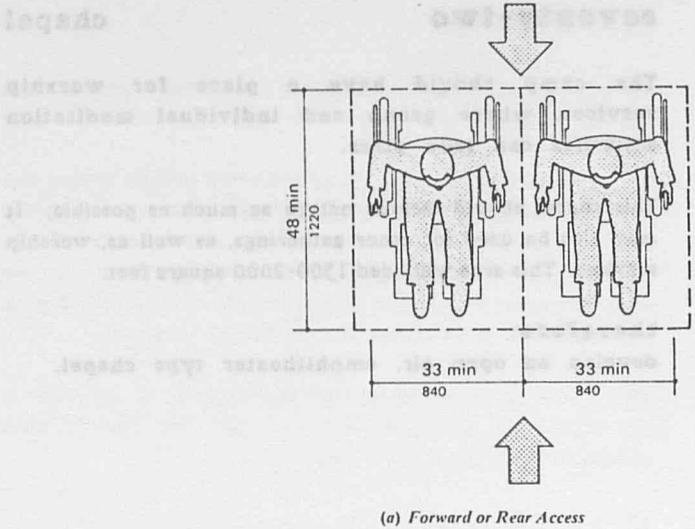


Figure 203-- Wheelchair space. U.S. Department of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, January 1980.

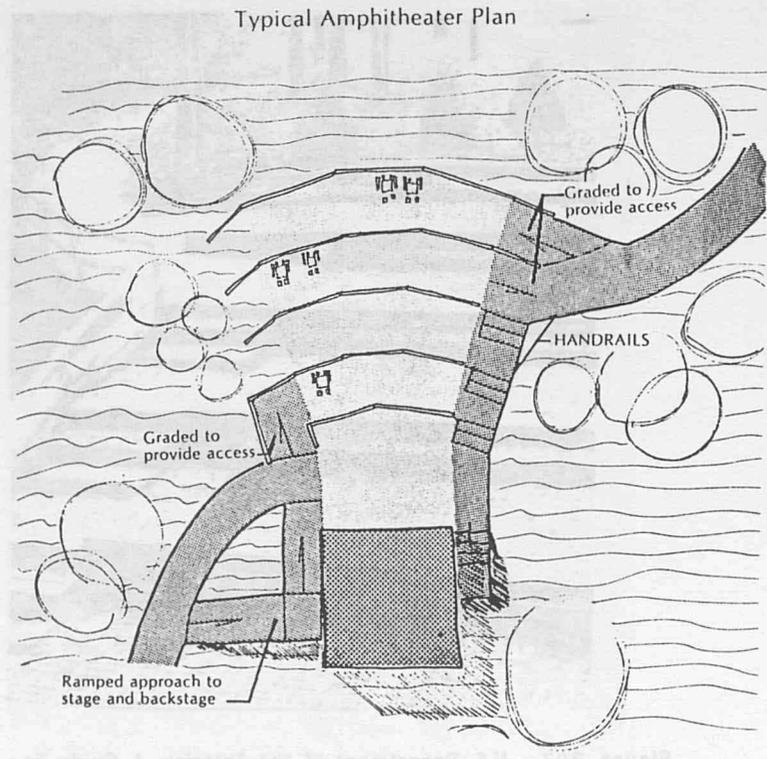


Figure 204-- Typical outdoor theater. U.S. Department of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, January 1980.



Figure 205-- Frank M. Robinson and Sandra Skelly Skinner, A Holistic Perspective On The Disabled Child: Applications in Camping, Recreation, and Community Life, 1985, Charles C Thomas Publisher.

### seventy-three nature center

Every social environment [23] relates to others on the planet earth [1].

The camp needs an interface with Cuchara community.

Seek to make the camp a part of the Cuchara community rather than a just a small community of its own. To do this the camp should involve residents beyond a few employees and volunteers. Members of the community must feel welcome and feel that they have a purpose in visiting the camp. However, involvement of the community can not include constant visitors at camp programs.

The proposed camp site lies near frequently used trails so the sights and sounds of the camp should be screened from the trails. But, facilities near the trails can provide many opportunities as well.

The common interests of the community and campers include the natural environment and its history and the arts.

#### therefore:

a "nature center" should be included as part of the camp facility. This facility should be attractive to tourists. It should encourage drop-ins, hikers, bikers, horseback riders and cars.

This facility should have a meeting place to be used by Cuchara resident, as well as, the camp. It should be near yet separate from the camp itself.

This interface should offer residents, camp participants and other visitors opportunities to learn about plant life, wildlife, geology and natural history of the Cuchara area. Also, it should display local, and occasionally, guest artwork. These experiences should involve all the senses. And could illustrate how a seeing or hearing impaired person experiences the local environment.

An area in which local and guest artists and craftsmen can give workshops should be also be included.

Interaction between campers and residents in this facility should occur during campers' free periods and special events. Residents and non-camper visitors should use this facility as much or more than the campers.





Figure 207--  
Cucare Yucilat

Figure 206-- Surface water in north  
west corner of proposed site.

## seventy-four

## library

A small library should be available to those campers and staff who wish to get additional information on Earth topics.

Some persons after observing nature will wish to read more about it. They may also want to learn plant and animal names. Some may also wish to get a book to read for pleasure. Topics should include:

- wildlife
- plantlife
- history
- prehistory and earth formation
- geology
- general fiction

A policies for loans to campers and residents should be developed.

The library should concentrate on books about the area itself. But also offer just-for-pleasure books for all levels of readers. Braille books and recorded books should also be available for visually impaired persons. 400-500 square feet should be allowed for stacks and another 200-250 square feet for reading areas. These should offer large amounts of natural light.

### therefore:

design a library with a total of 600-750 square feet. Stacks should allow wheelchair travel.



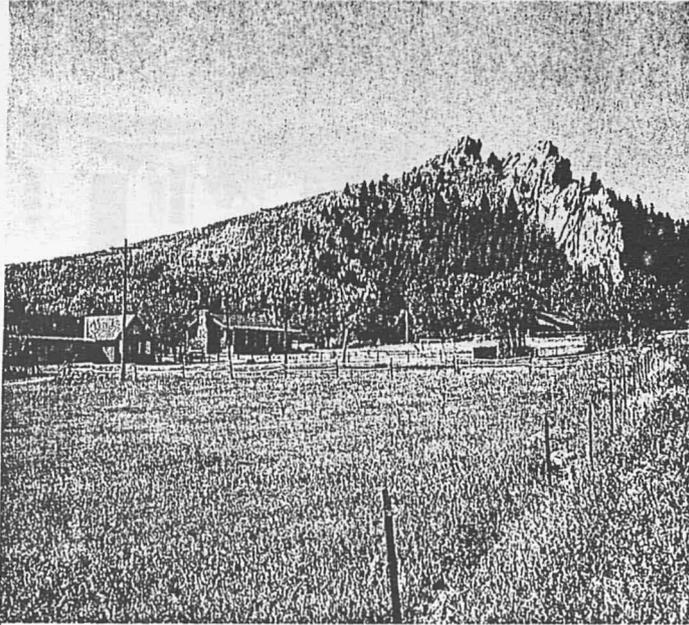


Figure 207-- "The Gap." "Colorado's Cuchara Valley",  
Cuchara Tourist Association , 1986

## seventy-five

## art display

Provisions for displaying local art and craft work should be provided in the "nature center".

All types of art will be displayed including flat and three dimensional. Some of the art may be experienced hands-on. Items displayed may include

- painting
- photography
- drawing
- silk screen
- weaving
- pottery
- sculpture
- jewelry

### therefore:

allow 400 square feet for the display of art. However, this needs not be a separate area but, can become a part of other spaces.





Figure 208-- Camp Offices, Texas Lions' Camp Kerrville, Texas.  
(Photo by Liz Toombs.)

## seventy-six natural art production

Campers and residents may wish to learn how to produce their own artwork.

Local and guests artists and craftsmen may give workshops at this facility during the camp season and at other times of the year. When camp is in session campers will be allowed to attend workshops if they wish and the artist agrees. Artists and craftsmen may also wish to have special workshops especially for the campers.

Therefore: provide an area which can comfortably accommodate a workshop for as many as 40 persons. Allow 800 square feet for this space.



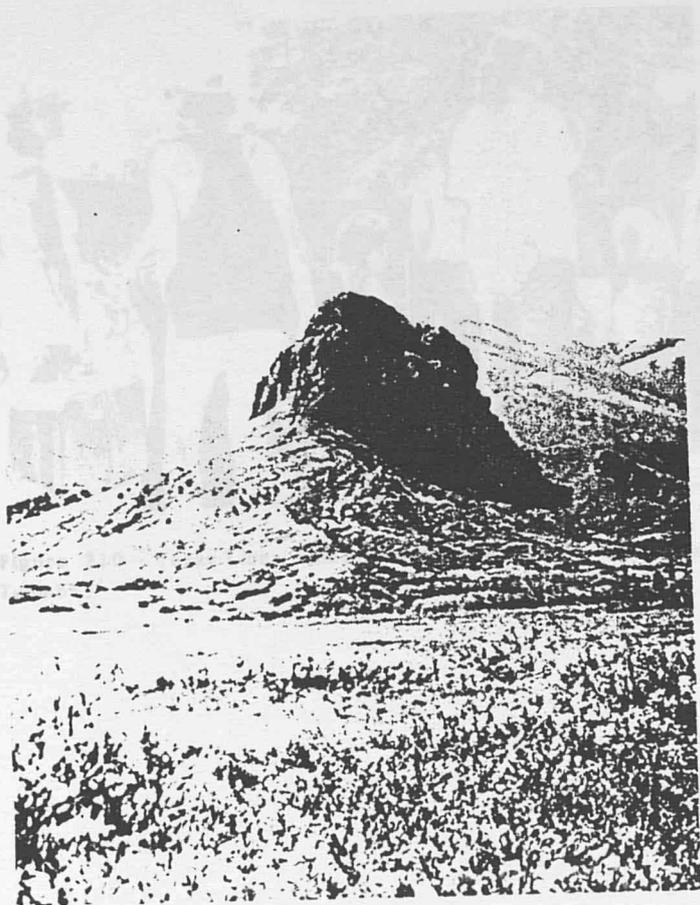


Figure 209-- Goemmer's Butte.

### **seventy-seven natural history display**

Displays which illustrate processes of the natural environment should be the focus of the "nature center."

Handicapped and non-handicapped campers will come to the facility to gain a better understanding of the natural environment as will residents and visitors.

#### **therefore:**

This part of the center should explain natural processes in a way which relates to all senses. 1500-2000 square feet should be allowed for this function



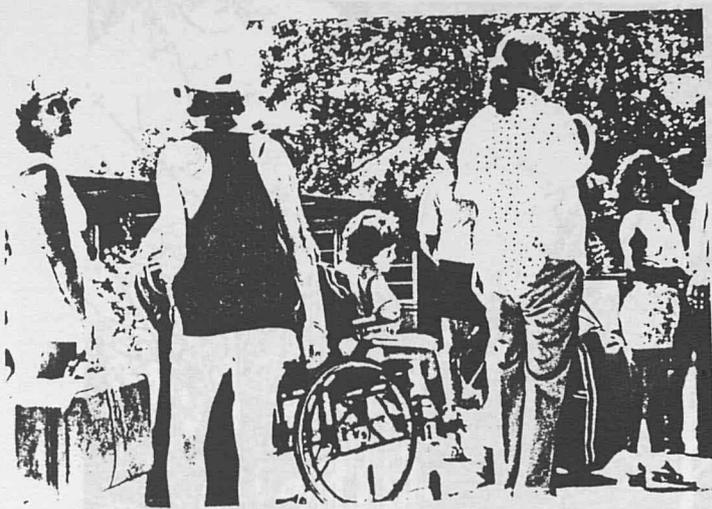


Figure 210-- Texas Lions' Camp Kerrville, Texas. (Photo by Liz Toombs.)

## seventy-eight

## director's office

The "nature center" will need a director separate from the camp director. He will report to the camp board of directors, as does the camp director.

The nature center director will need a place where he can take care of camp business such as receiving and making phone calls answering mail.

He will use a desk, 3 chairs (1 for the camp director and 2 for guests), micro computer and printer, telephone, paper, pens and pencils. He will need a place to store books as well. He will require from 70 to 150 footcandles of light for his tasks. An adjustable light or overall-task lighting combination should be used. Storage for hard copies of records should be in or near this office.

### therefore:

provide an office space of 200 square feet for the nature center director, plus 100 square feet for record storage.





Figure 211-- Northwest part of the proposed site.

### seventy-nine

### guest residence

Living quarters should be available to house guest artists and researchers.

This residence should be similar in size and function to seasonal camp administrators' residences. It may also be leased when not occupied by a guest of the camp.

**therefore:**

develop a residence of 800-1000 square feet for guests of the camp.

A restaurant / snack bar of 400 square feet with a 100 square foot food preparation area should be included as part of the facility. It should have a very relaxed atmosphere and be a place for just sitting and talking if that is desired.



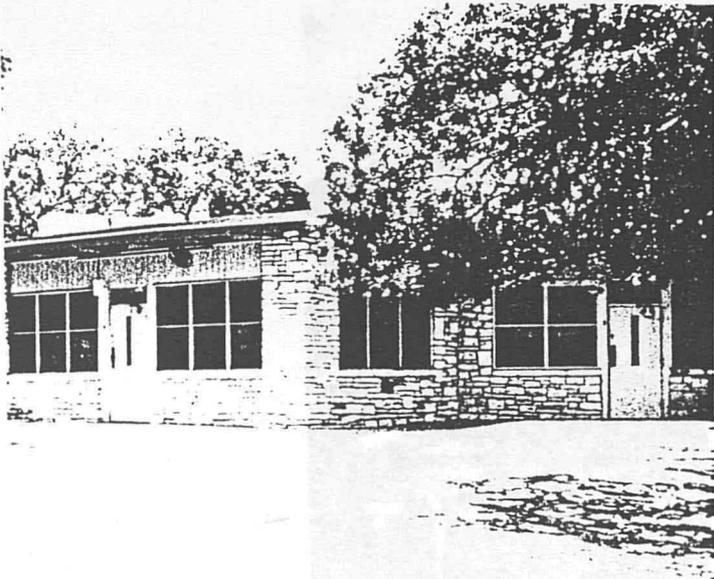


Figure 212--Dining hall, Texas Lions' Camp Kerrville, Texas.  
(Photo by Liz Toombs.)

## eighty one off food service

Unique places to eat away from home often attract people to facilities.

Persons who are hiking near the camp, who otherwise would not stop at the nature center may stop for a rest or snack if there is a place for this. Residents may make a special trip just for a meal out. And persons visiting the center itself may desire a place to get refreshments.

therefore: a restaurant / snack bar of 800 square feet with a 400 square foot food preparation area should be included as part of the facility. It should have a very relaxed atmosphere and be a place for just sitting and talking if that is desired.

## Food Service

Tables placed in row away from main entrance  
people to facilities.

Persons who are dining near the camp who otherwise  
would not stop at the dining center may stop for a rest or  
snack if there is a place for this. Residents may make a  
request the day for a meal too. And persons visiting the  
center will also have a place to get refreshments.

Development  
A restaurant & snack bar of 500 square feet with a  
450 square foot food preparation area should be  
included as part of the facility. It should have a  
very relaxed atmosphere and be a place for just  
relaxing and eating if that is desired.



Figure 212 - Dining Hall, Kautzville Camp, Kautzville, Iowa  
(Photo by the Engineer)



Figure 213-- "Colorado's Cuchara Valley", Cuchara Tourist Association, 1986

## **eighty-one**                      **off-season usage**

Off season usage will provide the funds for the support of the summer camp.

Seven of the 10 administrator residences will be available for lease during nine months of the year. The rate for these quarters will be \$50.00 per night. The guest residence at the nature center will also be available for rental some times. It will be \$70.00 per night. All six of the cabins will be available during the same time period. Based on \$5 per night per person each cabin will rent for \$80.00 per night.

The fishing area will be available to off-season visitors. Horseback riding may also be participated in at a rate of \$10.00 per hour. Food service will be available at the nature center.

### **therefore:**

promote off-season uses as well as the camp itself since this is where the camp will get the majority of its revenue.





Figure 214-- Parking area, Texas Lions' Camp Kerrville, Texas.  
(Photo by Liz Toombs.)

## eighty-two

## parking

It is necessary to provide parking for employees and visitors.

Parking for administrators will be near their residences. However, the rest of the staff will park in the central parking area. Parents bring their children to camp must have a place to park their cars. Driving visitors to the nature center will also need a place to park.

### therefore:

the parking area should provide a total of 200 spaces of these 20 percent should be able to be used by vehicles transporting persons who using wheelchairs. The parking area should be convenient for use both the nature center and camp, during registration.

Consider closing the nature center [73] to the public on days of camp registration and registering campers there.

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## space allocation

space #	space name	space type	pattern # (s)	# people	area (ft <sup>2</sup> )	volume (ft <sup>3</sup> )	adjacencies (space #)
1	camper residence	R	49	64	5400	40,320	7
2	staff residence	R	50	21	1500	12,000	7,6,8-10,
3	administrator residence	R	51	16	11,500	92,000	7,6,8-10,
4	public toilets	S	48		1000	8,000	7,9-12, 16,19
5	bathing facilities	S	47		Incl. in res.		
6	kitchen	S	56	6	1,600	16,000	6,4
7	dining hall	S	52	100	2,400	24,000	6,4
8	dietician's office	O	55	1-2	200	1,600	6,7
9	director's office	O	55	1-4	250	2,000	8,10-17
10	camp secretary	O	55	1-3	350	2,800	9
11	recreation coordinator	O	55	1-3	200	1,600	9,21,18
12	nurse / physical therapy	S	58	2-5	1,000	6,000	1,3
13	maintenance shop	S	62	3-4	500	5,000	14,15
14	storage	S	60	3-4	600	6,000	13,15
15	garage	S	61	3-4	1,500	15,000	13,14
16	stable	A	65	7-8	15,750	126,000	17
17	stable manager's office	O	66	2-7	250	2,000	16
18	chapel	S	72	100	4,000		
19	recreation room	A	70	100	3,500	35,000	7,4
	nature center	S	73				
20	library	S	74	10	750	7,500	
21	art display	S	75	20	400	4,800	
22	art workshop	A	76	40	800	8,000	
23	museum	A	77	50	2,000	24,000	
24	directors office	O	78	1-3	300	2,400	
25	guest residence	R	79	1-4	1,000	8,000	
26	food service	S	80	30	1,200	12,000	
	site work						
27	fishing	A	71	30	20,000		
28	swimming pool	A	67	40	10,000		
29	hiking trails	A	68		352,000		
30	play field	A	69	100	105,000		
31	parking	S	82	200	40,000		



STAFF SALARIES			
00 000000			Administrative Staff
00 000001			Administrative Staff
00 000002			Administrative Staff
00 000003			Administrative Staff
00 000004			Administrative Staff
00 000005			Administrative Staff
00 000006			Administrative Staff
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STAFF SALARIES			
00 000021			Administrative Staff
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00 000024			Administrative Staff
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STAFF SALARIES			
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00 000060			Administrative Staff

## cost analysis

The following tables provide the cost analysis of this project.

Expenses included cost of the site, construction costs, site work, fixed holding costs and variable costs. The facility income was based on six two-week camp sessions of forty eight campers, each paying a \$1000.00 tuition. Additional income included rental of the unoccupied administrators residences and cabins, as well as, the guest residence at the nature center. The administrator residences and cabins were estimated to be leased four of the nine months they were available. The guest residence was considered to be leased three months of the year and furnished free-of-charge for guests or left unoccupied for the remainder of the year. Four hours of horseback riding per each day the cabins / residences were leased was included as well. The only other income considered in this cost analysis is that of site appreciation.

The project if paid for completely by its profits would take an estimated 37.7 years to pay itself off. However, when considering that the site is donated by Jack Casias, the horses donated by various people and much of the trail work done by area volunteers the number of years for the camp to pay the remaining costs is estimated at 21.34 years.

SITE COST	acres	cost per acre	
site	207	\$3813.00	\$789291.00
appreciation	13 % per year		
		year 1	\$102607.83
		year 2	\$115946.85
		year 3	\$131019.94
		year 4	\$148052.53
		year 5	\$167299.36
		year 6	\$189048.28
		year 7	\$213624.55
		year 8	\$241395.74
		year 9	\$272777.19
		year 10	\$308238.22
		year 11	\$348309.19
		year 12	\$392589.39
			\$444756.01
			\$502574.29
			\$567908.95
			\$641737.11
			\$725162.94
			\$819434.12
			\$925960.55
			\$1046335.43
			\$8305778.46

CONSTRUCTION COSTS	sq ft	cost per sq ft	
camper and staff res	6900	\$45.05	\$310845.00
admin res (per unit)	10	\$36500.00	\$365000.00
public toilets	600	\$50.00	\$30000.00
kitchen and dining hall	3600	\$60.85	\$219060.00
offices (6)	1450	\$54.15	\$78517.50
medical	1000	\$68.30	\$68300.00
shop	500	\$60.05	\$30025.00
storage	600	\$25.80	\$15480.00
garage	1500	\$19.90	\$29850.00
stable	15850	\$25.70	\$407345.00
rec room (see dining hall)			\$0.00
chapel	2000	\$15.00	\$30000.00
nature center	6450	\$71.00	\$457950.00
			\$2042372.50

SITE WORK	sq yds	cost per sq yd	
trails	352000	\$10.00	\$3520000.00
playfield	105000	\$2.00	\$210000.00
swimming pool	10000	\$93.70	\$937000.00
fishing	20000	\$6.00	\$120000.00
parking	40000	\$20.00	\$800000.00
road	45000	\$10.00	\$450000.00
			\$5100000.00

VARIABLE COSTS			
food and kitchen expenses			\$80000.00
rec equip costs			\$25000.00
counselor and staff wages (37)	3 months \$1000	per month, avg	\$111000.00
camp director salary	12 months		\$30000.00
camp secretary	12 months		\$12000.00
nurse salary	3 months		\$6000.00
phys ther salary	3 months		\$7500.00
riding instructor salary	3 months		\$6000.00
recreation coordinator	3 months		\$9000.00
stable manager salary	12 months		\$20000.00
grooms' salary (2)	12 months		\$14000.00
fishing director salary	12 months		\$16000.00
cook salary	12 months		\$15000.00
			\$330500.00

FIXED HOLDING COSTS		
property taxes		\$5000.00
depreciation of assets		\$50000.00
maintenance and repair		\$6000.00
interest payments		\$100000.00
		\$161000.00

FIXED OPERATING COSTS		
insurance		\$15000.00
administrative and office costs		\$5000.00
advertising		\$20000.00
horse expenses		\$50000.00
		\$90000.00

PROFITS		YEARLY COSTS	INCOME
fixed holding cost		\$161000.00	
fixed operating costs		\$90000.00	
variable costs		\$330500.00	
site appreciation (avg 20 yr)			\$415288.00
tuition (\$1000/2 wk./camper)	288	\$1000.00	\$288000.00
rental of 7, 3-month admin res	840	\$50.00	\$42000.00
rental of guest residence	90	\$70.00	\$6300.00
group cabin rental	480	\$80.00	\$38400.00
horse back riding	480	\$10.00	\$4800.00
			\$213288.00

OPENING COSTS			
site cost			\$789291.00
construction cost			\$2042372.50
equip cost			\$50000.00
horse cost	30	\$2000.00	\$60000.00
site work			\$5100000.00
			\$8041663.50

YEARS TO PAY OFF			37.70
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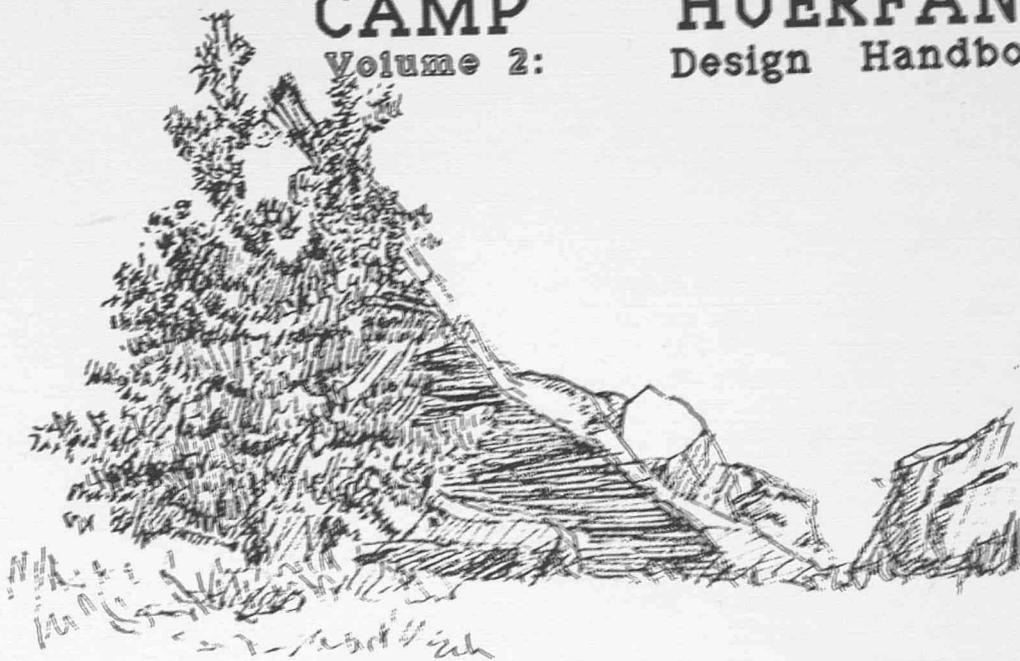
OPENING COSTS MINUS DONATIONS			
site cost			\$789291.00
horse cost			\$60000.00
3/4 trails			\$2640000.00
			\$4552372.50

ADJ. YEARS TO PAY OFF			21.34
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**CAMP**  
Volume 2:

**HUERFANO**  
Design Handbook



## project goals

- strengthen the Cuchara-La Veta economy
- design for all senses
- design an accessible recreation environment which is free in the sense that it can be used by handicapped persons, with or without the aid of others
- design with the environment; maximizing plant and wildlife habitats as well as man's
- use free energy to help supplement and replace electricity and natural gas

By serving as an interface between the various elements of the environment, the camp facility may accomplish the project goals. However, in order to create a cohesive force, the facility itself must mesh with each of the facets of the environment.

The **natural environment** (issue no. 13-22, pp. 31-74, Vol. 1) of Cuchara Valley includes a wide variety of terrain from the Sangre de Cristo Range of the Rocky Mountains along its western and southern edges to the western-most portions of the Great Plains in the east. The rich multi-cultural heritage and diversity of lifestyles, of the **social environment** (issue no. 23-34, pp. 75-102, Vol. 1) complement the geographic variety. Population densities in Huerfano County range from small-town urban in the county seat of Walsenburg to sparsely settled rural, filled with contrasts. The **built environment** (issue no. 35-36, pp. 103-105, Vol. 1) includes heavy timber construction and adobe. Many residences are accented with bright polychromy.

## Project Goals

- Investigate the impact of this technology
- Design for all users
- Design an accessible research environment which is free in the sense that it can be used by disadvantaged persons with or without the aid of others
- Collaborate with the environmental organizations that will be using
- Use text display to help supplement and enhance
- Visualize and natural gas

By creating an interface between the various elements of the environment the user facility may accomplish the project goals. However, in order to create a complete look, the facility itself must meet with each of the levels of the environment.

The related environment issues are 1) 2) 3) 4) 5) 6) 7) 8) 9) 10) 11) 12) 13) 14) 15) 16) 17) 18) 19) 20) 21) 22) 23) 24) 25) 26) 27) 28) 29) 30) 31) 32) 33) 34) 35) 36) 37) 38) 39) 40) 41) 42) 43) 44) 45) 46) 47) 48) 49) 50) 51) 52) 53) 54) 55) 56) 57) 58) 59) 60) 61) 62) 63) 64) 65) 66) 67) 68) 69) 70) 71) 72) 73) 74) 75) 76) 77) 78) 79) 80) 81) 82) 83) 84) 85) 86) 87) 88) 89) 90) 91) 92) 93) 94) 95) 96) 97) 98) 99) 100) 101) 102) 103) 104) 105) 106) 107) 108) 109) 110) 111) 112) 113) 114) 115) 116) 117) 118) 119) 120) 121) 122) 123) 124) 125) 126) 127) 128) 129) 130) 131) 132) 133) 134) 135) 136) 137) 138) 139) 140) 141) 142) 143) 144) 145) 146) 147) 148) 149) 150) 151) 152) 153) 154) 155) 156) 157) 158) 159) 160) 161) 162) 163) 164) 165) 166) 167) 168) 169) 170) 171) 172) 173) 174) 175) 176) 177) 178) 179) 180) 181) 182) 183) 184) 185) 186) 187) 188) 189) 190) 191) 192) 193) 194) 195) 196) 197) 198) 199) 200) 201) 202) 203) 204) 205) 206) 207) 208) 209) 210) 211) 212) 213) 214) 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Design the facility with  
"patterns of contrasting elements"

Design the facility with  
"patterns of contrasting elements"

design concept

design concept

100

## design concept

Design the facility using...  
"patterns of contrasting elements"

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Refer to issue **thirteen**, natural environment, page 31,  
Volume 1.



Space No.	Space Type	Yatara No.	* Yatara	Area (sq)	Vol (cu)	La. Area (sq)
1	Open Area	10	10	100	1000	1000
2	Open Area	11	11	110	1100	1100
3	Open Area	12	12	120	1200	1200
4	Open Area	13	13	130	1300	1300
5	Open Area	14	14	140	1400	1400
6	Open Area	15	15	150	1500	1500
7	Open Area	16	16	160	1600	1600
8	Open Area	17	17	170	1700	1700
9	Open Area	18	18	180	1800	1800
10	Open Area	19	19	190	1900	1900
11	Open Area	20	20	200	2000	2000
12	Open Area	21	21	210	2100	2100
13	Open Area	22	22	220	2200	2200
14	Open Area	23	23	230	2300	2300
15	Open Area	24	24	240	2400	2400
16	Open Area	25	25	250	2500	2500
17	Open Area	26	26	260	2600	2600
18	Open Area	27	27	270	2700	2700
19	Open Area	28	28	280	2800	2800
20	Open Area	29	29	290	2900	2900
21	Open Area	30	30	300	3000	3000
22	Open Area	31	31	310	3100	3100
23	Open Area	32	32	320	3200	3200
24	Open Area	33	33	330	3300	3300
25	Open Area	34	34	340	3400	3400
26	Open Area	35	35	350	3500	3500
27	Open Area	36	36	360	3600	3600
28	Open Area	37	37	370	3700	3700
29	Open Area	38	38	380	3800	3800
30	Open Area	39	39	390	3900	3900
31	Open Area	40	40	400	4000	4000
32	Open Area	41	41	410	4100	4100
33	Open Area	42	42	420	4200	4200
34	Open Area	43	43	430	4300	4300
35	Open Area	44	44	440	4400	4400
36	Open Area	45	45	450	4500	4500
37	Open Area	46	46	460	4600	4600
38	Open Area	47	47	470	4700	4700
39	Open Area	48	48	480	4800	4800
40	Open Area	49	49	490	4900	4900
41	Open Area	50	50	500	5000	5000
42	Open Area	51	51	510	5100	5100
43	Open Area	52	52	520	5200	5200
44	Open Area	53	53	530	5300	5300
45	Open Area	54	54	540	5400	5400
46	Open Area	55	55	550	5500	5500
47	Open Area	56	56	560	5600	5600
48	Open Area	57	57	570	5700	5700
49	Open Area	58	58	580	5800	5800
50	Open Area	59	59	590	5900	5900
51	Open Area	60	60	600	6000	6000
52	Open Area	61	61	610	6100	6100
53	Open Area	62	62	620	6200	6200
54	Open Area	63	63	630	6300	6300
55	Open Area	64	64	640	6400	6400
56	Open Area	65	65	650	6500	6500
57	Open Area	66	66	660	6600	6600
58	Open Area	67	67	670	6700	6700
59	Open Area	68	68	680	6800	6800
60	Open Area	69	69	690	6900	6900
61	Open Area	70	70	700	7000	7000
62	Open Area	71	71	710	7100	7100
63	Open Area	72	72	720	7200	7200
64	Open Area	73	73	730	7300	7300
65	Open Area	74	74	740	7400	7400
66	Open Area	75	75	750	7500	7500
67	Open Area	76	76	760	7600	7600
68	Open Area	77	77	770	7700	7700
69	Open Area	78	78	780	7800	7800
70	Open Area	79	79	790	7900	7900
71	Open Area	80	80	800	8000	8000
72	Open Area	81	81	810	8100	8100
73	Open Area	82	82	820	8200	8200
74	Open Area	83	83	830	8300	8300
75	Open Area	84	84	840	8400	8400
76	Open Area	85	85	850	8500	8500
77	Open Area	86	86	860	8600	8600
78	Open Area	87	87	870	8700	8700
79	Open Area	88	88	880	8800	8800
80	Open Area	89	89	890	8900	8900
81	Open Area	90	90	900	9000	9000
82	Open Area	91	91	910	9100	9100
83	Open Area	92	92	920	9200	9200
84	Open Area	93	93	930	9300	9300
85	Open Area	94	94	940	9400	9400
86	Open Area	95	95	950	9500	9500
87	Open Area	96	96	960	9600	9600
88	Open Area	97	97	970	9700	9700
89	Open Area	98	98	980	9800	9800
90	Open Area	99	99	990	9900	9900
91	Open Area	100	100	1000	10000	10000

space list

space list

1000

## space list

space #	space name	space type	pattern # (s)	# people	area (ft <sup>2</sup> )	volume (ft <sup>3</sup> )	adjacencies (space #)
1	camper residence	R	49	64	5400	40,320	7
2	staff residence	R	50	21	1500	12,000	7,6,8-10,
3	administrator residence	R	51	16	11,500	92,000	7,6,8-10,
4	public toilets	S	48		1000	8,000	7,9-12, 16,19
5	bathing facilities	S	47		incl. in res.		
6	kitchen	S	56	6	1,600	16,000	6,4
7	dining hall	S	52	100	2,400	24,000	6,4
8	dietician's office	O	55	1-2	200	1,600	6,7
9	director's office	O	55	1-4	250	2,000	8,10-17
10	camp secretary	O	55	1-3	350	2,800	9
11	recreation coordinator	O	55	1-3	200	1,600	9,21,18
12	nurse / physical therapy	S	58	2-5	1,000	6,000	1,3
13	maintenance shop	S	62	3-4	500	5,000	14,15
14	storage	S	60	3-4	600	6,000	13,15
15	garage	S	61	3-4	1,500	15,000	13,14
16	stable	A	65	7-8	15,750	126,000	17
17	stable manager's office	O	66	2-7	250	2,000	16
18	chapel	S	72	100	4,000		
19	recreation room	A	70	100	3,500	35,000	7, 4
	nature center	S	73				
20	library	S	74	10	750	7,500	
21	art display	S	75	20	400	4,800	
22	art workshop	A	76	40	800	8,000	
23	museum	A	77	50	2,000	24,000	
24	directors office	O	78	1-3	300	2,400	
25	guest residence	R	79	1-4	1,000	8,000	
26	food service	S	80	30	1,200	12,000	
	site work						
27	fishing	A	71	30	20,000		
28	swimming pool	A	67	40	10,000		
29	hiking trails	A	68		352,000		
30	play field	A	69	100	105,000		
31	parking	S	82	200	40,000		



space summary





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camper residences

issue number	forty-nine	volume 1, page number	141	sq ft	5,400	cc ft	40,320	
related issues		(issue #,	issue name,	page #)	primary activities			
precedents		contemporaries			<ul style="list-style-type: none"> <li>• sleeping</li> <li>• dressing</li> <li>• cleansing</li> <li>• eliminating</li> </ul>			
3	threshold needs	9	50	staff residences				143
4	physiological	11	51	administrator residences				145
24	group size	77	52	eating				147
25	group composition	79	53	drinking				149
26	supervisory ratios	83						
39	visual impairments	111						
40	hearing impairments	117						
41	motor impairments	121						
45	sleeping	133						
46	dressing	135						
47	cleansing	137						
48	eliminating	139						
		successors			secondary activities			
			81	off-season usage	205	<ul style="list-style-type: none"> <li>• reading</li> <li>• writing</li> <li>• talking</li> <li>• playing cards</li> </ul>		
participants		high use periods			goals			
48	campers					<ul style="list-style-type: none"> <li>• rest</li> <li>• relaxation</li> </ul>		
	12 campers per cabin							
	6 campers per group							
16	counselors							
	4 counselors per cabin							
	2 counselors per group							

**spatial adjacencies (space #, space name)**

7 dining hall	19 recreation room	30 play field
12 nurse / physical therapy	27 fishing	
16 stable	28 swimming pool	
18 chapel	29 hiking trails	

**spatial requirements equipment and storage adaptations**

- min. 60 square feet per person, sleeping area
- min. 6' between heads of beds
- min. 30" between sides of beds
- at least two ground level exits
- fire detection & alarm system
- at least one area per cabin group 6'-6" by 7'-6" to allow dressing, or other assistance, for a camper in a wheelchair
- 4 showers, 2 at least 4' by 4' to allow for assistance, 2 at least 3' by 3' per cabin
- 2 sinks, min 17" depth, clear below, 27" high per cabin
- 2 toilets min. 3' by 6'

- beds, sturdy and allow headroom to sit up
- personal storage, space to put chests and suitcases
- small clothes hanging area, min. linear 6" per person
- seats in all showers
- grab bars in all showers and toilets
- paddle operated sinks
- towel bars
- toilet paper holders
- soap dispensers
- paper towel dispensers
- mirror

- visual and tactile, as well as audible warnings
- doors min. 32" width
- counters max. 25" depth, clear space beneath
- wheelchairs require min. 60" turning diameter

**resources**

- Alice Van Krevelen, Children in Groups: Psychology and the Summer Camp, 1972, Wadsworth Pub. Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986

issue number	fifty	volume 1, page number	143	sq ft	1,500	cc ft	12,000
related issues		(issue #,	issue name,	page #)	primary activities		
precedents		contemporaries			<ul style="list-style-type: none"> <li>• sleeping</li> <li>• dressing</li> <li>• cleansing</li> <li>• eliminating</li> </ul>		
3	threshold needs	9	49 camper residences	141			
4	physiological	11	51 administrator residences	145			
24	group size	77	52 eating	147			
25	group composition	79	53 drinking	149			
26	supervisory ratios	83	54 camp administration	151			
39	visual impairments	111					
40	hearing impairments	117					
41	motor impairments	121					
45	sleeping	133					
46	dressing	135					
47	cleansing	137					
48	eliminating	139					
		successors			secondary activities		
			81 off-season usage	205	<ul style="list-style-type: none"> <li>• reading</li> <li>• writing</li> <li>• talking</li> <li>• playing cards</li> </ul>		
participants		high use periods			goals		
21	staff		• morning		<ul style="list-style-type: none"> <li>• rest</li> <li>• relaxation</li> <li>• privacy</li> <li>• escape</li> </ul>		
8	counselors		• evening				
3	maintenance staff		• night				
4	kitchen help						
6	grooms						

**spatial adjacencies (space #, space name)**

1 camper residences	11 recreation coordinator's office	19 recreation room
6 kitchen	13 maintenance shop	28 swimming pool
7 dining hall	16 stable	30 playfield
9 director's office	18 chapel	

**spatial requirements equipment and storage adaptations**

- min. 50 square feet per person, sleeping area
- min. 6' between heads of beds
- min. 30" between sides of beds
- at least two ground level exits
- fire detection & alarm system
- at least one area per cabin group 6'-6" by 7'-6" to allow dressing, or other assistance, for a person in a wheelchair
- 4 showers, 1 at least 4' by 4' to allow for assistance, 3 at least 3' by 3' per cabin
- 2 sinks, min 17" depth, clear below, 27" high per cabin
- 2 toilets, 1 min. 3' by 6'

- beds, sturdy and allow headroom to sit up
- personal storage, 6 cubic feet per person
- clothes hanging area, min. linear 2' per person
- seats in all showers
- grab bars in at least 2 showers and 1 toilet
- 1 paddle operated sinks
- towel bars
- toilet paper holders
- soap dispensers
- paper towel dispensers
- mirror

- visual and tactile, as well as audible warnings
- doors min. 32" width
- provide at least one counter area max. 25" depth with clear space beneath
- wheelchairs require min. 60" turning diameter

**resources**

- Alice Van Krevelen, Children in Groups: Psychology and the Summer Camp, 1972, Wadsworth Pub. Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986

three

administrator residences

issue number	<b>fifty-one</b>	volume 1, page number	<b>145</b>	sq ft	<b>11,500</b>	cc ft	<b>92,000</b>		
<b>related issues</b>	<b>(issue #,</b>	<b>issue name,</b>	<b>page #)</b>	<b>primary activities</b>					
<b>precedents</b>			<b>contemporaries</b>		<ul style="list-style-type: none"> <li>• sleeping</li> <li>• dressing</li> <li>• cleansing</li> <li>• eliminating</li> <li>• food preparation</li> <li>• eating</li> </ul>				
3	threshold needs	9	49	camper residences				141	
4	physiological	11	50	staff residences				143	
24	group size	77	52	eating				147	
25	group composition	79	53	drinking				149	
26	supervisory ratios	83	54	camp administration				151	
39	visual impairments	111							
40	hearing impairments	117							
41	motor impairments	121							
45	sleeping	133							
			<b>successors</b>		<b>secondary activities</b>				
46	dressing	135	81	off-season usage	205	<ul style="list-style-type: none"> <li>• reading</li> <li>• writing</li> <li>• talking</li> <li>• playing cards</li> <li>• entertaining</li> </ul>			
47	cleansing	137							
48	eliminating	139							
<b>participants</b>			<b>high use periods</b>		<b>goals</b>				
10-40	administrators		<ul style="list-style-type: none"> <li>• morning</li> <li>• evening</li> <li>• night</li> </ul>					<ul style="list-style-type: none"> <li>• rest</li> <li>• relaxation</li> <li>• privacy</li> </ul>	
0-30	spouse and family								

### spatial adjacencies (space #, space name)

8 dietician's office	12 nurse / physical therapy	19 recreation room
9 director's office	16 stable	27 fishing
10 camp secretary's office	17 stable manager's office	28 swimming pool
11 recreation coordinator's office	18 chapel	

### spatial requirements equipment and storage adaptations

- 3 residences 1200-1500 square feet, 7 residences 800-1000 square feet
- at least 2 of these residences should be fully accessible
- all residences should allow wheelchair entrance and use of toilet facilities
- at least two ground level exits
- fire detection & alarm system
- min. 1 combination shower and bathtub per residence
- min. 1 toilet per residence
- small kitchen area 100 sq ft or less

- beds
- clothes storage, hanging and folded, 80 cubic feet per person
- storage for personal property 100 square feet
- towel bars
- toilet paper holders
- soap dispensers
- paper towel dispensers
- mirror
- kitchen sink
- disposal
- stove
- oven
- refrigerator
- cooking utensil storage

- visual and tactile, as well as audible warnings
- doors min. 32" width
- wheelchairs require min. 60" turning diameter

### resources

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986

four

public toilets

issue number	forty-eight	volume 1, page number	139	sq ft	1,000	cc ft	8,000
related issues	(issue #,	issue name,	page #)	primary	activities		
precedents		contemporaries		• eliminating			
3	threshold needs	9	45	sleeping	133		
4	physiological	11	46	dressing	135		
39	visual impairments	111	47	cleansing	137		
40	hearing impairments	117	48	eliminating	139		
41	motor impairments	121	52	eating	147		
			53	drinking	149		
		successors		secondary activities			
				• cleansing			
participants		high use periods		goals			
• all camp residents and visitors are potential users		• meal times • activity periods		• privacy			

**spatial adjacencies (space #, space name)**

7 dining hall	11 recreation coordinator's office	18 chapel
8 dietician's office	12 nurse / physical therapy	19 recreation room
9 director's office	16 stable	28 swimming pool
10 camp secretary's office	17 stable manager's office	30 play field

**spatial requirements equipment and storage adaptations**

- 200 sq ft near dining area
- 100 sq ft near offices; may use dining hall facilities if convenient
- 300 sq ft near recreation room; may include dining hall facilities if convenient
- 100 sq ft near stable (included in stable square footage)
- 50 sq ft in nurse / therapy area
- 200 sq ft near chapel
- 300 sq ft in nature center
- 200 sq ft near swimming pool
- 100 sq ft near play field

- toilets
- dining area-2-female, 2 male
- offices-1-female, 1 male
- rec room-3-female; 2-male, 1 urinal
- stable-1-female, 1-male
- nurse / therapy-1-unisex
- chapel-2-female, 2-male
- nature center-3-female; 2-male, 1 urinal
- pool-2-female, 2-male
- playfield-1-female, 1-male
- sinks : toilets
- 1:1, 2:2, 2:3
- toilet paper holders
- soap dispensers
- paper towel dispensers
- mirror

- at least 1 toilet in each area 6' by 4', others 3' by 6'
- grab bars by all toilets and urinals
- min. sink depth, 17" from wall
- clear space below sinks and counters
- at least one sink in each area with paddle-type controls
- doors min. 32" width
- wheelchairs require min. 60" turning diameter

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986

six

kitchen

issue number	<b>fifty-six</b>	volume 1, page number	<b>155</b>	sq ft	<b>1,600</b>	cc ft	<b>16,000</b>
<b>related issues</b>	<b>(issue #,</b>	<b>issue name,</b>	<b>page #)</b>	<b>primary activities</b>			
<b>precedents</b>		<b>contemporaries</b>		<ul style="list-style-type: none"> <li>• food preparation</li> <li>• main cooking</li> <li>• meat preparation</li> <li>• vegetable preparation</li> <li>• salad preparation</li> <li>• sandwich preparation</li> <li>• baking</li> </ul>			
3 threshold needs	9	56 food preparation	155				
5 work	13	58 medical	159				
24 group size	77	59 cleaning and maintenance	161				
26 supervisory ratios	83						
39 visual impairments	111						
40 hearing impairments	117						
41 motor impairments	121						
52 eating	147						
53 drinking	149						
		<b>successors</b>		<b>secondary activities</b>			
		57 dietician's office	157	<ul style="list-style-type: none"> <li>• cleaning</li> <li>• dishwashing</li> <li>• serving</li> <li>• storing food</li> <li>• refrigeration</li> <li>• dry storage</li> </ul>			
<b>participants</b>		<b>high use periods</b>		<b>goals</b>			
6 staff		<ul style="list-style-type: none"> <li>• 6:00 am - 9:00 am</li> <li>• 12:00 pm - 2:00 pm</li> <li>• 4:00 pm - 8:00 pm</li> </ul>		<ul style="list-style-type: none"> <li>• sanitary food preparation</li> <li>• preparation of healthy food</li> <li>• preparation satisfying good tasting meals</li> <li>• efficient service</li> <li>• easy clean-up</li> </ul>			
1 dietician							
1 head cook							
4 kitchen staff							

**spatial adjacencies (space #, space name)**

4 public toilets	12 nurse / physical therapy
7 dining hall	
8 dietician's office	
9 director's office	

**spatial requirements equipment and storage adaptations**

- 1400-1600 square feet
- traffic, as well as work aisles should be planned

- sink
- disposal
- stove
- oven
- refrigerator
- dry food storage
- cooking utensil storage

- doors min. 32" width
- allow for handicapped kitchen personnel
- wheelchairs require min. 60" turning diameter

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986

sevem

dining hall

issue number	fifty-two	volume 1, page number	147	sq ft	2,400	cc ft	20,000
related issues		(issue #,	issue name,	page #)	primary activities		
precedents		contemporaries			<ul style="list-style-type: none"> <li>• eating</li> <li>• drinking</li> <li>• serving</li> </ul>		
3	threshold needs	9	45	sleeping	133		
5	work	13	46	dressing	135		
24	group size	77	47	cleansing	137		
26	supervisory ratios	83	48	eliminating	139		
39	visual impairments	111	52	eating	147		
40	hearing impairments	117	53	drinking	149		
41	motor impairments	121	58	medical	159		
			59	cleaning and maintenance	161		
		successors			secondary activities		
			56	food preparation	155	<ul style="list-style-type: none"> <li>• talking</li> <li>• relaxing</li> </ul>	
			57	dietician's office	157		
participants		high use periods			goals		
all camp residents and staff are potential users, but a maximum 48 campers 24 counselors and staff or 72 visitors served at once		<ul style="list-style-type: none"> <li>• 7:30 am - 8:30 am</li> <li>• 12:30 pm - 1:30 pm</li> <li>• 6:00 pm - 7:00 pm</li> </ul>			<ul style="list-style-type: none"> <li>• nourishment</li> <li>• refreshment</li> <li>• enjoyment</li> </ul>		

**spatial adjacencies (space #, space name)**

1 camper residences	8 dietician's office
2 staff residences	9 director's office
4 public toilets	12 nurse / physical therapy
6 kitchen	19 recreation room

**spatial requirements equipment and storage adaptations**

- 3000 sq ft
- table groupings of eight, 160 sq ft is required for each table, including circulation
- min. 4 exits

- tables
- chairs
- eating utensils

- doors min. 32" width
- wheelchairs require min. 60" turning diameter
- tables must have 30" high clearance to a depth of 19" on at least 2 sides to allow for wheelchair use

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986
- U.S. Dept. of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, January 1980

eight

dietician's office

issue number	<b>fifty-seven</b>	volume 1, page number	<b>157</b>	sq ft	<b>200</b>	cc ft	<b>1,600</b>
related issues (issue #, issue name, page #)			primary activities				
precedents			contemporaries				
3	threshold needs	9	58	medical	159	<ul style="list-style-type: none"> <li>• planning menus</li> <li>• conferring with cook</li> <li>• conferring with nurse</li> <li>• conferring with parents</li> </ul>	
5	work	13	59	cleaning and maintenance	161		
39	visual impairments	111					
40	hearing impairments	117					
41	motor impairments	121					
52	eating	147					
53	drinking	149					
54	camp administration	151					
55	administrators' offices	153					
56	food preparation	155					
			successors		secondary activities		
			51	administrator residences	145	<ul style="list-style-type: none"> <li>• phoning</li> <li>• typing</li> <li>• writing</li> <li>• sitting</li> <li>• talking</li> </ul>	
participants			high use periods		goals		
3	staff members		<ul style="list-style-type: none"> <li>• 8:00 am - 1:00 am</li> <li>• 3:00 pm - 6:00 pm</li> </ul>		<ul style="list-style-type: none"> <li>• nourishing food</li> <li>• adherence to special diets</li> </ul>		
1	dietician						
	and as many as						
2	others						

**spatial adjacencies (space #, space name)**

- |                            |                             |
|----------------------------|-----------------------------|
| 3 administrator residences | 9 director's office         |
| 4 public toilets           | 12 nurse / physical therapy |
| 6 kitchen                  |                             |
| 7 dining hall              |                             |

**spatial requirements equipment and storage adaptations**

- 150-200 square feet
- 70-150 footcandles of light

- desk
- 3 chairs
- computer and printer
- telephone
- file cabinet
- paper, pens, pencils
- secure storage for personal items

- doors min. 32" width
- allow for handicapped staff member or visitors

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986

mime

director's office

issue number	fifty-five	volume 1, page number	153	sq ft	250	cc ft	2,000
related issues (issue #, issue name, page #)		primary activities					
<b>precedents</b>		<b>contemporaries</b>				<ul style="list-style-type: none"> <li>• conferring staff</li> <li>• conferring with parents</li> <li>• public relations</li> <li>• keeping camp records</li> </ul>	
3 threshold needs	9	78 (n. c.) director's office 199					
5 work	13					<ul style="list-style-type: none"> <li>• phoning</li> <li>• typing</li> <li>• writing</li> <li>• sitting</li> <li>• talking</li> </ul>	
26 supervisory ratios	83						
39 visual impairments	111						
40 hearing impairments	117						
41 motor impairments	121						
54 camp administration	151						
55 administrators' offices	153						
		<b>successors</b>				<b>secondary activities</b>	
		51 administrator residences 145				<ul style="list-style-type: none"> <li>• phoning</li> <li>• typing</li> <li>• writing</li> <li>• sitting</li> <li>• talking</li> </ul>	
		58 medical 159					
		59 cleaning and maintenance 161					
		63 horseback riding 169					
		67 swimming 177					
		71 fishing 185					
participants		high use periods		goals			
4 persons		• 8:00 am - 12:00 am		<ul style="list-style-type: none"> <li>• smooth camp operation</li> <li>• operation within budget</li> </ul>			
1 director		• 1:00 pm - 5:00 pm					
and as many as							
3 others							

**spatial adjacencies (space #, space name)**

- |                            |                             |
|----------------------------|-----------------------------|
| 3 administrator residences | 8 dietician's office        |
| 4 public toilets           | 10 camp secretary           |
| 6 kitchen                  | 11 recreation coordinator   |
| 7 dining hall              | 12 nurse / physical therapy |

**spatial requirements equipment and storage adaptations**

- |  |  |  |
|--|--|--|
| <ul style="list-style-type: none"> <li>• 200-250 sq ft</li> <li>• 70-150 footcandles of light</li> </ul> | <ul style="list-style-type: none"> <li>• desk</li> <li>• 4 chairs</li> <li>• computer and printer</li> <li>• telephone</li> <li>• file cabinet</li> <li>• paper, pens, pencils</li> <li>• secure storage for personal items</li> </ul> | <ul style="list-style-type: none"> <li>• doors min. 32" width</li> <li>• allow for handicapped staff member or visitors</li> </ul> |
|--|--|--|

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986



**spatial adjacencies (space #, space name)**

- 3 administrator residences
- 4 public toilets
- 9 director's office
- 11 recreation coordinator

**spatial requirements equipment and storage adaptations**

- 150 square feet
- 200 square feet record area
- 70-150 footcandles of light

- desk
- 3 chairs
- computer and printer
- telephone
- file cabinet
- paper, pens, pencils
- secure storage for personal items
- camp record storage

- doors min. 32" width
- allow for handicapped staff member or visitors

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986

e l e v e m

recreation coordinator's office

issue number	fifty-five	volume 1, page number	153	sq ft	200	cc ft	1,600	
related issues		(issue #,	issue name,	page #)	primary activities			
<b>precedents</b>		<b>contemporaries</b>			<ul style="list-style-type: none"> <li>• public relations</li> <li>• keeping camp records</li> </ul>			
6	happiness	15	57	dietician's office	157			
7	leisure	17	58	medical	159			
8	play	19	66	stable mgr/instr office	175			
25	group composition	79						
26	supervisory ratios	83						
37	individual capabilities	107						
39	visual impairments	111						
40	hearing impairments	117						
41	motor impairments	121						
42	handicapped and play	127	<b>successors</b>			<b>secondary activities</b>		
43	children and play	129	63	horseback riding	169	<ul style="list-style-type: none"> <li>• phoning</li> <li>• typing</li> <li>• writing</li> <li>• sitting</li> <li>• talking</li> </ul>		
44	organized camping	131	67	swimming	177			
54	camp administration	151	68	hiking	179			
55	administrators' offices	153	69	multi-purpose playfield	181			
			70	recreation room	183			
			71	fishing	185			
participants		high use periods			goals			
4	persons	<ul style="list-style-type: none"> <li>• 8:00 am - 12:00 am</li> <li>• 1:00 pm - 5:00 pm</li> </ul>			<ul style="list-style-type: none"> <li>• creation and coordination of an enjoyable and productive recreation program</li> </ul>			
1	recreation coordinator and as many as							
3	others							

**spatial adjacencies (space #, space name)**

2	staff residences	10	camp secretary	30	play field
3	administrator residences	17	stable mgr / instr office		
4	public toilets	27	fishing		
9	director's office	28	swimming pool		

**spatial requirements equipment and storage adaptations**

- 200 square feet
- 70-150 footcandles of light

- desk
- 4 chairs
- computer and printer
- telephone
- file cabinet
- paper, pens, pencils
- secure storage for personal items

- doors min. 32" width
- allow for handicapped staff member or visitors

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986

twelve

nurse / physical therapy

issue number	fifty-eight	volume 1, page number	159	sq ft	450	cc ft	3,600
related issues (issue #, issue name, page #)		primary activities					
precedents		contemporaries				<ul style="list-style-type: none"> <li>• administering medical care</li> <li>• physical therapy</li> <li>• administering drugs</li> </ul>	
3 threshold needs	9	55 administrator offices	153	57 dietician's office	157		
5 work	13					<ul style="list-style-type: none"> <li>• testing</li> <li>• phoning</li> <li>• typing</li> <li>• writing</li> <li>• sitting</li> <li>• talking</li> </ul>	
26 supervisory ratios	83						
39 visual impairments	111						
40 hearing impairments	117						
41 motor impairments	121						
54 camp administration	151						
		successors				secondary activities	
		3 administrator residences	145				
participants		high use periods				goals	
7 persons		<ul style="list-style-type: none"> <li>• 8:00 am - 12:00 am</li> <li>• 1:00 pm - 5:00 pm</li> </ul>				<ul style="list-style-type: none"> <li>• sustain or improve each camper's health</li> </ul>	
1 nurse							
1 physical therapist							
and as many as							
5 others							

**spatial adjacencies (space #, space name)**

1	camper residences	9	director's office
3	administrator residences	19	recreation room
4	public toilets	28	swimming pool
8	dietician's office		

**spatial requirements equipment and storage adaptations**

- 1000 square feet
- 150 square feet for infirmary
- 250-300 square feet office
- 100 square feet toilet
- fire detection and warning system
- 70-150 footcandles of light

- bed
- bedside table
- sink
- toilet
- desk
- 5 chairs
- computer and printer
- telephone
- file cabinet
- paper, pens, pencils
- secure storage for personal items
- work table
- lifting bars
- stationary bicycle
- tape recorders
- whirlpool

- doors min. 32" width
- allow for handicapped staff member or visitors
- visual and tactile warning

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986

thirteen

maintenance shop

issue number	sixty-two	volume 1, page number	167	sq ft	500	cc ft	5,000
<b>related issues</b>		<b>(issue #,</b>	<b>issue name,</b>	<b>page #)</b>	<b>primary activities</b>		
<b>precedents</b>		<b>contemporaries</b>		<ul style="list-style-type: none"> <li>• repairing and maintaining camp facilities and equipment</li> <li>• sawing</li> <li>• drilling</li> <li>• planing</li> <li>• hammering</li> <li>• glueing</li> <li>• sanding</li> <li>• filing</li> <li>• painting</li> </ul>			
3 threshold needs	9	60 supply storage	163				
5 work	13	61 garage	165	<b>secondary activities</b> <ul style="list-style-type: none"> <li>• building facilities</li> <li>• making equipment</li> <li>• talking</li> <li>• rest</li> </ul>			
26 supervisory ratios	83	<b>successors</b>					
39 visual impairments	111						
40 hearing impairments	117						
41 motor impairments	121						
54 camp administration	151						
59 cleaning&maintainance	161						
<b>participants</b>		<b>high use periods</b>		<b>goals</b>			
3 maintenance staff	<ul style="list-style-type: none"> <li>• 8:00 am - 12:00 am</li> <li>• 1:00 pm - 5:00 pm</li> </ul>		<ul style="list-style-type: none"> <li>• sustain property values</li> <li>• give an impression of cleanliness</li> </ul>				

**spatial adjacencies (space #, space name)**

- 2 staff residences
- 9 director's office
- 14 storage
- 15 garage

**spatial requirements equipment and storage adaptations**

- 500 square feet
- 100 footcandles of light

- desk
- 3 chairs
- file cabinet
- paper, pens, pencils
- secure storage for personal items
- table saw
- band saw
- drill press
- planer / router
- hand tools

- doors min. 32" width
- travel aisles min. 36"
- allow for handicapped staff member or visitors

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986



**spatial adjacencies (space #, space name)**

- 2 staff residences
- 9 director's office
- 13 maintenance shop
- 15 garage

**spatial requirements equipment and storage adaptations**

- 600 square feet
- 50 footcandles of light

- shelves

- doors min. 32" width
- travel aisles min. 36"
- allow for handicapped staff member or visitors

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986

fifteen

garage

issue number	sixty-one	volume 1, page number	165	sq ft	1,000	cc ft	15,000
related issues		(issue #,	issue name,	page #)	primary activities		
<b>precedents</b>		<b>contemporaries</b>		<ul style="list-style-type: none"> <li>• parking</li> <li>• repairing</li> <li>• maintaining</li> </ul>			
3	threshold needs	9	60	supply storage	163		
5	work	13	62	shop	167		
26	supervisory ratios	83					
39	visual impairments	111					
40	hearing impairments	117					
41	motor impairments	121					
54	camp administration	151					
59	cleaning&maintainance	161					
		<b>successors</b>		<b>secondary activities</b>			
				<ul style="list-style-type: none"> <li>• storing other equipment</li> </ul>			
participants		high use periods		goals			
3	maintenance staff other camp personnel	<ul style="list-style-type: none"> <li>• 8:00 am - 12:00 am</li> <li>• 1:00 pm - 5:00 pm</li> </ul>		<ul style="list-style-type: none"> <li>• secure vehicles</li> <li>• protecting vehicles</li> </ul>			

**spatial adjacencies (space #, space name)**

- 2 staff residences
- 9 director's office
- 13 maintenance shop
- 14 storage

**spatial requirements equipment and storage adaptations**

- 1,500 square feet
- 50-100 footcandles of light

- auto part storage
- oil storage
- automatic garage door

- doors min. 32" width
- travel aisles min. 36"
- allow for handicapped staff member or visitors

- 250-300 sq ft mobile ramp
- 100 sq ft portable ramp
- 250 sq ft trailer storage

- 15' max. ramp with hand gate
- with hunting latches

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986

sixteen

stable

issue number	sixty-five	volume 1, page number	173	sq ft	15750	cc ft	126,000	
related issues		(issue #,	issue name,	page #)	primary activities			
precedents		contemporaries			<ul style="list-style-type: none"> <li>• feeding horses</li> <li>• grooming horses</li> <li>• saddling horses</li> <li>• mounting horses</li> <li>• storing and retrieving food for horses</li> <li>• storing and retrieving tack</li> <li>• cleaning stables</li> <li>• giving medical care to horses</li> </ul>			
6	happiness	15	60	supply storage				163
7	leisure	17	61	garage				165
8	play	19	62	shop				167
25	group composition	79						
26	supervisory ratios	83						
37	individual capabilities	107						
39	visual impairments	111						
40	hearing impairments	117						
41	motor impairments	121						
42	handicapped and play	127						
43	children and play	129						
44	organized camping	131						
		successors			secondary activities			
			66	mgr / instr office	175	<ul style="list-style-type: none"> <li>• sitting</li> <li>• talking</li> <li>• petting horses</li> </ul>		
participants		high use periods			goals			
8	stable personnel					<ul style="list-style-type: none"> <li>• protection for horses</li> <li>• dryness</li> <li>• warmth</li> <li>• adequate ventilation</li> <li>• good lighting</li> <li>• good drainage</li> </ul>		
1	stable manager							
1	riding instructor							
6	grooms							
30	horses							
24	campers							

**spatial adjacencies (space #, space name)**

- 2 staff residences
- 3 administrator residences
- 4 public toilets
- 17 stable mgr / instr office

**spatial requirements equipment and storage adaptations**

- 12,600-15,750 sq ft
- 6000-9000 sq ft loose boxes
  - 36 boxes 100-225 sq ft
  - 1 sick box 150-350 sq ft
- 200 sq ft feed room
- 300 sq ft grain stor.
- 4000 sq ft hay & straw stor.
- 600 sq ft tack room
- 900-1000 sq ft manure bunker
- 250-300 sq ft mounting ramp
- 100 sq ft toilets
- 250 sq ft trailer storage

- water supply
- shovels
- rakes
- feed containers
- food and water tubs
- saddles
- bridles
- blankets
- grooming tools
- mounting ramp
- hand gates should be 4' wide with hunting latches

- doors min. 32" width
- travel aisles at least 36" wide
- allow for handicapped staff member or visitors

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986
- Lida L. McCowan, It Is Ability That Counts, Olivet College Press, 1972

seventeen

stable manager/instructor office

issue number	sixty-six	volume 1, page number	175	sq ft	250	cc ft	2,000
related issues		(issue #,	issue name,	page #)	primary activities		
<b>precedents</b>		<b>contemporaries</b>		<ul style="list-style-type: none"> <li>• keeping records on campers horses</li> <li>• supervising grooms and stable operation</li> </ul>			
6	happiness	15	57 dietician's office	157	<ul style="list-style-type: none"> <li>• phoning</li> <li>• typing</li> <li>• writing</li> <li>• sitting</li> <li>• talking</li> </ul>		
7	leisure	17	58 medical	159			
8	play	19					
25	group composition	79					
26	supervisory ratios	83					
37	individual capabilities	107					
39	visual impairments	111					
40	hearing impairments	117					
41	motor impairments	121					
42	handicapped and play	127					
43	children and play	129					
44	organized camping	131					
54	camp administration	151					
55	administrators' offices	153					
		<b>successors</b>		<b>secondary activities</b>			
participants		high use periods		goals			
8	persons	<ul style="list-style-type: none"> <li>• 7:00 am - 1:00 pm</li> <li>• 2:00 pm - 5:00 pm</li> </ul>		<ul style="list-style-type: none"> <li>• enjoyment from horseback riding for campers</li> </ul>			
1	stable manager						
1	riding instructor						
6	others						

**spatial adjacencies (space #, space name)**

- 2 staff residences
- 3 administrator residences
- 4 public toilets
- 16 stable

**spatial requirements equipment and storage adaptations**

- 250 square feet
- 70-150 footcandles of light

- desk
- 5 chairs
- computer and printer
- telephone
- file cabinet
- paper, pens, pencils
- secure storage for personal items

- doors min. 32" width
- allow for handicapped staff member or visitors

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986
- Lida L. McCowan, It Is Ability That Counts, Olivet College Press, 1972

eighteen

chapel

issue number	<b>seventy-two</b>	volume 1, page number	<b>187</b>	sq ft	<b>2,000</b>	cc ft	
<b>related issues</b>		<b>(issue #,</b>	<b>issue name,</b>	<b>page #)</b>	<b>primary activities</b>		
<b>precedents</b>		<b>contemporaries</b>		<ul style="list-style-type: none"> <li>• gathering</li> <li>• worshipping</li> <li>• viewing</li> <li>• entertaining</li> </ul>			
6	happiness	15	63	horseback riding	169		
10	meditation	23	67	swimming	177		
39	visual impairments	111	68	hiking	179		
40	hearing impairments	117	69	multi-purpose playfield	181		
41	motor impairments	121	70	recreation room	183		
44	organized camping	131	71	fishing	185		
			73	nature center	189		
		<b>successors</b>		<b>secondary activities</b>			
				<ul style="list-style-type: none"> <li>• sitting</li> <li>• talking</li> <li>• singing</li> </ul>			
<b>participants</b>		<b>high use periods</b>		<b>goals</b>			
as many as 200 camp residents and visitors more often 100 camp residents		<ul style="list-style-type: none"> <li>• morning</li> <li>• evening</li> </ul>		<ul style="list-style-type: none"> <li>• bring the natural environment into worship and performance activities</li> </ul>			

**spatial adjacencies (space #, space name)**

- 4 public toilets  
nature center (20-26)
- 31 parking

**spatial requirements equipment and storage adaptations**

- 3000-4000 sq ft
- allow 19.25 sq ft per person in a wheelchair
- allow 14 sq ft per person not in a wheelchair

- handrails
- ramps
- stage / pulpit area
- outdoor lighting

- wheelchair seating area 4' by 2'-9"
- 36" min aisles
- face speakers into sun and arrange artificial lighting to give front lighting to aid hearing impaired persons

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- ANSI, American National Standard for Buildings and Facilities, 1986
- U.S. Dept. of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, Jan 1980

m i m e t e e m

recreation room

issue number	seventy	volume 1, page number	183	sq ft	3,500	cc ft	35,000	
<b>related issues</b>		(issue #,	issue name,	page #)	<b>primary activities</b>			
<b>precedents</b>		<b>contemporaries</b>			<ul style="list-style-type: none"> <li>• table games</li> <li>• wheelchair dancing</li> <li>• skits</li> </ul>			
6	happiness	15	63	horseback riding	169			
7	leisure	17	67	swimming	177			
8	play	19	68	hiking	179			
37	individual capabilities	107	69	multi-purpose playfield	181			
39	visual impairments	111	71	fishing	185			
40	hearing impairments	117	72	chapel	187			
41	motor impairments	121	73	nature center	189			
42	handicapped and play	127						
43	children and play	129						
44	organized camping	131						
		<b>successors</b>			<b>secondary activities</b>			
					<ul style="list-style-type: none"> <li>• sitting</li> <li>• talking</li> <li>• relaxing</li> <li>• resting</li> </ul>			
<b>participants</b>		<b>high use periods</b>			<b>goals</b>			
as many as 150 camp residents and visitors more often 100 camp residents		<ul style="list-style-type: none"> <li>• free periods</li> <li>• evening</li> </ul>			<ul style="list-style-type: none"> <li>• fun</li> <li>• encourage informal play and leisure activities</li> </ul>			

**spatial adjacencies (space #, space name)**

- 1 camper residences
- 4 public toilets
- 7 dining hall

**spatial requirements equipment and storage adaptations**

- 3500 sq ft
- flexible
- at least 4 exits

- stage
- partitions
- table tennis tables
- pool table
- chairs
- water fountains

- wheelchair acces to stage area
- front lighting on stage area

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- ANSI, American National Standard for Buildings and Facilities, 1986

twenty

library

issue number		seventy-four	volume 1, page number	191	sq ft	7,500	cc ft	7,500	
related issues		(issue #,	issue name,	page #)	primary activities				
<b>precedents</b>			<b>contemporaries</b>		<ul style="list-style-type: none"> <li>• reading</li> <li>• researching</li> <li>• obtaining books</li> </ul>				
6	happiness	15	75	art display					193
7	leisure	19	76	art production					195
23	social environment	75	77	natural history display					197
27	population	85							
34	economy	101							
37	individual capabilities	107							
39	visual impairments	111							
40	hearing impairments	117							
41	motor impairments	121							
73	nature center	189							
			<b>successors</b>		<b>secondary activities</b>				
			82	parking	207	<ul style="list-style-type: none"> <li>• sitting</li> <li>• talking</li> <li>• relaxing</li> <li>• writing</li> </ul>			
participants			high use periods		goals				
1-20 persons			• 9:00 am to 5:00 pm		<ul style="list-style-type: none"> <li>• pleasure</li> <li>• education</li> </ul>				

**spatial adjacencies (space #, space name)**

- 4 public toilets
- 78 director's office
- 31 parking

**spatial requirements equipment and storage adaptations**

- 400-500 sq ft stacks
- 200-250 sq ft reading area

- books
- book shelves
- card catalogs
- 16 chairs
- 4 tables

- eliminate sharp corners and protruding furniture legs
- suspend card catalogs
- tables should have a clear space below at least 30" high and 17" deep
- allow 40" per aisles in stacks

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- ANSI, American National Standard for Buildings and Facilities, 1986
- Charles A. Moss, Jr., Planning Barrier Free Libraries, National Library Service, 1981

twenty-one

art display

issue number	seventy-five	volume 1, page number	193	sq ft	400	cc ft	4,800
related issues		(issue #,	issue name,	page #)	primary activities		
<b>precedents</b>		<b>contemporaries</b>			<ul style="list-style-type: none"> <li>• observing</li> <li>• learning</li> <li>• experiencing</li> </ul>		
6	happiness	15	74 library	191			
7	leisure	19	76 art production	195			
23	social environment	75	77 natural history display	197			
27	population	85					
34	economy	101					
37	individual capabilities	107					
39	visual impairments	111					
40	hearing impairments	117					
41	motor impairments	121			<b>secondary activities</b>		
73	nature center	189	<b>successors</b>		<ul style="list-style-type: none"> <li>• talking</li> <li>• resting</li> </ul>		
			82 parking	207			
<b>participants</b>		<b>high use periods</b>			<b>goals</b>		
all visitors to the nature center		• 9:00 am to 5:00 pm			<ul style="list-style-type: none"> <li>• pleasure</li> <li>• education</li> </ul>		

**spatial adjacencies (space #, space name)**

- 4 public toilets
- 31 parking

**spatial requirements equipment and storage adaptations**

- 400 sq ft

- wall display areas
- display stands
- tables
- chairs

- eliminate sharp corners and protruding furniture legs

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- ANSI, American National Standard for Buildings and Facilities, 1986
- Charles A. Moss, Jr., Planning Barrier Free Libraries, National Library Service, 1981

twenty-two

art workshop

issue number	seventy-six	volume 1, page number	195	sq ft	800	cc ft	8,000	
related issues		(issue #,	issue name,	page #)	primary activities			
<b>precedents</b>		<b>contemporaries</b>			<ul style="list-style-type: none"> <li>• creating</li> <li>• painting</li> <li>• drawing</li> <li>• sculpting</li> <li>• weaving</li> </ul>			
6	happiness	15	74	library				191
7	leisure	19	75	art display				193
23	social environment	75	77	natural history display				197
27	population	85						
34	economy	101						
37	individual capabilities	107						
39	visual impairments	111						
40	hearing impairments	117						
41	motor impairments	121						
73	nature center	189						
		<b>successors</b>			<b>secondary activities</b>			
		82	parking	207	<ul style="list-style-type: none"> <li>• observing</li> <li>• learning</li> <li>• talking</li> </ul>			
participants		high use periods			goals			
4-40 persons		• 9:00 am to 5:00 pm			<ul style="list-style-type: none"> <li>• pleasure</li> <li>• education</li> </ul>			

**spatial adjacencies (space #, space name)**

- 4 public toilets
- 31 parking

**spatial requirements equipment and storage adaptations**

- 800 sq ft

- wall display areas
- work tables
- supply / equip storage
- sink
- stools

- eliminate sharp corners and protruding furniture legs
- provide 36" travel aisles in addition to work aisles
- provide work stations with 30" high, 17" deep space below work surface for wheelchair users

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- ANSI, American National Standard for Buildings and Facilities, 1986

• Charles A. Moss, Jr., Planning for the Handicapped, 1980, McGraw Hill Book Co.

twenty-three

museum

issue number <b>seventy-seven</b>		volume 1, page number <b>197</b>	sq ft <b>2,000</b>	cc ft <b>24,000</b>
related issues (issue #, issue name, page #)		primary activities		
<b>precedents</b>		<b>contemporaries</b>		<ul style="list-style-type: none"> <li>• observing</li> <li>• learning</li> <li>• experiencing</li> </ul>
6 happiness	15	74 library	191	
7 leisure	19	75 art display	193	
23 social environment	75	76 art production	195	
27 population	85			
34 economy	101			
37 individual capabilities	107			
39 visual impairments	111			
40 hearing impairments	117			
41 motor impairments	121			
73 nature center	189			
		<b>successors</b>		<b>secondary activities</b>
		82 parking	207	<ul style="list-style-type: none"> <li>• talking</li> </ul>
participants		high use periods		goals
as many as 40 persons		• 9:00 am to 5:00 pm		<ul style="list-style-type: none"> <li>• pleasure</li> <li>• education</li> </ul>

**spatial adjacencies (space #, space name)**

- 4 public toilets
- 24 director's office
- 31 parking

**spatial requirements equipment and storage adaptations**

- 8000 sq ft

- displays

- eliminate sharp corners and protruding furniture legs
- allow travel aisles of 40" in addition to viewing aisles

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- ANSI, American National Standard for Buildings and Facilities, 1986
- Charles A. Moss, Jr., Planning Barrier Free Libraries, National Library Service, 1981

twenty-four

director's office

issue number <b>seventy-eight</b>		volume 1, page number <b>199</b>		sq ft <b>300</b>	cc ft <b>2,400</b>		
related issues		(issue #,	issue name,	page #)	primary activities		
<b>precedents</b>		<b>contemporaries</b>		<ul style="list-style-type: none"> <li>• conferring staff</li> <li>• conferring with parents</li> <li>• public relations</li> <li>• keeping camp records</li> </ul>			
6	happiness	15	9			director's office	153
7	leisure	19					
23	social environment	75					
27	population	85					
34	economy	101					
37	individual capabilities	107					
39	visual impairments	111					
40	hearing impairments	117					
41	motor impairments	121					
<b>participants</b>		<b>high use periods</b>		<b>secondary activities</b>			
73	nature center	189	82	parking	207		
74	library	191					
75	art display	193					
77	natural history display	197					
4-40 persons		• 9:00 am to 5:00 pm		<ul style="list-style-type: none"> <li>• phoning</li> <li>• typing</li> <li>• writing</li> <li>• sitting</li> <li>• talking</li> </ul>			
				<ul style="list-style-type: none"> <li>• involve community in camp facility</li> <li>• attract visitors to area</li> <li>• maximum use of nature center</li> </ul>			

### spatial adjacencies (space #, space name)

- 3 administrator residences
- 4 public toilets
- 31 parking

### spatial requirements equipment and storage adaptations

- 200 sq ft
- 100 sq ft record storage
- 70-150 footcandles of light

- desk
- 3 chairs
- computer and printer
- telephone
- file cabinet
- paper, pens, pencils
- secure storage for personal items

- doors min. 32" width
- allow for handicapped staff member or visitors

### resources

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- ANSI, American National Standard for Buildings and Facilities, 1986

twenty-five

guest residence

issue number	seventy-nine	volume 1, page number	201	sq ft	1,000	cc ft	8,000	
related issues		(issue #,	issue name,	page #)	primary activities			
<b>precedents</b>		<b>contemporaries</b>			<ul style="list-style-type: none"> <li>• sleeping</li> <li>• dressing</li> <li>• cleansing</li> <li>• eliminating</li> </ul>			
3	threshold needs	9	49	camper residences				141
4	physiological	11	50	staff residences				143
24	group size	77	51	administrator residences				145
25	group composition	79	52	eating				147
26	supervisory ratios	83	53	drinking				149
39	visual impairments	111	54	camp administration				151
40	hearing impairments	117						
41	motor impairments	121						
45	sleeping	133						
46	dressing	135						
47	cleansing	137						
48	eliminating	139						
		<b>successors</b>			<b>secondary activities</b>			
		81 off-season usage			205	<ul style="list-style-type: none"> <li>• reading</li> <li>• writing</li> <li>• talking</li> </ul>		
participants		high use periods			goals			
1 guest scholar or artist and spouse/family		<ul style="list-style-type: none"> <li>• morning</li> <li>• evening</li> <li>• night</li> </ul>			<ul style="list-style-type: none"> <li>• rest</li> <li>• relaxation</li> <li>• privacy</li> <li>• escape</li> </ul>			

**spatial adjacencies (space #, space name)**

- 20 library
- 22 art workshop
- 23 museum

**spatial requirements equipment and storage adaptations**

- 800-1000 square feet
- fully accessible
- at least two ground level exits
- fire detection & alarm system
- 1 combination shower and bathtub
- 1 toilet per residence
- small kitchen area 100 sq ft or less

- beds
- clothes storage, hanging and folded, 80 cubic feet per person
- storage for personal property 100 square feet
- towel bars
- toilet paper holders
- soap dispensers
- paper towel dispensers
- mirror
- kitchen sink
- disposal
- stove
- oven
- refrigerator
- cooking utensil storage

- visual and tactile, as well as audible warnings
- doors min. 32" width
- wheelchairs require min. 60" turning diameter

**resources**

- Alice Van Krevelen, Children in Groups: Psychology and the Summer Camp, 1972, Wadsworth Pub. Co.
- ANSI, American National Standard for Buildings and Facilities, 1986

twenty-six

food service

issue number	eighty	volume 1, page number	203	sq ft 1,200	cc ft 12,000
<b>related issues</b>		<b>(issue #, issue name, page #)</b>	<b>primary activities</b>		
<b>precedents</b>		<b>contemporaries</b>	<ul style="list-style-type: none"> <li>• food preparation</li> <li>• main cooking</li> <li>• meat preparation</li> <li>• vegetable preparation</li> <li>• salad preparation</li> <li>• sandwich preparation</li> <li>• baking</li> <li>• eating</li> <li>• drinking</li> <li>• serving</li> </ul>		
3 threshold needs 9 5 work 13 24 group size 77 26 supervisory ratios 83 39 visual impairments 111 40 hearing impairments 117 41 motor impairments 121 52 eating 147 53 drinking 149	56 food preparation 155 58 medical 159 59 cleaning and maintenance 161				
		<b>successors</b>	<b>secondary activities</b>		
			<ul style="list-style-type: none"> <li>• talking</li> <li>• relaxing</li> </ul>		
<b>participants</b>		<b>high use periods</b>	<b>goals</b>		
5 kitchen staff 40 patrons		• 8:00 am - 6:00 pm	<ul style="list-style-type: none"> <li>• nourishment</li> <li>• refreshment</li> <li>• enjoyment</li> </ul>		

**spatial adjacencies (space #, space name)**

- 4 public toilets
- 78 director's office
- 82 parking

**spatial requirements equipment and storage adaptations**

- 400 sq ft food preparation area
- 800 sq ft dining area

- sink
- disposal
- stove
- oven
- refrigerator
- dry food storage
- cooking utensil storage
- tables
- chairs
- eating utensils

- doors min. 32" width
- allow for handicapped kitchen personnel
- wheelchairs require min. 60" turning diameter
- tables must have 30" high clearance to a depth of 19" on at least 2 sides to allow for wheelchair use

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- American Camping Association, Camp Standards Without Interpretation, 1984
- ANSI, American National Standard for Buildings and Facilities, 1986

twenty-seven

fishing

issue number	seventy-one	volume 1, page number	185	sq ft	20,000	cc ft
related issues		(issue #,	issue name,	page #)	primary activities	
precedents		contemporaries		• catching fish		
6	happiness	15	63	horseback riding	169	
7	leisure	17	67	swimming	177	
8	play	19	68	hiking	179	
37	individual capabilities	107	69	multi-purpose playfield	181	
39	visual impairments	111	70	recreation room	183	
40	hearing impairments	117	72	chapel	187	
41	motor impairments	121	73	nature center	189	
42	handicapped and play	127				
43	children and play	129				
44	organized camping	131				
		successors		secondary activities		
						<ul style="list-style-type: none"> <li>• sitting</li> <li>• talking</li> <li>• relaxing</li> <li>• resting</li> </ul>
participants		high use periods		goals		
any camp residents (or visitors when camp is not in session)		• free periods		<ul style="list-style-type: none"> <li>• fun</li> <li>• learning about fish and fishing</li> </ul>		

**spatial adjacencies (space #, space name)**

4 public toilets

**spatial requirements equipment and storage adaptations**

- 20,000 sq ft
- water

- fish
- fishing poles
- tackle
- benches
- water fountains

- hard surfaces for wheelchair access
- wheel stops to prevent wheelchairs from rolling into water
- tactile warnings near water edge

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- ANSI, American National Standard for Buildings and Facilities, 1986
- U.S. Dept. of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, Jan 1980

twenty-eight

swimming pool

issue number	sixty-seven	volume 1, page number	177	sq ft	10,000	cc ft	
related issues		(issue #,	issue name,	page #)	primary activities		
precedents		contemporaries			secondary activities		
6	happiness	15	63	horseback riding	169	<ul style="list-style-type: none"> <li>• swimming</li> <li>• water games</li> </ul>	
7	leisure	17	68	hiking	179		
8	play	19	69	multi-purpose playfield	181		
37	individual capabilities	107	70	recreation room	183		
39	visual impairments	111	71	fishing	185		
40	hearing impairments	117	72	chapel	187		
41	motor impairments	121	73	nature center	189		
42	handicapped and play	127					
43	children and play	129	successors			secondary activities	
44	organized camping	131				<ul style="list-style-type: none"> <li>• talking</li> <li>• sun bathing</li> <li>• dressing</li> </ul>	
participants		high use periods			goals		
all camp residents		• afternoon			<ul style="list-style-type: none"> <li>• fun</li> <li>• exercise</li> </ul>		

**spatial adjacencies (space #, space name)**

4 public toilets

**spatial requirements equipment and storage adaptations**

• 10,000 sq ft

- chairs
- benches
- water fountains
- wheelchairs for use on pool ramp

- ramps and wide stairs into water
- tactile warnings near water edge

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- ANSI, American National Standard for Buildings and Facilities, 1986
- U.S. Dept. of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, Jan 1980

twenty-nine

hiking trails

issue number	sixty-eight	volume 1, page number	179	sq ft	352,000	cc ft
related issues		(issue #,	issue name,	page #)	primary activities	
<b>precedents</b>		<b>contemporaries</b>		<ul style="list-style-type: none"> <li>• hiking</li> <li>• exploring</li> </ul>		
6	happiness	15	63	horseback riding	169	
7	leisure	17	67	swimming	177	
8	play	19	69	multi-purpose playfield	181	
37	individual capabilities	107	70	recreation room	183	
39	visual impairments	111	71	fishing	185	
40	hearing impairments	117	72	chapel	187	
41	motor impairments	121	73	nature center	189	
42	handicapped and play	127				
43	children and play	129				
44	organized camping	131				
		<b>successors</b>		<b>secondary activities</b>		
				<ul style="list-style-type: none"> <li>• talking</li> <li>• resting</li> </ul>		
participants		high use periods		goals		
all camp residents and visitors		<ul style="list-style-type: none"> <li>• free periods</li> <li>• morning</li> <li>• afternoon</li> </ul>		<ul style="list-style-type: none"> <li>• fun</li> <li>• exercise</li> </ul>		

**spatial adjacencies (space #, space name)**

4 public toilets

**spatial requirements equipment and storage adaptations**

• 352,000 sq ft

• benches  
• water fountains

• a variety of classes of accessible trails  
• tactile maps and signs  
• tactile indications of benches and water fountains

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- ANSI, American National Standard for Buildings and Facilities, 1986
- U.S. Dept. of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, Jan 1980

thirty

play field

issue number	sixty-nine	volume 1, page number	181	sq ft	105,000	cc ft
related issues		(issue #,	issue name,	page #)	primary activities	
<b>precedents</b>		<b>contemporaries</b>		<ul style="list-style-type: none"> <li>• softball</li> <li>• volleyball</li> <li>• archery</li> <li>• track and field</li> </ul>		
6	happiness	15	63	horseback riding	169	
7	leisure	17	67	swimming	177	
8	play	19	68	hiking	179	
37	individual capabilities	107	70	recreation room	183	
39	visual impairments	111	71	fishing	185	
40	hearing impairments	117	72	chapel	187	
41	motor impairments	121	73	nature center	189	
42	handicapped and play	127				
43	children and play	129				
44	organized camping	131				
		<b>successors</b>		<b>secondary activities</b>		
				<ul style="list-style-type: none"> <li>• informal games</li> <li>• talking</li> <li>• running</li> </ul>		
<b>participants</b>		<b>high use periods</b>		<b>goals</b>		
all campers and as many as 24 counselors and staff		<ul style="list-style-type: none"> <li>• morning</li> <li>• afternoon</li> </ul>		<ul style="list-style-type: none"> <li>• fun</li> <li>• exercise</li> </ul>		

**spatial adjacencies. (space #, space name)**

4 public toilets

**spatial requirements equipment and storage adaptations**

• 105,000 sq ft

- benches
- water fountains
- bases
- backstop
- volleyball net
- targets
- balls
- bats
- bows and arrows

- hard path leading to wheelchair usable surface around target area
- tactile map

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- ANSI, American National Standard for Buildings and Facilities, 1986
- U.S. Dept. of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, Jan 1980

thirty-one

parking

issue number <b>eighty-two</b> volume 1, page number <b>207</b> sq ft <b>40,000</b> cc ft	
related issues (issue #, issue name, page #) primary activities	
<b>precedents</b>	<b>contemporaries</b>
36 systems 105 37 individual capabilities 107 39 visual impairments 111 40 hearing impairments 117 41 motor impairments 121 73 nature center 189	<ul style="list-style-type: none"> <li>• parking vehicles</li> </ul>
	<b>successors</b>
	<b>secondary activities</b>
	<ul style="list-style-type: none"> <li>• picking up and dropping off passengers</li> </ul>
<b>participants</b>	<b>high use periods</b>
as many as 200 persons	<ul style="list-style-type: none"> <li>• 9:00 am - 5:00 pm</li> <li>• 9:00 am - 3:00 pm day of camp registration</li> <li>• evenings of special events</li> </ul>
	<b>goals</b>
	<ul style="list-style-type: none"> <li>• convenience</li> </ul>

**spatial adjacencies (space #, space name)**

73 nature center  
79 guest residence

**spatial requirements equipment and storage adaptations**

• 40,000 sq ft

• parking lines  
• landscaping  
• hard surface

• no curbs  
• tactile guidance

**resources**

- Time Saver Standards for Building Types, 2nd ed., 1980, McGraw Hill Book Co.
- ANSI, American National Standard for Buildings and Facilities, 1986
- U.S. Dept. of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, Jan 1980

General Information		
Project Name	Location	Client
Project No.	Phase	Status
<ul style="list-style-type: none"> <li>• parking lines</li> <li>• landscaping</li> <li>• hard surface</li> </ul>	<ul style="list-style-type: none"> <li>• site plan</li> <li>• site plan</li> <li>• site plan</li> <li>• site plan</li> </ul>	<ul style="list-style-type: none"> <li>• 40,000 sq ft</li> </ul>
PROCESSING		
		<ul style="list-style-type: none"> <li>• the program has an impact on the environment</li> </ul>
<ul style="list-style-type: none"> <li>• Time Saver Standards for Building Types, 1st ed., 1990, McGraw-Hill Book Co.</li> <li>• ANSI, American National Standard for Buildings and Facilities, 1978</li> <li>• U.S. Dept. of the Interior, A Guide To Buildings American National Standards Institute, 1980</li> </ul>		





## adjacency matrix

	camp facilities																																			
	1 camper residence	2 staff residence	3 administrator residence	4 public toilets	6 kitchen	7 dining hall	8 dieticians office	9 directors office	10 camp secretary	11 recreation coordinator	12 nurse / physical therapy	13 maintenance shop	14 storage	15 garage	16 stable	17 stable mgr / instr office	18 chapel	19 recreation room	nature center	20 library	21 art display	22 art workshop	23 museum	24 director's office	25 guest residence	26 food service	site work	27 fishing	28 swimming pool	29 hiking trails	30 play field	31 parking				
camp facilities																																				
1 camper residence							●																													
2 staff residence							●																													
3 administrator residence							●																													
4 public toilets							●																													
6 kitchen							●																													
7 dining hall							●																													
8 dieticians office							●																													
9 directors office							●																													
10 camp secretary							●																													
11 recreation coordinator							●																													
12 nurse / physical therapy	●						●																													
13 maintenance shop							●																													
14 storage							●																													
15 garage							●																													
16 stable							●																													
17 stable mgr / instr office	●						●																													
18 chapel							●																													
19 recreation room							●																													
nature center							●																													
20 library							●																													
21 art display							●																													
22 art workshop							●																													
23 museum							●																													
24 director's office							●																													
25 guest residence							●																													
26 food service							●																													
site work							●																													
27 fishing							●																													
28 swimming pool							●																													
29 hiking trails							●																													
30 play field							●																													
31 parking							●																													

● primary relationship  
○ secondary relationship



adaptations

adaptations



adaptations



Figure 129 - Various views for wheelchair  
American National Standards for Buildings and Facilities  
1988

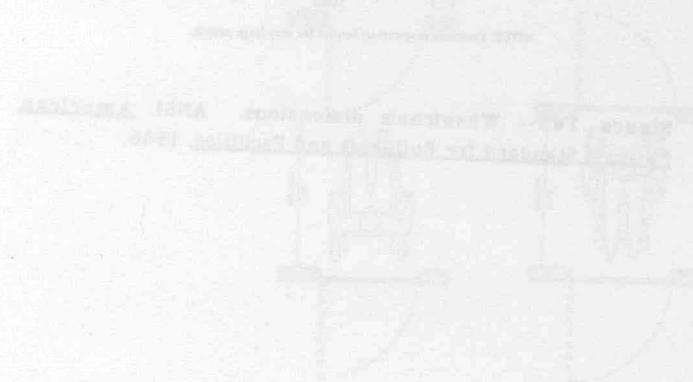
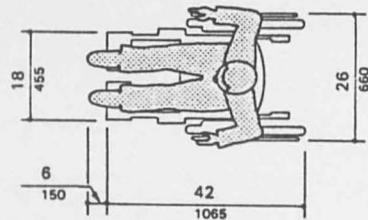
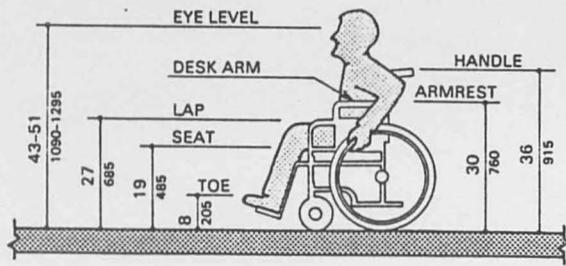
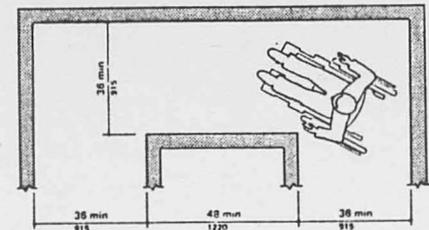


Figure 130 - Various views for wheelchair  
American National Standards for Buildings and Facilities  
1988

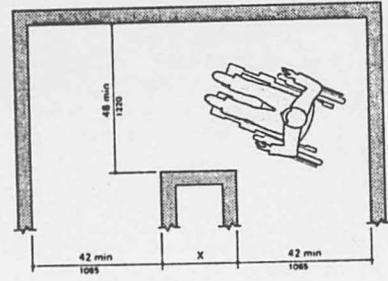


NOTE: Footrests may extend further for very large people.

Figure 149-- Wheelchair dimensions. ANSI, American National Standard for Buildings and Facilities, 1986.

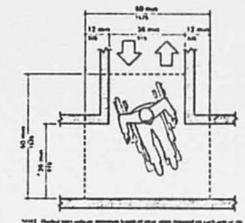


(a) Width of Accessible Route for 90° Turn

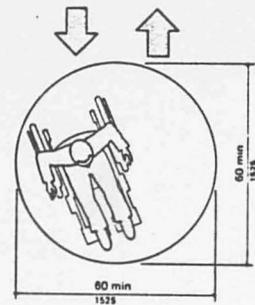


NOTE: Dimensions shown apply when  $\alpha < 45^\circ$  or  $112.5^\circ$  max.

(b) Width of Accessible Route for Turn around an Obstruction



NOTE: Wheelchair width is assumed to be 36 inches. Wheelchair length is assumed to be 60 inches. Wheelchair height is assumed to be 48 inches. Wheelchair weight is assumed to be 100 lbs.



(c) 60-in (1525-mm)-Diameter Space

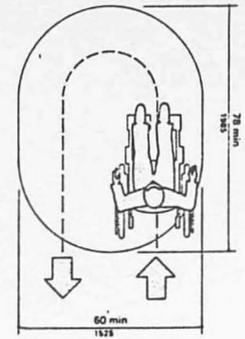


Figure 130-- Turning areas for wheelchairs. ANSI, American National Standard for Buildings and Facilities, 1986.

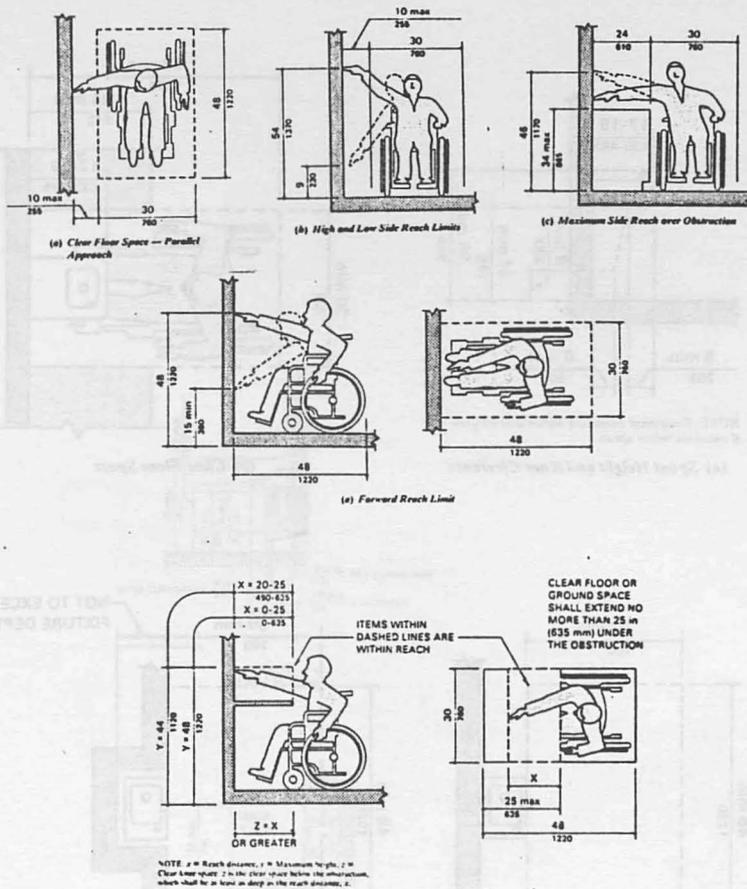


Figure 151-- Reach from a wheelchair. ANSI, American National Standard for Buildings and Facilities, 1986.

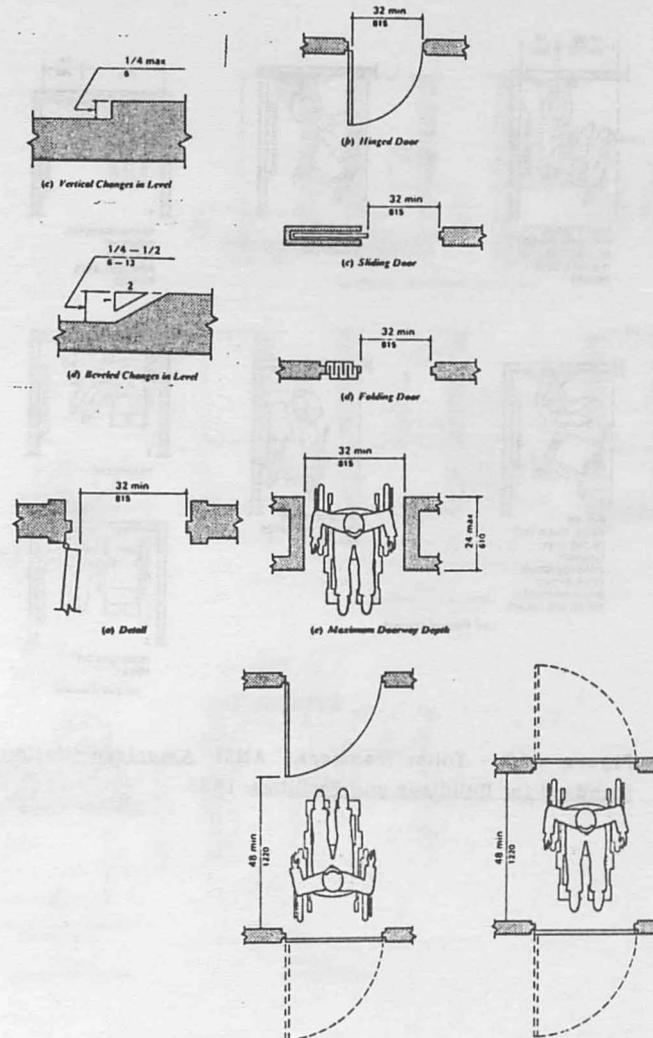


Figure 152-- Accessible doors. ANSI, American National Standard for Buildings and Facilities, 1986.

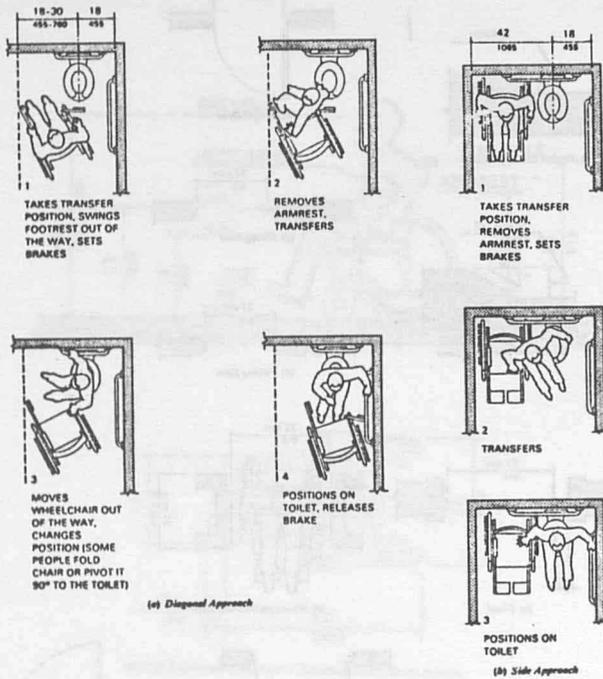


Figure 167-- Toilet transfers. ANSI, American National Standard for Buildings and Facilities, 1986.

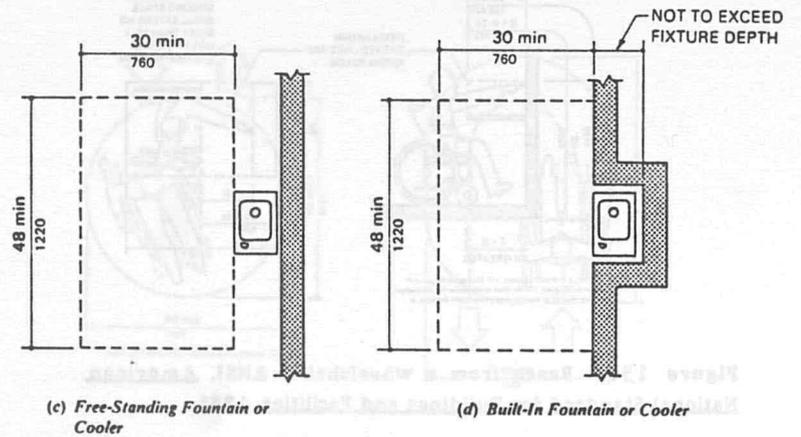
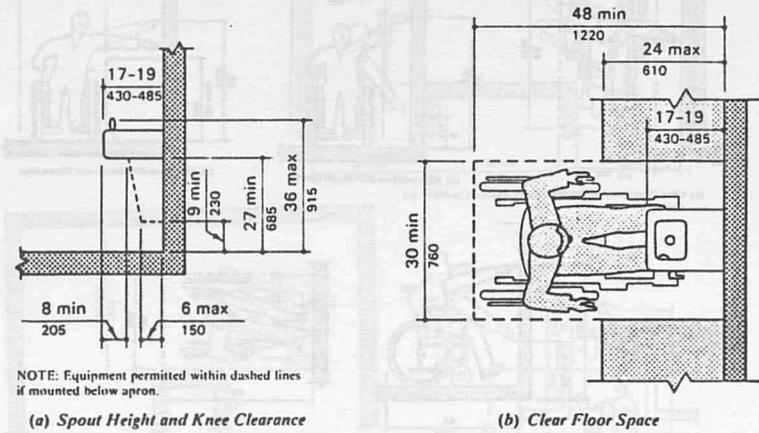


Figure 175-- Drinking fountains. ANSI, American National Standard for Buildings and Facilities, 1986.

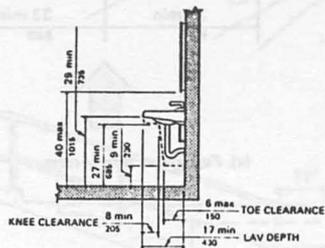


Fig. 31  
Lavatory Clearances

NOTE: Dashed line indicates dimensional clearance at optional transfer entry enclosure.

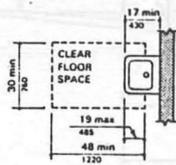
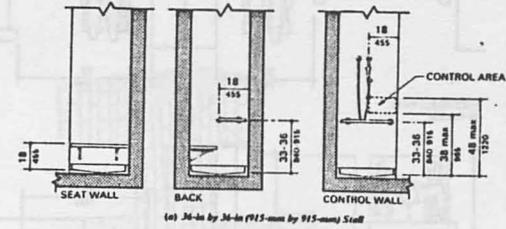
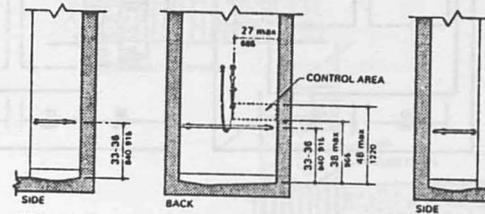


Fig. 32  
Clear Floor Space at Lavatories



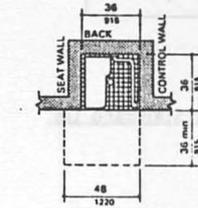
(a) 36-in by 36-in (915-mm by 915-mm) Stall



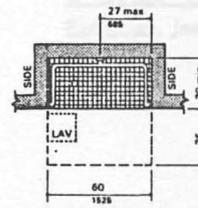
NOTE: Shower head and control area may be on back wall (as shown) or on either side wall.

(b) 30-in by 60-in (760-mm by 1525-mm) Stall

Fig. 37  
Grab Bars at Shower Stalls



(a) 36-in by 36-in (915-mm by 915-mm) Stall



(b) 30-in by 60-in (760-mm by 1525-mm) Stall

Fig. 35  
Shower Stalls and Clearances

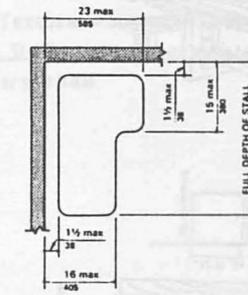


Fig. 36  
Shower Seat Design

Figure 162-- Lavatory and shower facilities, ANSI, American National Standard for Buildings and Facilities

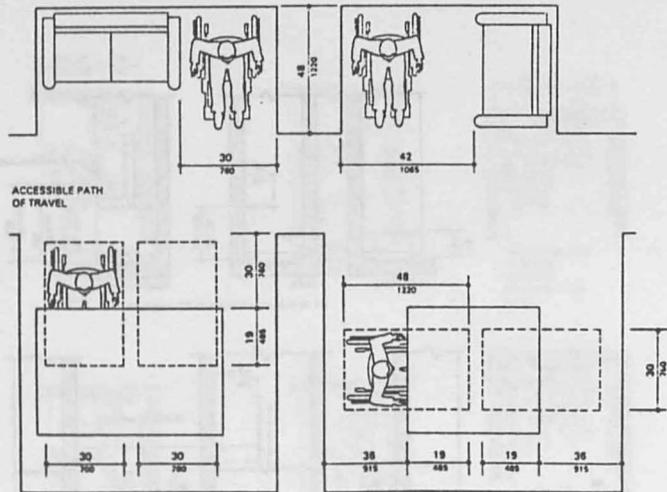


Figure 173-- Tables. ANSI, American National Standard for Buildings and Facilities, 1986.

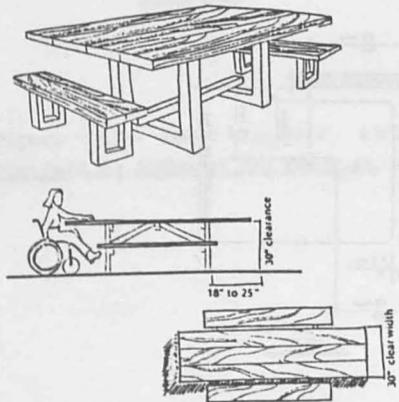
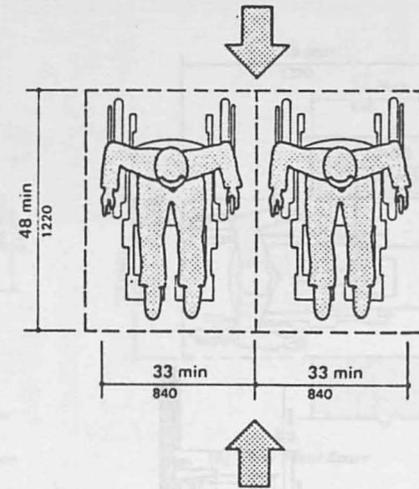
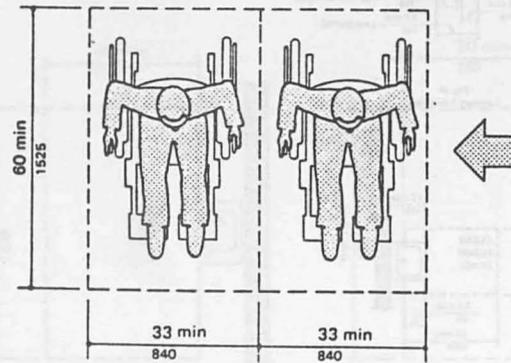


Figure 172-- U.S. Department of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, January 1980.



(a) Forward or Rear Access



(b) Side Access

Figure 203-- Wheelchair space. U.S. Department of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, January 1980.

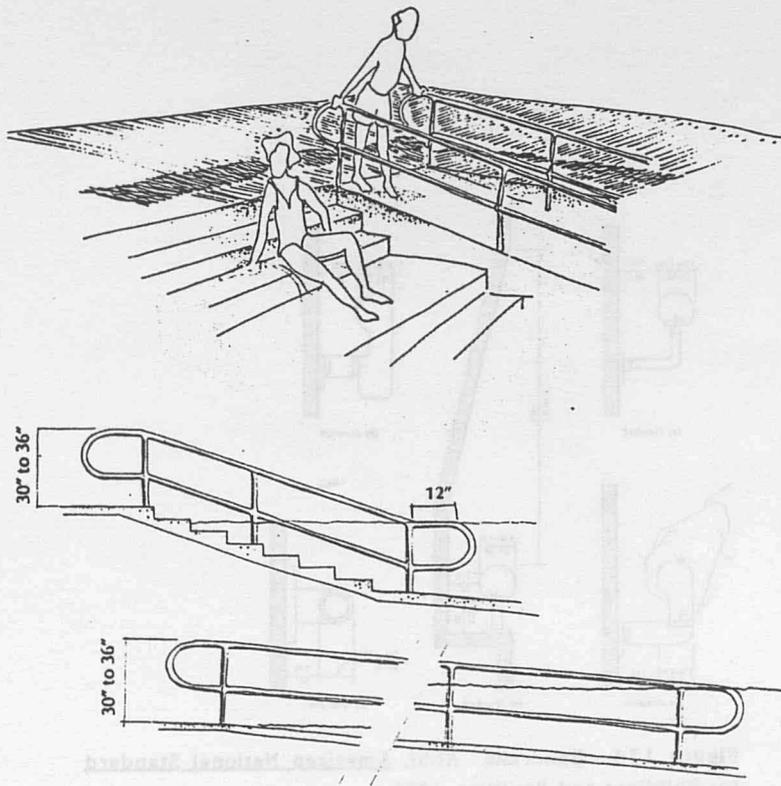


Figure 192-- U.S. Department of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, January 1980.

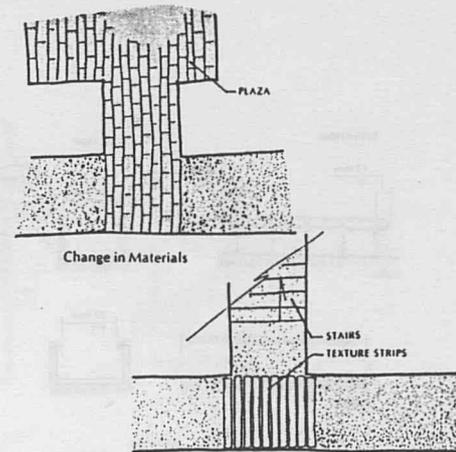


Figure 145-- Textural cues. U.S. Department of the Interior, A Guide To Designing Accessible Outdoor Recreation Facilities, January 1980.

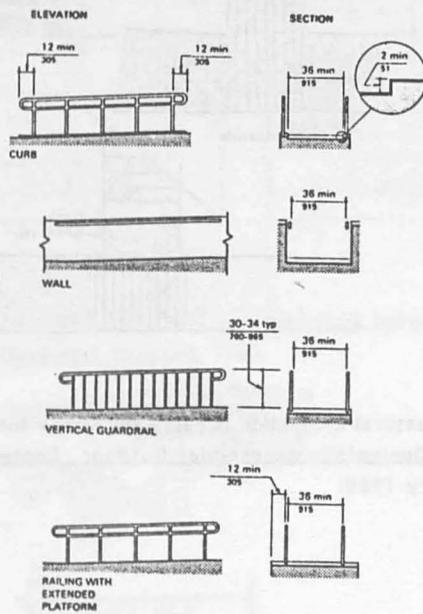


Figure 153-- Ramps. ANSI, American National Standard for Buildings and Facilities, 1986.

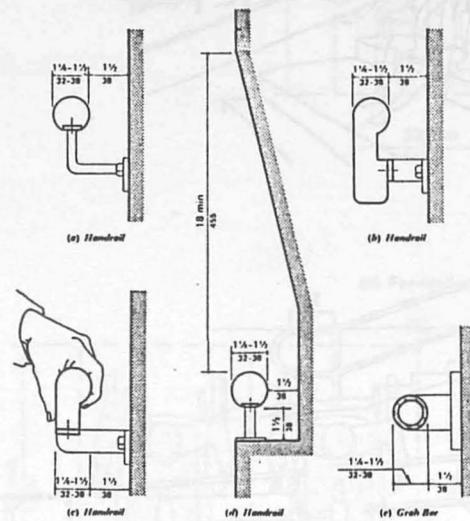
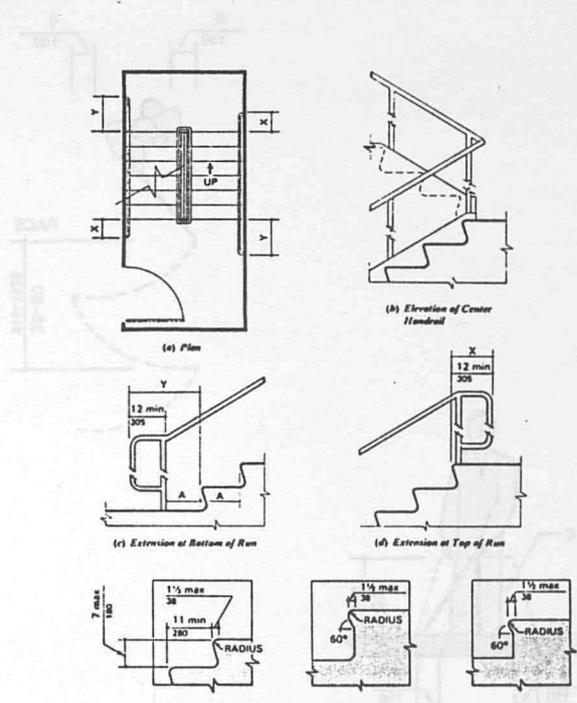
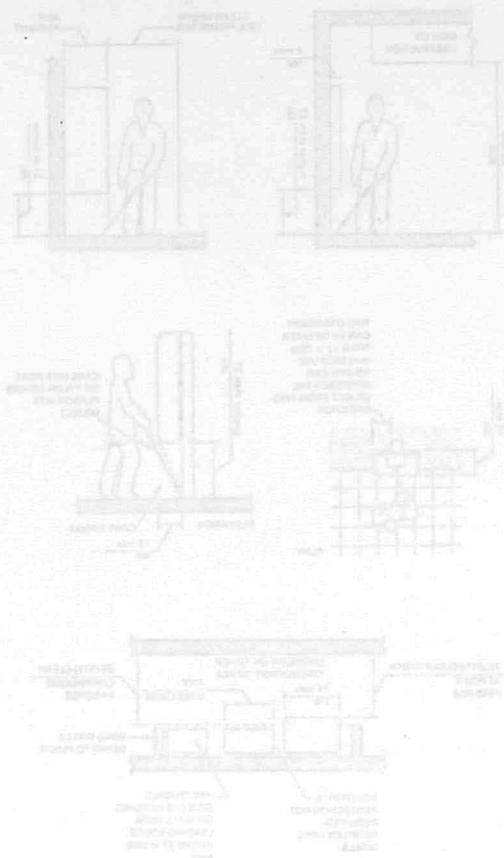


Figure 154-- Handrails. ANSI, American National Standard for Buildings and Facilities, 1986.



**Figure 156-- Stairs. ANSI, American National Standard for Buildings and Facilities, 1986.**

Figure 144-- Design applications for long cane users. ANSI, American National Standard for Buildings and Facilities, 1986.

Figure 143-- Long cane use. ANSI, American National Standard for Buildings and Facilities, 1986.

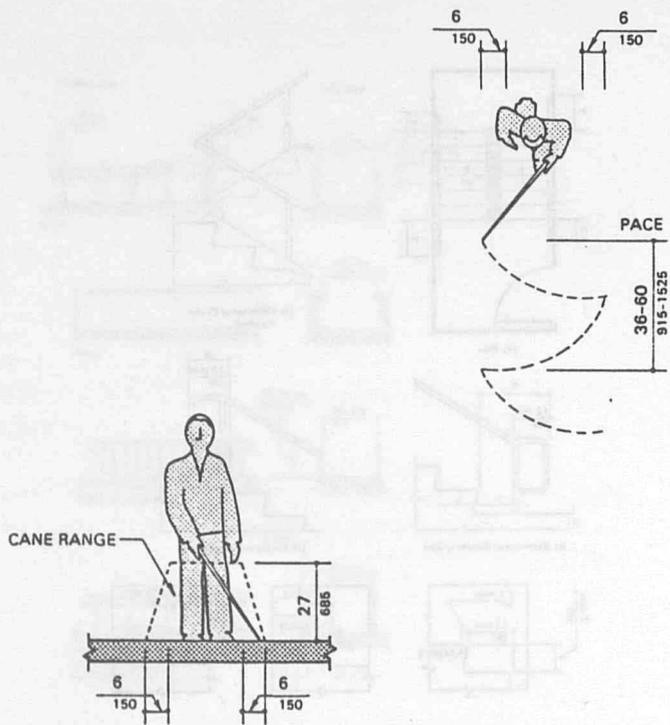


Figure 143-- Long cane techniques. American National Standards Institute, American National Standard for Buildings and Facilities, 1986.

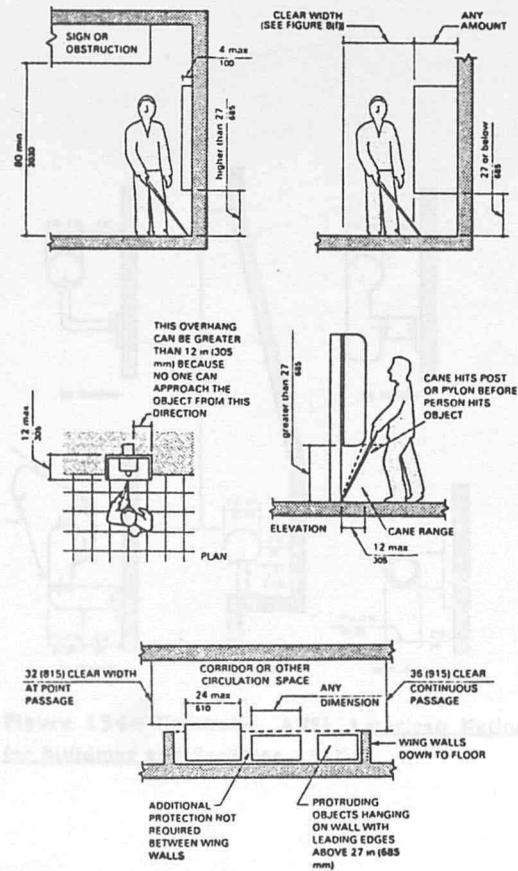


Figure 144-- Design applications for long cane users. ANSI, American National Standard for Buildings and Facilities, 1986.





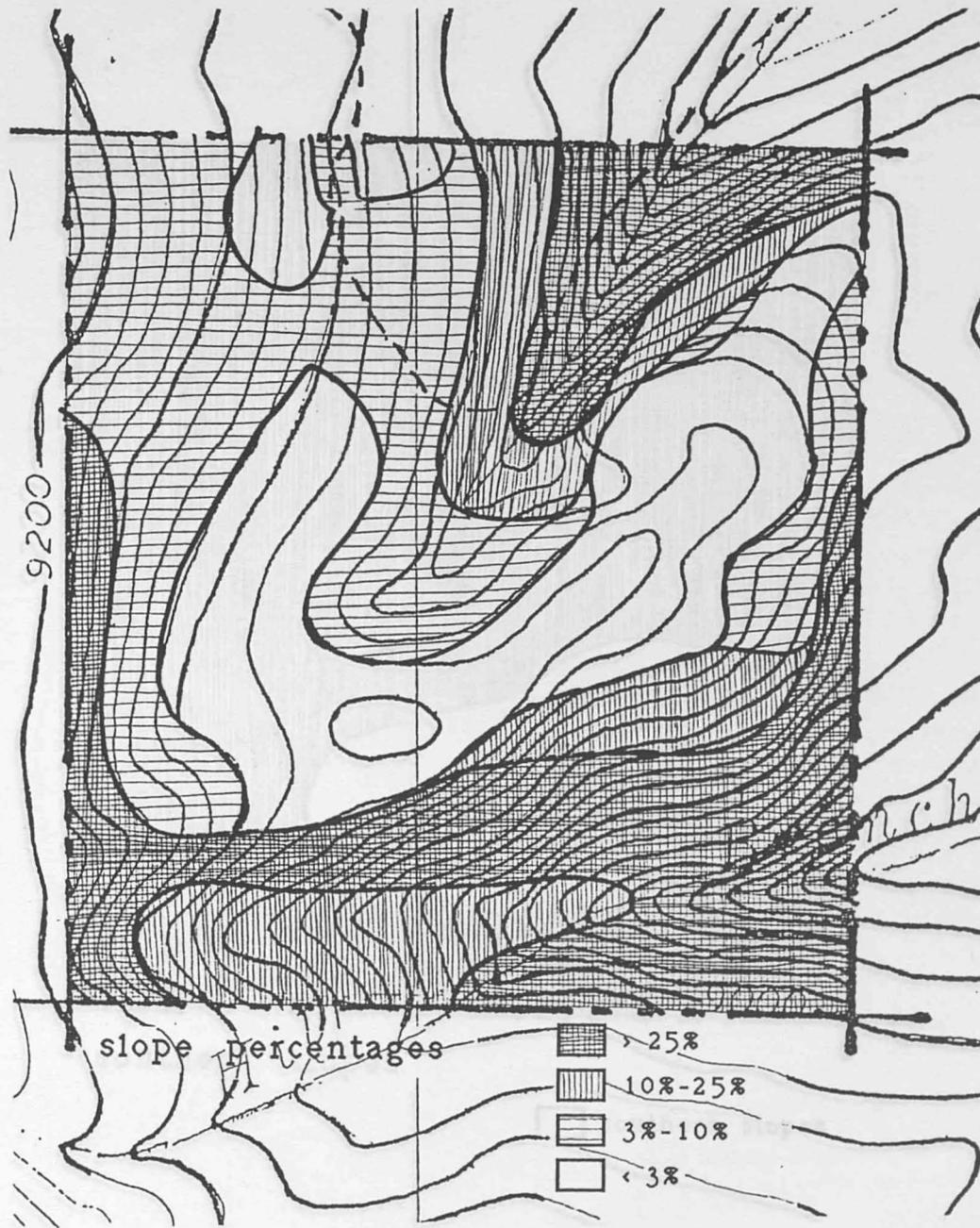
Figure 142 - View with threshold, ramp, and doorway leading outside. System for use in buildings and outdoors.



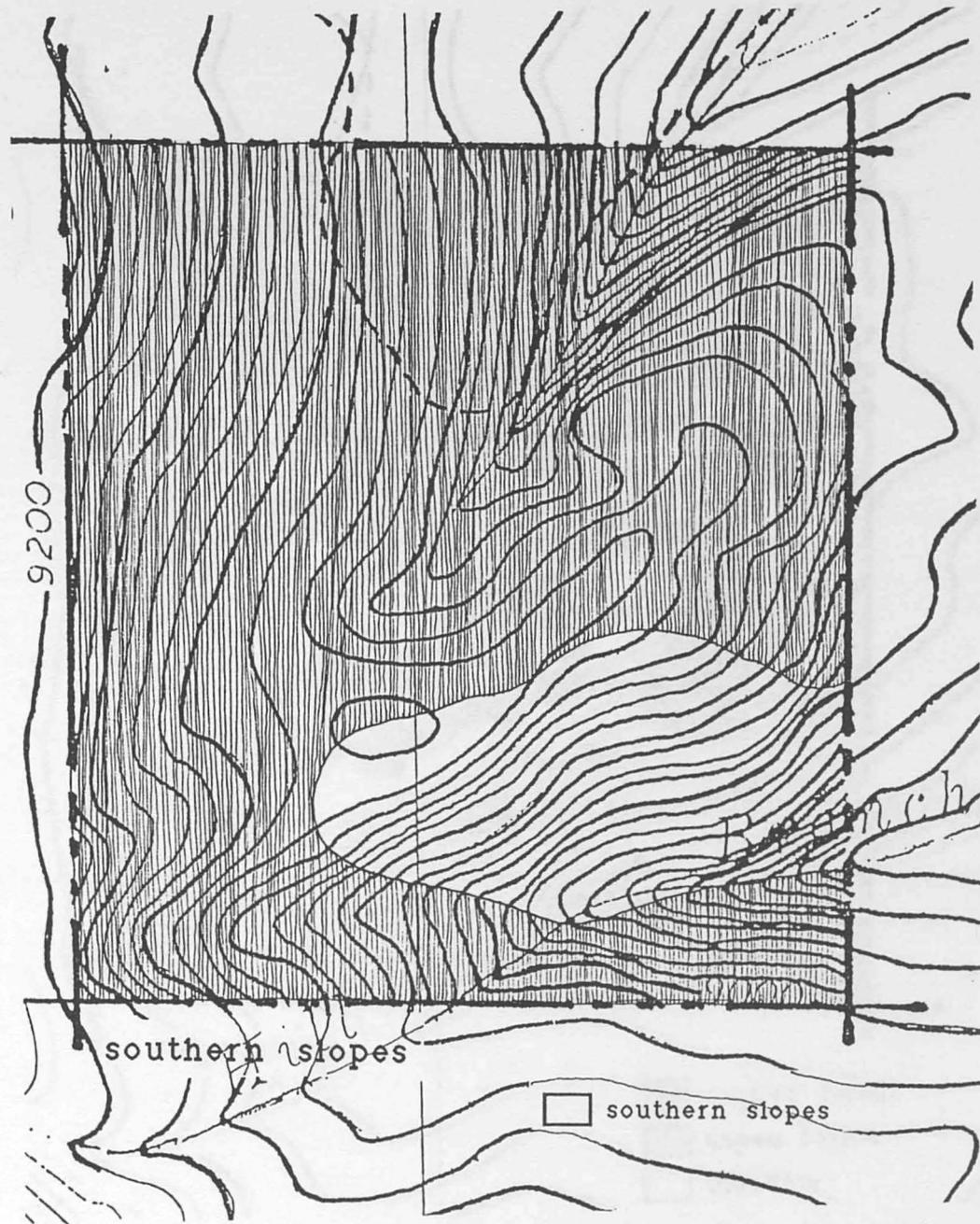
Figure 143 - Detail specifications for low, ramp, and doorway. National Standard for Buildings and Code 1991.

**site overlays**

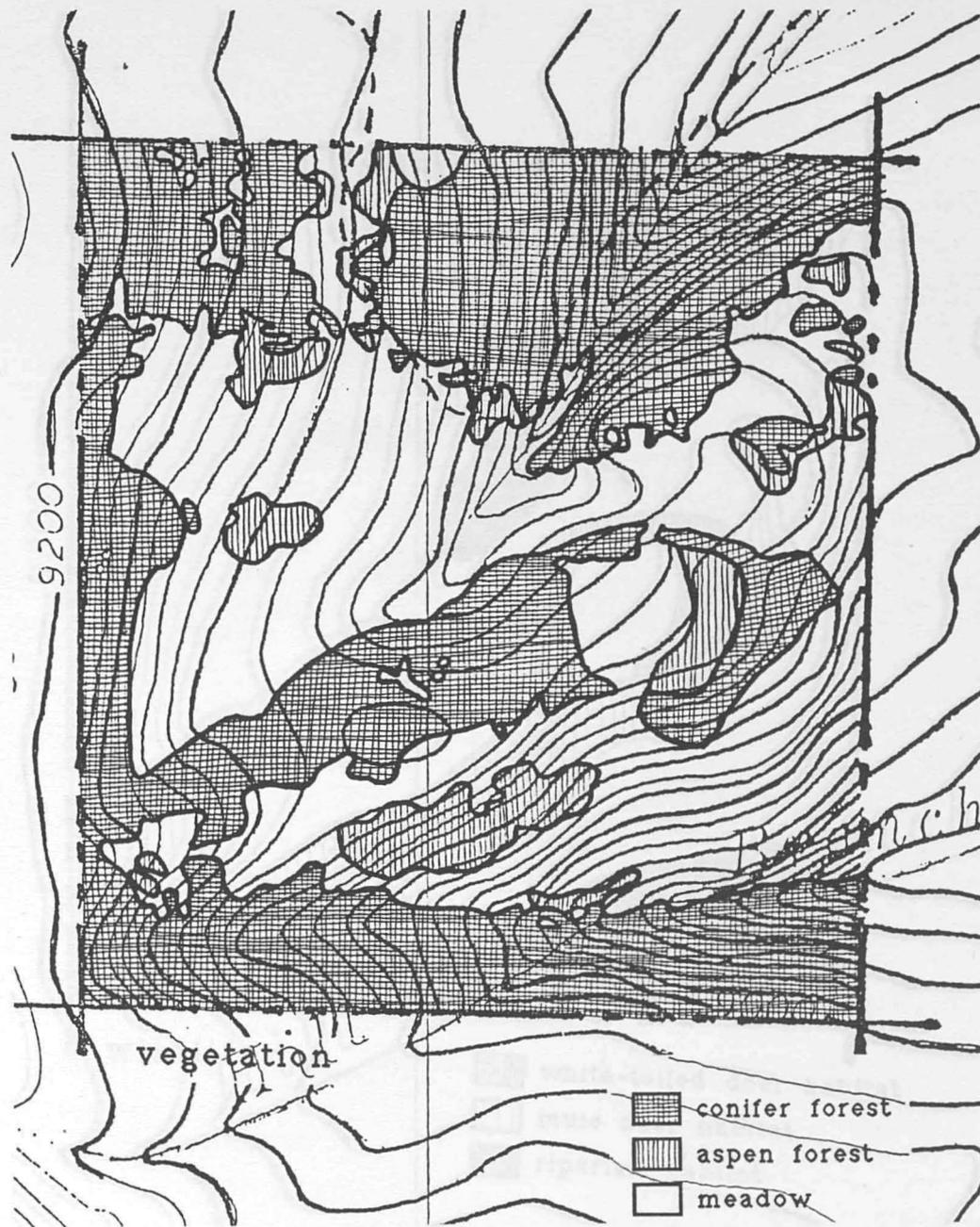
also overtop









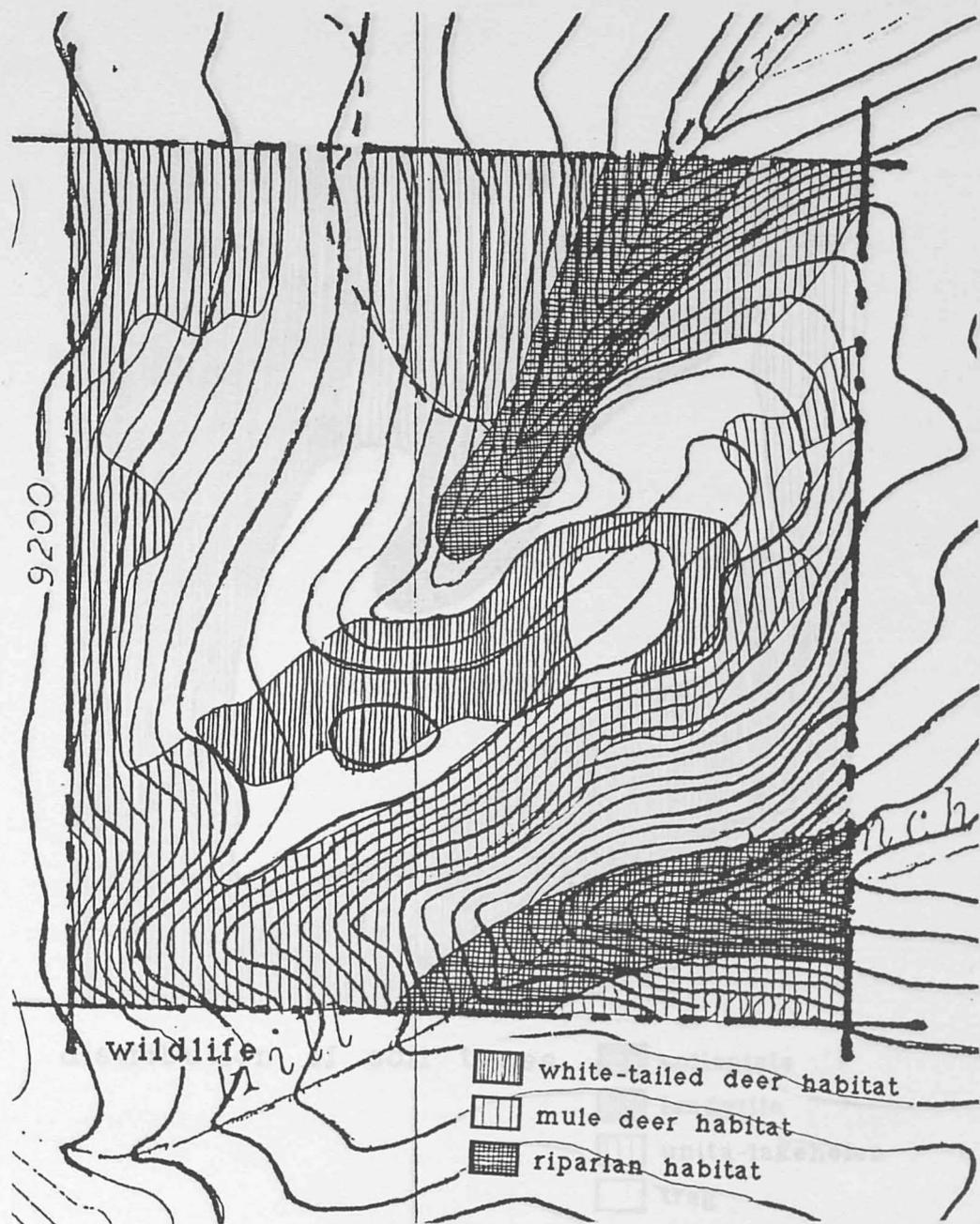




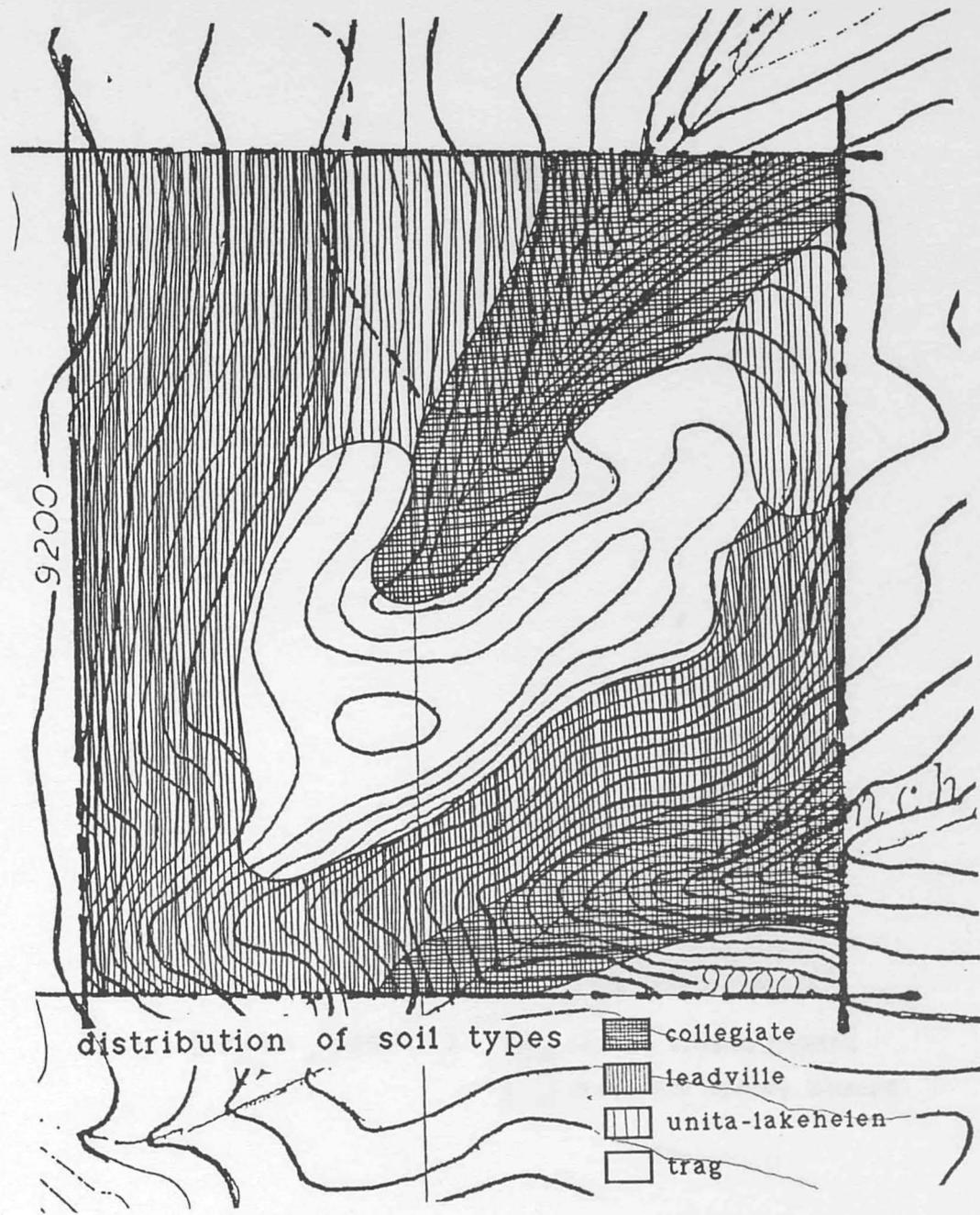
conifer forest  
spruce forest  
meadow

Vegetation

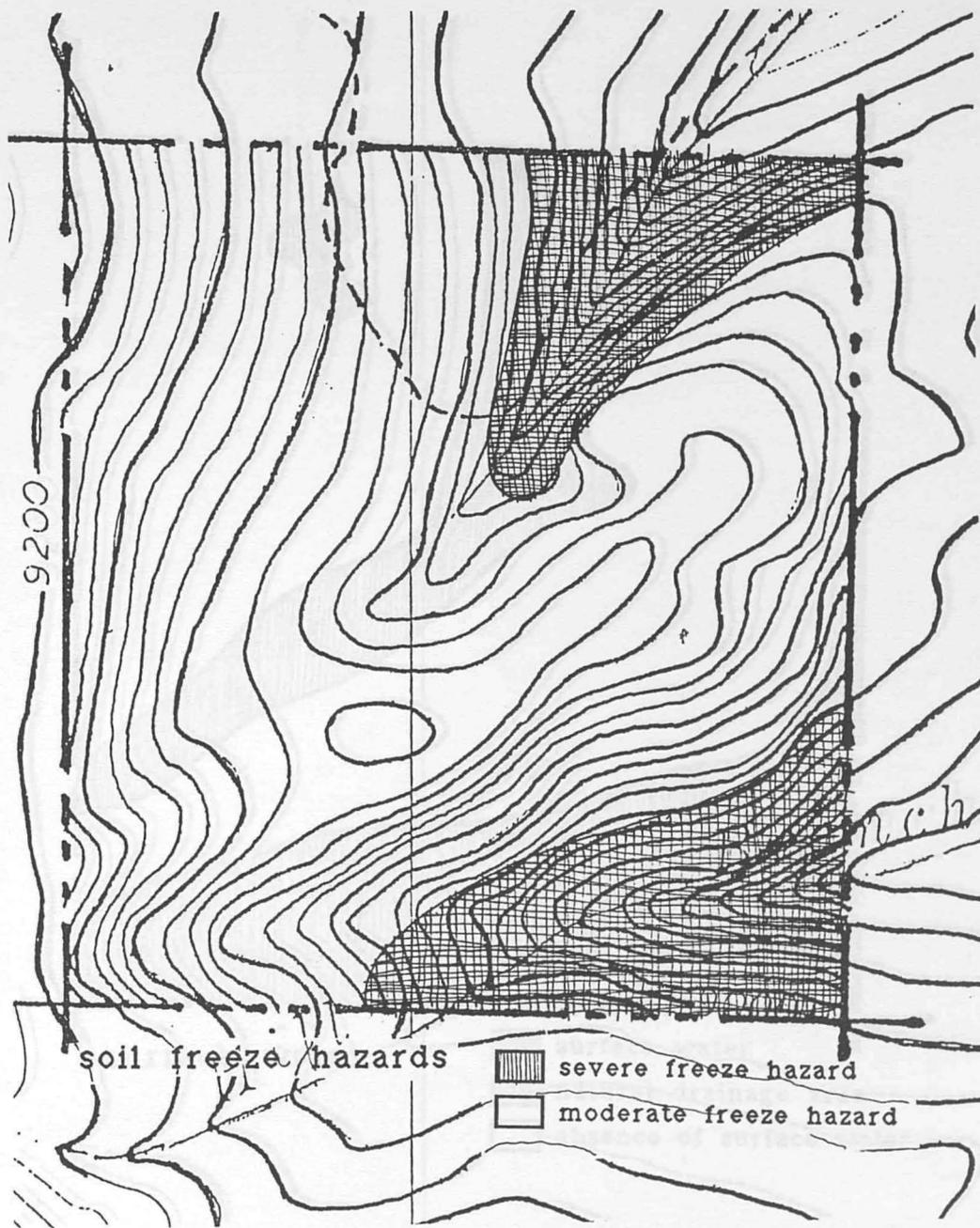
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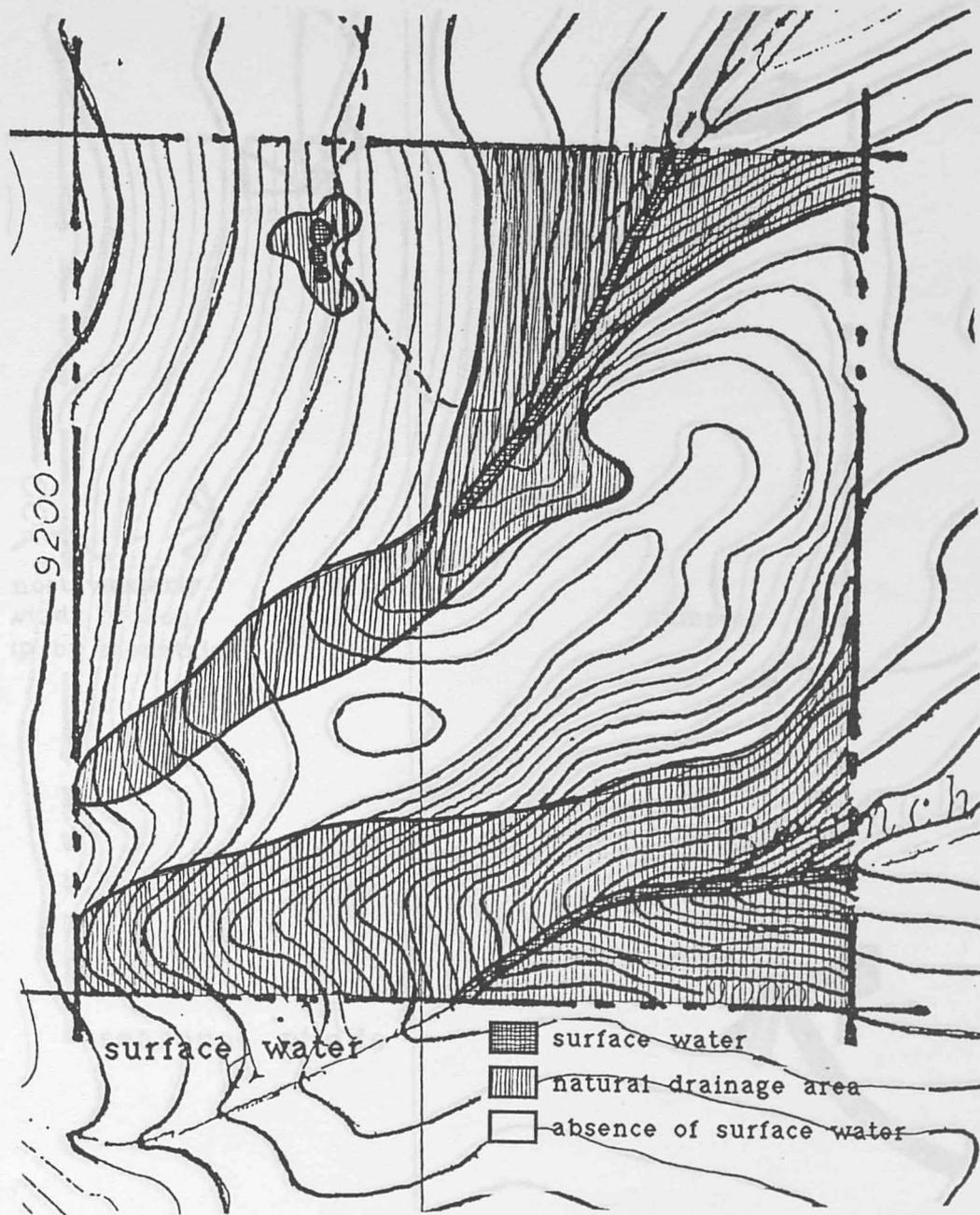








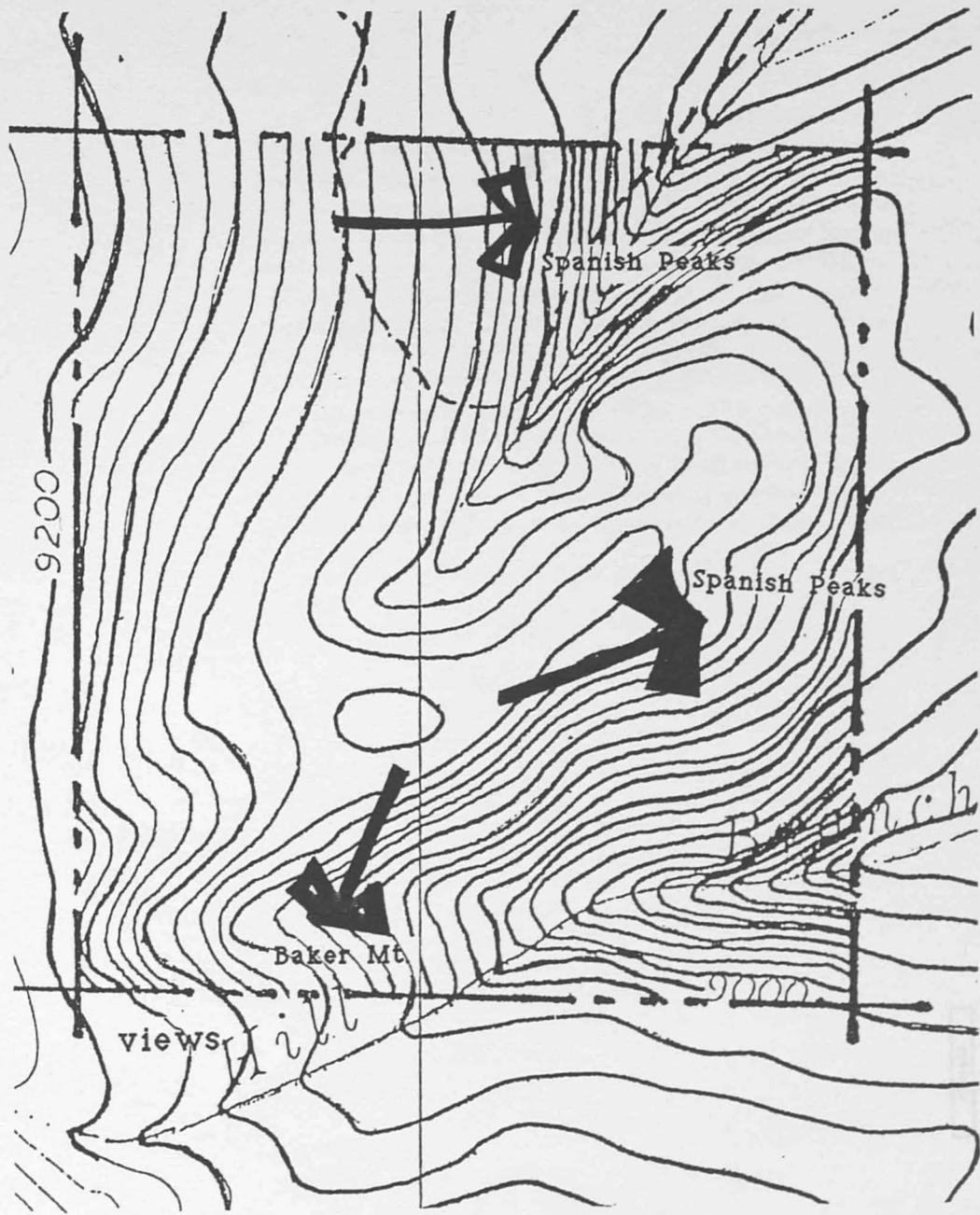














110) On building exterior's outside heat absorption. Finally, use landscaping to protect the buildings from winter winds (Figure 113).

climate



## climate

The climate is relatively easy to build for because conditions are consistently too cold or too cool for comfort. Temperatures are the primary concern. A compact plan (Figure 107) should be used, and the building nestled into the site (Figure 108) to minimize exterior surface area. Thorough insulation (Figure 109) and the use of thermal mass (Figure 110) modifies temperature swings. Windows should have multiple glazing (Figure 111) and be well insulated at night. Chimneys and flues should be clustered (Figure 112). Maximize solar gain by building on south-facing slopes (Figure 113), taking into consideration trees which may block the winter sun. Along with massive materials, dark colors and rough textures (Figure 114) on building exteriors maximize heat absorption. Finally, use landscaping to protect the buildings from winter winds (Figure 115).



Figure 108



Figure 111

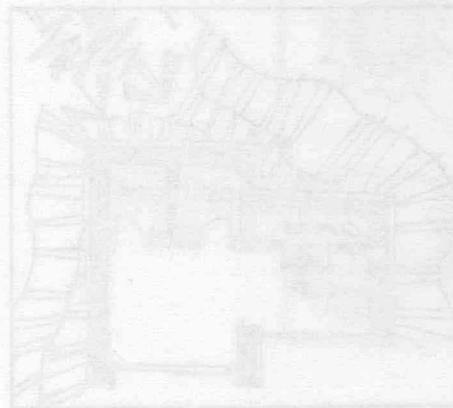


Figure 112

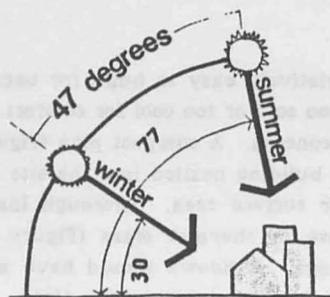


Figure 99-- Sun altitude angles for Cuchara Valley. Drawing from Sun/Earth. Richard L. Crowther FAIA, 1976

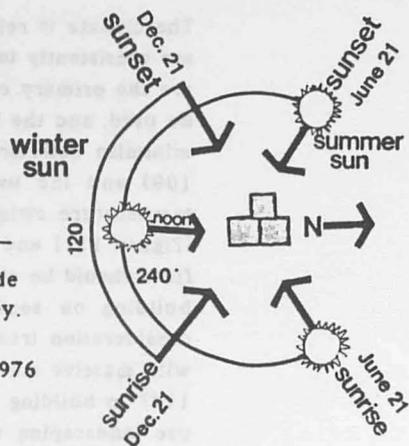


Figure 100-- Sun azimuth angles for Cuchara Valley. Drawing from Sun/Earth. Richard L. Crowther FAIA, 1976

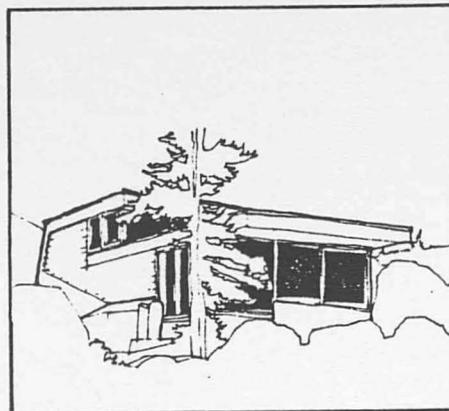


Figure 108

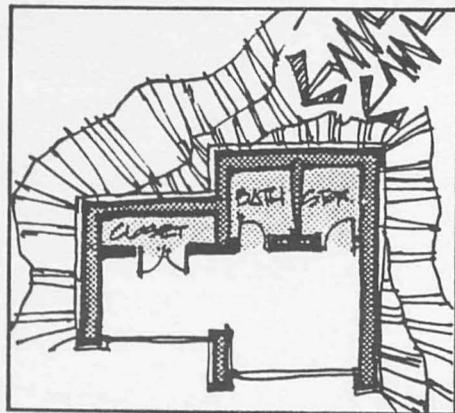


Figure 107

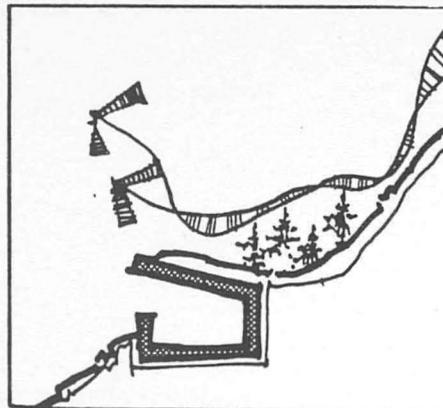


Figure 109

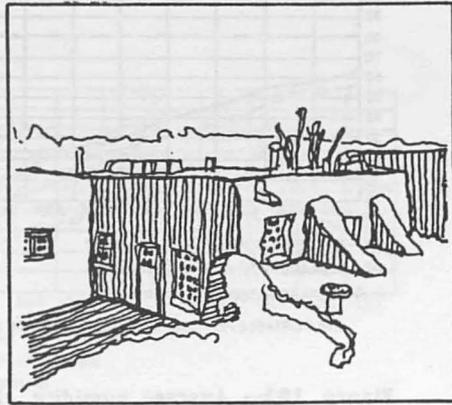


Figure 110

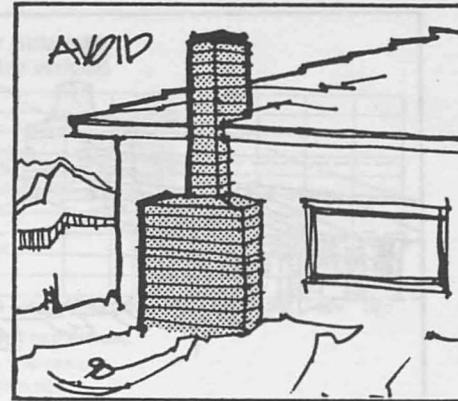


Figure 112

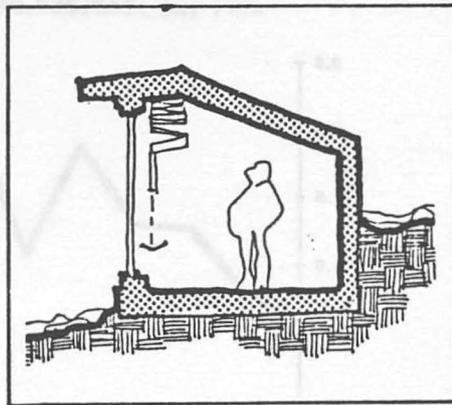


Figure 111

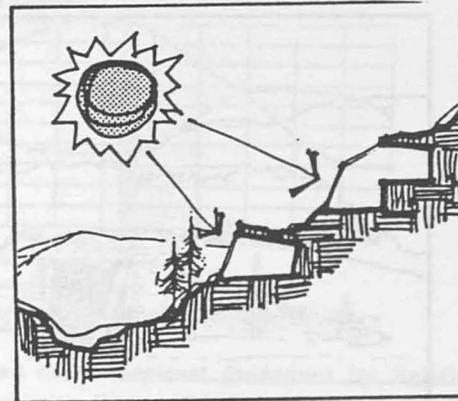


Figure 113

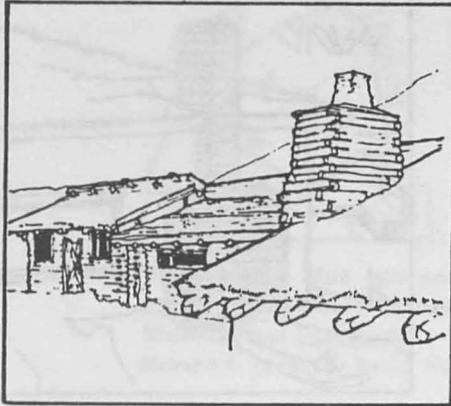


Figure 114

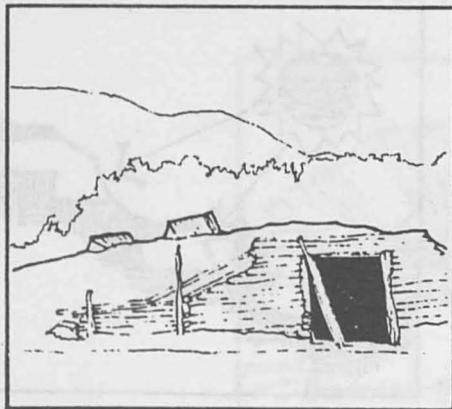


Figure 115

Figures 107-115 from Regional Guidelines for Building Passive Energy Conserving Homes, U.S. Department of Housing and Urban Development, July 1980

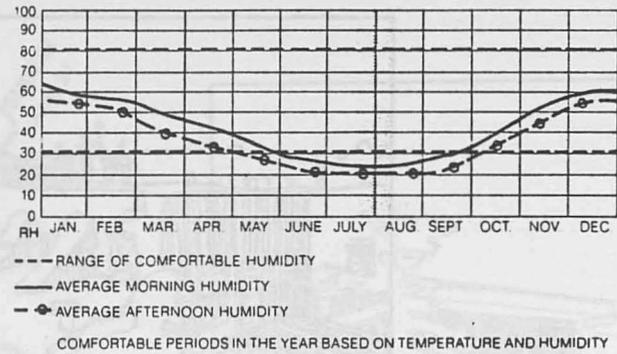


Figure 103-- Average humidity. Regional Guidelines for Building Passive Energy Conserving Homes, U.S. Department of Housing and Urban Development, July 1980

average precipitation

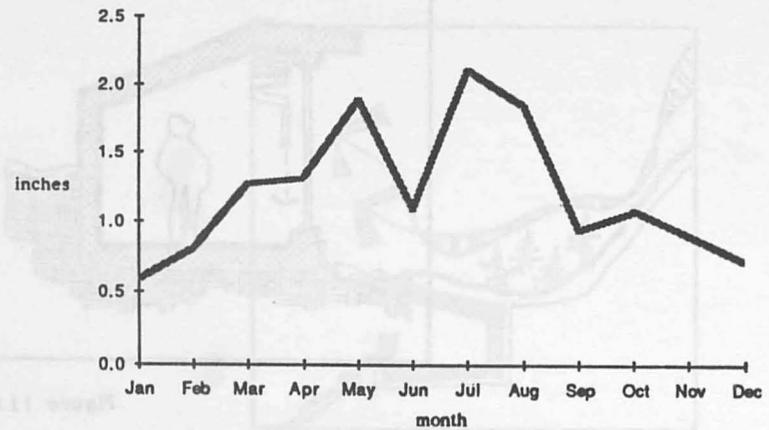


Figure 104-- Average precipitation for Cuchara area.

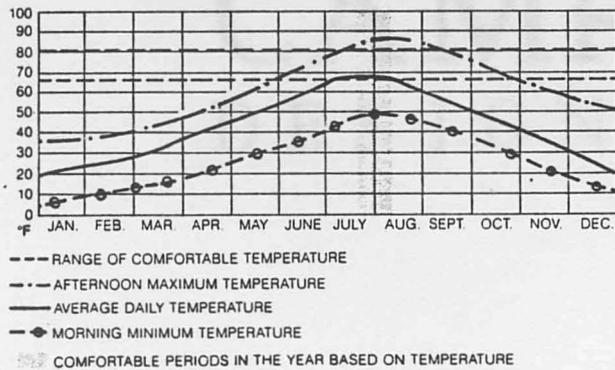
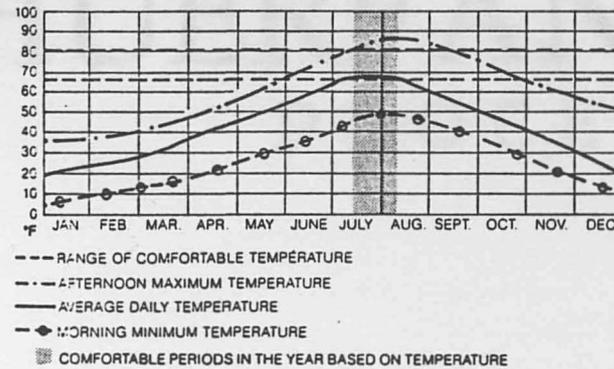


Figure 98-- Average Temperature. Regional Guidelines for Building Passive Energy Conserving Homes. U.S. Department of Housing and Urban Development, July 1980

TEMPERATURE AND HUMIDITY  
(decreases comfortable periods)



TEMPERATURE AND HUMIDITY PLUS SOLAR HEAT GAIN  
(Increases comfortable periods)

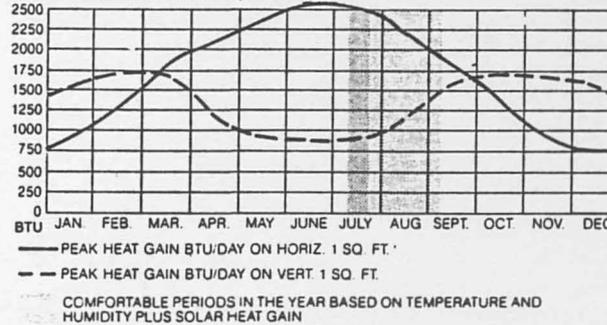
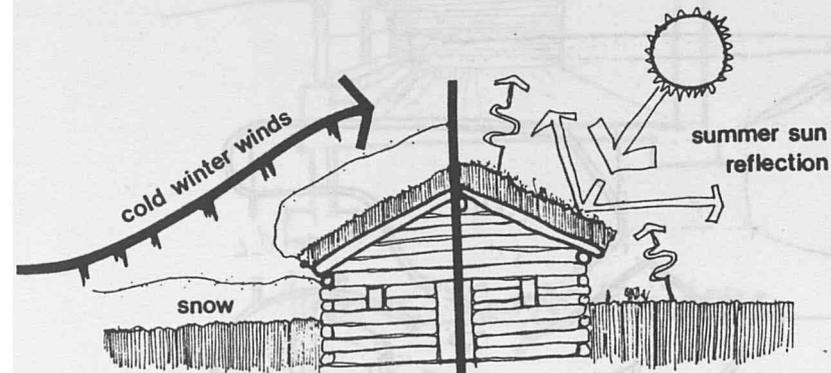


Figure 106-- Comfort chart. Regional Guidelines for Building Passive Energy Conserving Homes. U.S. Department of Housing and Urban Development, July 1980



CAMP HUERFANO  
DESIGN PROCESS





Rocky Mountain cabin

## design process

My design for Camp Huerfano came out of the desire to develop an architectural quality for its built facilities which were out of the ordinary. This "architectural quality" would create a sense of place, forming memories and prompting return visits beyond the camp ritual itself.

I first tried to generate images which were unrelated to a typical camp. However, the few ideas produced ranged from "resorty" to industrial. I was successful in one sense, none seemed to be a camp. But, I felt they were all too generic. Though, it was true I didn't want this to be an ordinary camp, I did, however want the image of Camp Huerfano to relate to its function.

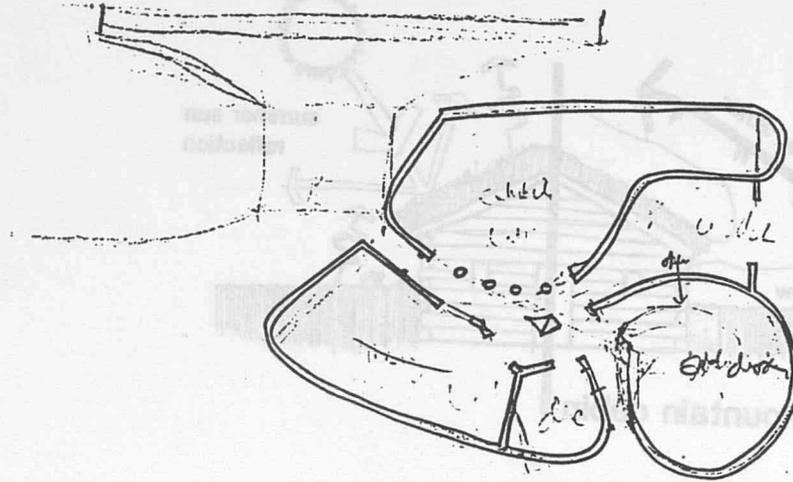
While searching for inspiration I found a sketch of a small vernacular log cabin in

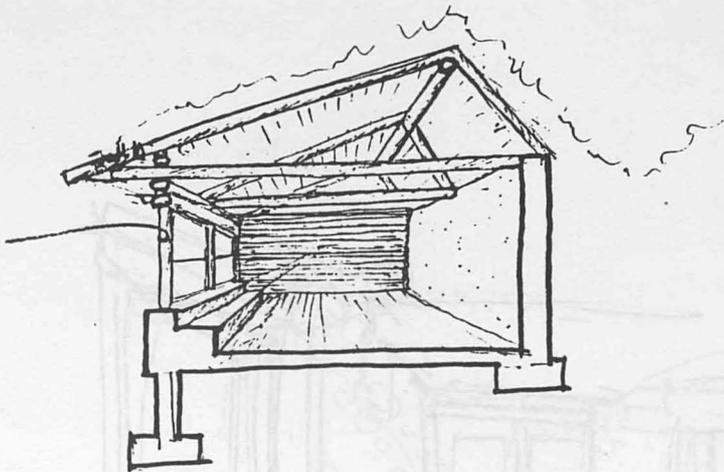
Character of Dutch Colonial Structure

Richard L. Crowther's book, Sun/Earth (1983, p.99). Although the final design for Camp Huerfano did not look much like this picture, it was nonetheless a key to the design.

For me this sketch portrayed the image of a mountain camp. With this image in mind I proceeded to sketch interiors of various activity areas. These sketches showed how the camp could retain a "camp" image, while being "out of the ordinary".

Interior success was followed by exterior disaster, as I attempted to apply a "log-cabin" type. Although there were variations, they all failed to excite anyone, including myself. From there I picked up one of the first sketches I had done and tried to work some of this "camp imagery" into its use of curves. The combination



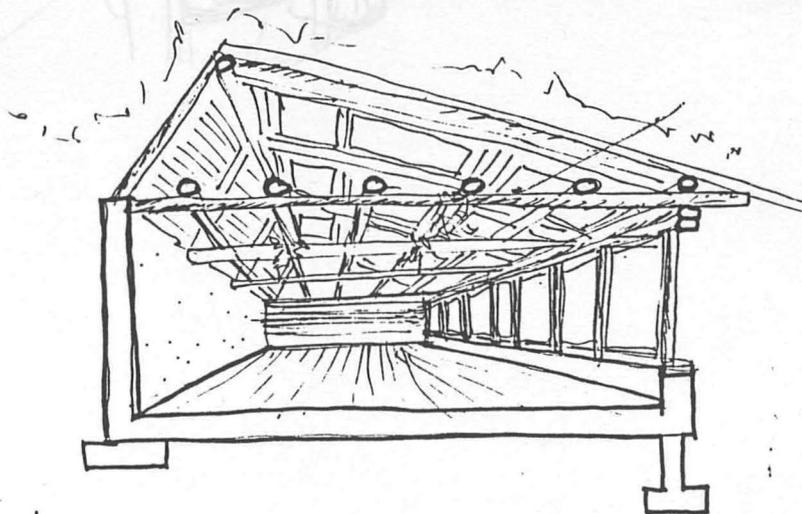


Interior Camper Residence

seemed to have some potential. The curves worked well, both to ease movement by persons in wheelchairs and to reinforce the fluidity of space inherent in a design requiring ramps rather than stairs. Adobe like material, obvious for these curved walls, combined naturally with the logs recalling the Indian heritage of the area which was to be included in the natural history display and art exhibits.

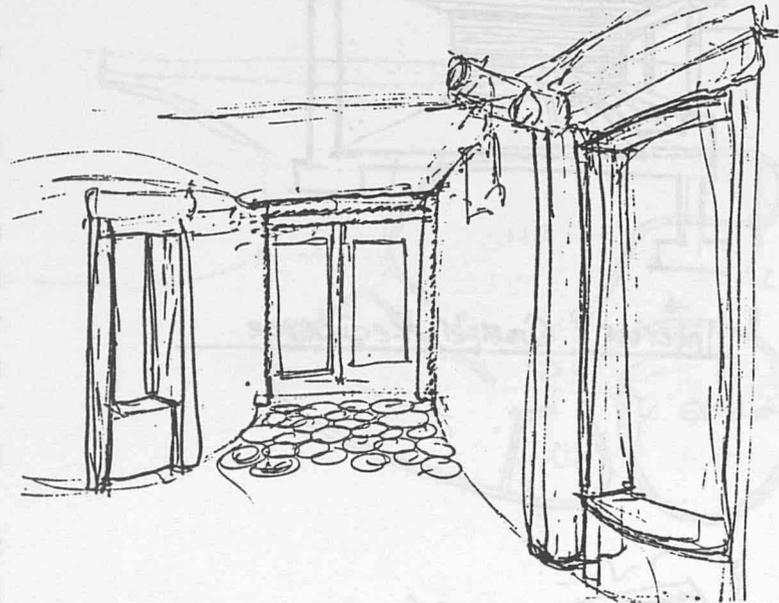
Sticks and clay were used to bring the interior and exterior concepts together three-dimensionally. The models were good illustrators of the design concepts and used extensively from this time, especially in the development of the nature center building.

Once the image of Camp Huerfano had developed to some degree site organization

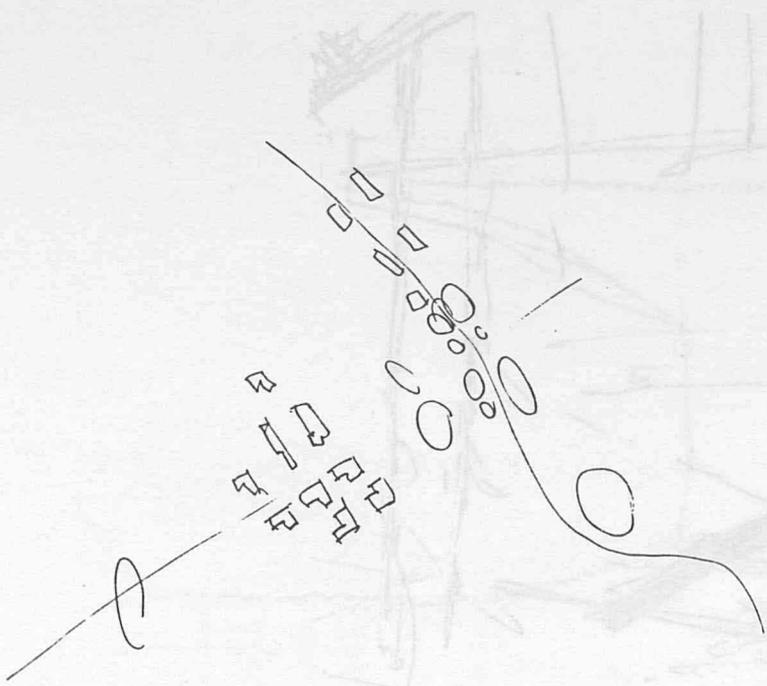


Character of Dining Room Structure

began. Many schemes were tried including, random, radial, axial and linear. A linear concept which followed the site's contours was finally chosen because it allowed gradual level changes and southern exposure for all buildings. Along with this planar organization the camp functions were to be separated conceptually into three levels, administrator, public and camper. The final design, however has many more than three levels sloping down gradually from administrator residences to stable. The final siting was determined by ease of access to Highway 12 and the proposed and existing electricity corridors, length of southern exposure, north wind protection, slope steepness and access to the stream for fishing. A low stone wall was used to connect all the buildings in the camp complex, in order to provide provide protection for all, a point of orientation



Character of Day for Structure



for blind participants, yet retain the view for persons in wheelchairs.

The purpose of this camp was to provide a stimulating and fun environment for handicapped and non-handicapped youngsters. This semester was spent developing the architectural qualities of the camp, particularly the main building. Many additional hours would be required to fully design the exterior guidance systems and pathways, as well as those within the buildings themselves.

Following is a chronological sampling of design sketches.

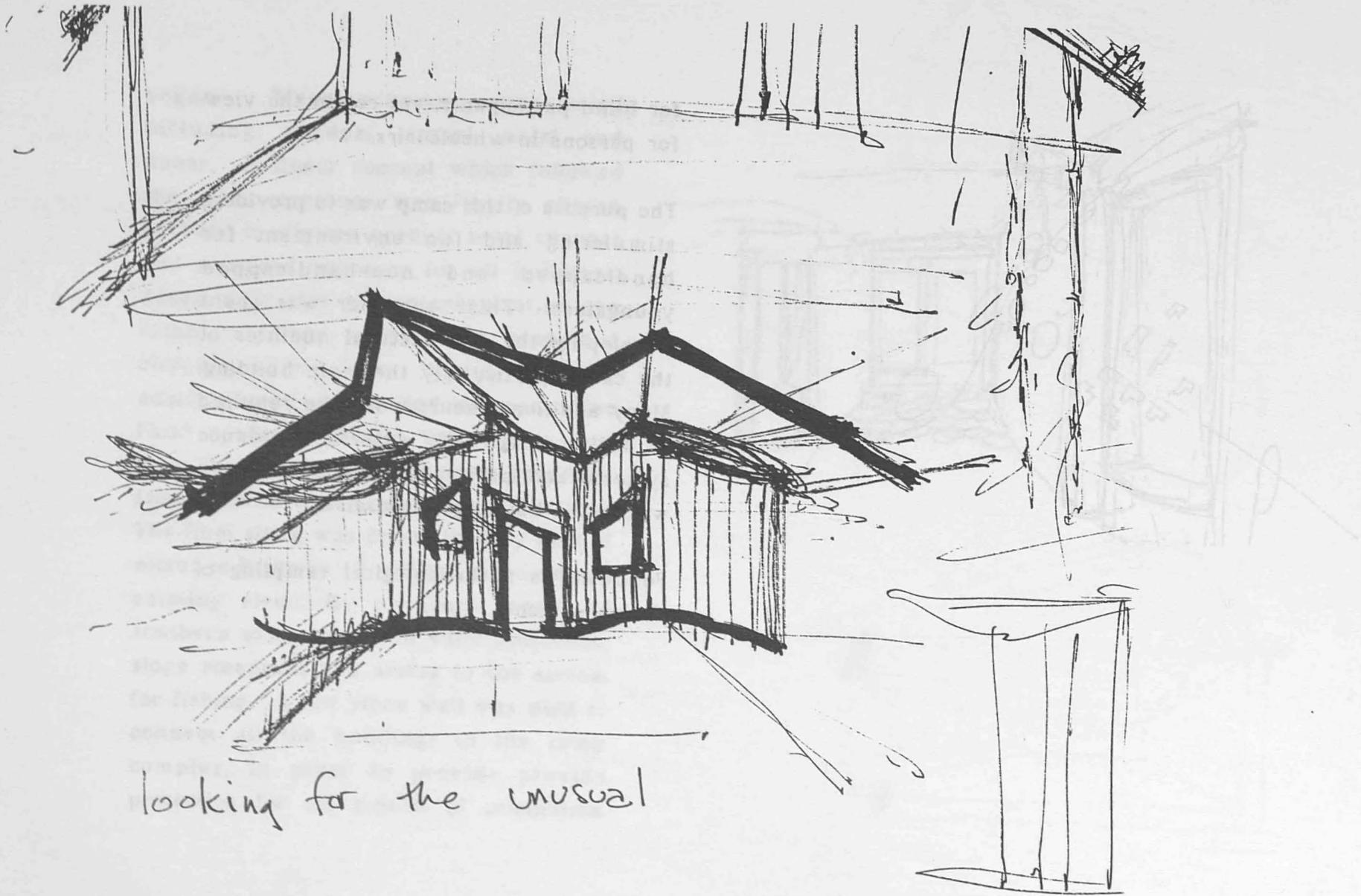
Curvilinear concept  
became a key to  
whole design

looking for the unusual

10-1-8

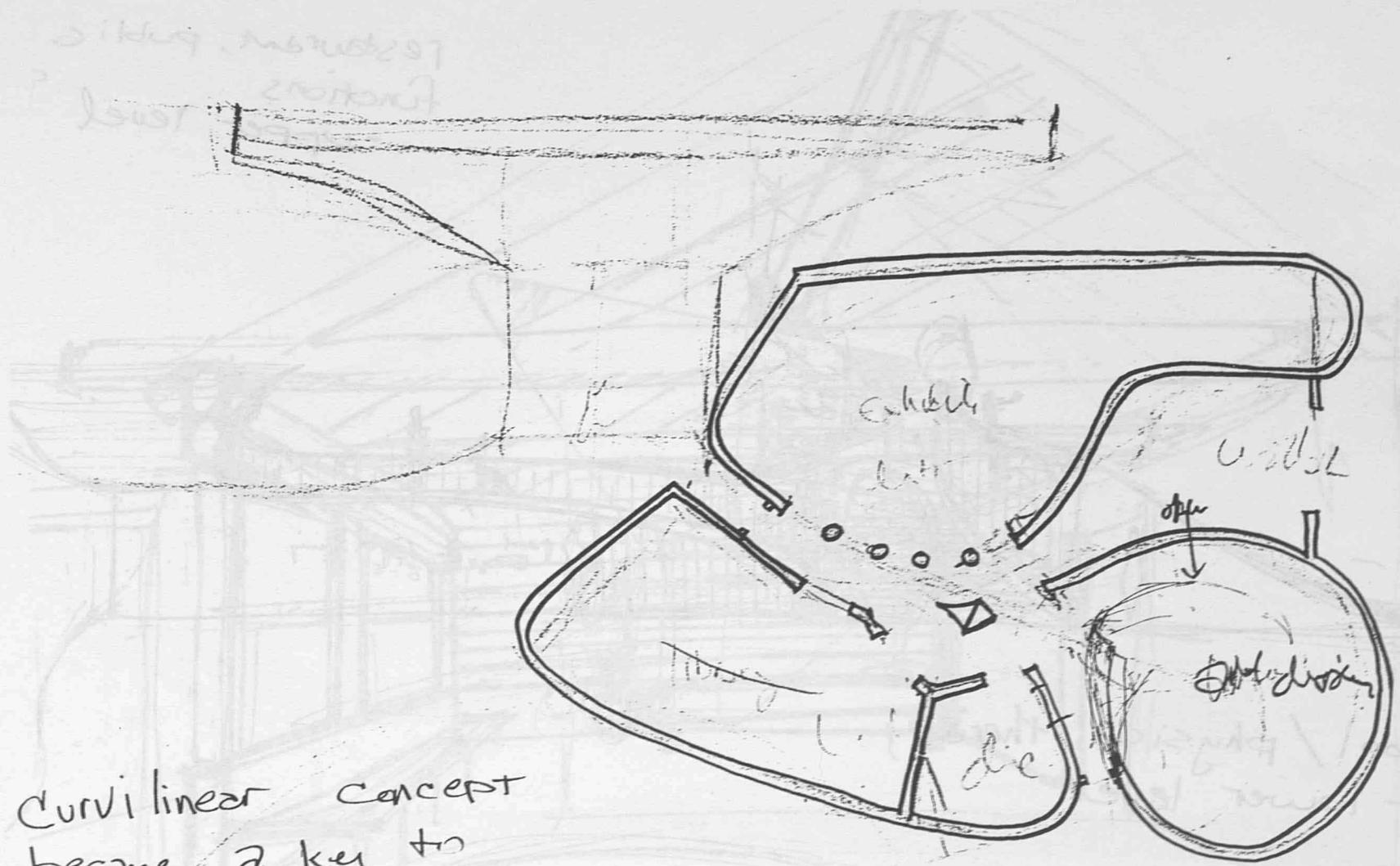
Native Center

7/12/81  
9/2/81



looking for the unusual

9-1-87



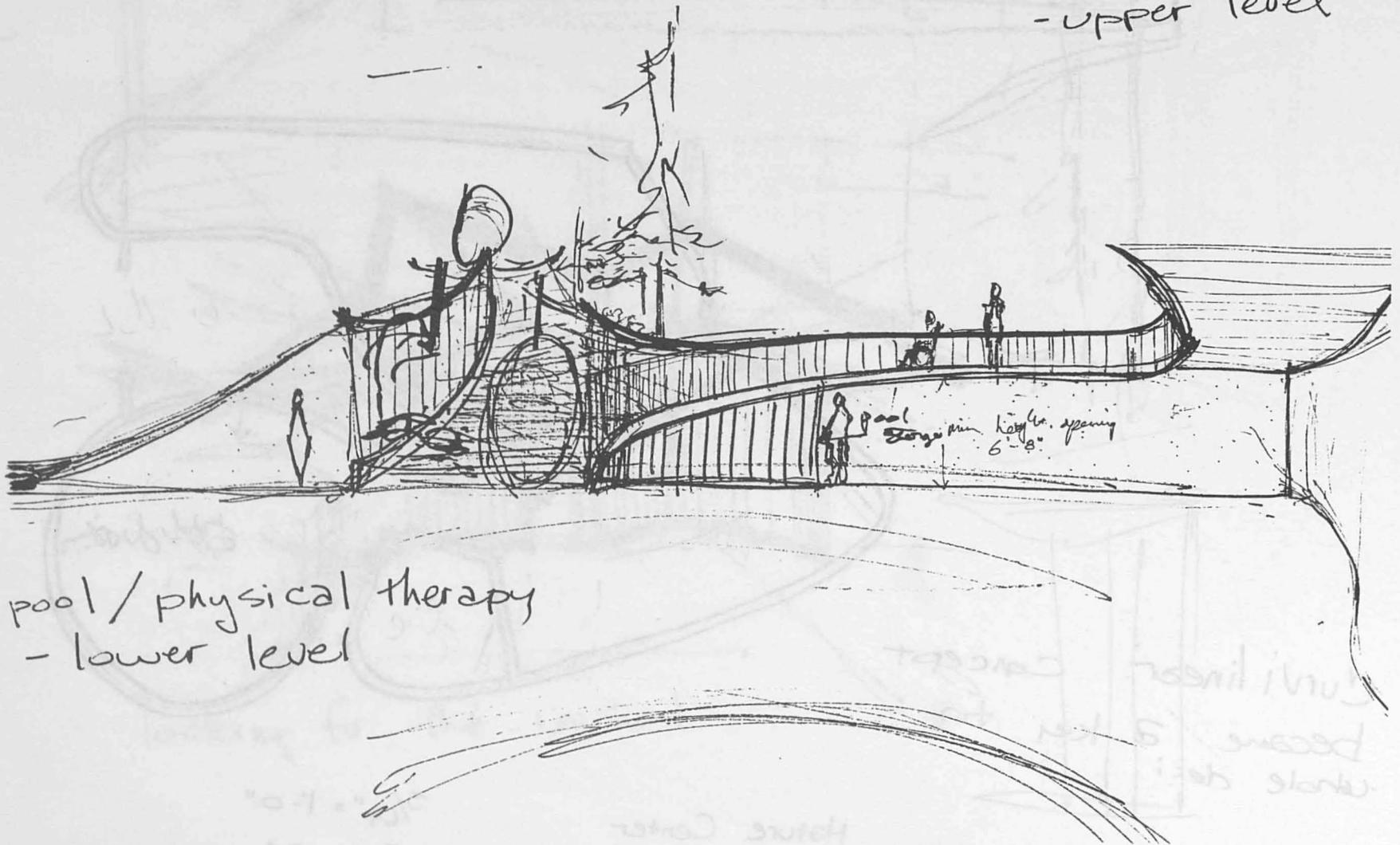
Curvilinear concept  
 became a key to  
 whole design

Campers Residence Nature Center  
 first sketch of interior

$\frac{3}{64}'' = 1'-0''$   
 9-2-81

9-2-81

restaurant, public  
functions  
- upper level



pool / physical therapy  
- lower level

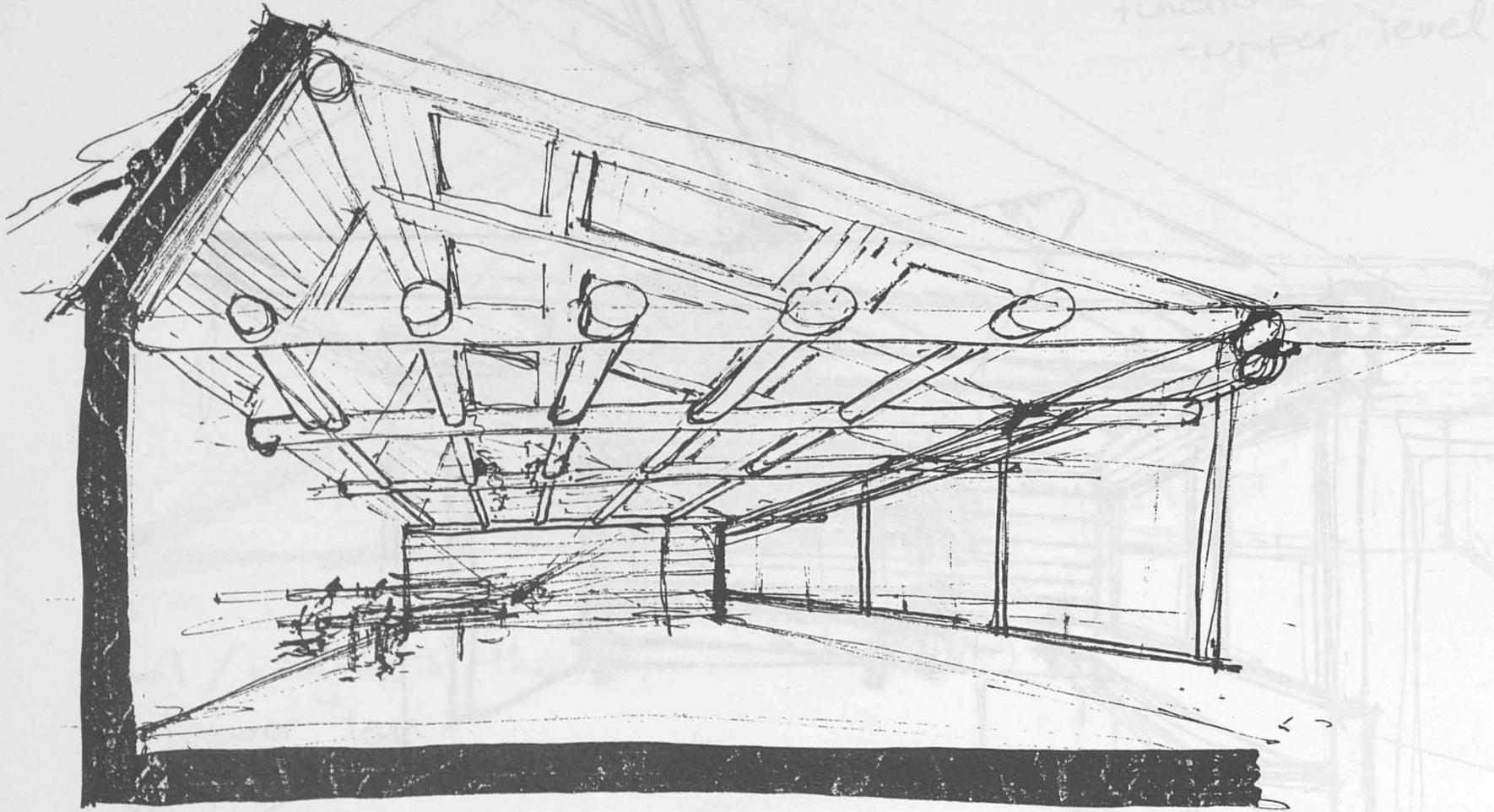
9-2-87



Camper Residence  
first sketch of interior

9-3-87  
9-2-87

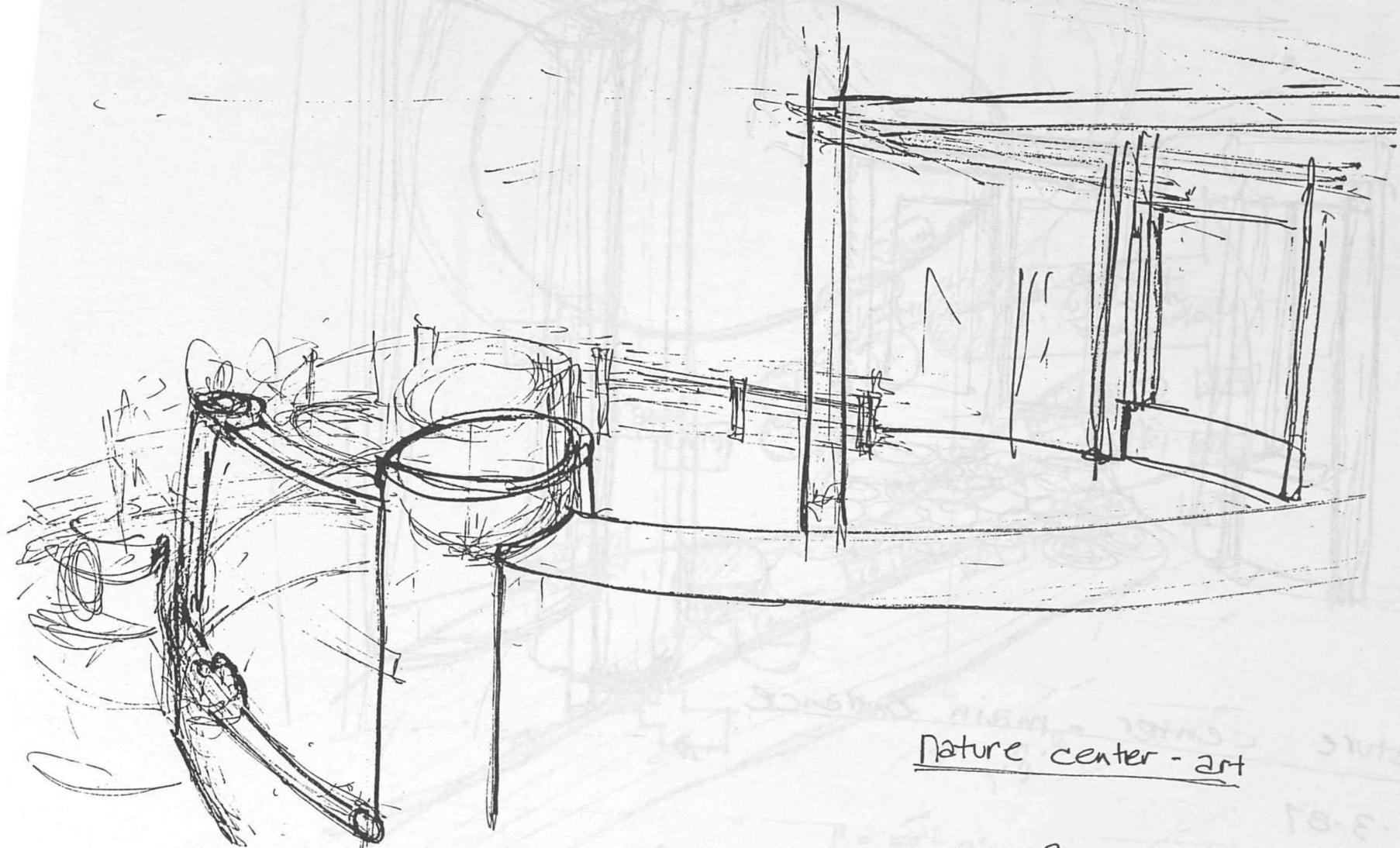
restaurant public  
functions  
- upper level



Camper Dining

9-3-87

Camper Dining  
1st floor of interior



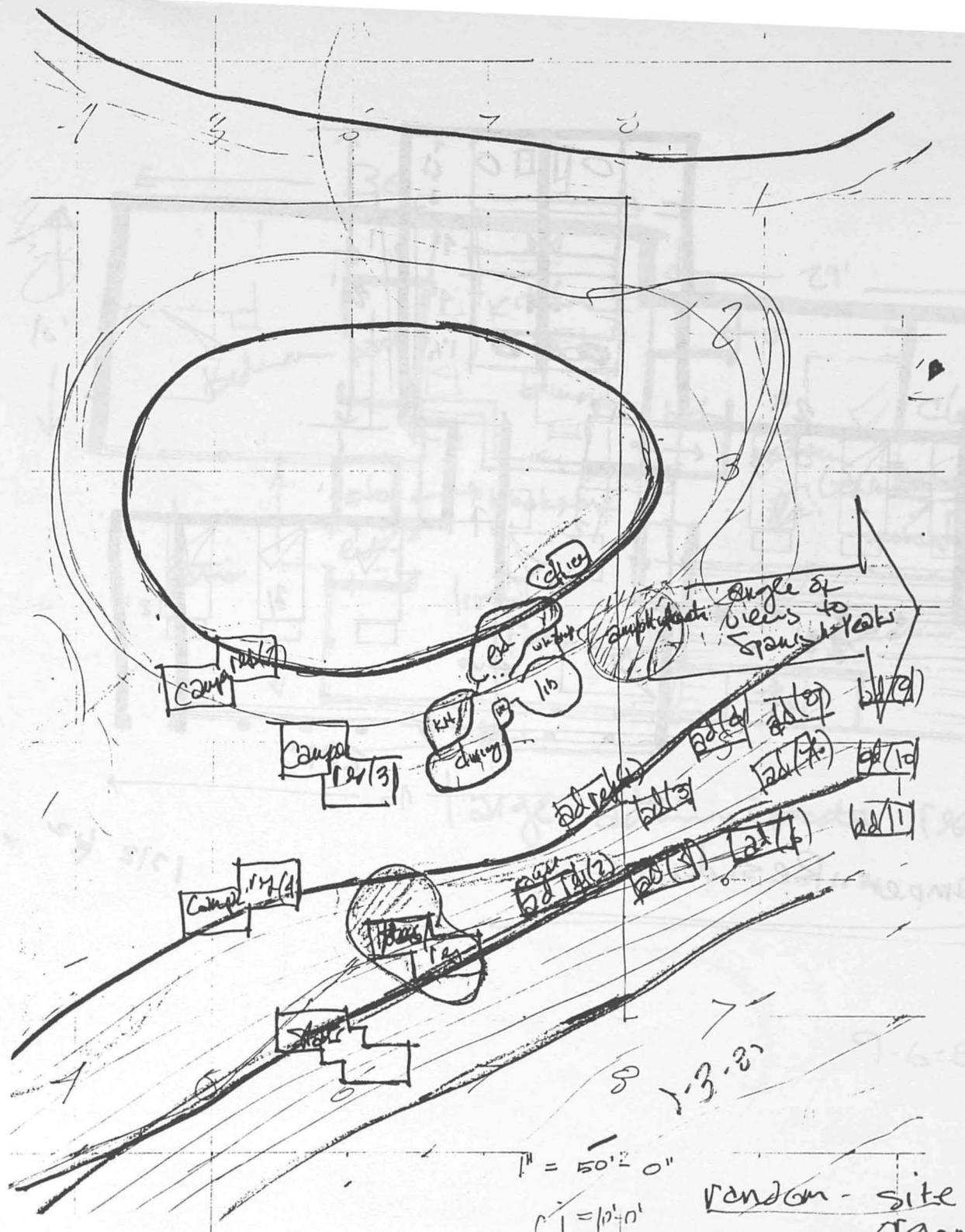
Nature center - art

9-3-87

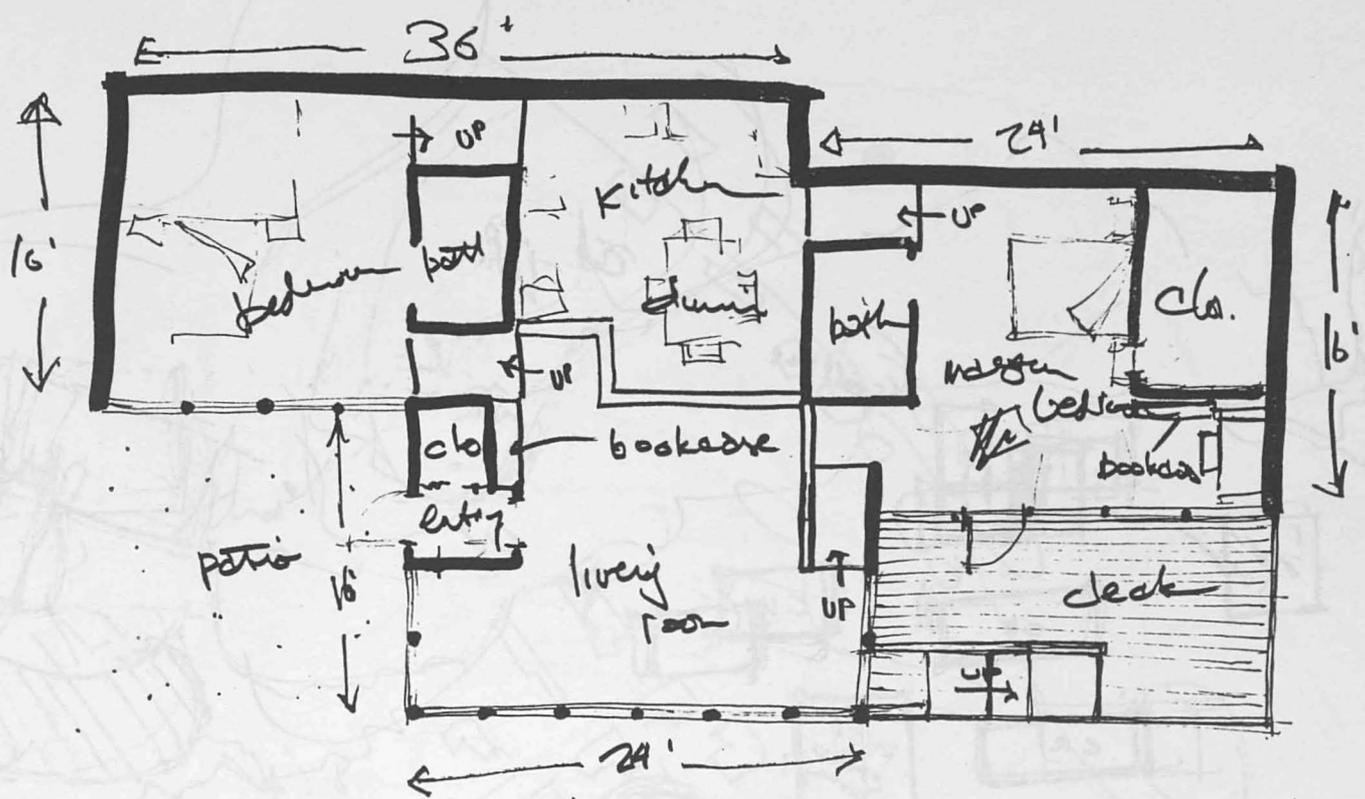


Nature center - main entrance

9-3-87



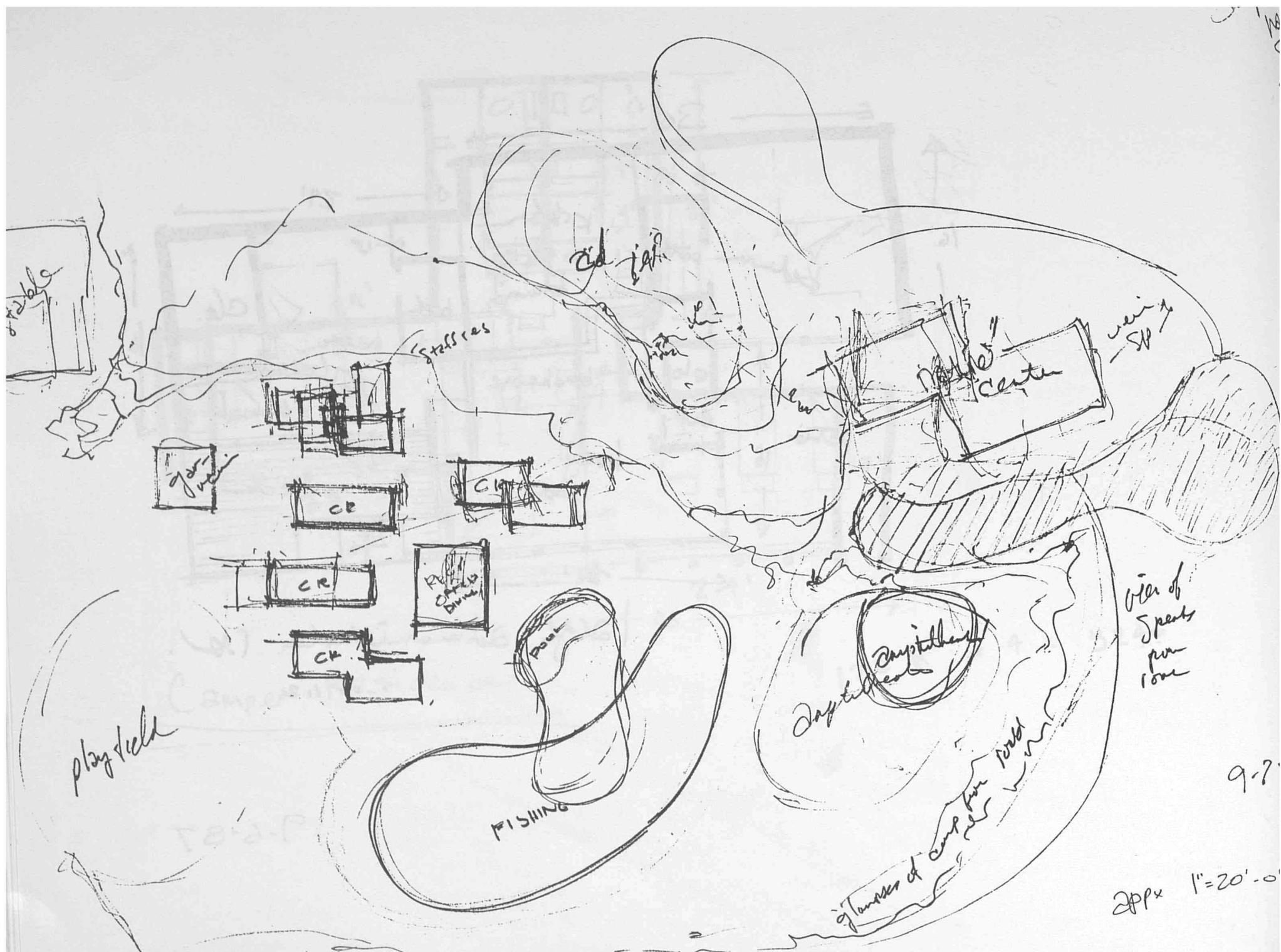




large administrative res.

1-12-82

9-6-87



ed jaf

staff res

table

garage

CR

CH

CR

CR

CR

FISHING

Crystal Lake

center

view of Spent run road

view of Spent run road

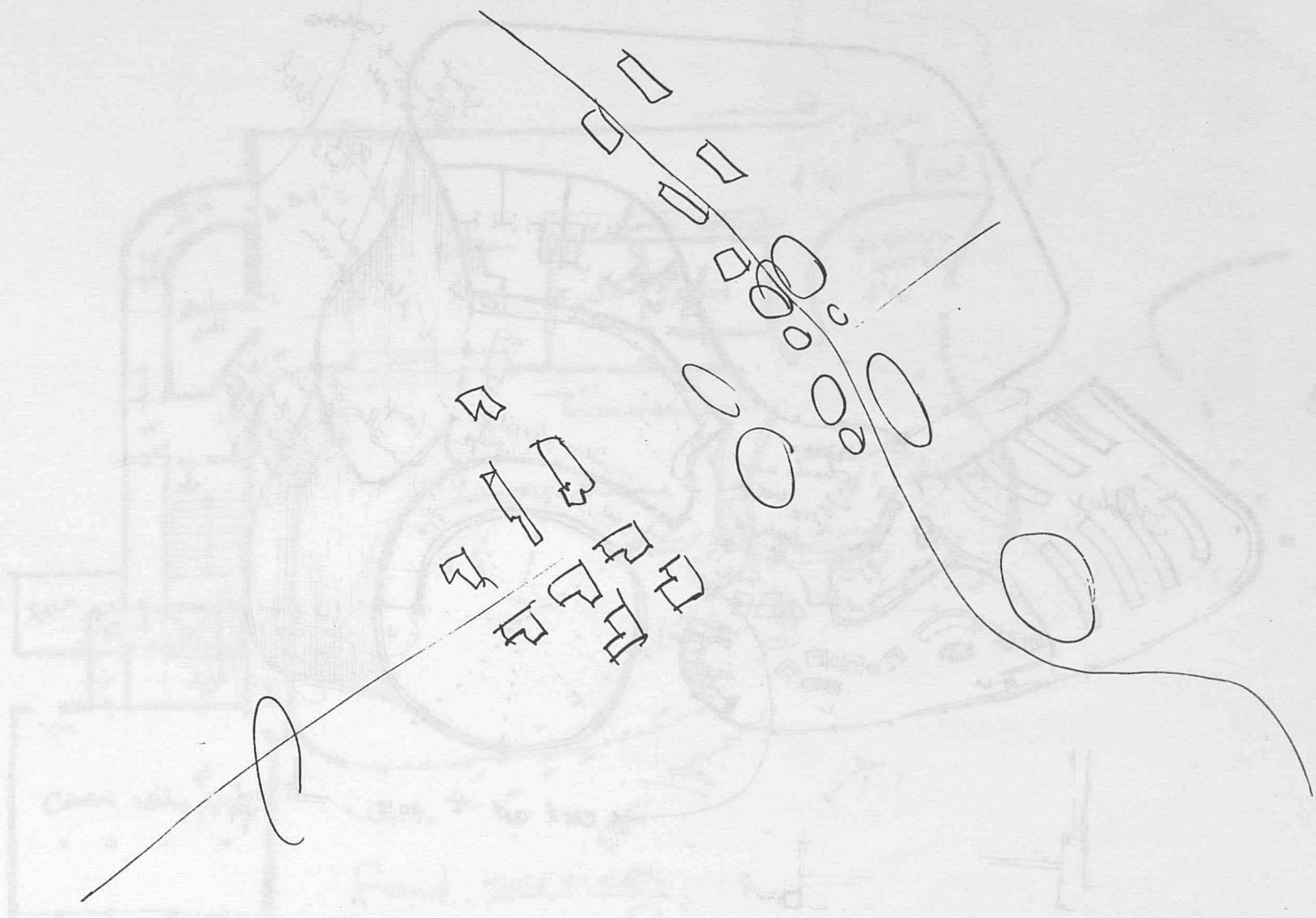
of houses of camp for road

9-7

approx 1"=20'-0"

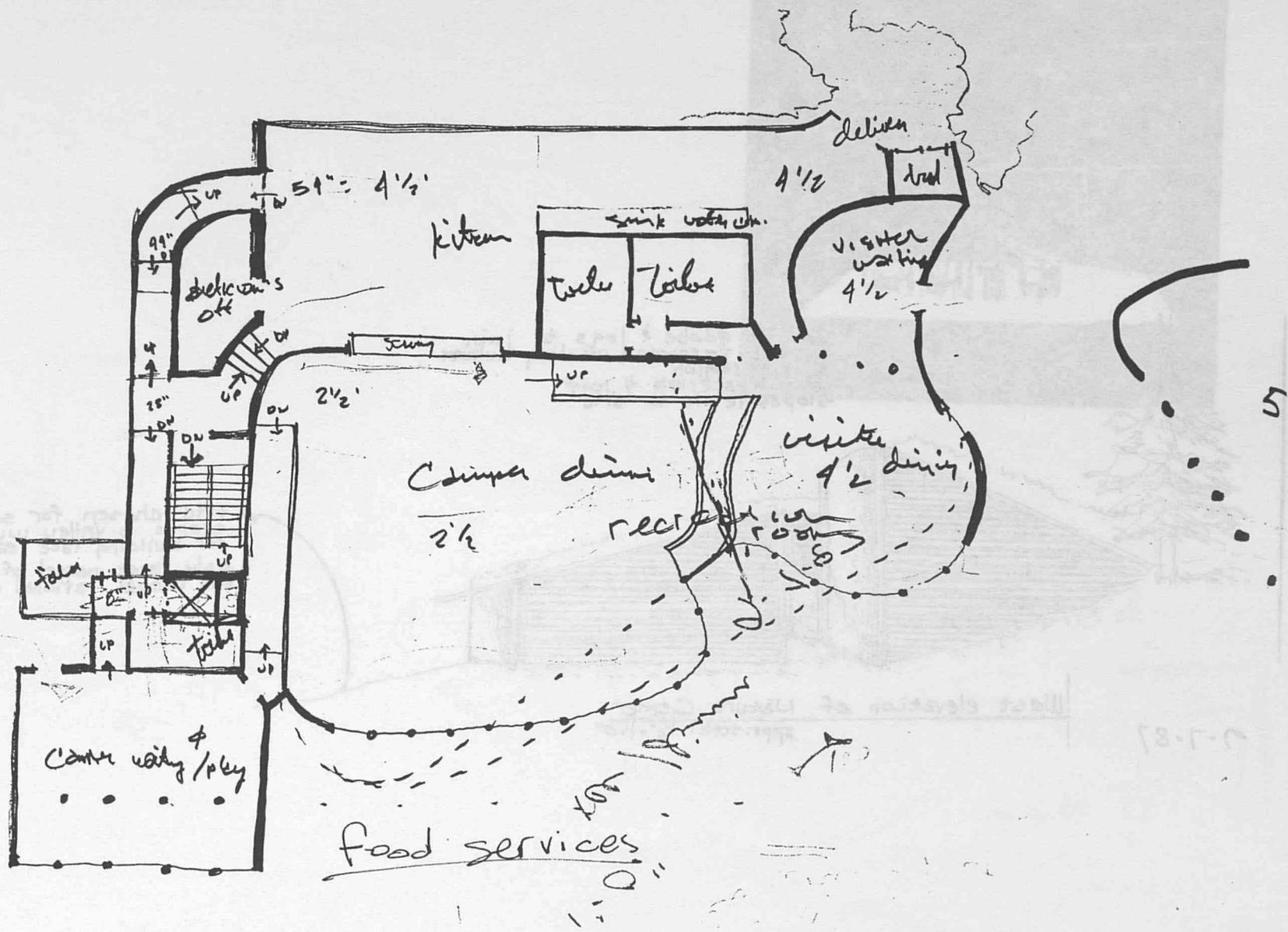
9-7-37

John Haberman



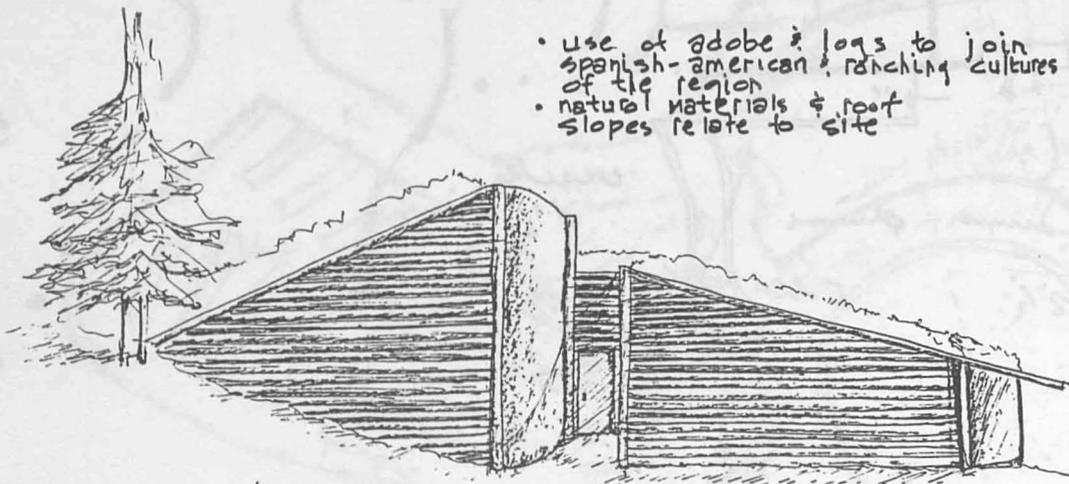
9-7-87





9-7-87

- use of adobe & logs to join spanish-american & ranching cultures of the region
- natural materials & roof slopes relate to site

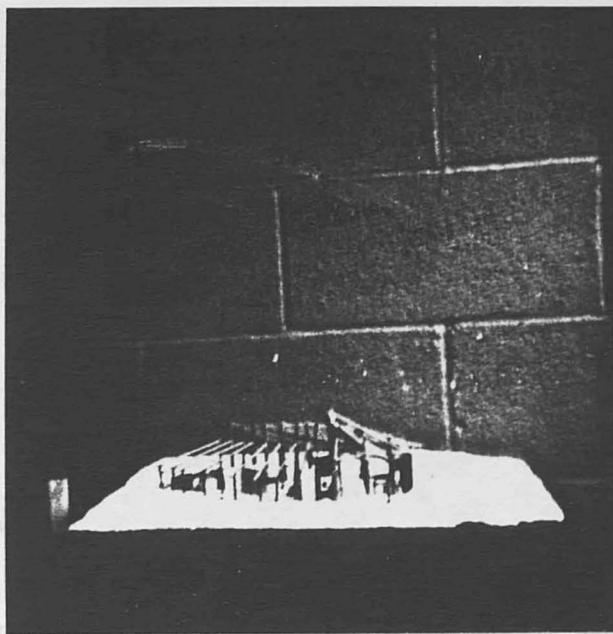


- site chosen for south slopes, most slopes in valley with grades suitable for building face east or west.
- only large parcel of land not part of San Isabel national forest.

West elevation of Nature Center  
 appr. scale:  $\frac{1}{8}'' = 1'-0''$

9-7-87

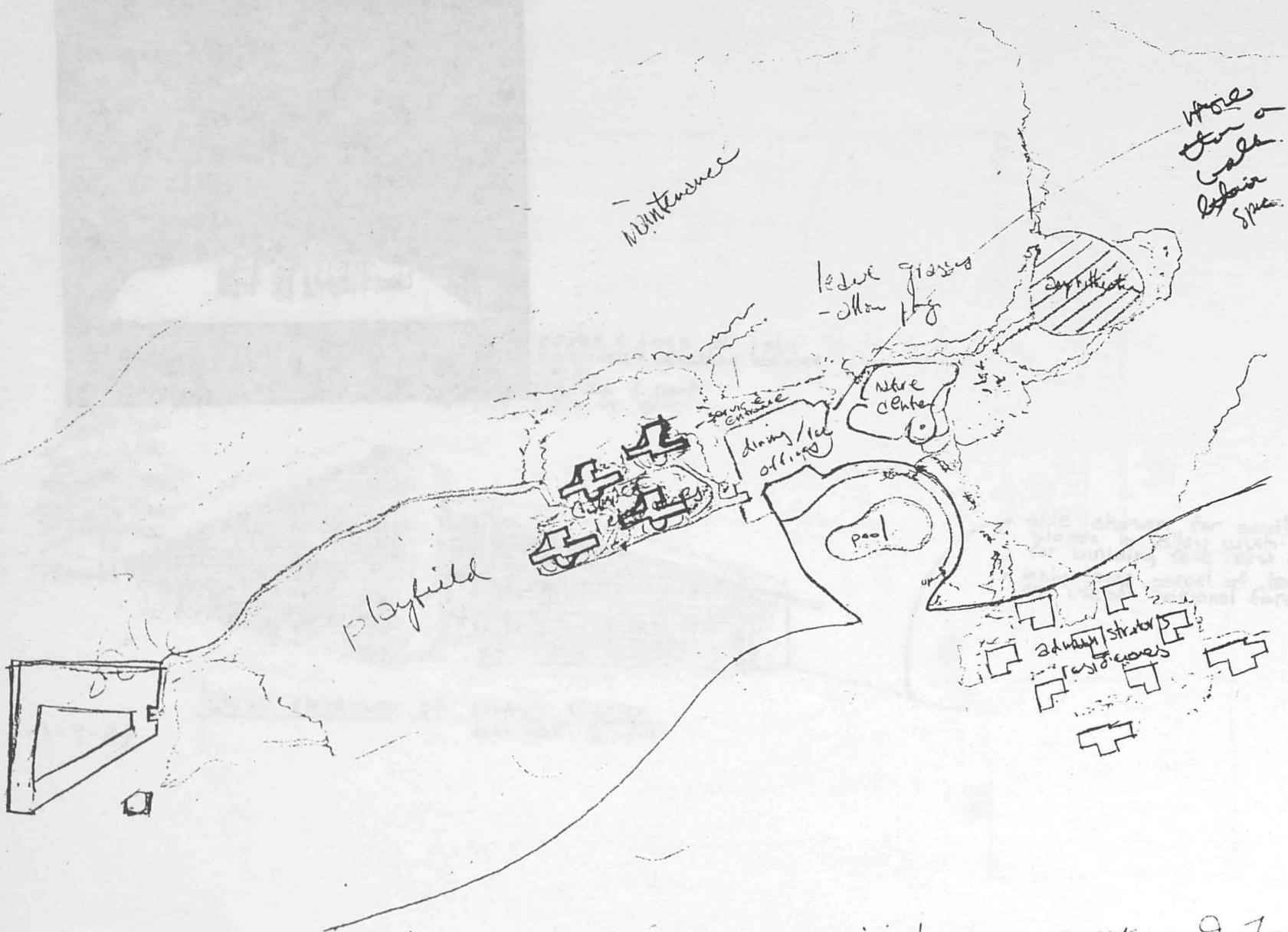
9-7-87  
 9-7-87



first study model

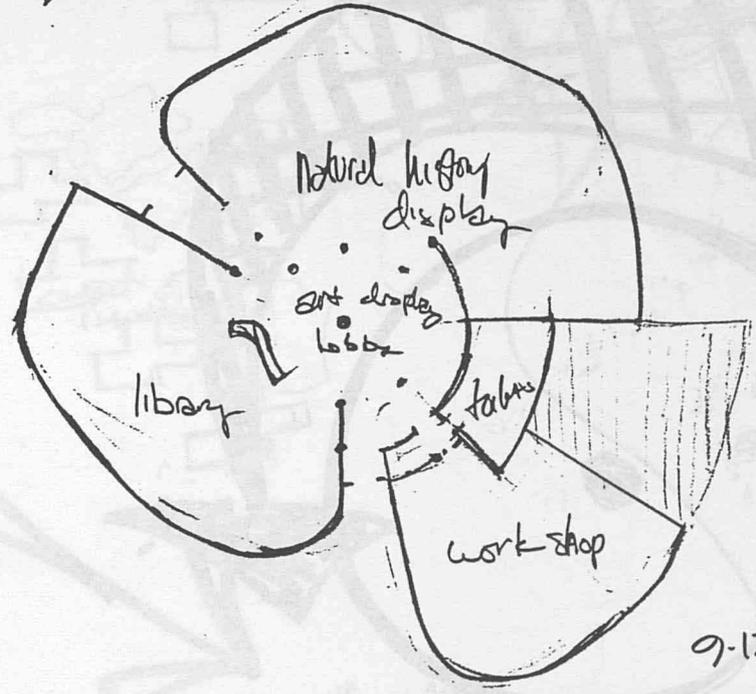
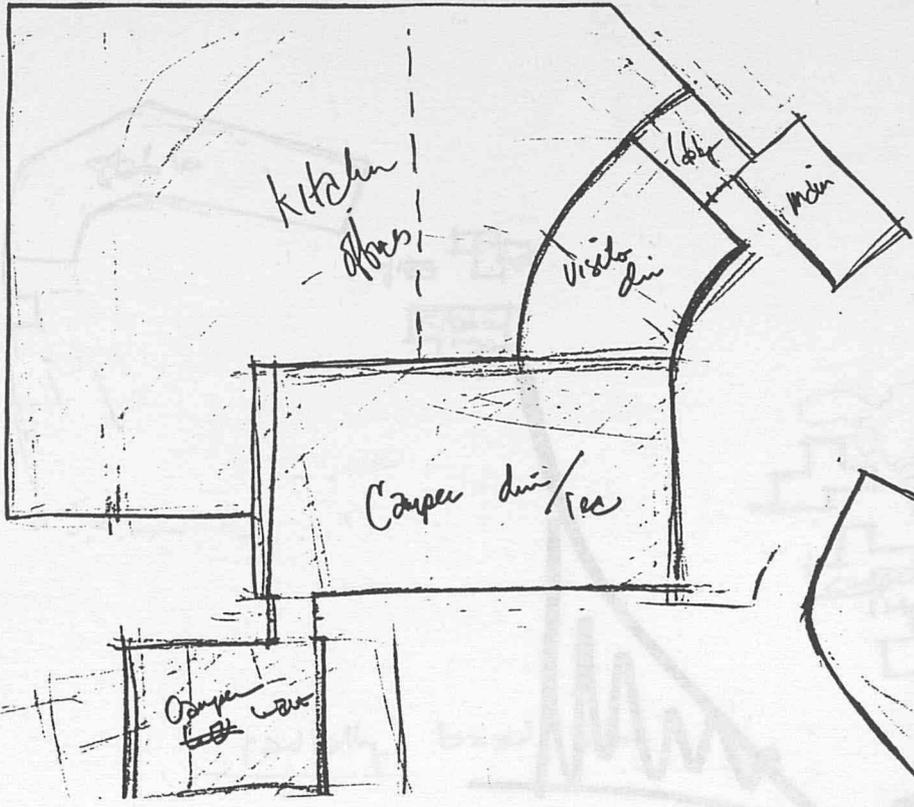
1-8-6-9

1-8-6-9



site design - based on radial concept 9-7-87

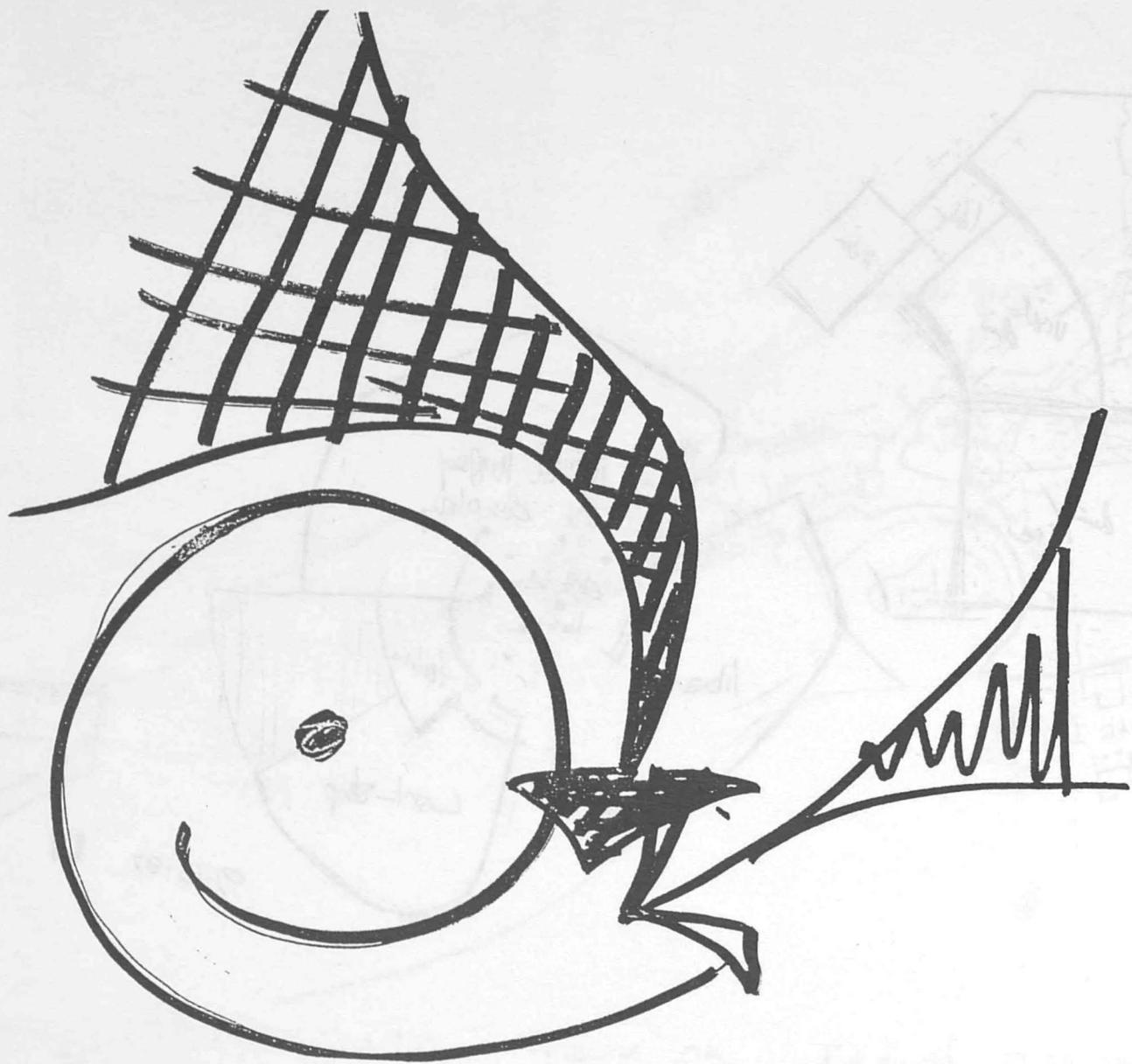
9-9-87



9-13-87

North Center

9-13-87



nature center concept

9-12-37





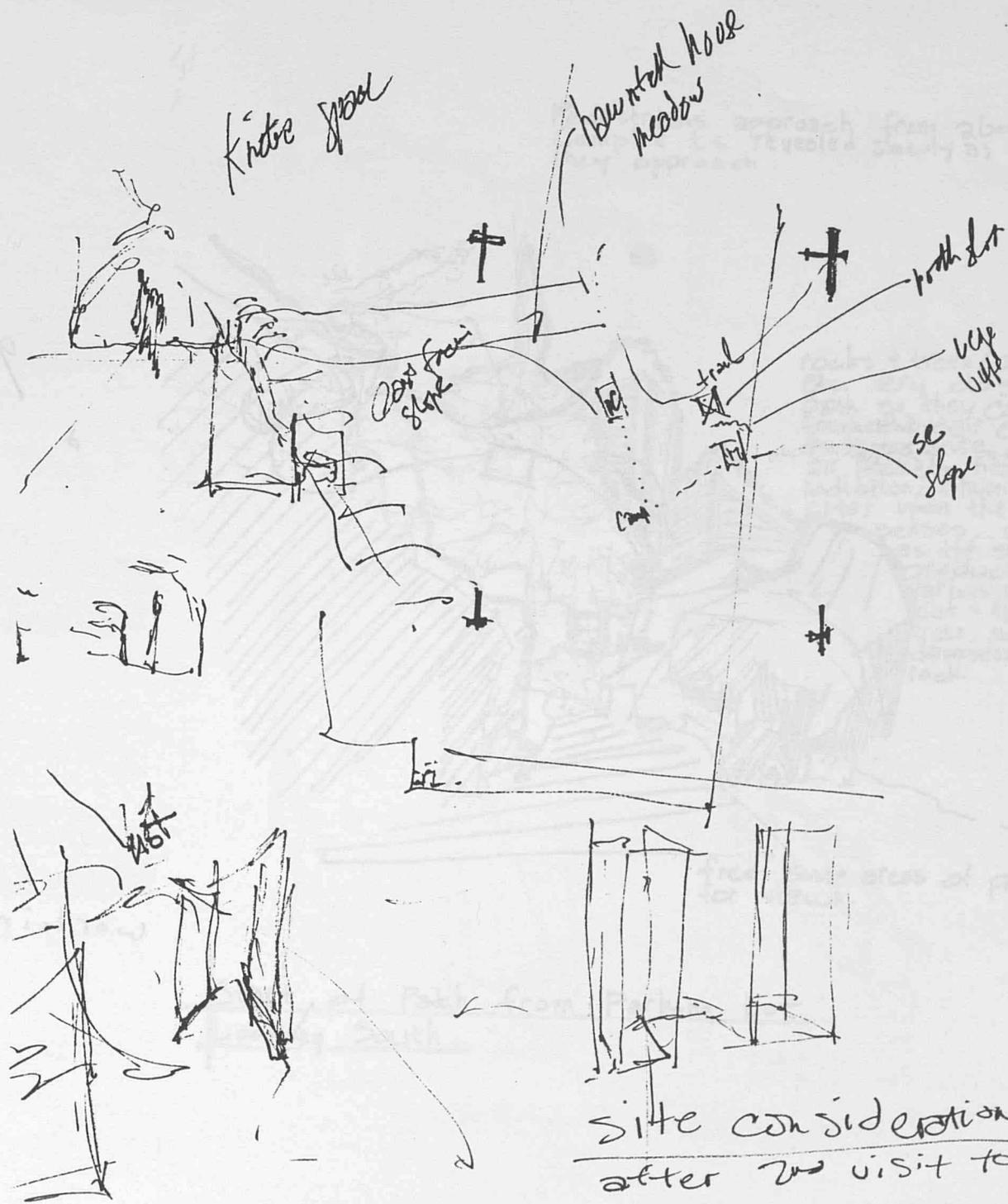
II

9-14-37

750  
4 | 300 -  
23

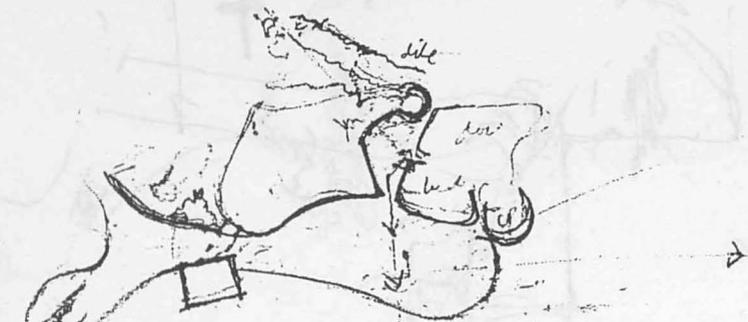


9-15-37

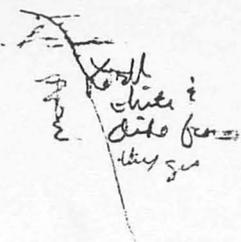


9-14-87

view of head  
containing w/ Spanish notes



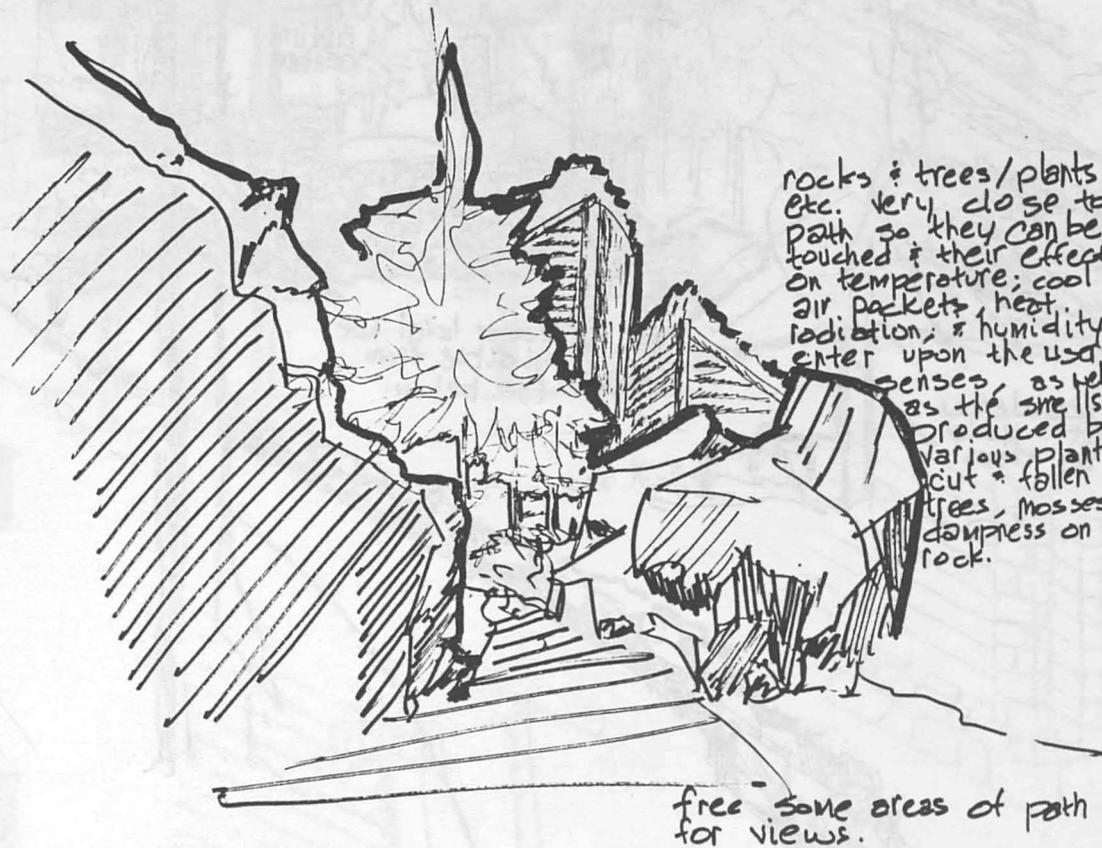
bring this over  
to face  
view



working on pathways

9.14.81

Pedestrians approach from above.  
Complex is revealed slowly as  
they approach.

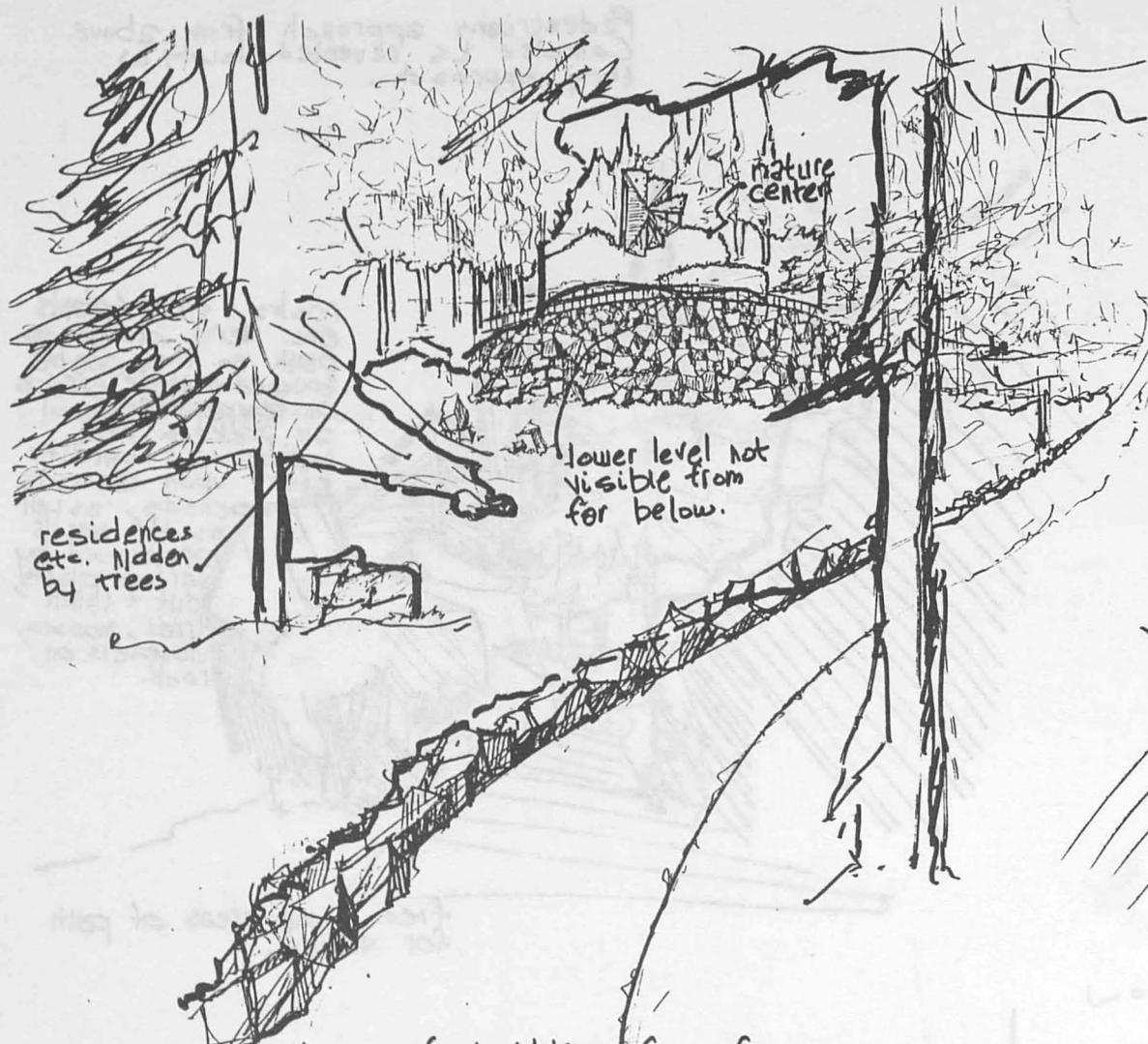


rocks & trees/plants  
etc. very close to  
path so they can be  
touched & their effects  
on temperature; cool  
air packets, heat,  
radiation; & humidity  
enter upon the users  
senses, as well  
as the smells  
produced by  
various plants,  
cut & fallen  
trees, mosses,  
dampness on  
rock.

free some areas of path  
for views.

Start of Path from Parking Lot  
Looking South

9-15-87

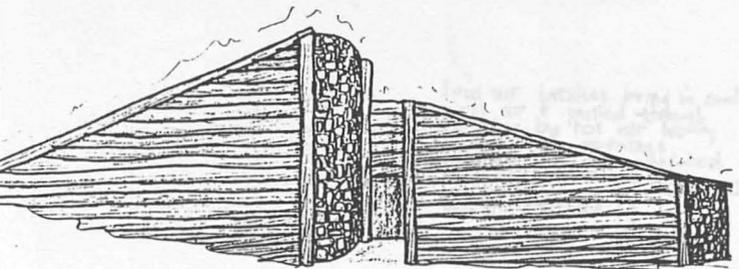
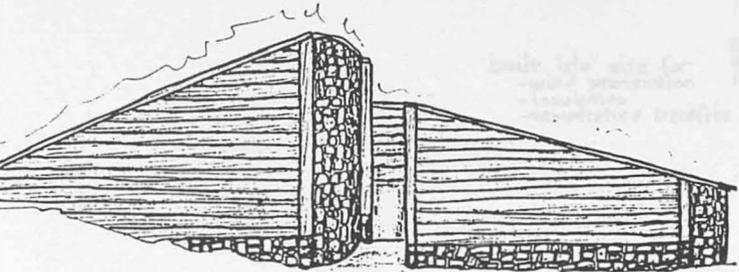
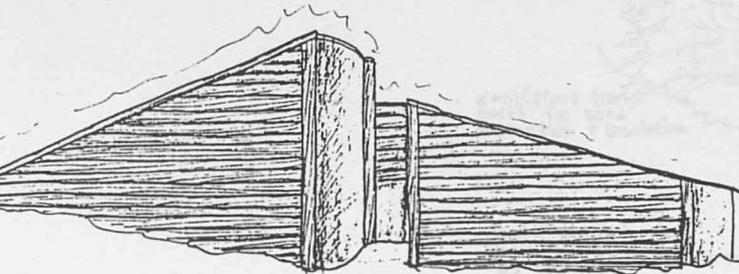


residences  
etc. hidden  
by trees

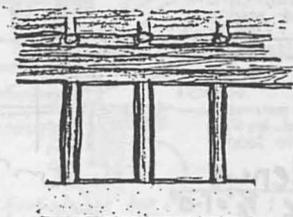
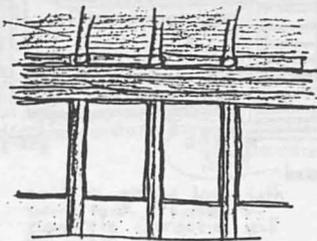
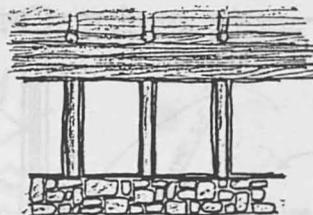
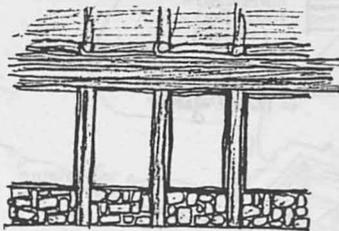
lower level not  
visible from  
far below.

One view of building from far  
below as drive up. Then goes behind  
trees. Road leads to parking lot  
but offers no more views of the  
facility.

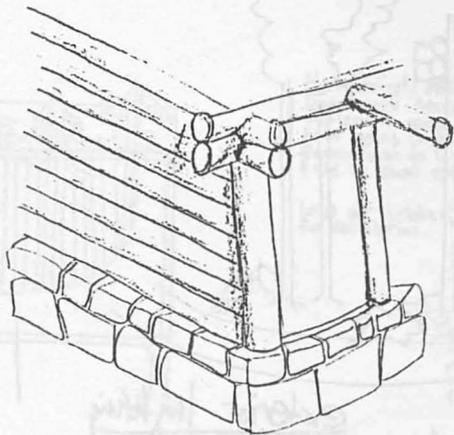
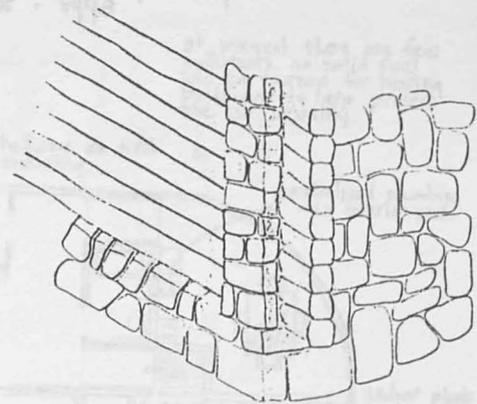
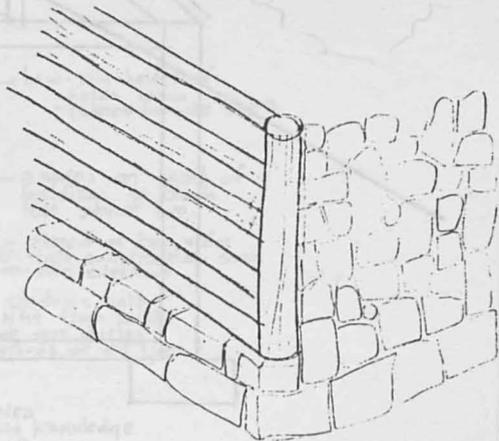
Looking North from Road



appr. scale:  $\frac{1}{32} = 1'-0''$

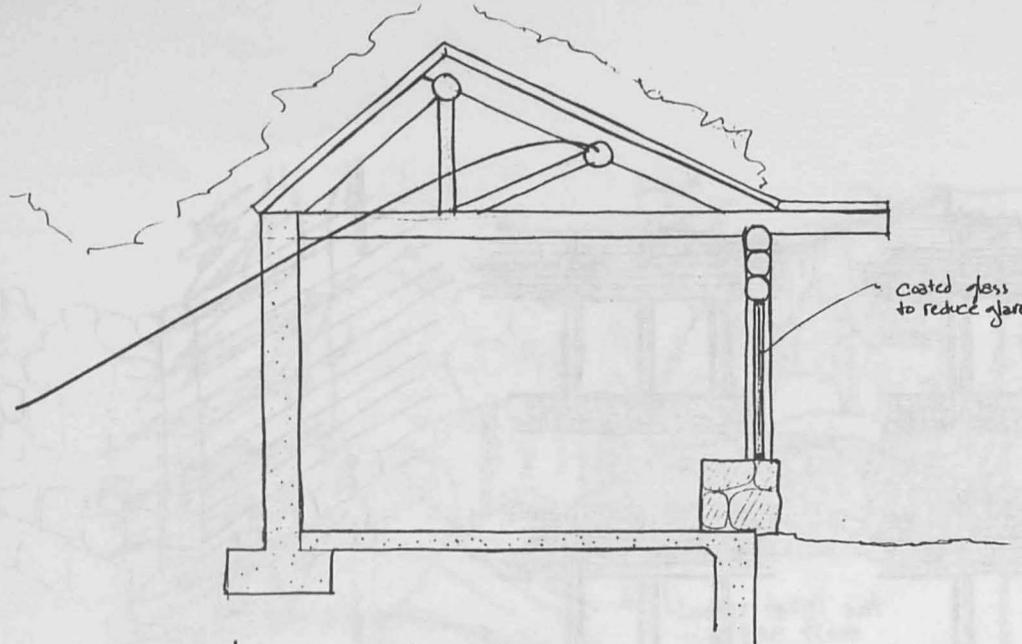


appr. scale:  $\frac{1}{16} = 1'-0''$



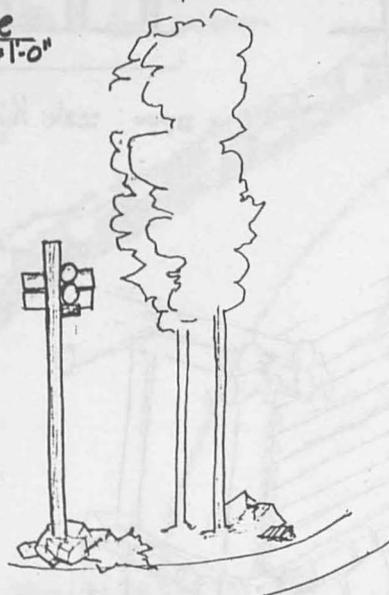
Material Studies

9-16-37



coated glass  
to reduce glare

Camper Residence  
appr. scale: 1/8" = 1'-0"



exterior lighting  
(pathways)  
scale: appr: 1/8" = 1'-0"

lighting

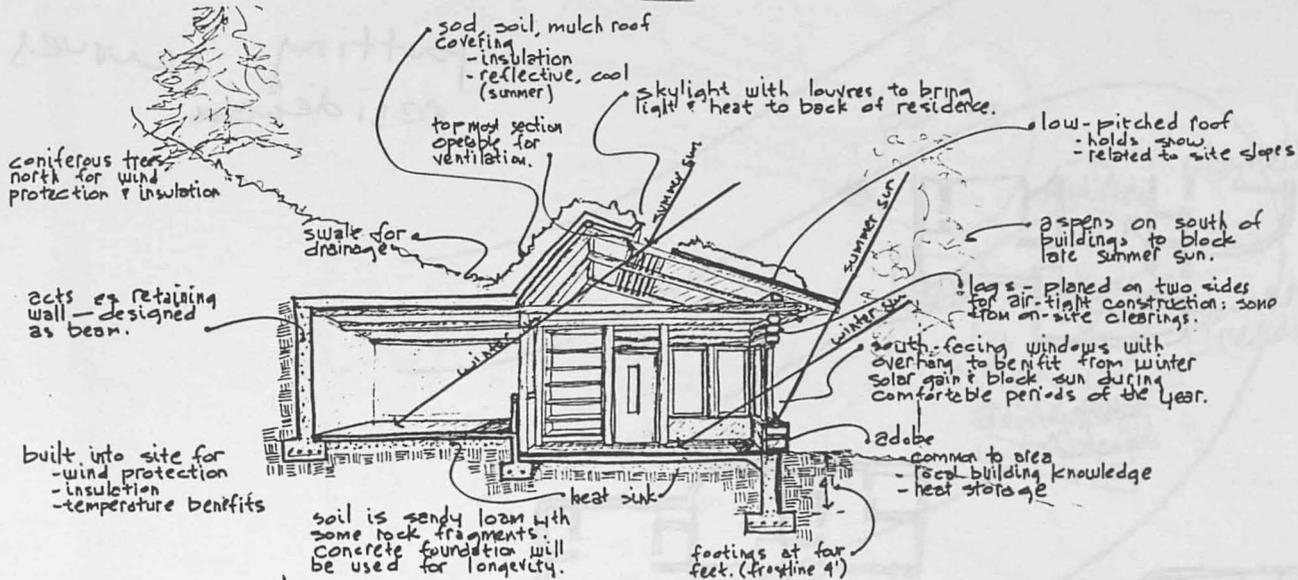


plan of standard



underground  
1/8" = 1'-0"

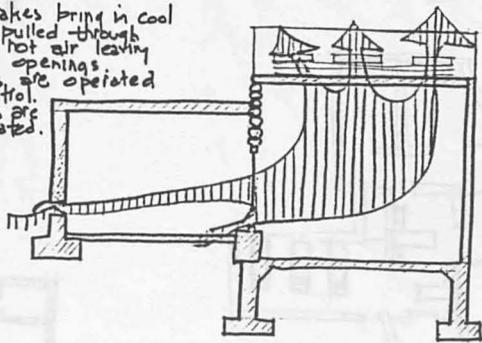
9-16-87



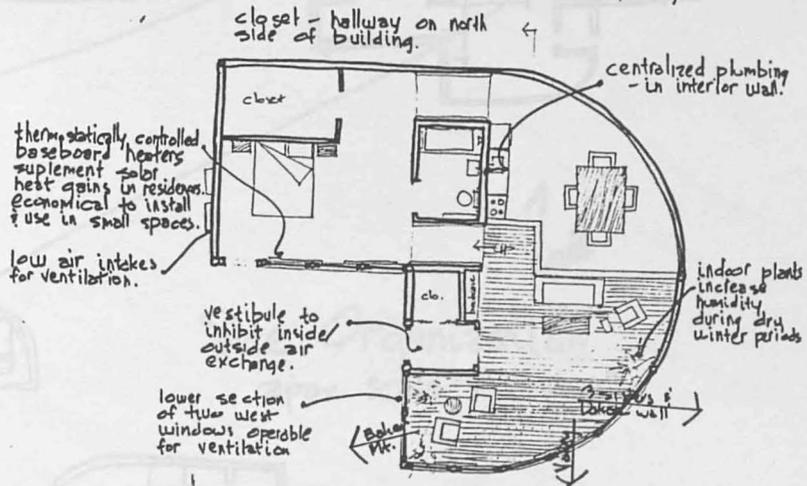
Typical Administrator's Residence  
 appx. scale: 1/4" = 1'-0"

at present there are few pollutants. no solid fuel will be burned for heating buildings to help protect the air quality.

low air intakes bring in cool night air & pulled through building by hot air leaving through high openings. high openings are operated by remote control. low openings are manually operated.



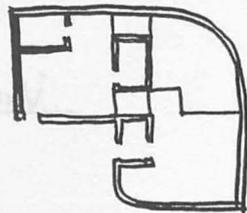
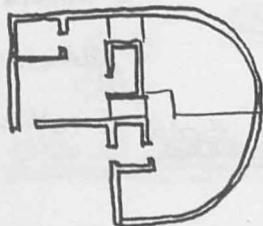
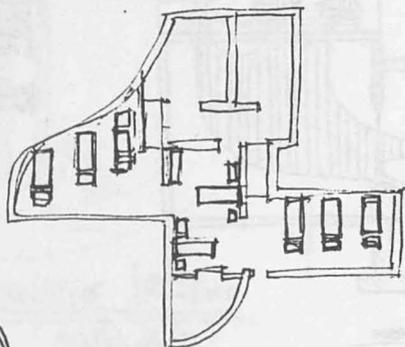
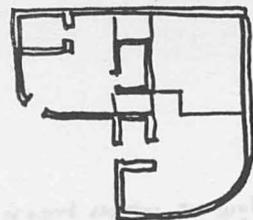
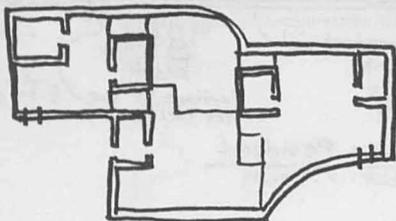
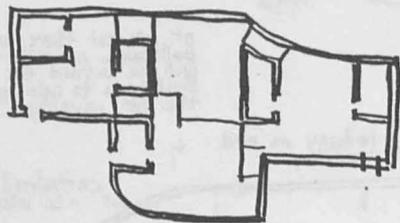
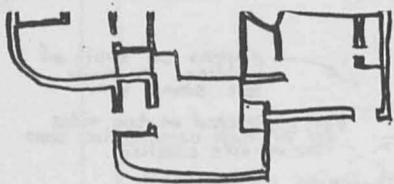
Ventilation Diagram



Administrator's Residence  
 appx. scale: 1/4" = 1'-0"

Solar & other site considerations

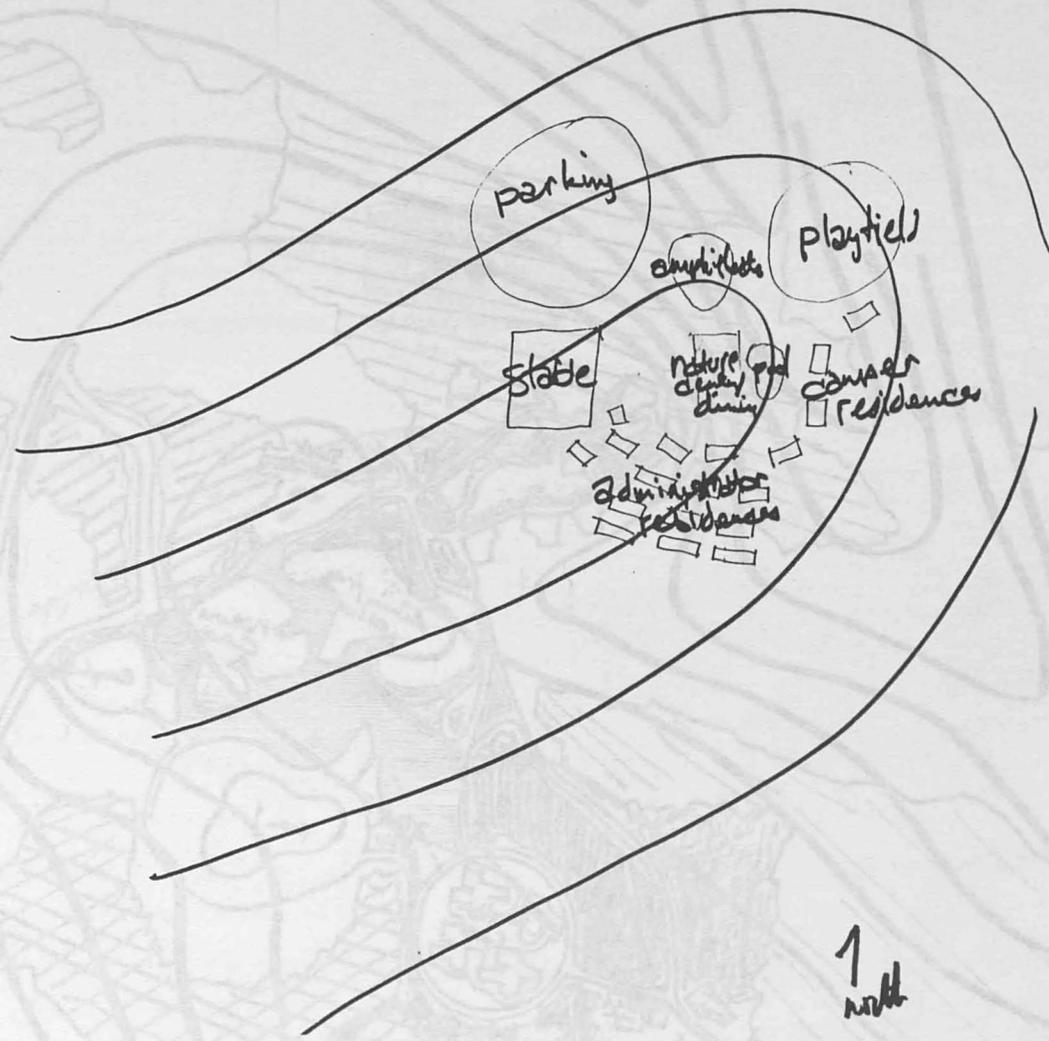
putting curves in  
residences.



9 - 19-87

11

27



Site Organization  
appx. scale: 1" = 240'-0"

7-20-81



9-70-87



grocery residence



For each building  
 clear  
 access to driveway  
 (preferably but can be variable  
 clear deep.)

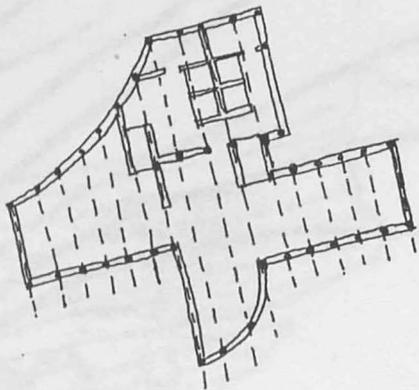
Shared space  
 for parking

lines concept

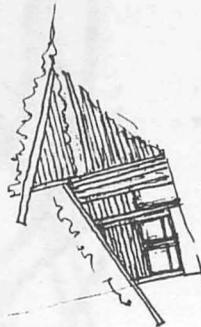
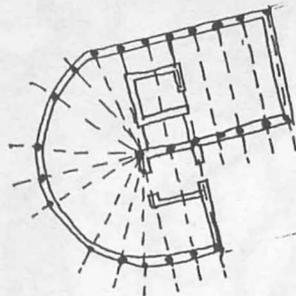
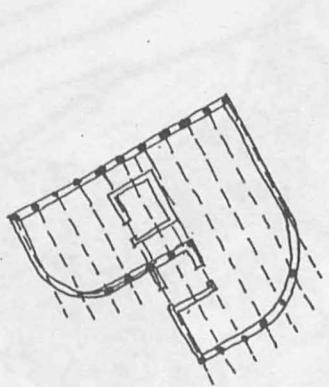
Concrete slab with perimeter beam  
 supports roof & blocks columns  
 spaced for roof support  
 structural system - wood frame

9-22-87

P-55-87



Camper Residence  
appr. scale:  $\frac{1}{16}'' = 1'-0''$

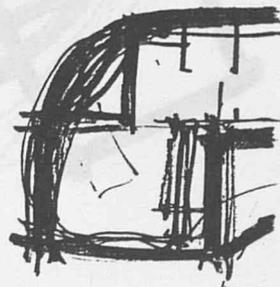
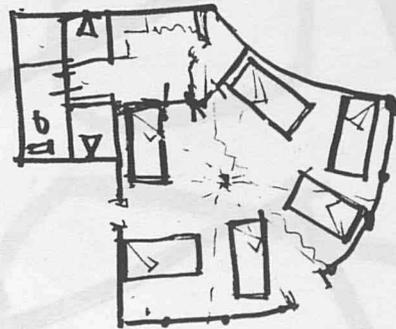
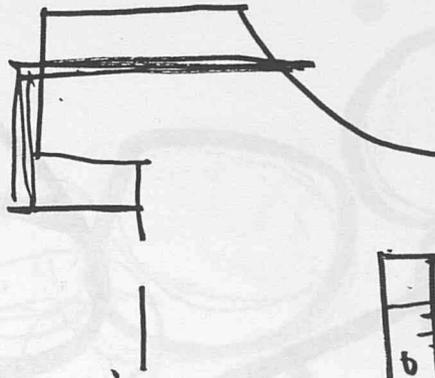


Administrator Residences  
appr. scale:  $\frac{1}{16}'' = 1'-0''$

Structural system - wood trusses  
spaced four feet apart  
support roof. walls are logs with  
two sides planed & adobe. foundation  
concrete slab with perimeter beam.

9-22-37

groom's residence



For each galk number provide:

bed  
chair

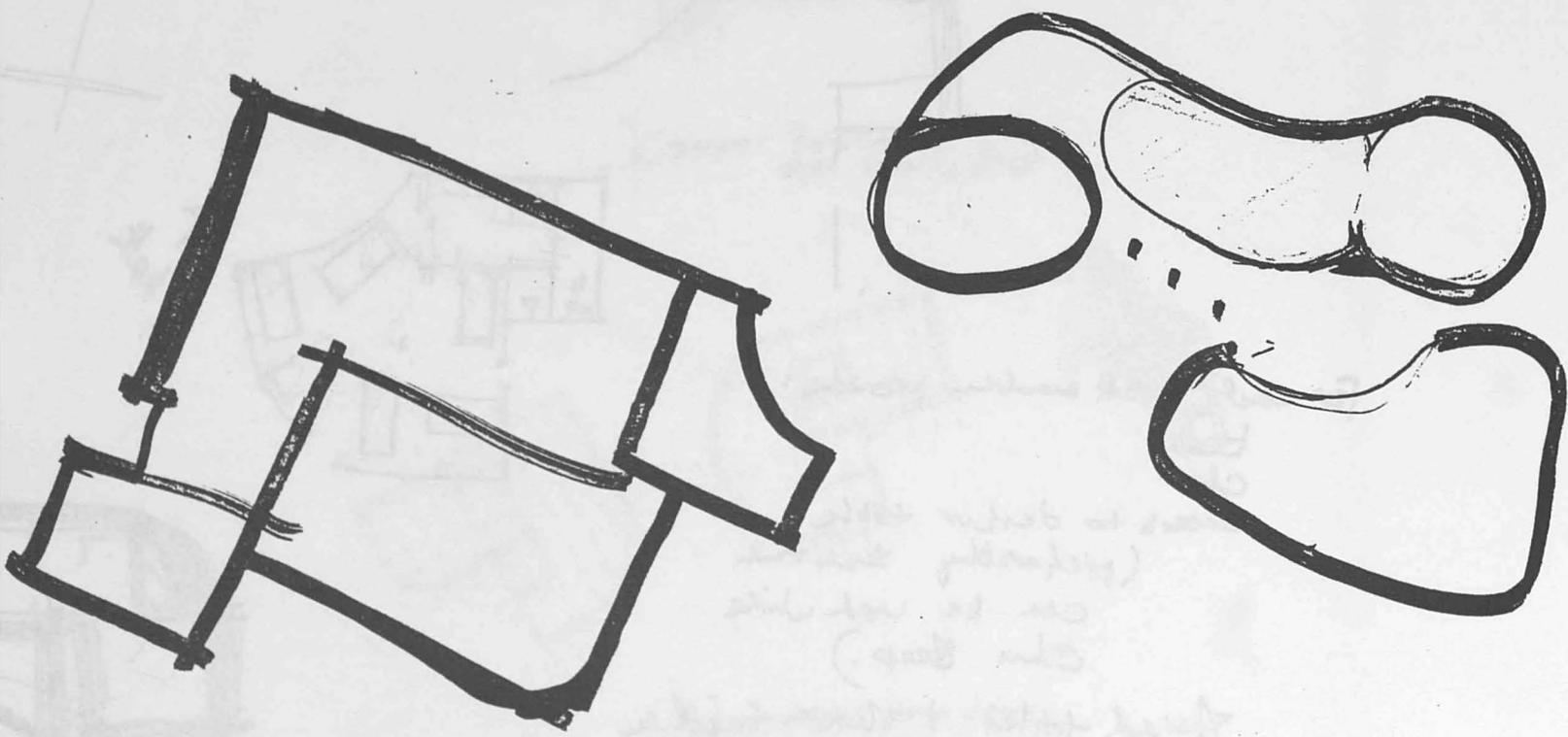
access to desk or table  
(preferably such that  
can be used while  
other sleep.)

shared toilet & shower facilities  
lav. mirror

dresser / closet space

Combining the 2 buildings

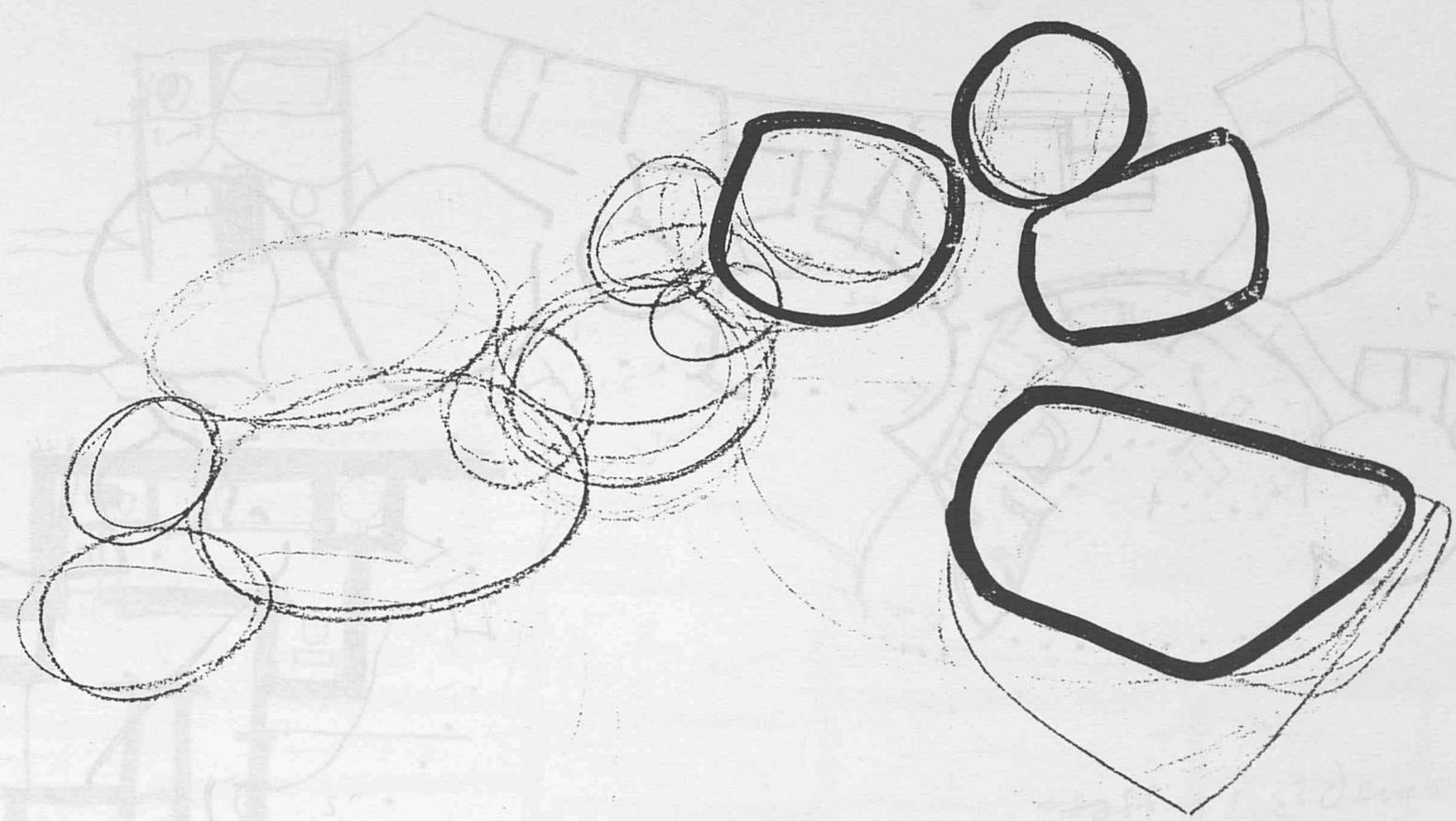
9.22.87



relating food services to nature center

9-23-37

four lens connection

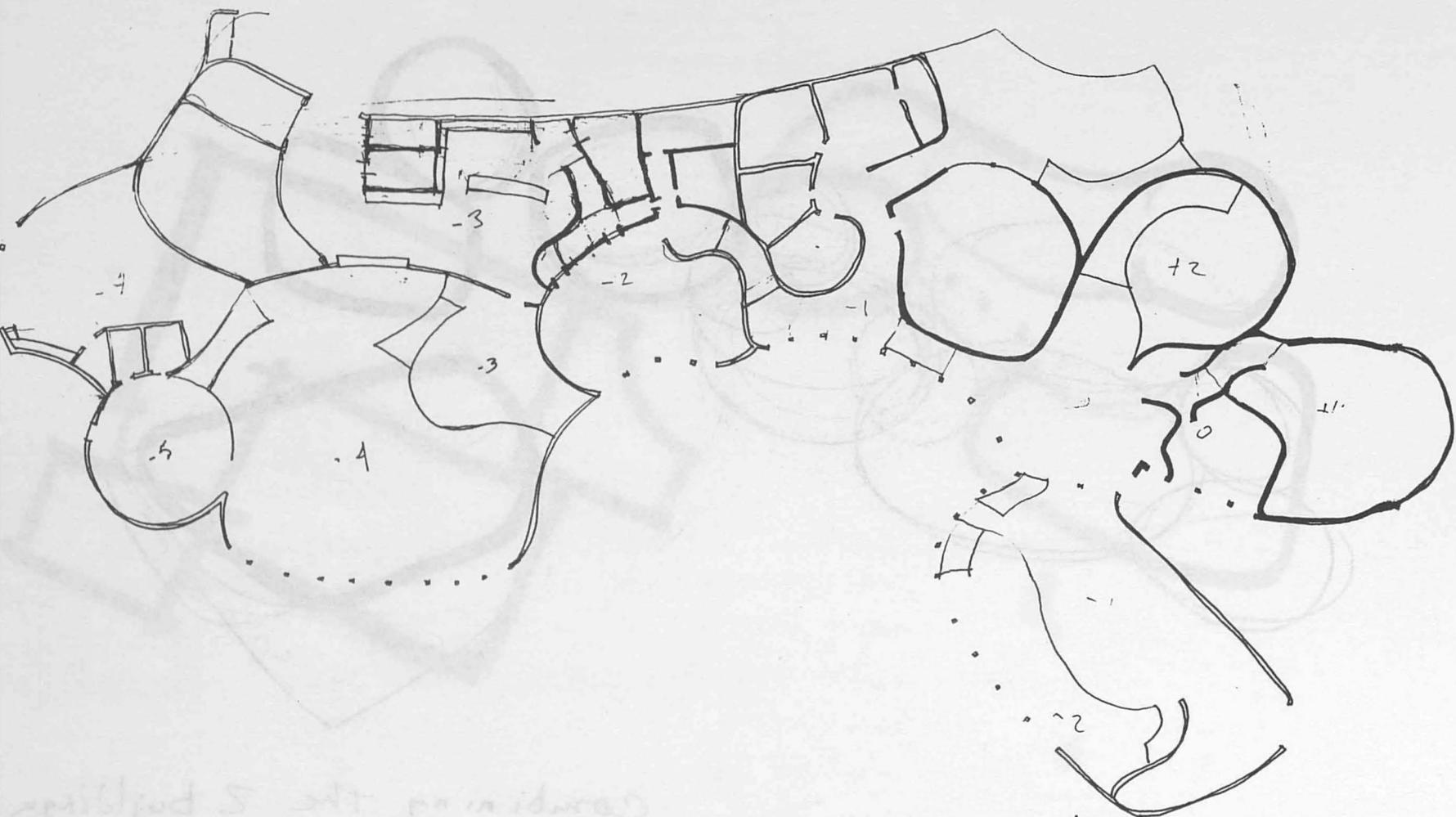


Combining the 2 buildings

---

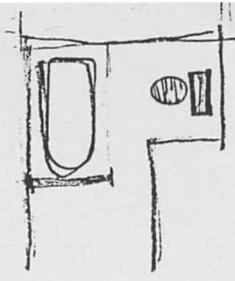
9.23.87

10. P.S. P

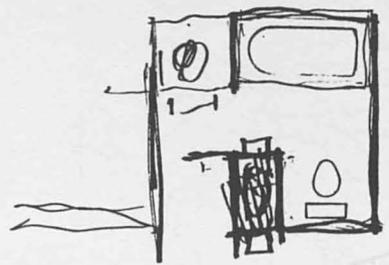


Nature center / food services

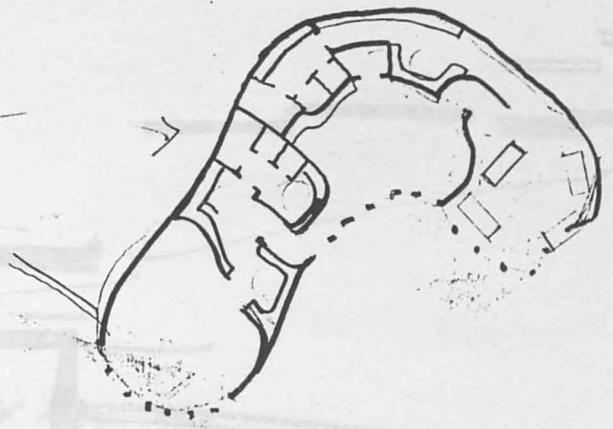
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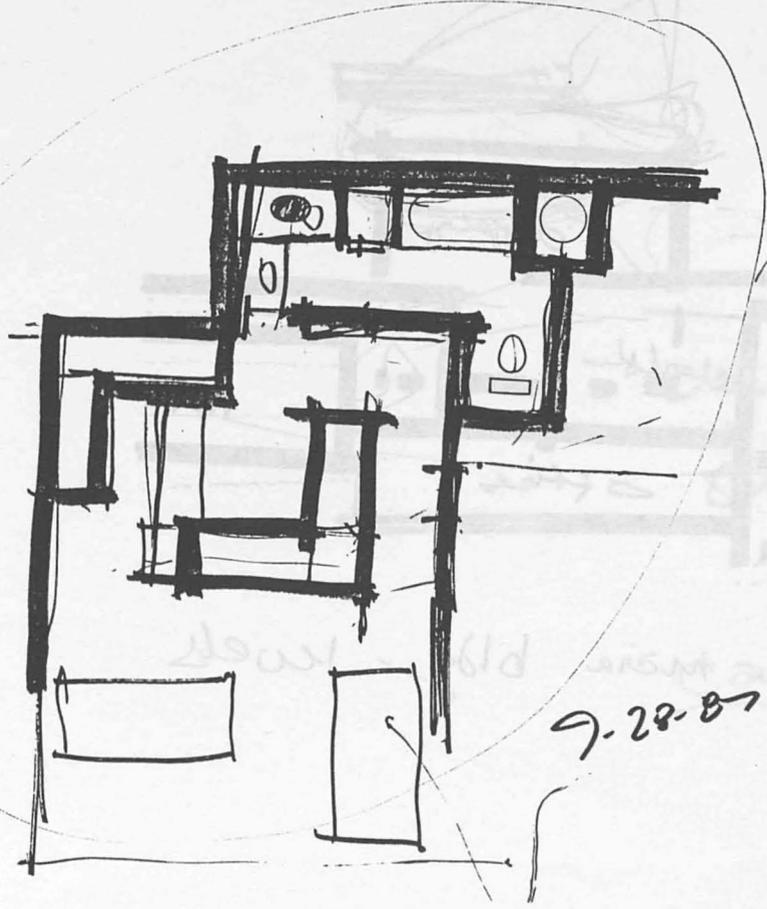
floorless connection



become  
this

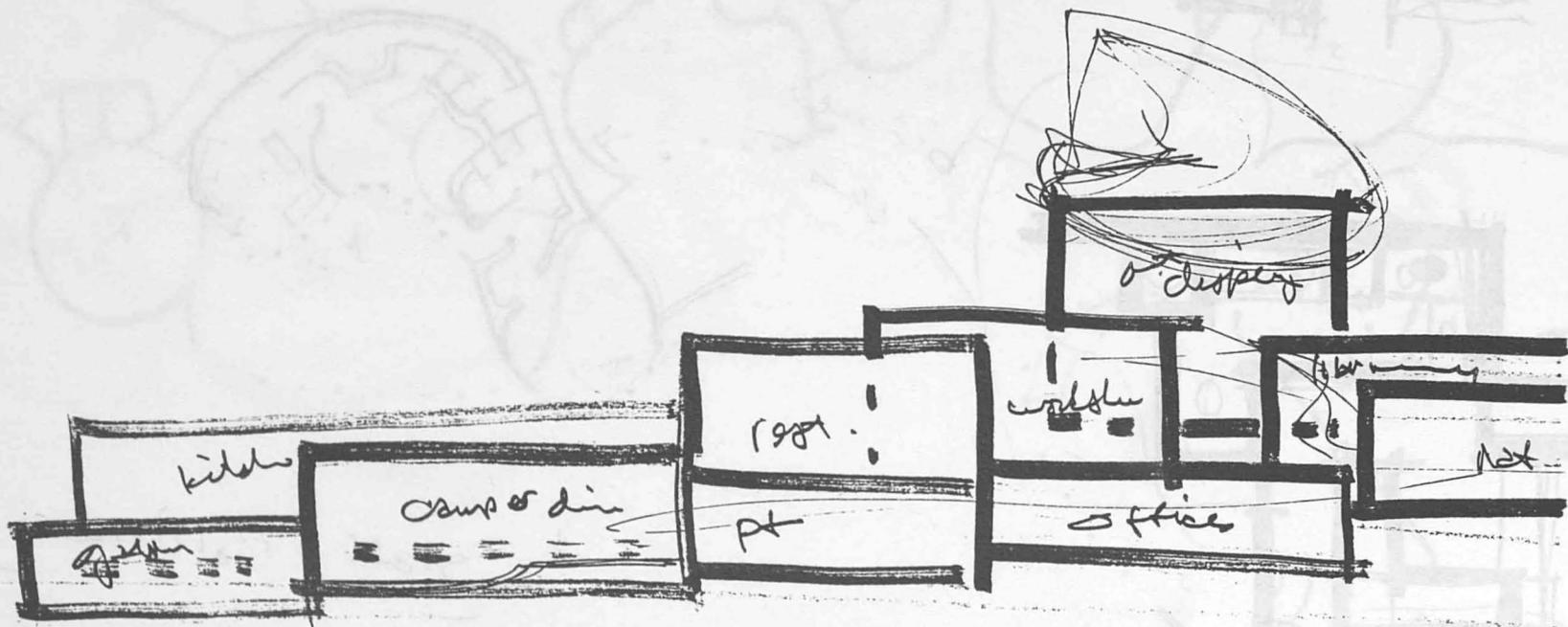


staff residence



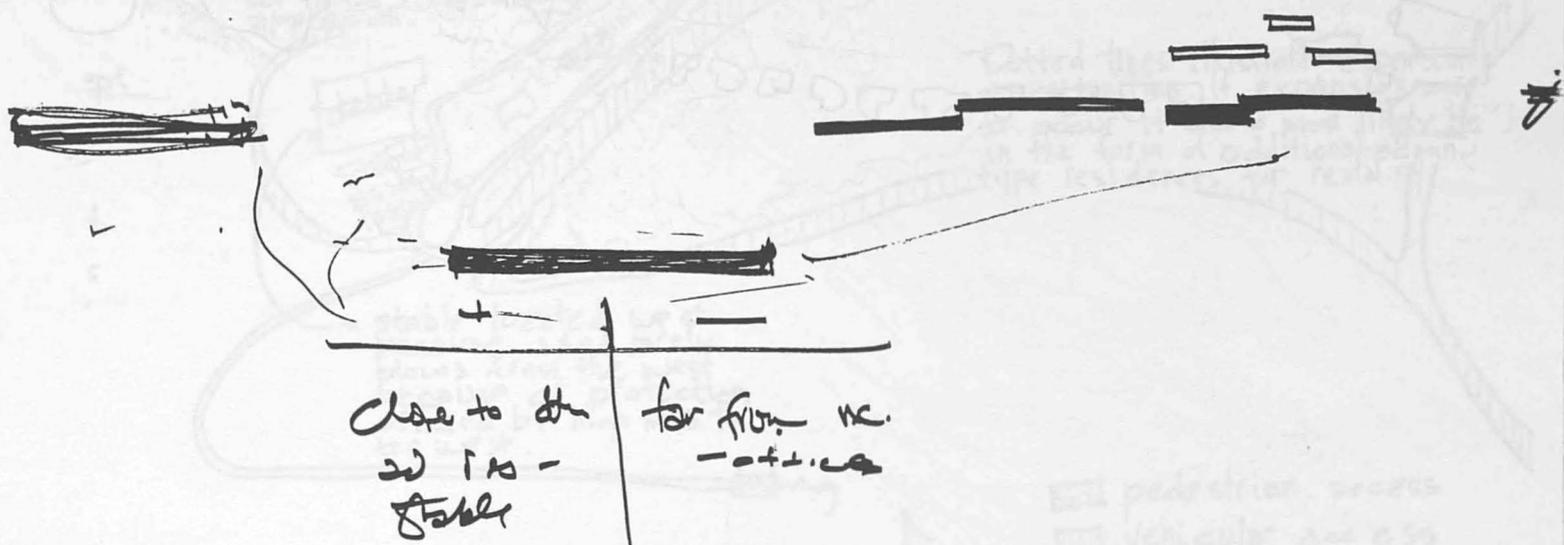
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18408487



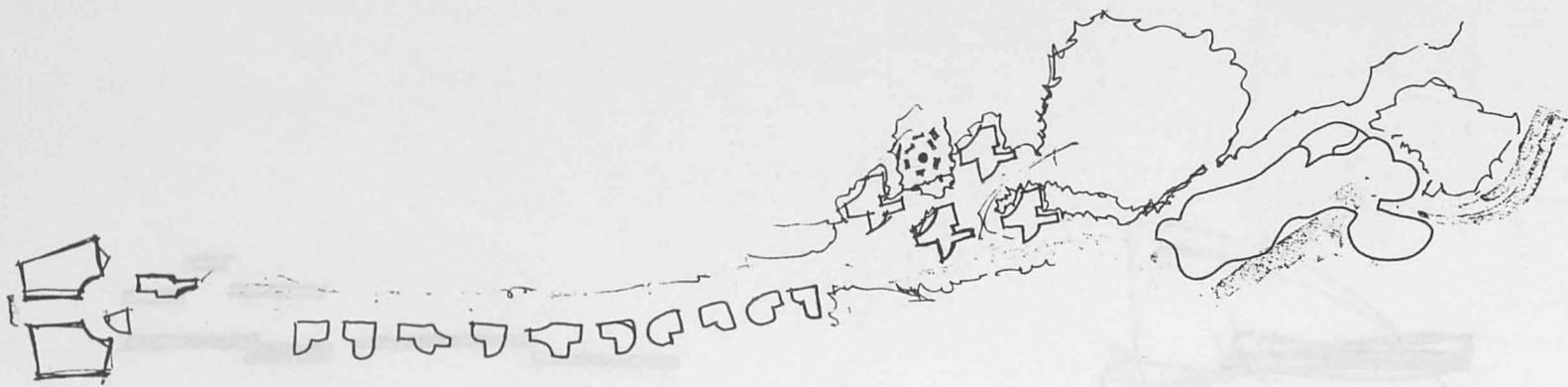
main bldg - level

9.30.31

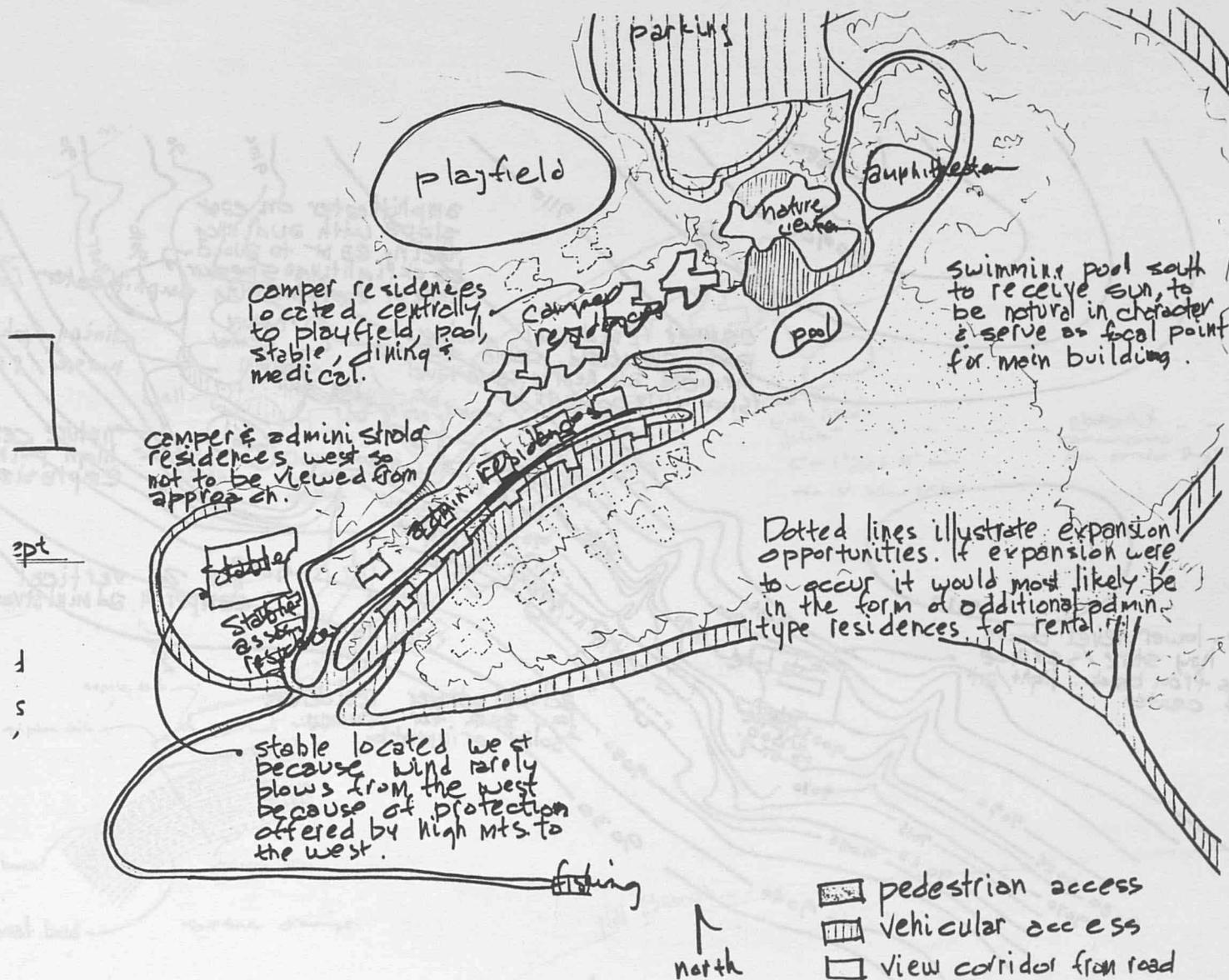


Camp levels

10-6-87

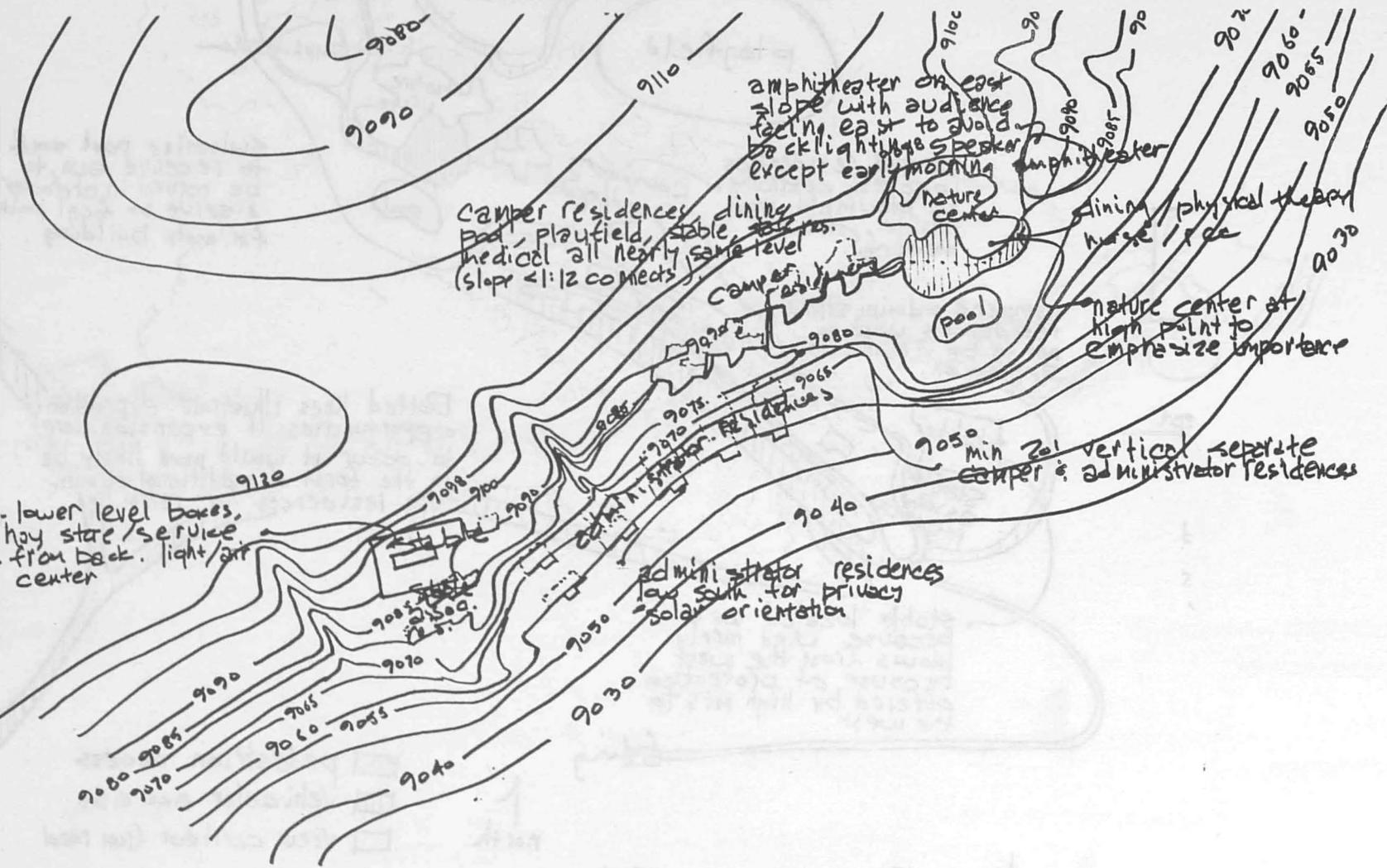


10-7-87

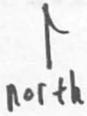


Kito Plan showing path

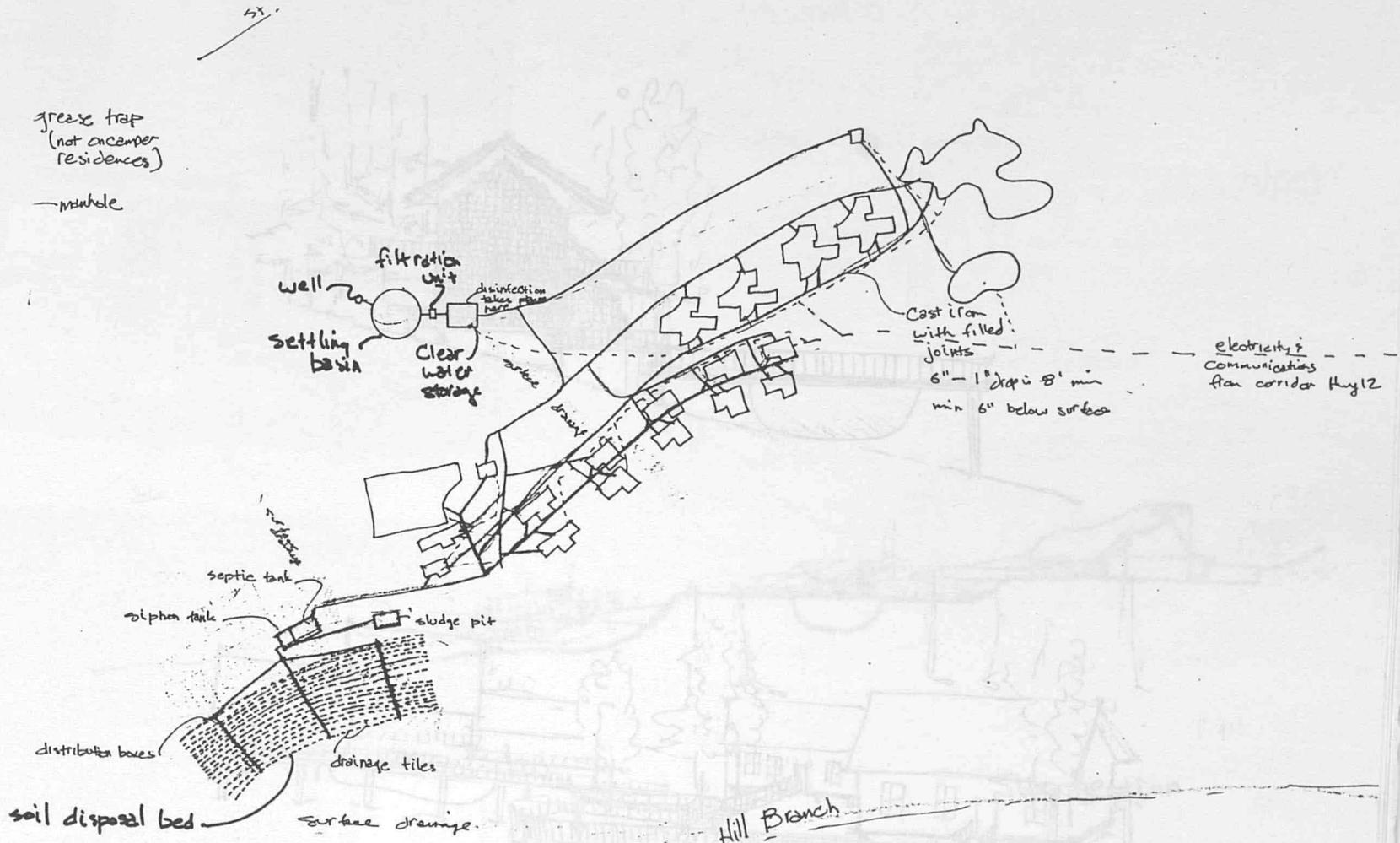
10-3-87



Site Plan



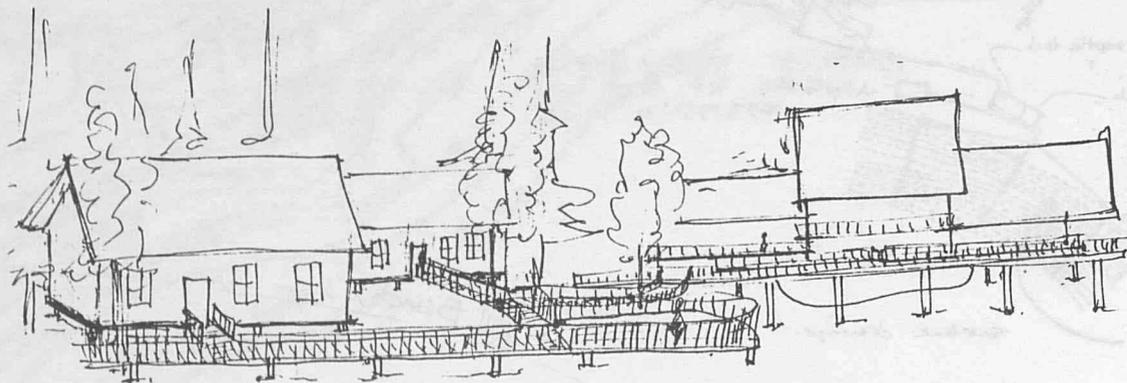
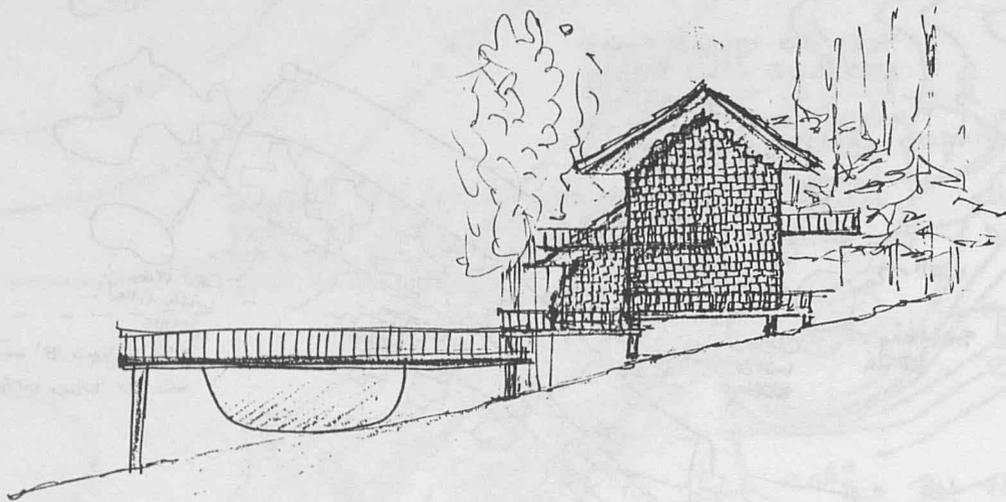
10-8-87



**Site Utilities**  
 2 ppx. scale: 1" = 120'-0"

↑  
 North

10-9-87



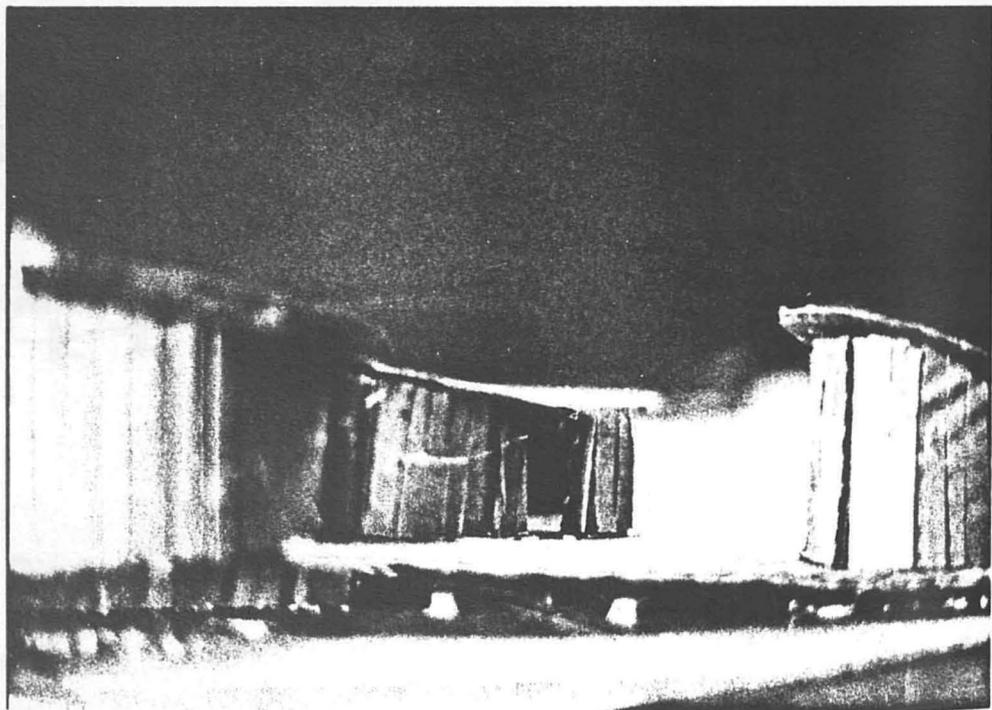
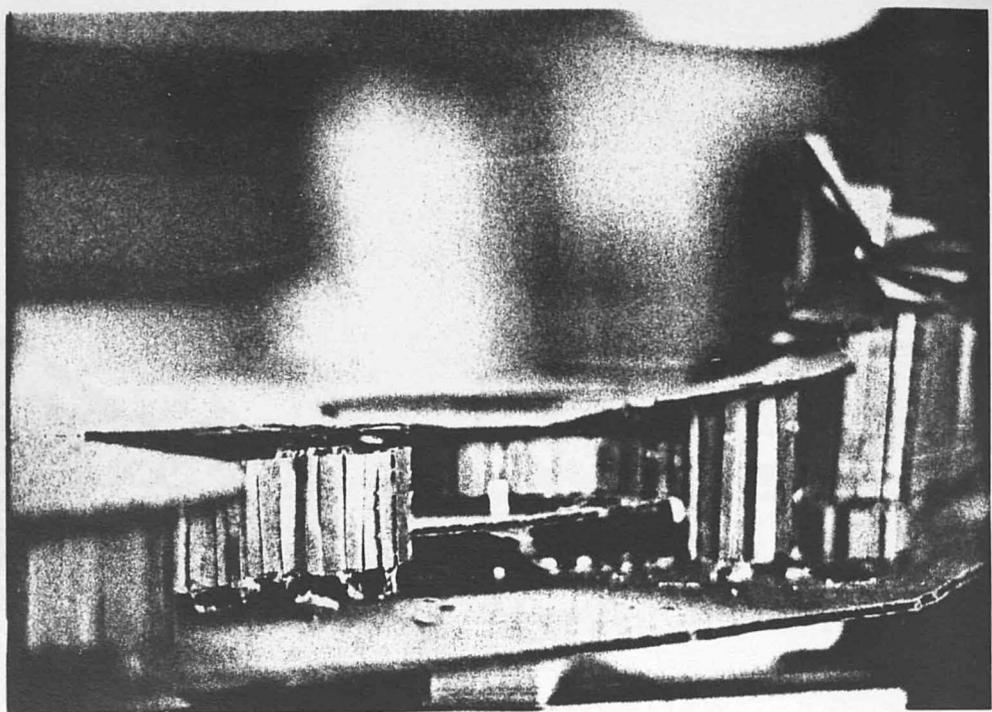
### Alternative Concept

- complete separation from site
- zero site disturbance
- buildings & pathways on piers
- "swiss chalet" type buildings

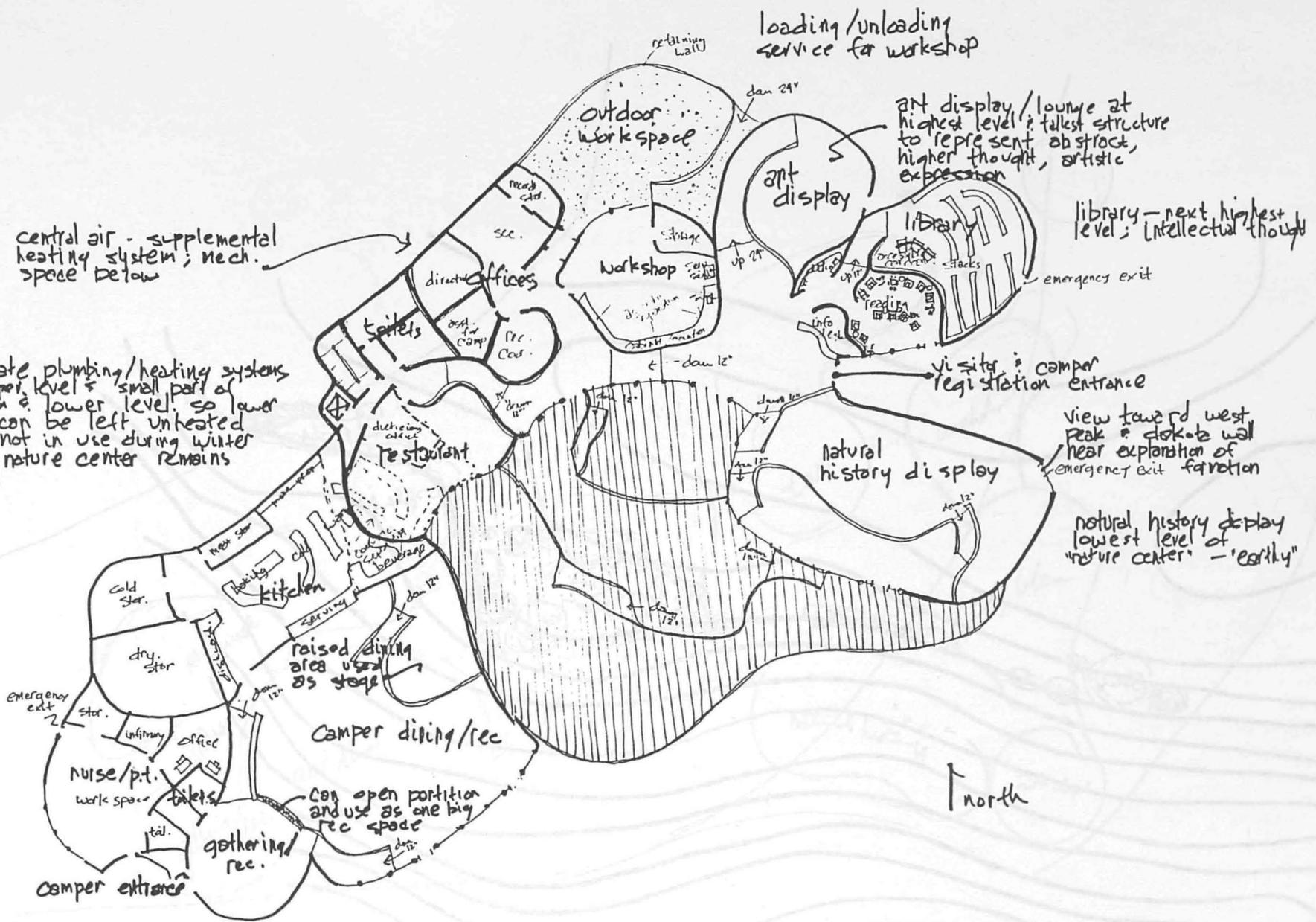
12-8-37



a compromise was  
worked between the  
stick concept &  
cave concepts (shown  
on the previous  
pages) to arrive  
at a fortress concept.



10-9-87



central air - supplemental heating system; mech. space below

separate plumbing/heating systems for upper level & small part of kitchen & lower level. so lower level can be left unheated when not in use during winter while nature center remains open.

loading/unloading service for workshop

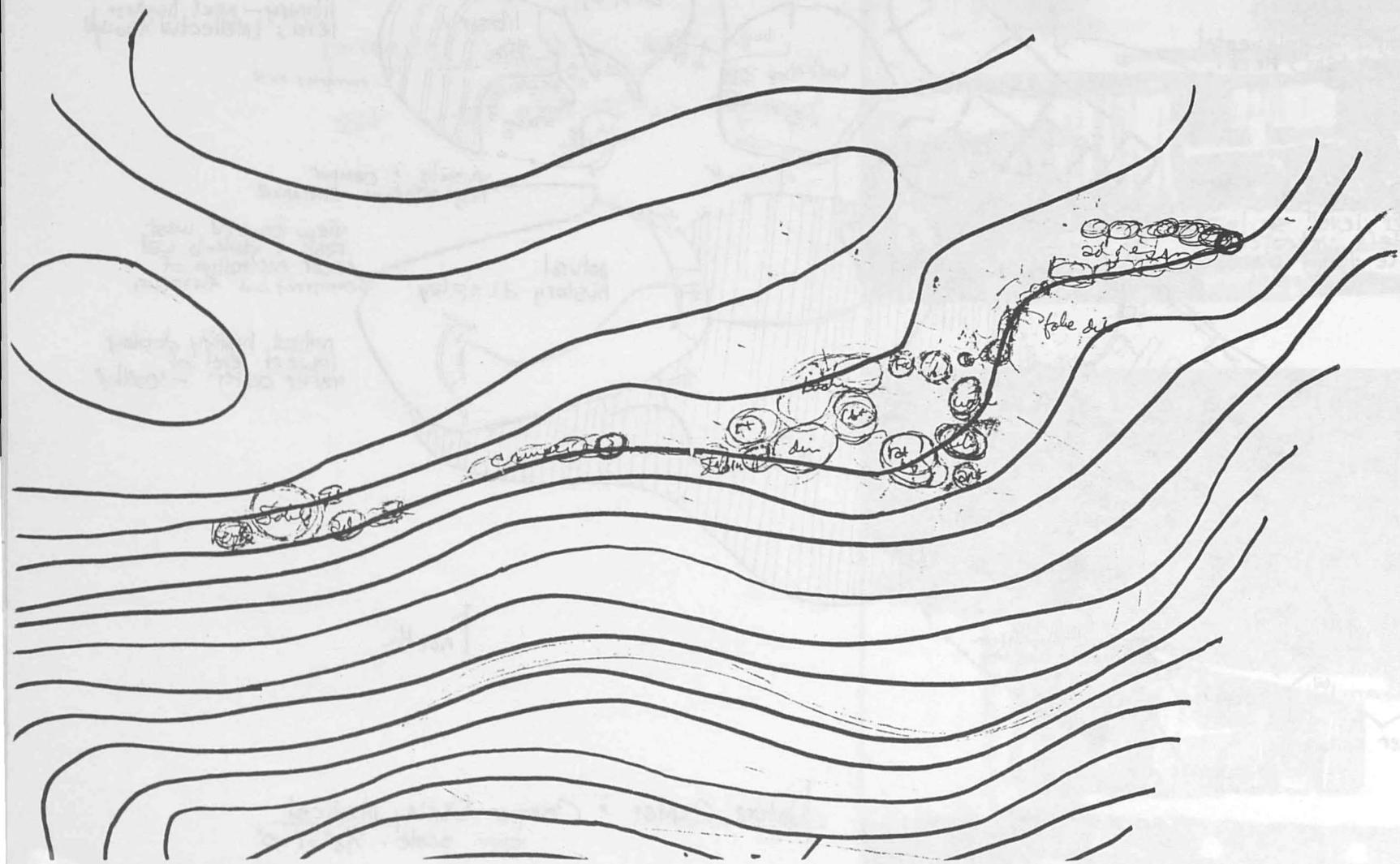
art display/lounge at highest level; tallest structure to represent abstract, higher thought, artistic expression

library - next highest level; Intellectual thought

view toward west peak & dome wall near explanation of formation

natural history display lowest level of "nature center" - "earthy"

Nature Center & Camper Dining Medical  
 apprx. scale: 1/16" = 1'-0"



10 - 10 - 37

10 - 9 - 37

pt. house

library

gathering / rec

rec dining

Kitchen

Restaurant

11  
Office

Lois

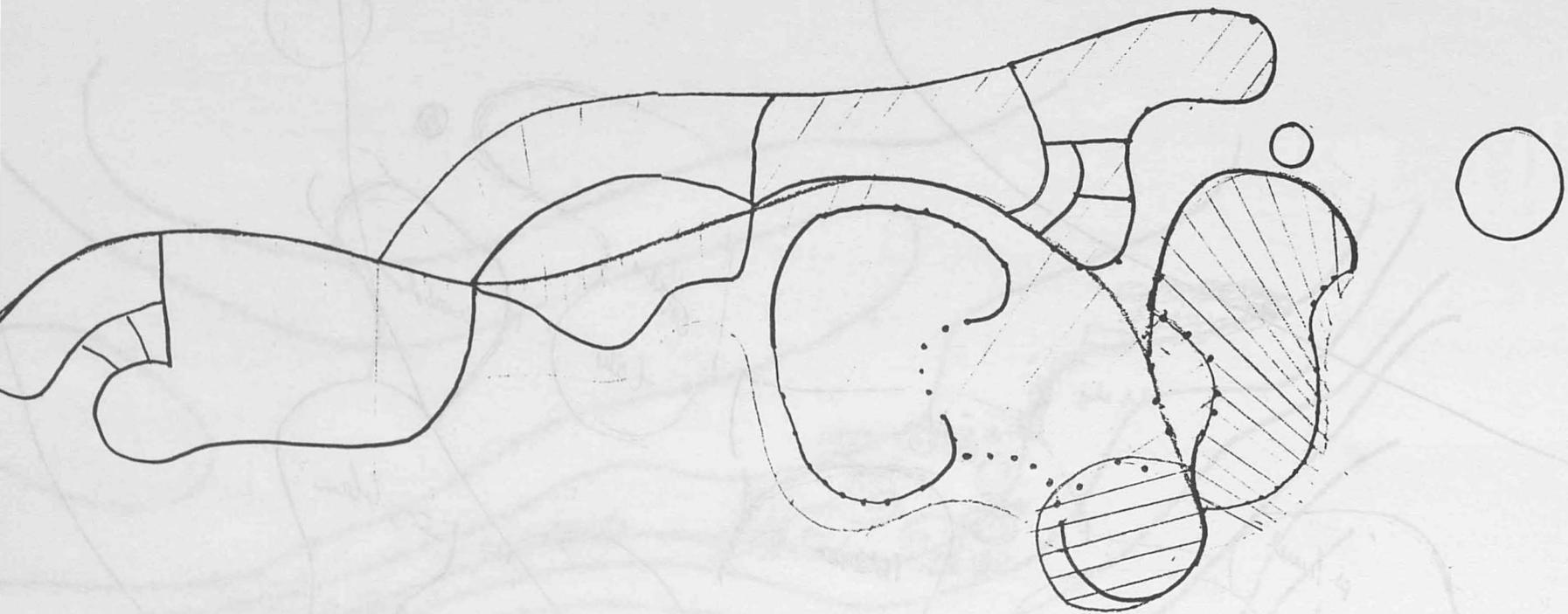
workshop

Natural history

Library

art display

10-10-87



10 - 12 - 81

9	10	11	57	12	13	14
8	25	26	31	27	28	15
7	29				29	16
6	23				30	17
5	22				31	18
42						23
0	2	1		21	20	19

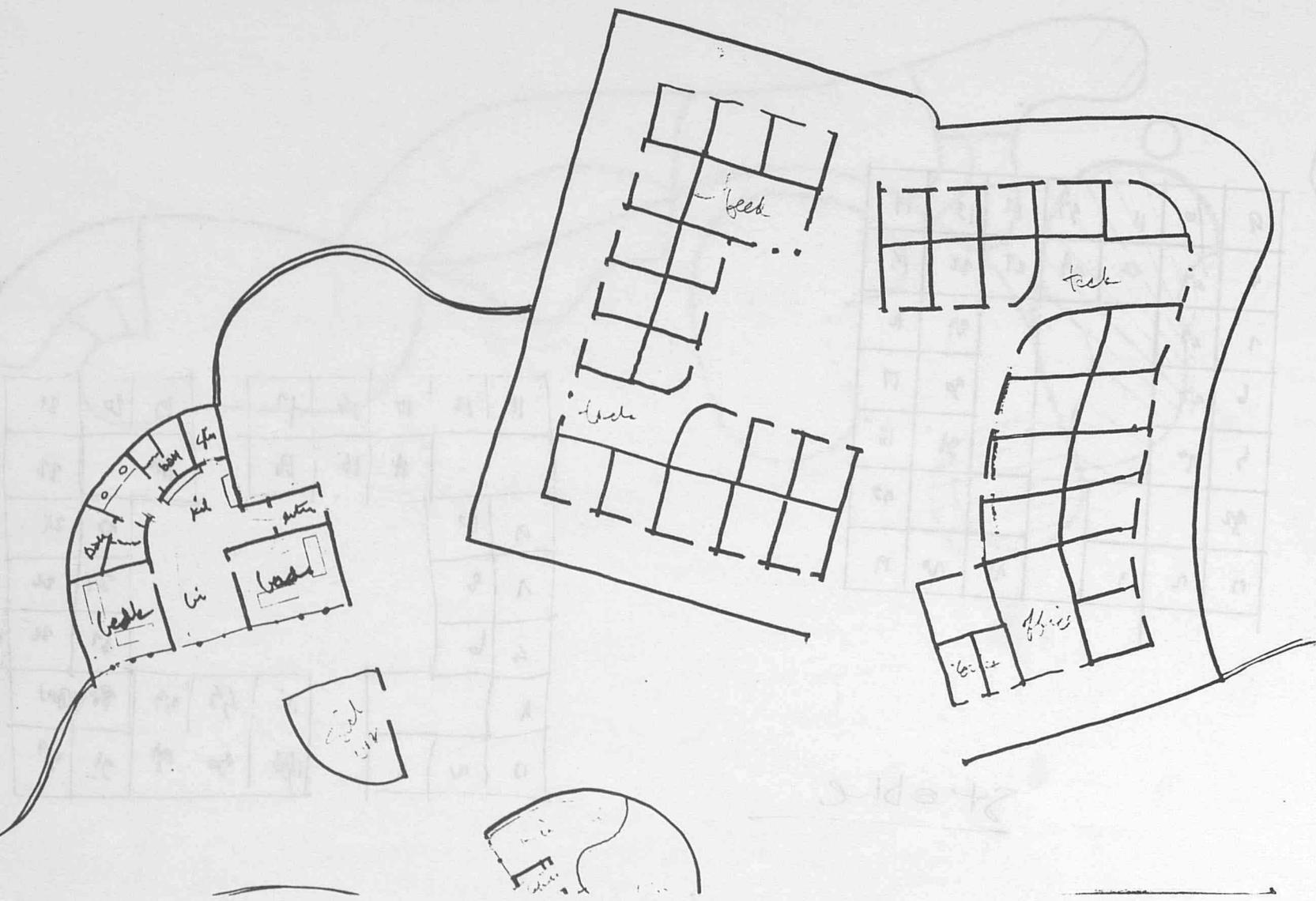
Stable

11	12	13	14	17
		14	15	18
9	10			
1	8			
5	6			
1				
0	2	1		

19	20	21
22		22
	23	24
	25	26
	27	28
	29	30
	31	31

stable

Final design



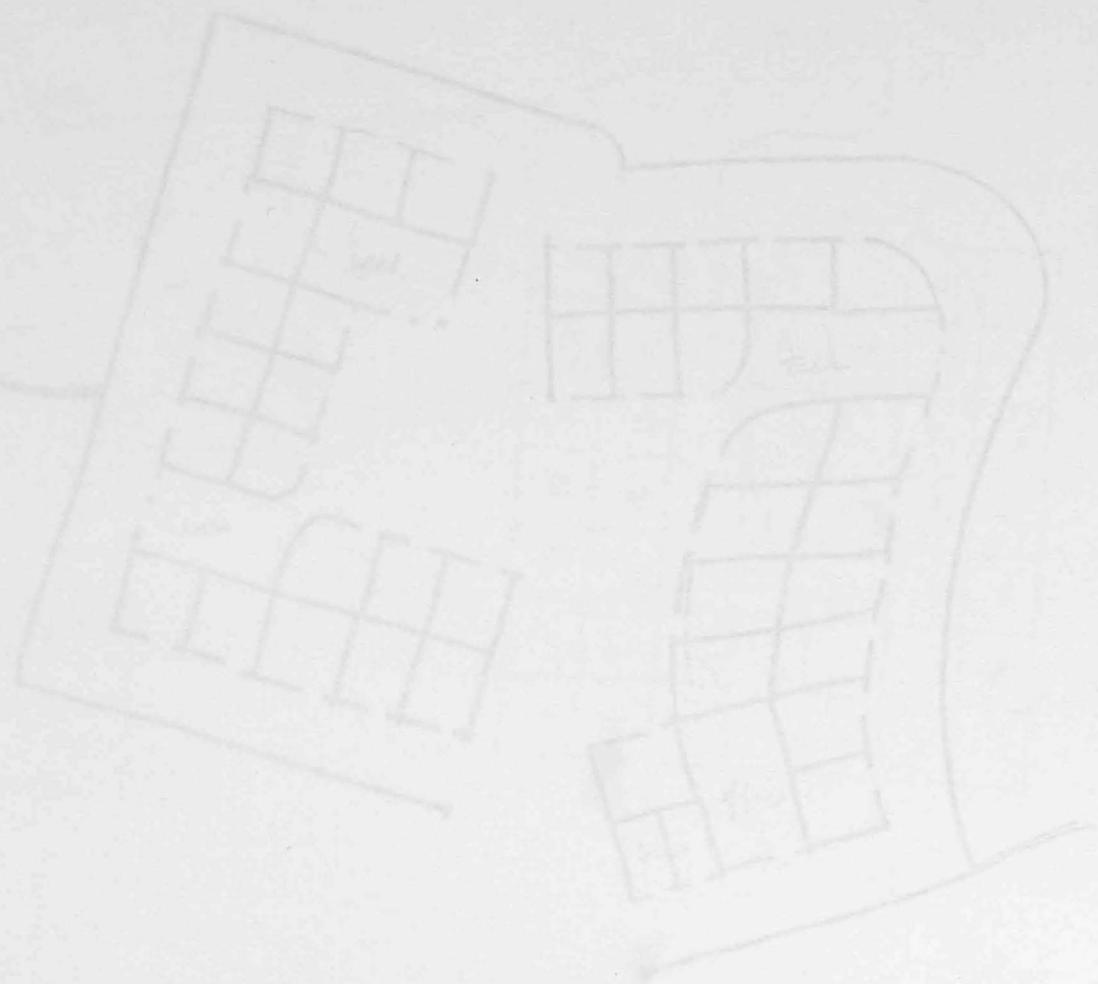
stable

final design



final design

apish 1st fl



stable