A DEVELOPMENT STUDY

FOR BRIDGER BOWL

Undergraduate Thesis in Architectural Design

by Wayne H. Berg

Submitted to the School of Architecture as partial fulfillment of the requirements for the degree of Bachelor of Architecture at Montana State University

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Bozeman, Montana

March, 1969
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CONDITIONS CREATING A NEED

Leisure time, which is playing an increasingly big part in everyone's life, is moving to a point of emphasis from passive leisure enjoyment such as watching sports events or motion pictures to quietly moving and taking part in physical activities. This desire of such a change is causing American recreation spaces to be flooded with unchecked masses of people, especially in peak vacation seasons. To handle the increasingly crowds of people, new resorts are springing up and older ones are constantly adding on to their facilities to keep pace with the movement.

Skiing is one of the recreation forms receiving much of this new movement. This can be easily attested to by the fact that visits to ski areas tripled between 1956 and 1964. There are many obvious factors contributing to this increase, such as more leisure time, higher standards of living, improved transportation, and a rapidly increasing population. Along with these basic factors are many others that attest to men's desire to become actively involved in sport for recreation.

Of the people skiing in the Western areas last season, nearly one-third were novices; that is, they

NEED
CONDITIONS CREATING A NEED

Leisure time, which is playing an increasingly big part in everyone's life, is tending to switch emphasis from passive leisure activities like watching sports events or motion pictures to actually moving and taking part in physical activities. The result of such a change is causing American recreation spots to be flooded with unheralded masses of people, especially in peak vacation seasons. To handle the increasing crowds of people, new resorts are springing up and older ones are constantly adding on to their facilities to keep pace with the movement.

Skiing is one of the recreation forms receiving much of this new movement. This can be easily attested to by the fact that visits to ski areas tripled between 1956 and 1964. There are many obvious factors contributing to this increase, such as more leisure time, higher standards of living, improved transportation, and a rapidly increasing population. Along with these basic factors are many others that attest to man's desire to become actively involved in sport for recreation.

Of the people skiing in the Western areas last season, nearly one-third were novices; that is, they...
had been skiing for only one or two seasons, and for twenty per cent more of the skiers, it was their first year. It should also be noted that two-thirds of the skiers are thirty years of age or younger. This factor alone shows obvious benefits in years of return visits. Another aspect of Western skiing is that it involves only a small per cent of the population (slightly more than one percent of the Western population are skiers) and according to sociological trends, a greater percentage of the Western states' population should be tapped in the coming years. (9, 3, 1967)

The majority of these skiers (sixty-one per cent) come from the heavily populated Pacific Coast states; California alone accounts for thirty-seven per cent of the total number of people who skied last season. Most of those people are participating in spite of the handicap of having to spend many hours at the wheel of the family car on icy roads. The skiers in the Western states must travel an average of 139 miles one way to reach their ski areas. This average one-way distance increased to 320 miles when skiers took vacation ski trips, that is trips on which they stay away from home four or more nights. The non-Western skier travels much farther; 600 miles is the one-way average for a skier coming to the Western states for a ski vacation. (9, 5, 1967)

These factors indicate a very healthy situation for a sport to be in its infancy, and it is capturing
the attention of sports enthusiasts who are always seeking new ways to test their physical capabilities. It is also challenging the imagination of private enterprise and land managers when they learn of the economic gains to be made from Western skiing.

The average income of the skier in the Western states is higher than that of the region as a whole. The median family income of skiers in 1964-65 was nearly $2000 higher than that for the twelve Western states as a region. Inasmuch as skiers generally have higher incomes, they probably have more discretionary money to spend on their recreation.

In total, skiers spent $88.4 million on skiing in 1964. In addition to that, they spent $26.7 million for equipment and clothing in their home towns. In short, skiing is big business, benefiting home town merchants as well as skiing communities.

The average daily expenditure per skier in 1965 was $20.74. Although it is possible to ski on a much more limited budget, most skiers appear not to skimp on expenses for their ski trips. (9, 7-13, 1967)

This figure could be misleading and should be clarified. The average daily cost of the popular single-day trip, which requires no overnight accommodations was $11.04 during the 1965 season. Many skiers (46 per cent) never skied except on a single-day trip basis. When the skier decided to ski on an overnight
trip, the daily costs climb rapidly. Weekend trips (one to three nights away from home) cost $24.34 per day, per skier, more than twice that for the single-day ski trips. At $52.44 per day, vacation ski trips (four or more nights away from home) cost nearly five times as much as single-day ski trips on the average. It is no wonder ski areas are expanding their facilities to attract the vacation crowd.

(9, 13, 1967)

In spite of the increased daily cost incurred, fifty-four per cent of Western skiers took at least one overnight ski trip in 1965. In fact one skier out of five reported that he always stayed overnight when going on a ski trip.

A large portion of the out-of-state skiers visiting the various Western areas come from the Midwest and the East, and their expenditures have made a significant addition to the Western tourist industry. Although these skiers accounted for only six per cent of the Western skiing, their total expenditures amounted to $12 million.

Its many variables cause difficulty in making accurate predictions of skiing growth in the future. The growth rate between 1955 and 1960 averaged 12.8 per cent and accelerated to 19.9 per cent after 1960. By assuming that past growth rates will prevail during
the years immediately ahead, the following estimates for 1976 may be made: 1) 20.4 million visits, based on the 12.8 per cent growth rate; 2) 45.1 million visits, based on the 19.9 per cent rate; 3) 27.5 million visits, based on the 15.4 per cent average. (9, 11, 1967)

The broad range in estimated future visits (20 million to 45 million visits) emphasizes that a simple extension of past trends involves fundamental hazards. Such extensions of numbers alone do not take into account the underlying factors responsible for past growth. Since 1955, the annual increase in number of visits to Western ski areas has been closely related to the annual increases in population size, per capita income, and amount of leisure time. Although these factors do not explain why people ski, their association with increased ski area attendance seems logical; specifically, a greater proportion of an increasing population will have both the money and the time to go skiing.

It can be assumed for the purpose of estimates, that these three factors will continue to have about the same relationship with attendance in the future, and on this basis, 12.1 million visits can be anticipated in 1976. This would mean an average increase of 3.3 per cent.

There are three major factors that contribute to keeping down the number of people participating in
skiing. These are 1) physical demands, 2) cost, and 3) distance. These factors also contribute to the failure of some skiers to participate actively year after year. These influences can be seen especially in women. Among skiers twenty or under, the population is about equally divided between men and women. By the age of thirty, about one of every four skiers is a woman, and by the age of forty, only one of every eight is a woman. Marriage and demands of family responsibility help explain the relatively rapid depletion in the numbers of women skiers. This is also emphasized by the fact that although seventy per cent of the married male skiers report that their wives are skiers, less than one-half these wives actually skied during the 1965 season. (9, 17, 1967)

The ski areas can minimize the influence of these deterrents and entice more people to the slopes by continually improving facilities for moving people up the hill, and developing more ski slopes. This is already evident with the new uphill facilities like chair lifts and gondolas replacing the old rope tows. People are now able to make more runs per day because they do not become fatigued from hanging on to archaic rope tows. This has greatly helped to bring skiing within the endurance limits of more people, particularly women. This can be evidenced by the fact that the 36 largest Western ski areas, which constitute
only 18 per cent of the areas, accounted for nearly 60 per cent of the total visits.

Along with the convenience of lift and slope facilities of a successful ski area is the living environment that embraces the slopes. With the increasing value placed on the "night life" of ski villages, it becomes more and more important for a ski area to be able to adequately house and entertain all the skiers enjoying its attractive slopes. This "social consciousness" factor is providing the necessity for a great amount of building of resort villages in our Western ski areas. If an area cannot provide these social amenities, it may soon see its snowy slopes abandoned for another area that can offer these things. The challenge is out to Western ski areas to keep up with the increasing demand of recreational skiers and to provide the facilities for their many needs.
LOCAL CONDITIONS

Bridger Bowl is a relatively new ski area located about 16 miles northwest of Bozeman, Montana, in the Bridger Mountain Range. It was chosen as the location because it was known to have snow that requires little or no snowmaking, and because it always received a wealth of snow during the winter months.

Bridger Bowl has been expanded in recent years with the cutting of a access road and the installation of a 2,400 ft T-bar. In 1995, a 1,700 ft chairlift was added to reach up to 6,000 feet into the base of the cliffs that form the top of the Bridger Range. For several years, these facilities adequately served the needs of local and occasional visitors. At that time, Bridger Bowl was little publicized and it was intended that it remain just an area for local skiers.

Due to the quality and quantity of the snow and its excellent slopes, Bridger Bowl became a favorite ski area for many out-of-town skiers. If no other area had snow, you could still be sure Bridger Bowl did, so many skiers drove from Billings, Helena, Butte, and Great Falls to enjoy the abundance of snow in the Bridger
Bridger Bowl is a relatively new ski area located about 16 miles northeast of Bozeman (see Fig. 5) in the Bridger Mountain Range. The site is a natural one, selected because its wide open slopes would require little or no trail cutting, and because it always receives a wealth of snow during the winter months.

Bridger Bowl had its beginning in 1954 with the cutting of an access road and the installation of a 2,400 ft T-bar. In 1957, a 1,900 ft platter-pull lift was added to reach up 900 additional vertical feet into the base of the cliffs that form the top of the Bridger Range. For several years, these facilities adequately served the needs of Bozeman recreational skiers. At that time, Bridger Bowl was little publicized and it was intended that it remain just an area for local skiers.

Due to the quantity and quality of the snow and its excellent slopes, Bridger Bowl became a favorite ski area for many out-of-town skiers. If no other area had snow, you could still be sure Bridger Bowl did, so many skiers drove from Billings, Helena, Butte, and Great Falls to enjoy the abundance of snow in the Bridger
Mountains. Soon the number of skiers grew to such proportions that skiing on weekends meant waiting through long lift lines, so many local skiers stayed home. In 1964 a 4910 ft chair lift was completed and Bridger Bowl once again realized a great increase in the number of people skiing the area. In that one year, the number of skiers at Bridger Bowl increased 65 per cent. (see Fig. 1)

Crowded conditions again in 1967 forced Bridger Bowl to build a new lift. This time it was a 7200 ft chair lift which now carries skiers over into an entirely new area, opening up many new slopes to the skiing public and reducing the burden on the other lift and ski facilities. This lift begins down the hill at a much lower level in order that much of the drive to reach the old lift could be eliminated, thus eliminating a large expense necessary for road clearing. Another reason for the location of the base terminal in that area was for the ease of establishment of a base village in the surrounding area, both from the aspect of accessibility and the fact that the surrounding land is private property and could be used for the establishment of a base village. (see Fig. 2)

It would be helpful to refer to the graphs of Fig. 1 and note the various additions to the facilities at Bridger Bowl to see how these changes affect the number...
of people skiing the area and the economy of the area. It is important to realize that a straight-line graph cannot tell you at a glance all the conditions that affect the results; it can only serve as a relative comparison of trends and characteristics. It should be noted that the 1965-66 season was a bad year for snow all across the country and this did significantly affect Bridger Bowl. Also economically speaking, the management of the area was particularly bad in 1967-68, yet a decent net income was still realized. This year (1968-69) should be a very good year for profits due largely to the acquisition of a full-time manager for the ski area and many changes in policy. Figures on this season will not be available before the completion of the written portion of this thesis, but information on the finances of Bridger Bowl at any time can be obtained from Don Larson at the First National Bank Building in Bozeman.

According to Mr. Larson, presently the season ticket sales are up 47 per cent over last year's at the same time and children's tickets are up 65 per cent over last year. This shows a reflection both on the increasing popularity of skiing and on the new management policies at Bridger Bowl, mainly that of doing a professional job of slope preparation so that the skiers can enjoy good skiing all the time rather than have to fight lots of unpacked snow many days out of the season.
With these factors and improved air service to Bozeman, a new dimension is being added to Bridger Bowl skiing: the Midwestern skier. People from the Midwest are finding it increasingly easy to get here and our slopes pleasantly attractive for family skiing. During the past three years, the number of Midwesterners spending their Christmas vacations here has more than quadrupled and indications from Midwestern skiers show next year will see even more people visiting Bridger Bowl. The biggest drawing cards for the area have been its friendly small-town Western atmosphere, reasonable family rates, and quick easy transportation service to Bozeman by major air routes.

Look at any airlines map and it is obvious that Bozeman is perfectly situated to draw the Midwestern crowds, especially the Chicago and Minneapolis people, who have been coming here in large numbers throughout the season. However, before this can really occur on a large scale, there is a serious drawback that must first be overcome. This is that Bridger Bowl doesn't have adequate skiers' services on the hill. This means places to stay, eat, get skis repaired, rent and buy equipment, and entertainment areas for the skiers using the area.

In the success of a ski area, there are many factors which are important. One of these is the benefits...
that the area can provide to the skier besides that of skiing itself. It is imperative to the future success of Bridger Bowl that it begin planning now to provide these services to take care of the growing crowds of people coming here. The present facilities built in 1967 and 1968 (see Fig. 3) are already over-crowded almost every weekend, and at peak vacation times, they are almost unbearable.

Another point of interest is that there are only very limited accommodations at the ski area. These are in the form of a guest ranch, so most of the skiers must stay in Bozeman and drive 32 miles a day to do their skiing. This is terribly inconvenient to the skier, especially if he has to rent a car to drive to the hill each day because he can get no accommodations at the hill. The savings in car rentals and convenience of not having to load everything in a car each morning would encourage most skiers visiting here to stay at facilities on the hill if they were available.

In order to continue to successfully attract the Midwestern skier in growing proportions, a ski village must be created at Bridger Bowl. The old conservative idea of waiting until people arrive before building houses for them just is not going to work in the light of modern society. When people want something, they
want it right away and it is therefore important to anticipate their desires in order to provide for them before they look elsewhere to find a place that can. People have come here as an "elsewhere" and they like what they have found, but these are only the harbingers of the movement and the real migration will be soon to follow. In this thesis I am concerned with the design of a village and related structures as a suggestion of what could be done to insure the successful service of Bridger Bowl to its increasing recreation demands.
Existing Lifts and Lifts Proposed by Bridger Bowl
Temporary Structures
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<th>1975 Projections</th>
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*Computed from data in Table 1:3.*
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Table 1:10. Bozeman Trade Area Labor Forces by Sectors, 1950, 1960 and Projections to 1980

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### Percentage Distribution

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<td>3.9%</td>
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SITE CONDITIONS

Location

Bridger Bowl is located in T.1 N., R.6 and 7E, S1/2 of sections 19 and 20 and N1/2 of sections 30 and 26, 45°10' N. latitude, 111° W. longitude in the southwest corner of Montana. See Fig. 10 for the exact location of the Bridger Bowl ski area.

The site selected for the village and condominiums is located in T.1 N., R.7E, S1/2 of section 19.

Orientation

Situated on the east side of the Bridger Range, the site receives the early rays of the morning sun and direct sunlight during the winter usually until between 4:00 and 4:30 pm depending on the month of the year.

Immediate and Distant Views

For references concerning the terrain and views, see the photographs of Fig. 13, which were taken from the site. The view to the north is of Ross Peak and Battle Ridge Pass. South of the site the mountains open into a valley of rich farm lands and range lands.
SITE CONDITIONS

Location

Bridger Bowl is located in T.1 N., R6 and 7E. S⅓ of sections 19 and 24 and N⅔ of sections 30 and 26, 45°10' N. latitude, 111° W. longitude in the southwest corner of Montana. See Fig. 10 for the exact location of the Bridger Bowl ski area.

The site selected for the village and condominiums is located in T.1 N., R7E. SE⅔ of section 19.

Orientation

Situated on the east side of the Bridger Range, the site receives the early rays of the morning sun and direct sunlight during the winter usually until between 4:00 and 4:30 pm depending on the month of the year.

Immediate and Distant Views

For references concerning the terrain and views, see the photographs of Fig. 13, which were taken from the site. The view to the north is of Ross Peak and Battle Ridge Pass. South of the site the mountains open into a valley of rich farm lands and range lands.
The east offers a view of the Crazy Mountain Range, far behind the close form of Grassy Mountain. The west view is of the ski area and the top of the Bridger Range at an elevation of 8400 ft.

**Natural Features**

By natural features, I am referring to the natural land conditions of the building site itself. The photographs of Figs. 14 and 15 best show the features of the site. Hidden by the snow is a small lake formed by two forks of Kaynard Creek and held by an earth dam from where Fig. 15 was taken.

**Climate**

The climate of Bridger Bowl is in general similar to the other intermountain valleys of the Northwest. It is continental in character and subject to wide extremes of seasonal and daily temperatures. A difference of 30° F. within 24 hours is not uncommon. Winds are variable in movement and direction, in the day prevailing from the west or southwest and at night shifting to southeast. The coldest winter winds are from the east. The mean annual temperature is 41.4° F. The average temperature in the spring is 41.2° F; summer is 63.0° F; fall is 44.4° F; and in the winter it is 23.1° F.
Temperatures in the winter can drop to 20 or 30° below zero, but seldom for more than a week at a time.

The average annual rainfall is 17.29 in, and the snow can be expected to reach 14 in at one time.

Vegetation

Ground vegetation includes mountain sagebrush, grass, and summer wild flowers. The trees are mostly fir, ranging from 10 to 25 ft tall, and a few aspen are scattered about, mostly near the valley.

Zoning Regulations

Since the site is neither within the National Forest Service boundary lines, nor the limits of any city, only the National Building Code is applicable.

Availability of Utilities

Utilities available on or adjacent to the site are electricity, propane, and oil. Water is obtained by piping it in from natural springs, and sewage must be provided for individually. There is no natural gas available at the present time and the existing structures utilize electricity.
Fold Out Panorama
Private Housing Site

Housing Site
View Looking East

View Looking South

FIGURE 17
View of North Bowl

View of South Bowl
### Winter, Dec. 22

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### Fall, Sept 23 - Spring Marq

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### Summer, June 22

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<td>4:20</td>
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AESTHETICS

In discussing aesthetics or "what is art," it is
simpler easier to say what it is not than what it
is. As in perception, the one note to a particular
bunch we tend to assign even in terms of what character-
istics disqualify a certain object, rather than what
features give the bunch a name.

According to Croce in his essay on aesthetics:

1. Art is not philosophy, because philosophy is the logical thinking of the universal
categories of being, whereas art is the imaginative intuitions of being.

2. Art is not history, because history implicates the critical distinctions between reality and unreality, the reality of the existing world and the reality of a fancied world, the reality of fact and the reality of fiction.

3. Art is not natural science, because natural science is historical and empirical and seeks abstractions; nor is it mathematical, because artists practice pure operations with abstractions and do not contemplate.

4. Art is not the play of fancy, because the play of fancy passes from image to image in search of variety, rest, or diversion, seeking to "dissolve itself" with the likeness of things that give pleasure or have an emotional or aesthetic interest.

5. Art is not feeling in the immediate, for feelings in their immediacy are "expressed" for if they were not, if they were not even sensible and physical facts ("psychological phenomena") to the positivists used to call them, they would not be concrete things and so they would be nothing at all.

AESTHETICS
In discussing aesthetics or "what is art," it is sometimes easier to say what it is not than what it is. As in searching for the mate to a particular button we tend to examine them in terms of what characteristics disqualify a certain button, rather than what features give two buttons a match.

According to Croce in his essay on aesthetics:

1. Art is not philosophy, because philosophy is the logical thinking of the universal categories of being, and art is the unreflective intuition of being.

2. Art is not history, because history implies the critical distinction between reality and unreality; the reality of the passing moment and the reality of a fancied world; the reality of fact and the reality of desire.

3. Art is not natural science, because natural science is historical fact classified and so made abstract; nor is it mathematical science, because mathematics performs operations with abstractions and does not contemplate.

4. Art is not the play of fancy, because the play of fancy passes from image to image in search of variety, rest, or diversion, seeking to amuse itself with the likeness of things that give pleasure or have an emotional or pathetic interest.

5. Art is not feeling in its immediacy... Feelings in their immediacy are "expressed" for if they were not, if they were not also sensible and bodily facts ("psycho-physical phenomena" as the positivists used to call them), they would not be concrete things and so they would be nothing at all." (3, 556, 1964.)
If art is not all these things, then architecture must be art in the process of becoming. Architecture is the link between art and philosophy; while philosophy transcends the image, architecture is the reflection of the faithful search of image in form. While it may be true that the real works of art exist only in the minds that create or recreate them, architecture remains the physical link between the creators and the recreators. That is not to say that physical states enter largely into the recreator's, or spectators', consciousness; only that these forms, or the suggestion of them are a necessary precondition of his pleasure. Our pleasure in architecture is primarily one of the mind and the spirit, but the link between the physical states and states of the mind and emotions needs no emphasis.

According to Paolo Soleri, head of the Cosanti Foundation in Scottsdale, Arizona, an outstanding architectural theorist:

"Two aspects of life remain for the hope and possible joy of man; compassion and creativity, both impervious to computation. Compassion and creativity are pervasive by nature. They are environmental. This is their impervious quality. Like water, they must run in and through, expand and radiate. They must permeate. Else they are mere shadows of themselves: computable shadows. (8, 5, 1965)

Man can create nothing in and of himself. All of man's art is simply an art of combination; it can
be nothing more. All that man does, all that man can ever do, is to bring together things which he finds already in nature. As in the act of gardening all that man does is combine capacities in things which are by nature fitted to complement each other. The combination alone is his; the elements are inevitably borrowed; they belonged to nature before his act and belong still to nature after his act.

Man's act of architecture then is not one of creation, but more one of innovation. The first condition of architecture is nature's dispensation, and man must find the correct combinations to produce form within the limits nature allows. This is directly connected with architecture in the terms of structure.

"Architecture is not structure per se, but is based on structural elements, and goes beyond any structural achievements. Any structural achievement is a poor reproduction or copy of more sophisticated structural systems which nature offers in the micro and macro cosmos." (2, 27, 1966)

The real aesthetics of architecture is ultimately concerned with the image or the relation of images in space. It is the architect's task to transcend the subject world of aesthetics to the objective. This can only be done when the subjective sense is sufficiently strong to extend to the universal. Jaun Cotera, in his essay "Three Minutes of Silence and the Cubic Foot of Space" discusses the problems of attaining the universal in architecture:
"Universal beauty does not arise from the particular character of the form but from the dynamic rhythm of its inherent relationships, or in a composition, from the mutual relationship of its forms. Form and relationship are of equal value and neither takes precedence over the other. In the process of purifying art, all external factors are systematically eliminated, leaving form and relationship, and eventually purifying form until it attains a high degree of neutrality. Only feelings which do not evoke individual feelings or ideas are neutral. Geometrical forms, being so profound an abstraction of form, may be regarded as tending to be neutral, or as neutral as form can possibly get. But no form is absolutely neutral, so eventually only relationship is left. (7, 27, 1966)

The task of the aesthetics in architecture, as in all arts, is to communicate to the conscious and the subconscious of the intellect man's identity in the world. If architecture fails to communicate with man, it ceases to be architecture and is merely construction; that is the problem in design. The mathematical proportions belong to the abstract intellect, but the aesthetic belongs to the bodily sensations and the incommunicable of the spirit.

The physical setting of the site demands a great deal of respect to its natural features. The organization of the village should reflect the wishes of the land. This is not to say the village should be timid, but only that there exists in nature a certain organizing structure that man should acknowledge. The strength, solidity, and unyielding certainty of nature should be
reflected in its forms and nature's variety and excitement should be in its spaces. The materials used should be of an indigenous nature, indigenous both to the locale and to the nature of ski villages that the people have come to love and associate with mountains throughout the world.

The permanence of cold concrete can be combined beautifully with the warmth of natural-textured wood to give the village a personalized charm amid its rugged strength. Clean white plaster reflects the snows of the winter between the simple timber framing of the trees. Rugged shapes show off their textured roofs and walls to the jagged mountain peaks high above, and the interplay of spaces should be reminiscent of a walk through the varying patterns of the wooded areas about the village. The use of these simple materials and interrelationship of forms can give the warmth and unity to tie the village together into an atmosphere of solidity and purpose.

The interior spaces should be of major consideration in the aesthetics of the ski environment. With the rough unyielding forces of nature all about and throughout the village, the interior spaces should be getting out of the cold and the snow. They should be the warmth and the congeniality; the humanity of man
should be inherent in its spaces. The actual spaces and relationship of spaces is of course of primary importance to the success of the function of the space, but of almost equal importance to the success of its purpose is what is done with the space once its physical boundaries have been created. I have learned through experience that a visually enriched environment is of great importance to the interior spaces of a ski village, and is in some cases almost a necessity. The use of warm colors with the natural textures of nature's rough materials and those of man's soft materials can often give a wonderful sense of compatibility and beauty through contrast that acts to serve a dual purpose; besides the obvious of covering the walls and floor, it reveals to the subconscious of the intellect the difference between man and nature. This difference is manifest in the outward result (and goal of the space) of open-hearted friendliness and hospitality.
To simplify the complex functioning system of a ski area development for the purpose of this study, I shall divide the function of the ski area into two categories: 1) the uphill lift facilities and 2) the base area support system.

The first is the basis, the controlling factor initially for the total area, since it is the major influence to the attraction of people and in that respect makes the second category applicable. I say it is the controlling factor "initially" because it established through its location; the location of the base support area and once established, each has its own free will and neither takes precedence. That is the case with Bridger Bowl, since the construction of the second chair lift has established the general area for the location of the base support. Conversely, the location of the base terminal of the second lift was based largely around the ease and convenience of the establishment of a sufficient base support area. The two are wed together initially through necessity and then each becomes free to achieve optimum performance individually within the framework of their context.

I shall then discuss these two categories individually.
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I shall then discuss these two categories individually
with reference only to the factors contributing to the successful functioning of their service.

**Uphill Lift Facilities**

In general, the function of the uphill lift facilities is to carry people rapidly and efficiently to the best skiing terrain available to serve the many varied needs of the skiing public. Each new lift established is dependent primarily on the ease of accessibility from existing lift facilities and is responsible to provide new regions for skiing and relieve some of the pressure caused by increased crowds on the other slopes. Thus not only is it necessary to provide more uphill capacity, but it is also necessary to provide more acreage of snow fields for skiing. This can become a relatively complex system in regards to optimum performance of lift services in relation to established lifts and in respect to the terrain necessary for the varying abilities of skiers present on the slopes.

In the location of new lift services, the location of old lifts and trails has the first word in their establishment, at least so far as the base terminal of the new lift is concerned. From that point, the lift is free to establish its own will in the provision of suitable skiing slopes. There are many factors that
affect the will of the new lift. In the rest of this discussion, I will attempt only to describe the major contributing factors.

The lift or lifts should attempt to provide a variety of terrain. A basic breakdown of slopes in percentage for the various capabilities of skiers is given by the Forest Service Recreation Branch as:

- **Practice area:** 12-20% slope
- **Beginner:** 15-25% slope
- **Intermediate:** 25-40% slope
- **Advanced:** 40-55% slope
- **Expert:** 55-80% slope

They also go on to state that for a major winter sports area, 15% of the area is to be devoted to the beginner; 55% to the intermediate; 20% is for the advanced; and 10% of the ski area should be for the experts. (11, 1969)

These figures are, of course, subject to some local modification, but in general should serve as guidelines for the establishment of new ski runs.

The present facilities provided at Bridger Bowl are geared to the beginner and intermediate with the exception of the upper half of Lift #1 and the T-bar slopes (see Fig. 2). The entire new Lift #2 and the lower half of Lift #1 provide most of the facilities
for these beginning skiers at Bridger Bowl and the expansion program will, in general, be dedicated to the more advanced intermediate and expert skiers.

In providing service to these more advanced skiers, variation is a must to add excitement and challenge to skiing to make it more rewarding. There are, however, certain characteristics that must be avoided in choosing ski trails. The general safety of the skier should be considered; traps and cliffs should be avoided and where the trail gets steeper, the skiing area should also get wider to account for the increase in speed and the possibility of mistake. Sidehill terrain should, as a rule, be avoided. It is also desirable to avoid slopes with a southern exposure because the sun will hurt the skiing surface.

I am not attempting to design ski trails in this discussion, only to point out certain features of the natural terrain to watch out for in the establishment of the uphill expansion facilities. These are the major features that will affect the location of the new lift facilities to serve the caliber of skier that these facilities need to reach. As I said before, the original factor in choosing a site for the new facilities is the location of the existing lift facilities.
The Base Area Support System

This category is a very broad system of services to facilitate use and enjoyment of the recreation area. In discussing this section, I shall break the general system down into its primary subsystems:

1) Access and Parking
2) Operational service
3) Ski service
4) Village service
5) Lodging
6) Dining & entertainment
7) Recreation

In discussing the base support area in its subsystems, I shall attempt to bring out the features which make up the subsystems and relate their function to the function of the subsystem. Through this, I feel I can arrive at a comprehensive base area support system and flow diagram for the entire complex.

Access and Parking. This aspect is already fairly well-established, though it should be noted that the capacity of the lot should roughly equal the capacity of the slopes. The slope capacity can be calculated roughly by the formula:

\[
\text{vertical rise of lift} \times \text{lift capacity per hour} \times \text{hours of operation per day} \times 0.9 \text{ (loading efficiency)} = \text{size capacity per day}
\]
With the addition of each new lift, the site capacity will increase and this figure should be added to the total. Through this system a somewhat realistic proportion of parking area to skier capacity can be maintained and the area necessary for parking-lot expansion can be anticipated.

It is also desirable to provide area for busses to load and unload passengers where they will not interfere with the normal flow of vehicular traffic. A special parking lot could be provided for these busses during the day while they wait to take the skiers home after skiing. It is a good idea to park the busses parallel and into the prevailing wind.

The existing parking lot is quite sufficient both in design and location to successfully serve its needs. Since it lies directly across from the village, I feel that a service loop could serve the village for both commercial and guest uses. Then the major parking lot would be used for the parking of the village itself.

**Operational Service.** The operational service is concerned with keeping the area functioning efficiently. A space should be provided for the storage and maintenance of the area's snow equipment. This space should also serve as the general shop for lift maintenance. This area should be away from the other functions of the village since the service vehicles' motorized nature does not...
suggest close proximity to the village itself. Its serviceable function is mainly related to road work and slope grooming and therefore, the space provided should relate primarily to the roadways and parking lots. Also it should be noted that most of the use and movement in this area occurs before the vehicular traffic arrives.

Skier Service. This is a very general category, taking in a broad range of things. The main elements that make up this service are related to the actual skiing itself and to the roads over which the day skier must pass as opposed to the person staying at the village.

One of the basic functions of skier service is to provide an on-location center for skiing activities. This includes an information center, a place to buy tickets, a space to put on and take off boots, cafeteria services, bathrooms, a ski school meeting place, and office space for the administration. This should be located within easy access of the parking lots and the base lift terminal. This space exists now as the base chalet, or day lodge, and in the expansion of the area will be used in the same capacity. I do not feel that the increase of skiers will warrant an addition to these facilities, as the actual village will serve to reduce the peak-hour crowds using the space. Most of the problem with the space at the present time occurs during
the noon hour with everyone trying to eat at once. The additional dining facilities of the village will reduce the load on the chalet and render expansion unnecessary.

Another aspect of skier services is the ski patrol. This service should be located so as to be easily accessible from the parking lot and road for emergency evacuation of the injured, and also should have easy access from ski runs for bringing the injured in on toboggans. This should be a separate structure and it should have toilet and washbasin facilities. A central lounge is necessary for ski patrol personnel as well as adequate and easily accessible storage space for avalanche rescue and first aid supplies. It is also desirable to have beds available for the injured skiers while they wait to be taken to a Bozeman hospital.

Also in this area, there should be quarters for the snow ranger and the avalanche control as there is much work being done at Bridger Bowl in these areas.

**Village Service.** This system should be related to the village itself and the day lodge services. It should contain commercial services for the skier staying in the village and for the day skier at the area. This is a quite flexible category, depending on private enterprise and demand, but basically it would consist
of ski shops for purchase and repair, a basic staples store somewhat like a drugstore or delicatessen, and possibly a cafeteria or restaurant facility. This area would be primarily responsible for taking a good share of the load off the day lodge, mainly through repair and food services. This area is an important space also in that it is one of the major links between the ski village and the day lodge and should serve as a transition to draw the people into the village and its cultural and recreational facilities. A rapport between local skiers and visiting guests is a valuable ideal to strive for. This space should promote browsing and friendliness through a relaxed and enriched environment (see also Aesthetic Considerations) that entices the skier to see more of the village complex. It is necessary to note that a lot of the success of the village will depend on the local reaction, keeping it an active space even when the lodge facilities are not full.

Lodging. In this section I will be concerned with only commercial lodging as opposed to the semi-private condominium types which I will discuss later in a special section. It should be noted at this point that the establishment of a complete village with all its facilities immediately available would be impossible and even ridiculous to assume under the present conditions, but
an over-all plan must be formulated for the successful staged growth of the village. The staged growth should be carefully planned and detailed in order to assure success and the village's continued growth. It is of utmost importance to get the people involved (both local and visiting) in the growth of the village. This can be assured by making it an exciting space during all phases of development where each additional element builds upon the old excitement, making the space self-generating.

The lodging enters highly at this point in that the rooms and spaces, and the overall character should serve to draw the out-of-town "commuter" skiers into them rather than back onto the highways. During the peak ski vacation seasons, it will be no trouble to fill the units, but to guarantee yearly success, it must provide the impetus to the Billings, Helena, Butte, and Great Falls skier to remain in the village.

The lodging would be broken down into a series of smaller units probably varying from ten to thirty bedrooms per unit. In function, these units would be dependent upon the village for their services; they may connect to dining facilities, but none would have their own facilities within the structure. The rooms would be minimal with TV watching and general lounging to be
in a centralized area within each unit. These features breed social mobility and encourage the interaction of people within the village to help make up a dynamic living area.

**Dining and Entertainment.** This social structuring is one of the basic beauties of the ski village and is a major contributing factor to their reputation for being congenial, fun places to which to go. This fact is directly related to their success. This is partly inherent in the nature of skiing itself. After the people have spent six hours alone with themselves on a mountain, which is essentially the mystic quality of skiing, they want to get together with their fellow skiers and express the joy and warmth of good companionship. It is necessary that the nature of the village recognize this and encourage its action.

The dining and entertainment spaces should be related quite closely. This uses the fact that the skier has already ventured out into the village to eat to encourage him to visit entertainment spaces in the village, thereby becoming a part of the spirit of the village. This is where the entertainment role begins.

The night-time entertainment for skiers usually begins and ends in the bar. In creating entertainment places, it is necessary to realize that one place cannot handle the crowds of people. In addition, different people have different likes and dislikes in bar
atmospheres. There should eventually be at least two and preferable three or four bars in the village. This is not such an outstanding number when you realize that one or two should be very small rich spaces geared to quiet relaxation and conversation. In contrast these is the large, "renovated basement-" type bar that seems to just sort of happen. This type can be used for dancing and noisy gathering of larger groups of people. These spaces can be planned for, yet people will really get involved in the life and atmosphere if they feel they are partly responsible for the space’s discovery. The other bar should again be a larger space broken down by shape into smaller, more intimate spaces. This way a great number of skiers can frequent the space and move about to see friends and meet people without really losing the little bar charm and identity. This should be a nice warm, visually-enriched space capable of attracting a wide variety of people.

A space should be provided for the younger kids who cannot go into the bars as they make up a large per cent of the skiing population and the bartenders would have a much easier job if an adequate space were provided for them. It is important that this space be a very "now" space. It must be something they can say is theirs, a part of the pop culture. The main consideration of a space such as that is that it is very flexible as pop is very rooted in change; it is sort
of like a joke and must be able to be discarded at any moment because nothing is more pathetic than an old joke. This space should be closely related in the village to the other entertainment areas. This is not to say they should be in a cluster, for that would kill the village, but only that they should organize and work as a whole, spreading excitement through the village.

Recreation. The major recreation form which I visualize in the village is the use of the pond (see Fig. 15) for night activities like skating and broomball. If handled correctly, this could become a very vital part of the village as a natural focus element. This feature is a natural link between the day skiers and the villagers and it should be promoted that way through building orientation and transition of building functions.

Indoor recreation facilities would be quite limited in scope in the project and would occur usually (if at all) in conjunction with the hotel lounges. These areas would possibly be just a space with table tennis or pool tables or room for other such small-scale activities.

Local Housing. This may be considered the third area of study in my thesis and also the area which I shall probe in some detail. By the term local housing, I mean some form of housing for the people of this area. That is, people who will be using the Bridger Bowl facilities
quite consistently. I have not decided yet as to what type of structure this would involve. At this time I only wish to set down some of the functions this type of housing should fulfill.

Generally speaking, the unit should serve to house a family or group of people on a ski vacation usually for a weekend but not more than a week or two. It is also safe to assume that the same persons will not always be using the space and that the unit could be rented out when not in use by the owners. This is a common practice at many ski resorts today as a way in which the owner of the unit may obtain help in financing the cost and maintenance.

In a space of this nature, it is difficult to establish actual specific conditions which the unit must meet. It is more important to consider the various functions the space should allow for. In a situation such as this, flexibility is the key word. The space must allow for a wide range of conditions and meet their demands in the most simple and efficient manner possible. There are certain basic functions that the space must perform and I shall mention these only in the context of their functions in the use of the space.

**Bedrooms.** This category implies a closed off, private space that may or may not be extendable into other spaces. These are features that may be determined later, in the design stage of the problem. At this time
it is important only to recognize that private space or spaces should be provided for in the design of the unit, and flexibility may or may not be a desired feature, depending upon the context of the rest of the space. One necessary feature is a space (which may be locked) where the owner can leave personal items in safety while renting out the unit.

Bath. This area is relatively standard in any space and I do not anticipate any special conditions here except possibly the problem of storage for personal bathroom items while the owner is away.

Kitchen. The major distinguishing feature of this space is that the duration of its use is very limited and therefore it does not demand the amount of food storage space that the normal kitchen requires. Food stuffs would be bought only to last for the entire of the vacation and any excess would either be discarded or taken with the people using the space. Storage of certain non-perishable items by the owner may be desired, but in general the space can be quite minimal.

Storage. This can be categorized as being of two basic types: that provided for the owner and that for other occupants. This implies two separate spaces or at least an area of the storage where personal
items belonging to the owner may be left and locked in safety by the owner. The major items in this category would be ski clothes and equipment. Storage for cleaning supplies on a large scale would be unnecessary as there would be a special service to care for this aspect of maintenance. Storage for the guests would be of the same nature, but this area would not provide locks, and ski storage would be unnecessary.

Living. This is the major aspect of the unit's use and requires in a sense the greatest flexibility. A person using the facilities can be expected to do a great deal of entertaining simply because of the conditions with which he is involved: a stay of short duration and the skiing atmosphere itself (mentioned previously in this section). This space has a difficult function to perform in that it must feel cozy and warm to the persons staying there (which implies a relatively small human-scaled space), yet it must be able to handle larger groups of people in an easy manner. This area may also be called upon to serve in another capacity, that of a bedroom. In some instances it will be necessary to house more people than the bedrooms can support and the living room should be able to convert into a sleeping area for the extra people.
This would not be expected to function as well as a bedroom, but it should provide a semi-private area or areas for sleeping purposes.
Because of the hypothetical nature of the problem it is that I have no client to sue. For the village complex, actual dollar and cent figures do not enter into this thesis. As in most architectural situations, I will attempt to give the most service in buildings possible through a logical application of the means and materials under these particular circumstances. It would also be assumed that as in any private enterprise, the village and its structures would begin to pay for themselves and make sizeable profits for the owners, otherwise it could and would never be built.

The economic basis for support of the project is discussed at some length in the sections on Conditions Present in Area and Local Conditions and the reader may find it helpful to refer back to these chapters.

The village would either be built by private financiers and space rented to various private concerns, or the various private enterprises could have structures built for them within the framework of the village plan and structural whole.

It is intended that every phase of the village be self-supporting in its own right, yet the success

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Because of the hypothetical nature of the problem it is that I have no client as such for the village complex, actual dollar and cents figures do not enter into this thesis. As in most architectural situations, I will attempt to give the most service in buildings possible through a logical application of the means and materials under these particular circumstances. It would also be assumed that as in any private enterprise, the village and its structures would begin to pay for themselves and make sizeable profits for the owners, otherwise it could and would never be built.

The economic basis for support of the project is discussed at some length in the sections on Conditions Creating a Need and Local Conditions and the reader may find it helpful to refer back to these chapters.

The village would either be built by private financiers and spaces rented to various private concerns, or the various private enterprises could have structures built for them within the framework of the village plan and structural whole.

It is intended that every phase of the village be self-supporting in its own right, yet the success
of each part is dependent upon other services of the village complex in an interwoven system of services as discussed in the section concerning function. This I feel will help to insure the economic success of the entire village as well as the individual systems and parts that make it up. In this way, private concerns would be less likely to be hesitant or skeptical of establishing their places in the village complex.

The related private housing would also be tied into the village for many of its services and through a system of rental, these units would also be somewhat financially self-supporting. This system in private housing encourages people with the means to build a unit both for their personal enjoyment and as an investment. This would alleviate the problem of people being afraid to build a recreation home because they felt they would not use it enough. Some people may actually find living in the Bridgers a new way of life and may wish to reside there on a more permanent basis.

The entire complex is self-generating socially and economically and its system of dependent services adds to the stability of the economic base of the village complex. Through this self-generating interwoven pattern of services, the village can grow in progressive stages and can at all time remain an active vital concern to the social and economic growth of the Bozeman area itself.
In summary of my thesis I should first say that a question of values arises in how the problem should be approached; that is what you want the useful outcome to be. The first and most obvious outcome is to further my individual development in architecture and the second is to produce a plan that can help give direction to Bridger Bowl's growth. Any situation such as this is bound to produce a certain number of difficulties in arriving at a solution when you have been involved for years with the people and the problems. Through this association I know not only the problems and how they have been solved to date, but the people and what they are likely to do or accept, and thirdly what I, as a skier and a designer, would like to see done. The three are not always consistent, but then that is the problem and basic goal of design; to produce from among the feasible alternatives the optimum or best possible solution with respect to the design. I am aware that the mere selection of the best available solution to the design problem does not signal the termination of the project. This implies a group of coordinate sub-systems of which there are an infinite number of more sub-systems comprising them and of them still smaller and smaller sub-systems.

In my thesis I wanted to first of all establish an over-all concept that could include all the smaller individual parts that go to make up the whole. (i.e. lifts, ski shops, restaurants, drug stores, lodges, etc.) This development by its nature can be first broken down into two basic categories: (1) the uphill lift facilities and (2) the base area support system.

My major concentration as a designer is to study the base area support system which I then broke down into its basic categories: (1) access and parking, (2) operational service (snow removal, maintenance, etc.), (3) skier service
It is the last category that I decided to probe in some detail so I further broke this down into public and private lodging. I then decided to concentrate on the private condominium type dwellings mainly because this is to be the first aspect of the area expansion to be constructed. In a problem of this scope I realized that all I could do was touch briefly on a basic plan for the overall development of the area and then once this plan had been established concentrate on one particular area to do two things. First to establish a plan for this micro-area consistent with the plan of the overall and reflect in this micro-area the theme of the macro-area that is of the overall village community. As I began exploring the condominium area I realized that the study necessary to establish a worthy solution to just this area required much more time and effort than I had anticipated thus prohibiting me from going much further into other aspects of the village community.

In discussing my solution to the overall plan it is important to understand that the Bridger Bowl Ski Area is primarily and owes its success to being a family ski area. I cannot discuss the reasons or ramifications of this in this section other than to say this had a large bearing on the organization of the whole of the village and the choice of the parts making up the village and their internal arrangement (i.e. the arrangement of the lodge structure and the fact of inclusion of family rental units in addition to condominium units).
Also it should be noted that certain features have been established already that have a bearing on my decisions. The parking lot is located where it is because that area was bared by a forest fire, and secondly because of its relatively flat expanse of area. The existing lift and chalet establish the skiing activities area of the complex. The rest of the solution is mine subject only to land ownership and formation and human behavior.

Diagramatically the village would be organized within this framework:
In the condominium area I wanted to create a series of environments through organization of different types of spaces. I wanted the buildings to work with the land in providing two types of climates. First an enclosed interior climate (protected) and secondly a semi-protected exterior climate by arrangement of the masses in such a way as to provide shelter to the walkways and spaces to act as a transition between the indoors and unprotected out of doors. I felt for these reasons that the individual unit should be subservient to the whole, that is the complex itself make the architectural statement rather than the individual building. That is not to say that the individual unit is not important itself, that would be foolish, but only to say that a comfortable simple unit well organized internally can combine with other such units to form a pleasing homogeneous community for the basic enjoyment of all the residents.

Diagramatically it can be explained in plan as this:
with the individual units arranged for shelter and conformance to the site
in this manner:

This summary is and can only be a brief description of the basic theory
and organization of the complex and it is impossible to explain all the other
factors influencing decisions within this basic framework in this summary.
I feel this problem has been of great benefit to me in increasing my architectural
knowledge and especially in dealing with an actual situation that must be solved.
I hope that my work can be used to some extent by the Bridger Bowl Ski Area at
least in establishing a master plan for their development.
REFERENCES

Books


Magazines


Periodicals


Interviews

10. *Interview with Japanese Chamber*. [Note: The specific interview is not provided in the image.]
REFERENCES

Books


Magazines


Pamphlets


Interviews

11. Interview with Joe Gutkoski, Recreation Department, United States Forest Service, Federal Building, Bozeman, Montana, Jan. 11, 1969.


