A RESORT MOTEL
FOR QUAKE LAKE

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Submitted for Completion of
Arch 489
Professor H. C. Rose

Submitted for Partial Completion of
English 409
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THE PROPOSAL

The thesis problem as commissioned by client x is to design a resort motel, with attending facilities of a curio shop, a dining room, a boating area, and a drive-in restaurant, for the Quake Lake Slide in southeastern Montana.

Client x is a large corporation, whose business is a chain of motels. Because the client feels that local architects understand their own area best, local architects are commissioned to do the market analysis, and design work for the motels. The client chooses a likely site, chooses a local architect and then, based on the architects' market analysis, assigns a preliminary size to the general areas proposed. The architect, equipped with this information, then sizes the individual parts, and works out the relation between them.

In order to establish whether the building will be a financial success, the architect is to examine the factors which may influence this success. An analysis is to be made of the market for facilities and services offered by the resort complex.

An analysis of the site is to be made to determine the physical feasibility of putting a building in such a location. The site is to be examined in the light of the users of the building, keeping uppermost in mind the provision for the users' needs and desires.

In view of the economic feasibility, and the site conditions, the function of the building is to be considered again with the wants and desires of the user as the primary consideration.

A preliminary building program is to be prepared. From the data gathered about the economics, the site, and the function, the architect is to prepare a detailed building program giving specific functions of the different spaces, and their exact sizes.
LOCAL
THE GEOGRAPHIC SETTING

THE REGION

In order for the reader to understand what the remainder of the text is about, a general description of the geography, remote and local, is necessary.

As shown by Map One, the site is located in Southcentral Montana, approximately 90 miles southeast of Bozeman. Other population centers closest to the site are West Yellowstone, 25 miles southeast, and Ennis, 45 miles to the northwest. Yellowstone Park is 10 miles east. The west entrance to the Park is very close to West Yellowstone. (5:1)

The site is out of the way of the interstate highway system, but is very close to two highways. The nearest interstates are 90 and 15, both less than 100 miles from the site. State Highway 287 and U. S. Highway 191 are both within 15 miles of the site, and are both feeders of interstate highways as shown on the map. An airport is being built at West Yellowstone. This will be used by Western Airlines, who will have regular flights during the summer, and by small private aircraft.

The region is just on the eastern tip of the Rocky Mountains, and is surrounded by the outposts of this vast range. The Gravelly Range, Madison Range, Gallatin Range, and Beartooth Range are all gathered in this southern district. Nestled in these mountains are lakes such as Hebgen, Henry's and Yellowstone. Rivers of importance are the Madison, Gallatin and Yellowstone.

THE AREA

Access:

The site is accessible only by highway, as of the present time. The only way to travel the highways to the site is by some means of private transportation.

There are two main access highways to the site. Both are north-south roads, and both connect directly to interstate highways, in the north, and
Both converge on Henry's Lake in the south. The more westerly of these is State Highway 287, and the other, as shown by Map Two is U. S. Highway 191. Highway 287 follows the Madison River, and 191 follows the Gallatin.

The two access highways are vastly different in both condition and in scenery. The Gallatin Canyon road is in superb condition from Bozeman to the Idaho border. The highway is wide and curving and a tourist has time to enjoy the flat upper plain that was once a lake (probably not more than 50 million years ago), and the two gorges leading from it. Highway 287, on the other hand, is not nearly so intimately tied to the mountains. It follows the Madison River Valley, bordered by the Gravelly Range on the west and the Madison Range on the east, but these appear more distant. This road did not have the benefit of earthmovers and as a result, has many sharp curves and dangerous dropoffs, besides being very narrow.

The connecting link between the two access highways is an alternate route of highway 287, but is now Federal Aid Secondary Highway 499, and will be State Highway 1 (7:1). This is the approach road that passes directly over the slide caused by the 1959 earthquake. This road was made impassable by the quake, and is now being repaired.

Highway 1 (which it will be called in this thesis) begins eight miles north of West Yellowstone at its junction with 191, and runs 21 miles to its end, 40 miles from Ennis, at its junction with 287. From the 191 turn-off the road, which is now under construction, gets progressively worse for 15 miles. After passing Hebgen Dam, as shown on Map Three, it begins the recently constructed part that conforms to interstate specifications - very nice, but it only lasts for six miles.

The road conditions are of primary concern to the success of the business, since this is the only way to reach the area. Highway 1 is now being completely rebuilt by COP construction of Billings, and when finished in October of 1965, will provide a most excellent two lane highway. Highway 191 is only in need of upkeep, otherwise it is a good road. Of secondary importance is the poor condition of 287, although it, too,
The purpose of this map is to show the major highway approaches to Montana and the access roads from them to the site.
will be straightened and levelled by the state within the next ten years.

One more aspect of the access should be discussed. The new airport for West Yellowstone will be finished in 1965. The site is approximately 10 minutes by helicopter from the airport. This would be a most convenient and beautiful way to see the result of the quake.

The Canyon:

Besides being in a beautiful general location, surrounded by the Gravelly and Gallatin mountain ranges, engulfed by the majestic Madisons, the Madison Canyon is rich in the resources that have made Montana's tourism boom. Timber, mainly lodgepole and douglas fir, is everywhere. Mountains roll, rather than break sharply. Fish - rainbow, loch leven, grayling, and the perennial favorite, sucker - abound in the white water that helped to carve the canyon. Deer, elk, and other animals straying from the Park refuge use these slopes.

There are three main divisions to the Canyon: (1) the Upper Canyon, (2) the Middle, and (3) the Lower Canyon.

(1) The Upper Canyon:

The uppermost reach of the canyon is dominated by a man made feature - Hebgen Dam, built by the Montana Power Company. Borne of "economic necessity", the dam supplies power to the surrounding outposts of civilization. When I say it dominates the upper canyon, I mean this in an indirect way. The Lake it creates does the real dominating. The lake itself was heightened 87 feet, expanding its borders immensely. The dam is simply the end of the lake. The structure itself - earth with minimum concrete that is structurally necessary - is usually "silent." A tourist, in his never ending drive to "get there," could miss it, or even mistake it.

(2) The Middle:

This tourist is going, of course, to the lower middle part of the canyon - to the slide itself. After passing through a standard-but-
slightly-less-beautiful Yellowstone Park Canyon for 8 miles, he finally arrives at nature's little revolt. Here is the reminder to us mortals that power, potential energy, and the violence of the shifting earth are with us where ever we tread. Thirty-seven million cubic yards of limestone, dolomite, and several million years of accumulation of various sedimentary rocks, lie inert in the bottom of the canyon, with one side sloshed up a canyon wall like an orange snowslide.

(3) The Lower Canyon:

There is an upsetting note to this setting. Because of the change in the river's channel that occurred when the engineers finally scratched the slide enough to permit the flow of water, the mouth of the canyon looks much the way it must have when the last of the glaciers melted. Bare stones, with water, volumes of water, dividing, uniting, and dividing again, rushing pell-mell over their lichen-less surfaces, lay patiently waiting for the return of nature's children. If I were ever to banish someone, it would be to an area such as the mouth of this canyon. Here the silence of our forests, becomes the silence of death itself. It is here where the spirit of the catastrophe really lies. It has come to rest at the mouth of the verdant canyon, surrounded by the splendor of the Rocky Mountains.

The country, then varies from forbiddingly beautiful to dangerously forbidding. The evidence of the tragedy of the slide occurrence is everywhere. It is, no matter how one may view it, a spectacle.

The Climate:

The area is seasonal, as is all of Montana. There are only 60 days in the summer that are free from a killing frost as compared with the average of 90 days for all of Montana. These days are from the end of June to the end of August. This, of course, is the height of the tourist season. The following chart gives average temperatures and precipitation for each month as reported at Hebgen Lake Weather Station.
Average Temperatures in °F and Precipitation in inches.

<table>
<thead>
<tr>
<th>Month</th>
<th>Av. temp.</th>
<th>1963</th>
<th>Av. precip.</th>
<th>1963</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan.</td>
<td>11.4</td>
<td>1.8</td>
<td>2.76</td>
<td>3.73</td>
</tr>
<tr>
<td>Feb.</td>
<td>15.4</td>
<td>23.4</td>
<td>2.41</td>
<td>2.49</td>
</tr>
<tr>
<td>March</td>
<td>22.5</td>
<td>23.8</td>
<td>2.39</td>
<td>1.97</td>
</tr>
<tr>
<td>Apr.</td>
<td>34.8</td>
<td>32.0</td>
<td>1.87</td>
<td>3.58</td>
</tr>
<tr>
<td>May</td>
<td>45.8</td>
<td>46.2</td>
<td>2.49</td>
<td>2.72</td>
</tr>
<tr>
<td>June</td>
<td>53.3</td>
<td>52.1</td>
<td>2.85</td>
<td>6.11</td>
</tr>
<tr>
<td>July</td>
<td>59.6</td>
<td>59.3</td>
<td>1.53</td>
<td>0.54</td>
</tr>
<tr>
<td>Aug.</td>
<td>60.0</td>
<td>61.0</td>
<td>1.32</td>
<td>0.51</td>
</tr>
<tr>
<td>Sept.</td>
<td>51.3</td>
<td>55.4</td>
<td>1.45</td>
<td>4.11</td>
</tr>
<tr>
<td>Oct.</td>
<td>40.6</td>
<td>45.3</td>
<td>1.86</td>
<td>1.78</td>
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<tr>
<td>Nov.</td>
<td>25.0</td>
<td>28.4</td>
<td>2.38</td>
<td>3.53</td>
</tr>
<tr>
<td>Dec.</td>
<td>15.0</td>
<td>11.7</td>
<td>2.73</td>
<td>2.12</td>
</tr>
<tr>
<td>Annual</td>
<td>35.1</td>
<td>36.1</td>
<td>25.74</td>
<td>33.19</td>
</tr>
</tbody>
</table>

(4:3-15)
THE QUAKE

There are many excellent reference works on the history of the Quake, the results of it, and the geological explanation of it. As far as this thesis is concerned, a brief history, the highlights of the change in the physical features of the land, and possibility of a recurrence of quakes in the area will be considered.

HISTORY OF THE QUAKE

On August 17, 1959, at 11:37 p.m., an earthquake of intensity 7.1 on the Richter scale was registered on seismographs around the world. It was felt over an area of 550,000 square miles in the western part of the United States. The focus, that is, the point where the earthquake originated, was approximately 12 miles north along highway 191 from West Yellowstone, about ¾ mile west of the highway. (3:29) However, the majority of the damage was not done at this focus. The major and most spectacular result was an earth and rock slide approximately 15 miles southwest of the focus. This slide claimed 17 lives and the total life lost on account of the Quake was 28. (1:17) Much damage was done to the surrounding man-made features, and the earth itself was visibly altered by the shift in its surface. Since the major quake, the earth has settled down to its normal shiftings and groanings. However, until the end of 1961 there was an abnormal amount of earthquake activity. (3:45) The terrifying immediacy of the disaster has passed, and the earth has begun to heal its scars.

A drop in the number of tourists, from 2,730,000 in 1959 to 2,690,000 in 1960, was attributed to the Quake, and the possible recurrence of such a disaster. (1:15) However, as always, people forget, and tourism is again on the move. The growth rate, in fact, is 3% which is better than before the earthquake.

THE PHYSICAL RESULTS OF THE QUAKE

Natural land features are another story. Paralleling highway 499 near highway 191 is the Red Canyon Fault. The dip of this fault is readily visible, and follows the road for four miles. The Hebgen fault
can be seen about two miles after the Red Canyon Fault leaves the road to wander about Kirkwood Ridge. This, too, is readily visible. Smaller dips are scattered around, such as the Kirkwood and the West Fork Faults, but have to be hiked to.

Hebgen Lake shoreline was severely altered. The boating facilities on the north shore of the lake were suddenly submerged. The southern shore was raised to such an extent that vast areas of lake bottom and stranded boats were common sights. Now, though, the boats have been removed and grass is growing on the displaced lake bottom, the line of the old shore is still visible. The lake itself gained in capacity from the tilting of its bottom.

Earthquake Lake was formed. The lake, with a capacity of 1/10 of Hebgen Lake, was dammed with 37,000,000 cubic yards of material. Hebgen, on the other hand, was dammed with only 296,000 cubic yards of carefully planned fill material. (1:102) The lake still shows that it was once a placid canyon through which a river flowed. Because of the trees that jut out of the water, one can almost trace the original channel of the river. These trees, long since dead, were the roosting place of several of the survivors on the night of August 17, 1959. The silence of their vigil reminds one of those frightened people's narrow escape. Other than the dead trees, however, the lake seems to be an ordinary mountain lake, if one can avoid looking at its mouth.

THE POSSIBILITY OF RECURRENCE

"There is absolutely no way of predicting when, where or the intensity of another earthquake in this or any other area." Dr. A. J. M. Johnson, retired head of the Physics Department, and presently in charge of Seismological Studies, made this statement during a personal interview with me.

The area of the site is classified as a zone three by the American Society of Civil Engineers. This means that, along with the San Francisco area, this part of Montana, on the basis of past earthquake history, is more prone to earthquakes than other parts of the country.
There is a greater chance of recurrence of a quake in this area, than around Billings, for example.

The specific history of earthquakes is on around the site can be seen written on the seismographic charts kept by Dr. A. J. M. Johnson. These charts show that no foreshocks that could be felt preceded the major quake, and that there was a period of increased earthquake activity from the quake until the end of 1961 around the site. However, no new disturbances of any alarming size have appeared since the end of 1961.

There is a theory that says that stress builds up inside the crest of the earth when it moves. When the stress becomes great enough, it is relieved by straining of the stressed material, which is usually rock. (2:34) The rock does not stretch, so it fractures. When one part gives way, it puts more stress on the surrounding parts, and they break if they can't absorb the load. This goes on until the stress is distributed below the breaking point of the materials. In the case of the 1959 quake, there has been little time for the earth to do too much shifting, and stress has probably not built up greatly. In the region around West Yellowstone, no quake of the intensity of the 1959 one was ever recorded.

The site then is in an area where quakes are likely to occur, but there is, in view of the area's history, little chance of a recurrence of the magnitude of the 1959 quake.
BIBLIOGRAPHY


6. Interview - A. J. M. Johnson, Ph. D., Professor of Physics, Montana State College, October, 1964, "Probability of Recurrence of Quakes."
A MARKET ANALYSIS
The first phase of the architect's duties is to analyze the site to determine the potential market for the proposed facilities.

**THE VISITOR TO THE SITE**

**THE PATTERN TO DATE**

The Hebgen Ranger District of the U. S. Forest Service has kept a current account of the traffic arriving and stopping at the slide area from May 15 through Labor Day. The following table shows the number of cars who stopped at the site from 1960 to the present time.

**ARRIVALS AT SLIDE**

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>200,000</td>
</tr>
<tr>
<td>1961</td>
<td>300,000</td>
</tr>
<tr>
<td>1962</td>
<td>399,000</td>
</tr>
<tr>
<td>1963</td>
<td>263,000</td>
</tr>
<tr>
<td>1964</td>
<td>300,000</td>
</tr>
</tbody>
</table>

**The Arrival of Visitors Over the Summer**

The distribution of this number of cars over the period of May 15-Sept. 7 followed this graph:

**DISTRIBUTION OF ARRIVAL OVER THE SUMMER**

![Graph showing distribution of arrivals over the summer](image)

15 Day Intervals
From the graph, it is easy to see that the visitor likes to come only during the summer, and that over 90% come from June 15 to August 30. During two of the holidays in this period, July 4 and Labor Day, a significant change in the arrival pattern was noted. In both cases, a levelling off of the number of tourists occurred, lasting about 10 days. This indicates that the visitor went on a holiday, then took his vacation later. The residual vacation trade is shown in shaded.

The Daily Arrival of the Visitor by Hour

The distribution of cars per hour on an average day during the summer from 9 a.m. to 5 p.m. looks like this:

<table>
<thead>
<tr>
<th>Number of cars</th>
<th>ARRIVAL ON AN HOURLY BASIS</th>
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<tbody>
<tr>
<td>500</td>
<td></td>
</tr>
<tr>
<td>400</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
</tr>
<tr>
<td>200</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
</tr>
<tr>
<td>0</td>
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</tr>
</tbody>
</table>

This graph indicates that the site is very busy between 12 and 4, but that traffic slacks in the morning and late afternoon. Reasons for this are: (1) the site is in a relatively remote location, and people have to do all their morning functions before they get there, and (2) the site is a daylight type of attraction. It is the visual impact that is the attraction. People who would be caught by darkness do not wish to see the site.

Conclusion

From the previous data, the visitor season is 150 days long from May 15 to September 15 and the average daily arrival is 2000 cars over the period. This indicates that the facilities could operate success-
fully over this period alone. A correlative fact is that the motels in West Yellowstone remain open for the same period on the average.

The second conclusion is that since the fill-up time for a motel is from 3-7 p.m. and the bulk of the traffic would use the site at this time, the motel is ideally located for the best fill-up time.

THE PROJECTED PATTERN

Montana's Rate of Tourist Growth

Montana's tourist business is on the upswing. As an industry, it is ranked third behind agriculture and mining. A graph of the tourist business will help illustrate the increase:

GRAPH OF MONTANA'S INCREASING TOURISM

One prominent feature of the graph is the dip in 1960 and 1961. This is attributed to the earthquake of 1959. Many people struck Montana off their vacation list. Of those hardy souls that did decide to come, however, many went to the Quake Area, as previously shown.

The graph illustrates an increase of tourism of about, three and a half per cent per year, and no change in the basic development rate is forecast. ( )

The Expected Rate of Increase at the Site

The following is quoted from a letter received from the U. S.
Forest Service, Department of Agriculture, Missoula, Montana, and written by Ass't. Chief of the Division of Information and Education, E. Arnold Hanson:

"Montana has experienced a fairly steady five per cent per year highway traffic increase over the State. The Earthquake area is attractive to people and adjacent to a heavy use area. We estimate, therefore, the yearly increase will be above the average for the State, ranging between seven and eight per cent.

The completion of the new highway will probably bring an immediate 20% increase in use. This figure is a little lower than the national average following reconstruction of major highways because an abnormally large number of people have been willing to go through construction to see the Earthquake Lake Area. This large increase will probably take place during the 1966 season.

The important thing about this letter is that for 1966, a 20% increase in traffic will be experienced, and after that there will be a steady seven to eight per cent increase every year.

Obviously, the Quake Lake Area is not handling the quantity of visitors it must in the future."

A CROSS SECTION OF THE VISITOR

The Montana State Highway Commission, Planning Survey Division, in cooperation with the U. S. Department of Commerce, Bureau of Public Roads, has prepared a detailed analysis of visitors who come to Montana. Its figures are based on three types of sources of information: (1) roadside interviews conducted at seventeen stations on main highways at the state border. These were designed to obtain general information concerning the characteristics of the out-bound drivers. It was felt that outbound traffic had a better basis on which to estimate the asked-for information, since they knew where they had been, and did not have to guess where they were going, (2)detailed interviewing of sample visitors to hotels, motels and campgrounds distributed throughout the state. These were conducted under the direction of staff members at
Montana State University, (3) a continuing program of roadside inter­views at twelve roadside stations, designed to provide supplementary data between the years that sources (1) and (2) would be taken. Every five years the program is repeated.

Significantly, the roadside interviewing stations reported only very slight variations on the information about the outbound visitor. A station was set up just north of West Yellowstone, and this station had the third greatest volume of traffic of all the twelve supplementary stations, and a comparable figure for the seventeen stations during the one year of intensive interviewing.

The visitor to the site, then, was interviewed by the survey, and his figures included in the analysis. Since there was practically no variation between the stations, and since a high percentage of the interviewers at the West Yellowstone station were site visitors, the figures for Montana as a whole will hold true for the site.

The Size of the Visiting Party - Number of Persons per Car

The visiting party consists of all the people riding in one unit. In the past years this number has had fairly constant, and no trend is noticeable, either up or down. It has ranged from a low of 3.1 in 1958 to a high of 3.3 in 1962.

This flat figure can be misleading, however. The purpose of the trip influences the number of persons per unit.

<table>
<thead>
<tr>
<th>Trip Purpose</th>
<th>Persons per Party</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1960</td>
</tr>
<tr>
<td>Vacation</td>
<td>3.3</td>
</tr>
<tr>
<td>Business</td>
<td>2.1</td>
</tr>
<tr>
<td>Pleasure</td>
<td>3.3</td>
</tr>
<tr>
<td>Business and Vacation</td>
<td>2.9</td>
</tr>
<tr>
<td>Moving</td>
<td>3.0</td>
</tr>
<tr>
<td>Other</td>
<td>3.1</td>
</tr>
</tbody>
</table>
A distinction is made between vacation and pleasure in order to distinguish between those who are only out for a short one or two day trip and those who are taking longer vacations.

People who are bent on pleasure and vacation, then, tend to carry more people in the car. Of course, the motel would be designed to house mainly those who are pleasure and vacation bent, because the other people, mostly businessmen, are going to specific destinations, usually close to their place of business transactions, or to where they are moving.

Percentage Distribution of the Total Number of Visitors According to Trip Purpose

People come to Montana for different reasons. The following chart shows the percentage of the total people who came to Montana during the year that came for a specific purpose:

**VISITATION BY TRIP PURPOSE - DISTRIBUTION PERCENTAGE**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Vacation</td>
<td>83.1%</td>
<td>80.0%</td>
<td>78.3%</td>
<td>86.0%</td>
<td>86.5%</td>
</tr>
<tr>
<td>Business</td>
<td>10.0</td>
<td>13.1</td>
<td>12.9</td>
<td>6.5</td>
<td>6.4</td>
</tr>
<tr>
<td>Pleasure</td>
<td>no. cat.</td>
<td>no. cat.2.3</td>
<td>2.4</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>Business and Vacation</td>
<td>6.0</td>
<td>5.0</td>
<td>3.0</td>
<td>1.7</td>
<td>1.2</td>
</tr>
<tr>
<td>Moving</td>
<td>0.9</td>
<td>---</td>
<td>2.7</td>
<td>3.3</td>
<td>3.2</td>
</tr>
<tr>
<td>Other</td>
<td>1.9</td>
<td>0.8</td>
<td>0.1</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Pleasure was introduced as a category in 1960

Vacationing and Pleasure combined, then far exceed any other purpose for which people come to Montana. The vacationing people are the prospective customers for the facilities to be offered, since the rest, as has been stated, have other goals in mind.
Importance of Number of Persons per Party and Trip Purpose

The Forest Service did not break down the cars they counted by anything - they just counted cars. In order to analyze what goes on inside the cars, it is necessary to look inside.

The total number of cars at the site who stopped was 300,000 in 1964. Applying the rule that the vacationing public is the potential market, approximately 85%, or 255,000 of the cars who visited the site were vacationing. These 255,000 cars have an average of 3.4 persons per car, or a total of 867,000 people in them.

In order to properly size the facilities, and to give proper distribution to the types of rooms in the motel, and the facilities to be offered, the breakdown per car must be known. If it is not known, then the motel may have many unused types of rooms, while other types may always be full.

Expenditures of the Visitor

One of the most important aspects of the visitors is the amount of money they spend. The total amount they spend in the state is important to the state, but how they spend the money is important to the people interested in getting a part of it.

The following breakdowns of expenditure will help give an idea of the expected income from the facilities, by giving the amount one could expect a party to spend on a facility such as food, for a day.

Expenditure by Party Purpose

Again, the reason the party is traveling is a determining factor. The following chart shows the breakdown by party purpose of expenditures for food and lodging.
An increase in the expenditure is noticeable for three years, but the important feature of the chart is the expenditure made for food and lodging by the vacationers, since they constitute 85% of the people at the site. Their expenditure is quite high, and increasing.

The American Automobile Association says that, no matter what the traveling tourists' budget, he will spend half of it on food and lodging, and of this half, half again will go for food. So in 1962 the visitor-vacationer party spent approximately $8.75 for food and $8.75 for lodging.

Expenditure by Type of Lodging -

Another way to break the visitor dollar is by expenditure per party per day for food and lodging by type of lodging:

<table>
<thead>
<tr>
<th>Type of Lodging</th>
<th>1960</th>
<th>1961</th>
<th>1962</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hotel</td>
<td>$18.85</td>
<td>$19.50</td>
<td>$22.07</td>
</tr>
<tr>
<td>Friends and Relatives</td>
<td>11.25</td>
<td>11.10</td>
<td>15.15</td>
</tr>
<tr>
<td>Camping</td>
<td>7.97</td>
<td>8.84</td>
<td>8.52</td>
</tr>
<tr>
<td>Trailer</td>
<td>8.32</td>
<td>9.39</td>
<td>8.04</td>
</tr>
<tr>
<td>Hotel</td>
<td>17.63</td>
<td>18.20</td>
<td>18.45</td>
</tr>
<tr>
<td>Average</td>
<td>$14.64</td>
<td>$15.38</td>
<td>$17.04</td>
</tr>
</tbody>
</table>
Parties who use a motel spend about $11.00 a day for food, and $11.00 a day for lodging, and have a total expenditure for the day of about $44.00.

People at the site, then, are prepared to spend money, and have the money available.

### Type of Lodging

The visitor to the site is going to stay someplace during the night, and this may range from home in bed to sleeping in the backseat of the car. The following chart shows how many of the traveling people at the site can be expected to use different types of sleeping facilities:

#### TYPE OF LODGING USED

<table>
<thead>
<tr>
<th>Type of Lodging</th>
<th>Percentage Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motel</td>
<td>55.3%</td>
</tr>
<tr>
<td>Hotel</td>
<td>5.6%</td>
</tr>
<tr>
<td>Camping</td>
<td>12.3%</td>
</tr>
<tr>
<td>Friends and Relatives</td>
<td>12.5%</td>
</tr>
<tr>
<td>Tourist Room</td>
<td>0.8%</td>
</tr>
<tr>
<td>Trailer</td>
<td>1.7%</td>
</tr>
<tr>
<td>Home</td>
<td>8.0%</td>
</tr>
<tr>
<td>Car</td>
<td>2.1%</td>
</tr>
<tr>
<td>Other</td>
<td>1.7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

By far the outstanding type of a sleeping accommodation for Montana travelers is the motel. However, there is a trend toward heavier use of camping equipment and trailers. The motel still has held on to approximately half the market for sleeping accommodations.

Of the visitors to the site, approximately half are potential motel...
users, and if they use the motel they will also become potential users of all the other facilities. A discussion of this will follow under Use of Facilities.

**Length of Stay**

The traveler to the site who spent the night in the proposed facility would not spend more than one night in it.

In the first place, the whole site can be seen, and literature read in approximately one hour. The Forest Service holds lectures that last for one half an hour, and they hold two every hour and a half. The tourist, then would spend approximately two hours at the site taking in all the features of the site, and information presently available. The proposed facilities could add snack time, and the curio shop and a browsing area could add another hour to this time, bringing the total to three hours. This time is the longest it would take to use all the facilities proposed, unless the visitor had some special interest, such as boating or fishing in the area. The site, then, is a one shot spectacle. It's all there for one afternoon's beholding.

The second reason the stay would be only one night is the fact that the site is not centrally located. The traveler could not conveniently locate here and see all the surrounding points of interest. There are much more convenient locations elsewhere, such as West Yellowstone or Bozeman.

The third reason is that the average motel user in Montana spends only 2.4 nights in the state anyway. This is mainly because he has other objectives in mind. If he is traveling across the state, then he would have to spend at least one night in the state, just because of its size, and it is logical to assume that most people who are on a vacation are not in quite such a terrible rush. The upshot of this is that, because of other destinations, and the size of the state, the traveler only stays one night in most places anyway.

Because the motel user will probably stay only one night, housekeeping units in the motel should be avoided, and facilities designed to
cater to people who stay longer than one night should not be considered as desirable.

**Summing The Essentials of the Cross Section of the Visitor.**

Because the potential user of the motel is the critical person, his characteristics will be summed up.

1. The size of the motel vacationer's party is 3.4 persons.
2. Of all the people who travel in Montana, 85% are on vacation.
3. Parties who use motels on their vacations spend $22 for food and lodging per day.
4. Of all the people on vacation in Montana, half use motels for overnight accommodations.
5. The visitor to the site who uses the proposed motel will only stay for one night.
CONCLUSIONS AND RECOMMENDATIONS

Based on the arrival patterns of the visitor to the site, the location of the site, and on the make-up of the visitor, the following conclusions and recommendations are offered.

CONCLUSIONS

1. That the site will experience a continuous growth in numbers of visitors.
2. That a great many people now visit the slide area.
3. That the tourist season is only 150 days long.
4. That the tourist will need some form of lodging and food at the site.
5. That the market is essentially vacationers.
6. That the vacationers spend more money than non-vacationers.
7. That the vacationer is, essentially, a man traveling with his family.
8. That the vacationer will not remain more than one night.
9. That half the vacationers will use a motel.

RECOMMENDATIONS

1. That a motel be built to house the vacationing family.
2. That an eating facility be built with the special interests of the vacationing family in mind.
3. That an eating facility be built with the interests of the visiting group as a whole in mind.
4. That a curio shop be built to provide the visitor with an outlet for his non-food and lodging money.
5. That a browsing area and viewing facility be used as an attraction to the visitor.
6. That a boating facility not be built, because of the shortness of the expected stay of the traveler.
BIBLIOGRAPHY


SITE
The client has asked the architect to examine the physical features of the site. He wants to know what physical aspects of the site will affect the design. He also wants to know the laws governing the site.

**THE PHYSICAL ASPECTS OF THE SITE**

**LOCATION**

**Latitude and Longitude:**

The site is located at latitude $44^\circ 50'$, and longitude $114^\circ 25'$.

The altitude is 6460 feet above sea level. (3:2) The aerial photography on the following page show the slide area just after the quake, and in the summer of 1962.

**Sun Angles**

This location has the following sun angles for 12 o'clock noon and 5 o'clock p.m. during different times of the year. (1:604)

- **Jan. 20, Nov. 23**
  - 12
  - 23°

- **Feb. 19, Oct. 23**
  - 12
  - 34°

- **Mar. 21, Sept. 23**
  - 12
  - 46°

- **Apr. 20, Aug. 24**
  - 12
  - 56°

- **May 22, July 23**
  - 12
  - 65°

- **June 22**
  - 12
  - 68°

- **Dec. 22**
  - 12
  - 42°
When glass is used sun angles become important. Glass has little insulating value, and heat - both radiation and conduction - passes through it. In order to maintain comfort within a building, some defense must be made against this property of glass.
The Slide in 1962

1. Quake Lake
2. The Site
3. Channel cut by Engineers
4. Ridge
5. Memorial Rock
SIZE

The site consists of approximately four acres of surface area, two and one-half of which are flat and easily approached from the road.

ADJACENT ENVIRONMENT

The View Looking Away From the Site:

A series of pictures best illustrates the way a person standing on the center of the site would see the surroundings. See Map One for the location of the viewer.
Looking To The Site:

There are few accessible viewpoints for observing the site itself. The only way to see it is from the road approaching from the northeast. There are several turnouts along the road where a tourist can get a look at the site. The photograph shows the view from one of these turnouts.
The View of the Slide From The Forest Service Lectern:

The tourist can get a panoramic view of the mountain from which the slide came, and of what remains of the slide itself, by standing near Memorial Rock - see aerial photo number two. The following pictures were taken from just below this point.

TOPOGRAPHY

The site is relatively level. The mountains rise steeply out of the canyon and cast shadows over the site, particularly in the early morning.

Map One shows the topographical features of the terrain.

CLIMATE

Temperature and Precipitation:

The chart of the average temperature and precipitation for Hebgen Lake will hold true indications of weather for the site, since the site is only eight miles from the weather station.
Wind:

During the summer, there is little or no wind, except just before a storm. Gusts will reach 30 miles per hour during these storms, and will blow from any direction. In the fall there are very high winds coming from the southwest which can gust up to 60 miles per hour.

Winter storms, blizzards, are also accompanied by heavy winds. The storms move in from the west, but the winds during these storms come from the southwest. Spring winds blow mainly from the southwest, and can gust to 60 miles per hour. (6)

Snow:

Snow depths in the canyon itself have been reported at an average of four feet for the heavy winter months of February and March. Wind drifted snow piles as high as 10 to 12 feet, depending on the protection offered the snow.

On the site itself, there is little protection from wind and it is usually swept clean of its snow cover. However, in 1961 there was a four feet deep pile of snow on the site during the month of March. (6)

AVAILABLE UTILITIES

Telephone service is available at Hebgen Dam. The line would be brought eight miles to the site. No gas is available from the Montana Power Company. Bottled gas will have to be used, if needed.

Electricity is available at the site. Map One shows the location of the poles.

Water is available, but it is not fit for human consumption. A water purification plant will be installed to provide for drinking, and washing in the building.

Sewage disposal is a severe problem, because there is no area to put a drainfield. The reasonable solution, then, since the site is so nonadaptable to a drainfield, would be a hidden cesspool.
IMPROVEMENTS

Site Improvements:

The Approach:

As shown by Map One, there is a turnoff from the main highway onto the site. The total width of the turnoff is 34'. Because highway one slopes up and away from the site, this turnoff would be the only vehicular access, unless a ramp was built - see photograph series three.

Levelling and Surfacing:

The site has been levelled. It drops approximately 5' from north to south, and three feet from west to east. With the exception of piles of limestone chips and earthquake debris on the north side of the site, it is level.

The surface consists of approximately four inches of one and one-half inch broken limestone chips. The base for this surface is the slide material as it came off the mountain. The thickness of the surface varies somewhat, but it averages around four inches.

Adjacent Improvements - see attached sheet.

SOIL CONDITIONS

The diagram shows a cross-section of the slide, and the underbed of solid granite. (3:27)
The U. S. Forest Service has made improvements on the Slide. Besides the approach to the site, there is one other turnoff from the main highway. This road leads to a central parking district, from which more parking, information kiosks, a lecture area, and several footpaths lead. These footpaths lead to the Memorial Rock, where the names of those who died under the Slide are perpetuated, and to a lookout point from which a panoramic view of the Slide is possible.

The parking capacity of the Forest Service areas is approximately 300 cars. The central parking space has a capacity of about 40 cars, and the auxiliary parking has space for 245 cars.

The unconsolidated 200 feet of slide material presents a very difficult foundation problem for a building. Because of the danger of uneven settlement when a load is applied to the top of this unconsolidated material, a building would be founded on the bedrock, where little or no movement short of another earthquake will take place.

ORDINANCES GOVERNING THE SITE

Because of its extreme remoteness, the site has none of the usual restrictions imposed on its city cousins by city-county planning boards. In fact, there is only one restriction, that is, that every public structure in Madison County must conform to the Uniform Building Code.

If a small business loan is to be taken, then they will want to approve the building plans.

Fire insurance rates will also determine the type of construction used.


4. U. S. Forest Service, Division of Engineering, Map 1962, T 115 123E, 1"=60'.


The market analysis was completed and given to the client. From this analysis, a preliminary building program was decided upon:

1. A motel unit consisting of 120 units, of which approximately 5% would be single units with both twin bed and double bed units, and 95% double units consisting of combination of twin beds and double beds, or two double beds, both with room for a folding bed. A few suites are to be provided. Kitchen units are not to be included. Expansion of the motel is to be considered.

2. A restaurant with a seating capacity of 200 persons.
3. A curio shop with browsing space for 100 persons.
4. A drive-in short-order food service with a capacity of 30 cars.
5. An outdoor browsing area, partially covered, and facing the Slide.
6. Employee facilities for approximately 50 persons, and a residence for a year-round manager and caretaker.
GENERAL PRINCIPALS

In order to best describe the function of the building, several criteria are necessary. The uppermost consideration in the designer's mind should be to do everything possible to "sell" the facilities to the possible user. All other requirements are based on this underlying principle.

CONVENIENCE

The facilities should be readily recognizable, and easy to use. This is one of the major reasons for the success of highway facilities. (3:10) The traveler does not have to search for the service he desires. Its location is obvious. He can drive right to the service, with a minimum of fuss and bother, and decisions. He expects to be served promptly and well.

COMFORT

Both the travelers' physical comfort, and his mental ease need to be considered. One of the reasons for the decline of hotel use in the U. S. was the physical discomfort of having to get to the individual rooms, and the mental anguish of being thrust into a kings' palace, with attendants scurrying hither and yon, grabbing luggage, and decimating the budget. (1:4) The facilities proposed should overcome any of the mental anxieties a user may tend to suffer, and provide for his physical well being.

ECONOMY

Most travelers today are vacationing with a limited amount of funds. Although they may not have a formal budget for the trip, they instinctively know how much is too much. The proposed facilities should not attempt to charge more than the average rate for the locality. Competition is too accessible to permit much liberty in overcharging the traveler.
SERVICE

The people who do the serving, and the facilities they use to provide the service will have an important effect on the traveler. While he may be induced by proper application of the other principals to use one facility, if he is treated poorly, he will not use the others, for fear of the same humiliation and aggravation. The best type of service is the "folksy" approach, where everyone is everyone else's best friend, but not superior in any way. (1:4)

SAFETY

One thing to avoid is lawsuits. All the physical features on the proposed location must be examined in the light of the possibility of causing accidents. Also, a fire or other type of disaster would ruin the reputation of the motel.

The facilities and the services, then, must conform to the overriding principle of providing for the users physical and mental well being, so that he will use the facilities offered.
THE SITE

The site has drawbacks, but it also has advantages. In order to properly design the facilities, these must be recognized.

RECOGNITION

In order for the traveler to use the facilities, he must know what they are and where they are. In the ordinary situation, signs are placed along the road, proclaiming the glows of the facility, but mostly where it is. In the case of the Quake Lake facilities, the situation is a little different.

Necessity of Long Range Advertising:

In the first place, people have come to the site with a minimum of advertising. The advertising done is by the state and the Forest Service. Both highway 191 and 287 are well marked. The State Advertising Department publishes several pamphlets, and these are distributed to all who request information on Montana.

West Yellowstone and Ennis both use the Slide as a drawing card. In information put out by the Chamber of Commerce the towns are said to be "headquarters" for touring the site.

The important thing is that people come to, and stop at the site. The problem of advertising the facilities away from the site would be useless in attracting more people, but would serve the function of letting the traveler prepare his schedule of where he would stay, and where he would eat. In order to facilitate this, signs should be placed around the place of last accommodations, and be readable from the main access highways to the site.

Necessity of Advertising at the Site:

In order for the persons at the site to know what they can expect from "that bunch of buildings down there," signing of some sort must be carried out. The position and design of the buildings will give some idea of their use, but will not tell the prospective user exactly what
they are. The advertising must answer the questions in the observer's mind by telling him exactly what he needs to know.

Signs indicating the individual parts of the facilities will be necessary, and a diagram of the layout at the informative kiosk would be desirable.

SURROUNDINGS

Because of the condition of the surface of the slide, natural growth of landscaping is impossible. But more than that, it is undesirable.

As little as possible should be done to the Slide itself that would ruin the visual impact of the catastrophe. This impact is the drawing card of the location, and any attempt to change or soften it could lead to financial disaster.

The buildings, then, would have little or no landscaping, in the form of trees, grass, or plants. The landscaping would consist of whatever use can be made of the site debris.

EASE OF ACCESS

Above all, the visitor must be able to get to the buildings, and inside to the different areas, with a minimum of time and effort spent.
Approaches:

There are two types of use of the proposed facilities: (1) the ones which will be used for a short period of time and (2) the overnight section. These two different uses require different types of access, because of the traffic patterns of the visitor. The restaurant, curio shop, and browsing area will offer service to the entire visitor population, and, because of this, must have more access ways than the drive-in or motel, which are primarily designed for use by the automobile.

The Restaurant, Curio Shop and Browsing Area:

People will be walking around on the site. They walk up to Memorial Rock, and down to the edge of the parking lots, at the present time. An approach for the walking traffic must be made. Access from across the highway must be either over, or under, not across. Parking must also be provided for those who wish to bring their automobiles with them when they use the facilities.

The Motel and Drive-In:

The people who use these will be in cars. Access must be provided for these cars. The one turnoff from the highway is 34' wide, plenty to accommodate a two way flow of traffic. Since the plane of the highway and the plane of the surface of the site meet only at this point, any other access by car would have to be a ramp. However, the one turnoff will be sufficient to handle the expected traffic.

Parking:

Once the cars get on the lot, they must be able to circulate freely, and be put where they will least interfere with the flow of foot traffic. The motel and drive-in both require parking adjacent to the structure, but the restaurant, curio shop, and browsing area can be walked to, as will be discussed under their separate headings.
THE BUILDINGS IN GENERAL

Certain features will be common in all the buildings; the desirability of visibility, the construction, and soil conditions for it, and the possibility of expansion must be considered.

VISIBILITY

Every motel unit, the restaurant, the browsing area, and the curio shop should take advantage of the view. It is not so necessary for the drive-in, because the necessity of orienting cars directly across from each other, for economy's sake, leaves little room for viewing.

TYPE OF CONSTRUCTION—POSSIBILITY FOR EXPANSION

In order to accommodate the necessary glass for visibility in an economical way, and to provide for orderly expression, a modular, or repeating sequence type of construction must be used.

Soil conditions also dictate the type of construction. Because of the possibility of movement of the surface, two types of special construction must be used: (1) foundations extending down to bedrock, (2) a "floating" slab, that is, a slab that would rest on top of the site, and provide for even settlement of the buildings.

If the building is put on stilts, all the stilts must fit the module, in order to provide for orderly expansion. If the slab is used, it must be strong enough to support the structures if uneven settlement does occur.
The motel has three divisions within it: (1) the rental units, (2) the public rooms, and (3) the service space. In general they have a few characteristics in common, but the parts are separate, and require individual analysis. The motel, as a whole, however, must conform to a basic type of plan that provides for all the needs and wants of the traveler, while keeping within the limit of economical operation.

THE GENERAL PLAN

The plan of the motel is a result of the site dictations, and what the traveler who will use the motel requires.

Site Conditions:

The location of the site, with the requirement that the motel be seen, and of the patrons who use the motel to see, the condition of the soil, and the amount of space for parking, will dictate a certain type of plan but suited to meet these requirements.

Visibility:

The motel must be readily recognizable as a motel because this is part of the advertising of the building. The user must know where it is, and what it is. Once inside, the user should be able to take full advantage of the beautiful views afforded by the location.

In order for the building to best be seen, a position well away from the road, out on the edge of the site near the dropoff would be best. Out here, everyone on the Slide could see it, and see it clearly.
A position well out from the road, and facing the views to the slide, and up Quake Lake, would be very good for the view from inside the motel.

Soil Condition:

As stated, the slide material is unstable, because of the danger of having a "floating" slab crack, with the resulting cracks in the walls of the structure, and other unsightly results of the movement, piers going down to bedrock would provide a more stable base on which to build. Because of the expense of digging holes for them down through the slide material, it would be better to have them go through as little material as is necessary for lateral bracing before reaching bedrock. Over the dropoff somewhere would be an ideal position.

Economic Consideration:

It is cheaper to build two stories than one, given the same set of conditions. A two story structure would be much cheaper than a one story if built on piers, because of the fewer number required. More stories would be even cheaper, but, because the tourist requires certain things of a motel, such as free and easy access to the room, handy parking, and safety in case of fire, a higher building loses income.

What The Traveler Requires in a Motel:

As was just mentioned, the tourist requires certain things of a motel, and these are the very things that have made motels so popular today. These are the principles laid down at the outset of this chapter: (1) convenience (2) comfort, (3) economy, (4) service, and (5) safety. An analysis of what these mean to the tourist will shed light on the requirements for the general plan.

Convenience:

The tourist must be able to drive his car to the registration area, register, and park his car at his own unit, or within 50 feet of it. His automobile is his trunk. He lives out of his trunk, and naturally wants it handy for quick use.
Self service is essential in a motel. The traveler can be asked to pay in advance on account of this. He knows that this is the only expense, and when he pays it, he is through.

Comfort:

To the tourist, this means both physical and mental. He must be able to relax. Specifically, this is a room where he can be by himself, first of all, and secondly, where the room is so designed that he can enjoy himself. This also means that when the time comes to use some service, he will be made to feel at home. When he picks up the telephone, the answer is "may I help you?" not "what do you want."

Economy:

The motel rates are low because it is primarily a self service type of establishment. No bellboys, no parking attendants, no room service, no charge accounts all combine to make the motel an inexpensive way to travel.

Services:

Few services are provided. The manager and his wife are usually the only services.

Safety:

Because of the one or two story status of motels, people regard them as safe. If something happens, they are at least free to get out.

The general plan, then must incorporate all of these features which have made motels so successful over the last twenty years.

Promotional Features:

This belongs under Convenience, but, because of the size, a separate heading is made.

Many motels provide a variety of small services and amenities. Among them are: bottle openers, shoe cleaners, laundry service, ironing boards, and baby-sitter services. These are necessary to attract the
choosy traveler who may be looking for such conveniences, especially after living out of a suitcase for a week or so.

A special promotional feature is the gift or curio shop, which has proved to be profitable in itself, especially at historical sights, as well as being a promotional item for the motel itself. (32)

Signs are of particular importance in motels and require considerable study. Highway signs must attract, not detract, day and night, in all kinds of weather. Association emblems, vacancy-no vacancy signs, and directional signs within the motel grounds deserve careful study; good ones can add a great deal of convenience, but bad ones are another ground for complaint.

RENTAL UNITS

The rental bedroom unit is the core of the motel design. If it is not acceptable to the guests, no amount of gadgetry or plushness of other facilities can assure the motel's success. The rental unit must provide for the needs and desires of the family on vacation.

It is considered ideal to have access and outlook on opposite sides, although many installations today have both on the same side (33)

Sizes:

In hotels, the generally accepted minimum sizes are about 100 square feet for single rooms, 140 square feet for doubles, and 170 square feet for twin beds. Motels range approximately 50% larger than these minimums. In order to cater to the vacationer, the greatest number of motel room will be sized for twin beds, and for two double beds.

Planning:

Types and sizes of bedroom should be varied. Provision for the use of two or more rooms together in suites, when the occasion demands, is good practice. Some experienced operators believe doors should be provided between all, or almost all, adjoining units. Sound transmission between rooms through connecting doors is a serious problem. It may be solved by double doors, accoustical treatment of doors, and similar
Numerous types of room arrangements are now in use in motels. Some of the most luxurious combine bedroom-sleeping areas with sitting areas of various types. Because of the superb views, a sitting area in the motel unit would be desirable.

A popular type of room today is the bedroom-sitting room combination. Furnished with beds which may double as sofas, this type of room can often be made more useful and flexible than many other types, at little extra cost. Additional problems are created by the multipurpose beds, however. They are usually placed with their long side against a wall, making waking difficult. Also, the walls behind them receive hard wear. Often, the beds are uncomfortable.

Storage:

Three types of storage are required: (1) luggage racks (double-sized, or two to a room) (2) clothes hanging space - probably a bar because of the accessibility, and (3) drawer storage. Drawers may be kept to a minimum, since most guests live out of their suitcases.

Bathrooms and Dressing Areas:

The bathroom is the most expensive part of the rental unit, the most difficult to maintain, and one of the features that will most impress or depress the guest. Ceramic tile floors and walls are now considered essential. Bathrooms must be designed for simultaneous use by several people rushing to get on the road.

Showers have been supplanted by tubs with shower heads and glass or plastic sliding doors or curtains. The tubs are a desirable feature, because it is a looked-for feature by many women.

Conveniences in the bathroom include storage space by lavatories, bath towels reached from the tub, and heaters. Table top lavatories are a luxury, but are hard to maintain, because of the susceptibility of the surface to the ravages of water.
A combined bathroom, dressing room is a useful combination. This eliminates extra steps for the traveler, and provides more privacy.

Some Typical Bathroom Layouts

Other Considerations:

A simple writing table would be useful to help dispatch the curio-shop collections to parts unknown. A combination writing desk, dressing table is a useful, inexpensive solution. Good lighting in sufficient quantity for reading are greatly appreciated by the travelers. A foot candle level of 50 in the area of the reading is necessary. ( :42)

Identification of Rental Units:

Simple and easy-to-understand identification of individual motel buildings, rental units, and other services prevents confusion and frayed tempers.

Materials and Construction:

Although all materials and construction methods currently available can and are being used in motels, some specific problems peculiar to this building type should be considered.

Floors:

Poured concrete slabs are often used in one story projects, because of the good base this makes on which to lay other materials and because it is reasonable in cost. A slab elevated above the ground becomes more expensive, but has the structural advantage of producing rigidity in the structure, if properly detailed. Another possible choice of a base for
a finish floor in wood. Wood will take a tremendous impact load, that is, a load applied all at once, and quickly removed, before it will break. However, because wood expands and contracts with temperature and amount of moisture in the area, it makes a poor base on which to lay other finish materials. It is also difficult to fireproof.

On top of the floor underlayment goes vinyl or cork tile, because of their ease of maintenance, good appearance, and durability. Ceramic tile is used in bathrooms to take additional wear, and withstand water. Carpeting is a very desirable feature in motel spaces. Some associations require it, or give it special weight, when rating motels for entrance into the association. The carpeting should be wall to wall, and of a thick weave, in order to give the added touch of luxury.

It is important to realize that floors get the heaviest wear of any surface within the building.

Walls:

The lower 30 to 36 inches of a wall, and that portion of it behind combination bed-sofas, take the worst beating. If a smooth wall finish is employed, such as plastic or gypsum board, then the lower part should be treated with a hard wearing surface, such as vinyl wall covering or brick.

Ceilings:

The ceiling receives very little abuse, only an occasional impact load. However, it must be kept clean, and good looking, after all, some people will spend much time looking at it, and newlyweds will find a good-looking ceiling very restful. The most important characteristic of the ceiling is the sound absorption and transmission qualities it has.

Acoustics:

The problem of acoustics has two aspects: (1) the control of the quality of sound within the space, and (2) keeping sound from being transmitted outside the space, and from the outside in.
Sound Control in the Room:

A sound absorbent ceiling, and spaces that will not focus, but distribute the sound evenly over the room, will give good sound quality to the room.

Eliminating Sound Transmission:

One of the major causes of noise irritation is lacking at the site. There is little or no traffic on the highway at night, and the road is not used as a truck route. Highway noise, then, is virtually eliminated as a problem.

Sound enters the room from adjoining spaces: (1) through thin, light walls, (2) openings such as windows and doors, especially when they face each other, (3) bathrooms that are back to back and not properly separated, and (4) doors connecting the unit. If second story rooms are to be sound insulated, special treatment of the floor must be done.

Transmission loss, that is, the amount of sound absorbed before the sound gets entirely free from the enclosure, must be in the range of 40 to 50 decibels. This means that a person standing just outside such a space would have to be surrounded by absolute stillness in order to hear
a shout inside the space. The best method of preventing sound transmission is to use a discontinuous type of construction. The following diagram shows an example of discontinuous construction in wood.

Furniture:

Guest comfort and convenience, together with ability to withstand hard usage, are the most important criteria for motel furniture. Standard hotel furniture of metal or wood is often used.

Beds:

Simple headboards, no footboards, and comfort are necessary features. Coasters or rollers facilitate making the bed and cleaning under it.

Other Furniture:

In addition to the provisions for storage, (luggage racks, bars) chairs, desks, and dressing tables must be durable, along with lamps and other light fixtures. Horizontal surfaces should be stainproof. All furniture should be stainproof, and be mounted on glides. Leatherette is the best covering for chairs, because of the ease of maintenance, good appearance, and excellent wearing qualities.

Equipment:

Motel equipment, in common with other motel furnishings and materials, must be tough and strong to withstand the hard usage it will receive. The convenience and comfort of the guests must not be compromised, yet it should be remembered that the best piece of equipment available performs no useful function whatever if it cannot be made to operate efficiently, and, in a motel, almost continuously, with little attention and few breakdowns.

Heating and Air Conditioning:

The motel will be closed in the winter. A caretaker will be the only person at the site. All the units will require no heating or air
conditioning of any type during the winter.

During the summer, temperatures range from a maximum of 100° to a minimum of 20° (Local Conditions). This tremendous range may take place within one day. Both heating and air conditioning will be necessary.

The typical temperature range finds the daily high around 75° and the low around 40°. Relatively few days are hot. The climate, then, is generally mild.

In milder climates, heat pumps, both air-to-air, and air-to-water, are being used extensively. Both central system and unit pumps are available for heating and cooling. Radiant panels for heating is often the best answer in the sites' climate.

Unit air conditioners are used in almost all climates. They have a relatively low first cost, are easy to maintain, and when not operating, only one room need be shut down.

Unit heating and air conditioning is desirable because of the response they have to the whims of the individual room users. Their room temperature, if not right, is their own fault.

Pets:

Because of the large volume of families in the vacationing public, many of whom bring their pets along, some provision must be made for them. A trend has been to provide a separate kennel, which relieves the family of feeding worries, and fear of losing a wandering pet.

Windows and Doors:

Shoddy materials are to be avoided. Windows and doors should be made of hard wearing surfaces, built to withstand the use by many hands. The mechanical equipment should be simple, and heavy duty.
The lounge area constitutes the public space in the motel. The main use of the lounge is for a gathering place of motel users. It is an entertainment center. Television has been eliminated in the individual rooms, and put in the lounge, for the express purpose of bringing together the motel clientele. One of the interesting features of travel is fellow travelers. A common television room is used to bring them together.

Other activities are also included in a flexible arrangement of space. Bridge is played by many people, and is a good tool for beginning acquaintances.

Public toilets will be necessary. Telephone booths will also be accessible from the lounge area. Telephone service will be eliminated in the individual rental units. The service produces no profit, and because of the late hours worked by the operator, service is often not the best, and is often cause for complaint. Public telephone booths eliminate the expense, and, where not advertised, are not grounds for complaint.

The area should, of course, be in architectural harmony with the motel units. It should also provide proper acoustical environment for an intimate type of space, and be comfortable and friendly in atmosphere.

OPERATIONAL REQUIREMENTS

In general, the operational criteria for operational provisions in a motel are ease, thoroughness, and economy for housekeepers and service personnel; ease, simplicity, and effectiveness for supervisors; and ease, comfort, and unawareness of the operation for the guests.

Office and Lobby:

The minimum office facilities include a sheltered driveway for incoming and outgoing guests; a small lobby, with provisions for payment of bills, registration, information, and convenience sales. An office space to handle motel affairs is also necessary. It should be related to
the lounge space to make the traveler aware of the facilities in the lounge space.

**Employees:**

The number of employees should be held to a minimum. This reduces overhead, and eliminates wasteful time spent on training. The employee market is close at hand. West Yellowstone has a large influx of willing college students every summer, at the height of the tourist season.

**Number:**

Most motel operators feel that a complete operation can be efficiently handled with one employee for each three rooms. A total of 35-40 employees for the motel would be adequate.

**Facilities:**

The manager should be housed close to the office, in order to facilitate his ease of access to the motel. Dormitories for the rest of the employees will be necessary.

**Linen Supply and Handling:**

Central supply rooms, supplemented by local storage rooms, usually assigned to two maids, and located near the rental units they supply, will greatly decrease the amount of time spent on the maintenance of the rental units. The supplies consist of sheets, pillow cases, various types of towels, bathmats, washcloths, matches, tissues, writing kits, and sterilized glasses.

Each maid can handle 10 units per day. Each separate storage room should supply 20 rental units. One central supply room, centrally located, will supply the storage rooms. If the supply room is used as a storage unit, then few units will be necessary.

A supply of four sets of all linen and rotatable supplies should be kept on hand. One will be in cleaning, one in central supply, one in storage, and one in use.

Access to the central supply from the cleaning work should be direct and large.
Cleaning Operations:

Service closets, in conjunction with supply storage, must be provided. Items to be stored are brooms, vacuums, carpet sweepers, and carts on which to carry the cleaning and supply items. Slop sinks must be provided in the service closets.

Laundry:

The laundry must house washers, dryers, and mangles, large enough to clean a complete change of bedding, and other linen every day for the whole motel. Equipment must be provided for glass sterilization. The laundry should have a service entrance, large enough to accommodate a truck of around one and one-half tons.

Miscellaneous Storage:

Repair of plumbing, heating and air conditioning, and electrical equipment will be necessary. Painting and glazing projects are season-round activities. Mobility is necessary for the men. Housing for one pick up truck will be necessary.

CONCLUSION

Because of the complexity of operation of the motel, many small spaces are necessary. The spaces must be flexible, and have the overriding quality of being able to "sell" the traveler, by its appearance, and the potential service it offers him.
The fundamentals of planning and design for a restaurant are the same as for any selling operation. The most important fundamentals are the attraction, distribution, comfort, and convenience of the customers. Secondly, the organizing factors of receipt, storage, processing, and delivery of the goods for sale must be considered. The first important aspect we shall call the public exposure areas, and the second, service areas.

The restaurant should take advantage of the views. The public areas should be so oriented that they face, at least on one side, the Slide and/or the Lake.

THE PUBLIC EXPOSURE AREAS

An introduction is needed to the main dining area, and the combination of the introductory space and dining area constitute the public space.

Entrance Areas:

This is the introduction to the space, and this is the area that will induce the potential customer to enter. Much of the restaurants patronage will be overnight guests who will, of necessity, avail themselves of the facility. The general location, then, and the identification of the space as a restaurant, are the most critical of the requirements for the entrance area.

Exterior:

Exterior treatment should reflect the character of the restaurant. The restaurant caters to families of vacationers, mainly, and should show that it is neither too swanky to be used by ordinary folk, nor too sloppy for the family.

The Entrance Vestibule:

Many heads of families are concerned with other things than just eating when they enter a restaurant. Children must be forewarned not to scream or throw mashed potatoes. Coats are to be removed, and children
to be reassembled before making the grand entrance into the dining area. Spaces that have to be used before the entrance to the dining area should be adjacent to the entrance vestibule. Toilet and washroom facilities need to be provided for. A coat rack should be in the area, with space for easy access to and from them, plus control by the cashier, should be provided. The cashier should control not only the coats, but the restaurant as a whole.

**Toilet and Washrooms:**

They should be easily accessible from the entrance vestibule, and have hand washing facilities, and toilets. A combination of this toilet with toilets for the lounge of the motel should be considered.

**Coat Rack:**

Enough space so that 50% of the persons in the restaurant can leave his coat should be provided. Allow approximately 3" for each coat thickness, and 2' for width. Approximately 25' of coat rack should be provided.

**Control:**

The entrance is also the exit. In order to facilitate rapid turnover of the customers, a cashier should be used. The most convenient location is at the entrance-exit.

**Materials and Construction:**

The area should be quiet. Bill paying and child disciplining both require a maximum of sound reduction. Some acoustical treatment must be given the space, usually on the ceiling. Walls must be of durable construction to absorb the kicks of the foot traffic, and cleanable to facilitate the removing of little handprints. Cleanliness is very necessary in the entrance, because this is part of the "selling" feature of the entrance. The floor has to be durable, to absorb the tremendous foot traffic in such an area. It must be easily cleaned, and not too noisy.

**The Dining Area:**

All the preparation at the entrance is prerequisite to entering the actual eating facility. The general atmosphere should be friendly.
All the service, and all the architectural treatment should be focused on this particular type of atmosphere.

Size:

For planning purposes, allow 12 square feet per person. For 200 persons, this amounts to 2400 square feet.

Planning:

In general, the dining room can be either a series of smaller spaces, or one large space. In order to take advantage of the views, large panes of glass will be necessary, and small rooms don't accommodate large sheets of glass well. Space must be allotted for the free and easy passage of users, and for ease of service. Dining units should be flexible in their arrangement to allow for tailoring to specific party sizes. The dining units will consist of two and four seats. Larger units will be made of this basic combination. Because of the flexibility desired, tables that are moveable, and chairs, rather than booths should be used.

Furnishings:

Generally, furnishings must withstand much abuse, and, especially in view of the dropped and squashed peas children love to smear, must be easily cleaned. Chairs must be padded to provide extra comfort, and large enough to accommodate a large person. Highchairs for young children must be provided. Table tops must be easily cleaned, and resistant to burns and stains. Plastic in the form of Formica is an excellent material. Tables belong on central pedestals, rather than legs. This prevents bashed knees, and facilitates floor cleaning.

Materials and Construction:

Again, and I hate to keep repeating, but it is vitally important, wearability and washability are keys to successful materials and construction.

The floor in the entrance area should absorb the extra foot traffic with no noticeable wear. Smooth concrete and turozzo both provide the necessary wearability, and are easily cleaned. The floor in the dining
area must not absorb any droppings. Less foot traffic gives a little more range to the materials that could be employed. Resilient tiles, and especially treated carpet will work. A wood floor is also a possibility.

Walls must provide extra durability on the lower 36" of surface. Above that, appearance is the key.

The noise level in the dining room should be kept to a pleasant hum, with loud and sudden noises eliminated. If the floor and walls are hard materials, then the ceiling will have to do most of the absorbing. Acoustic tile is a good choice, but acoustic plaster or lots of space will also satisfy the requirements.

SERVICE AREAS

The essential area is the kitchen. All other service areas work directly off it. The kitchen should be adjacent to the dining area, and be readily accessible to all the employees who will use it. All the kitchen functions should be kept out of the "sense" range of the dining area users.

Kitchen areas conform to certain basic requirements, and to an ideal plan of layout and relationships among the indispensable functions: receipt and storage of food, preparation, cooking, service, and utensil washing.

Size:

The kitchen area is usually one-half the size of the dining area. This includes all necessary storage and service facilities. The kitchen area will be approximately 1200 square feet.

Receipt and Storage:

Because of the location, and the necessity of as few deliveries in a given period of time as possible, in order to reduce cost, a large service entrance, and larger than average storage will be necessary.

Dry Storage:

This space accommodates such items as cereal, canned goods, and other
prepackaged, nonrefrigerated goods. The space should be kept at constant
temperature, and be able to withstand hard wear.

Refrigerated Storage:

All cold goods are kept in here. Vegetables, and some meat, are
kept from freezing. The temperature should be around 35°. A freezing
compartment is also necessary, to accommodate frozen meats, fruits and
vegetables.

Receiving:

An unloading dock must accommodate two two ton trucks at once. The
dock should be covered, and the floor should be concrete. An area for
checking and temporarily storing received goods should be provided.

Preparation and Cooking:

In order to best describe the complicated functions of the kitchen,
a diagram of the layout of facilities is necessary:
LEGEND:

1. Utility Table for Meat Cutting
2. A 2 compartment sink
3. Utility Table for Meat Cutting
4. Mop and Brush Cabinet
5. Mop sink
6. Shelving for Clean Pots and Pans
7. Pot Washing Sink
8. Shelving for Soiled Pots and Pans
9. Salad Sink
10. Potato Peeler w/chute
11. Potato Storage, vegetable cleaning
12. Dough Divider
13. Pastry Mixing Bowl
14. Pastry Work Table
15. Proofing Cabinet w/electric evaporator
16. Pastry Rack
17. Storage w/sliding doors
18. Double dish baking oven
20. Cooks' Tables
21. Double deck roasting oven
22. Range tops
23. Steam jacketed kettles
24. Overhead vent. hood
25. Open Top range w/oven
26. Vegetable Steamer
27. Veg. and salad work table
28. Veg. and salad work table
29. Electric mixer
30. Food and Dish Warmer
31. Gas broiler
First consideration must be given to unimpeded one-way traffic of all personnel. Waiters should enter kitchen from dining areas, and leave by separate doors, operating by the "magic eye" in the one necessary direction. A waiter entering from the dining room, presumably with a load of dirty dishes, should come immediately upon the washing section, then proceeds to the new order pick-up area.

Utensil dispensing is usually handled by waiters, and the storage should be handy to the area served by the waitress, and contain napkin storage, water dispenser, utensil storage, and glass storage. Clean up service, such as towels and washrags, need to be stored.

Dishwashing Area:

Basic equipment for the area includes: shelves or ledges on the soiled dish table to rest trays of incoming dishes, preliminary soaking sinks, pre-flushing equipment to carry off the loosened swill, washing machines, and dryers. Temporary storage for the clean and dry dishes must also be provided.

Three types of washing machines are necessary: (1) dish washing, (2) glass washing, and (3) utensil washing. Glass washing should be brush type, with a series of gentle slides below table level to assist in basket stacking of glasses. A silver washing machine is available that cleans, sterilizes and burnishes, all in one operation.

Materials and Construction:

The kitchen can be summed up in two words, steel and concrete. Floors and walls should be concrete to facilitate cleaning, and ability to withstand abuse. An acoustical ceiling to reduce the banging of kitchen noises is necessary. Stainless steel is the predominant material in all built-ins.

Equipment:

Because of the special nature of each piece of equipment in the kitchen, complete analysis would take a book. In general, they must be durable and easily cleaned.
The air in the kitchen must be moved, moved often, and moved in the right direction, that is, away from the dining area. An airlock, which doubles as a soundlock, is a good feature between the dining and kitchen facilities.

Employees:

At least four persons will be required in the kitchen, and probably five. The chief chef should have an office for preparing menus, and checking inventories. A man who doubles as helper and unloader must also be used.

A waiter can handle approximately 20 persons, so during peak periods, 10 waiters will be necessary. Waiters must have stations located around the room.

A cashier at the end of the dining area, at the entrance, should be provided. A cash register, candy display, and counter are necessary.

Parking:

Approximately 50% of the people in the dining area must have parking adjacent to the restaurant. The rest will be walking traffic, and be parked in the Forest Service lots.

Conclusion:

The restaurant must be comfortable to the user. The main type of user is the family, so comfort and convenience of family dining must be provided for.

The kitchen is the service center. All the necessary equipment and storage must work handily off the kitchen, and the kitchen itself must work handily off the dining area.
A most important aspect of the curio shop is the specialized market it has to deal with. Whereas the people who would use it are "Mr. Average Customer" back home, when on vacation he becomes strictly an impulse buyer. When the vacationer goes shopping, he is just looking. Very seldom does he know what he wants.

The vacationing family is the market around which the curio shop must plan its goods and services. All members of the family are customers, not just dad and mom. If all members of the family are provided for in the planning, then almost all other types of vacationing tourists will find something for him.

In order to keep costs down, and to facilitate freer circulation through the space, self service is generally necessary.

LOCATION

The curio shop should be on the main flow of walking traffic, and should be visible and plainly identifiable from the moving automobile traffic areas. Another important aspect of the location is its proximity to the restaurant. During peak restaurant use periods, the waiting people should find the curio shop very close at hand.

PLANNING

The sole function of the shop is to sell, and the heart of the selling operation is the area immediately surrounding the buyer and the goods. It is within this area that the decision to buy or not is made.

Objectives

There are three main objectives of the planner: (1) to create an efficient environment that will promote maximum sales, (2) to interlock the sales space with those behind the scene services and areas that supply the sales areas, (3) to place the building in such a way so as to induce the maximum number of potential customers to enter the space.
Items to be Offered

Because of the different nature of the different members of the family, groups of items catering to each type of member must be included. The curio facilities at West Yellowstone cater to the same market as this will.

Moms and Dads -

In West Yellowstone, the goods tend toward the outdoorsman and woman type. For example, the Trading Post has bear rugs for 1000 dollars a piece, Pendleton shirts, Levis, knives, sweatshirts for all ages, cameras and camera equipment, and trinkets commemorating Montana, such as copper cowboy belt buckles, and huge rings made of copper and local types of stone, and leather goods, such as 2" embossed cowboy belts, and purses of the same type. Postcards are a prominent display, with stationery and envelopes handy.

The Trading Post operates for 200 days, and the owners retire to Florida for the winter.

Teenagers -

Essentially the same items are offered the teenager, and no special provisions are made for him. His heaviest buying takes place in the jewelry section. Rings, necklaces, and bracelets are sold to them. Outdoor clothes also command much of his dollar. Levis for both boys and girls are sold in large quantities. Novelty items appeal to the teenager, such as bongo drums embossed with the face of Crazy Horse.

Smaller Fry

Everyone who can grab has something to prick his fancy within grabbing distance. Tomahawks, bows and arrows, dolls dressed in chaps and ten gallon hats can be easily picked up by anxious little hands. All kinds of things, such as whistles, horses (5" or less), and gun holsters, have feathers hanging from them, to give that authentic western touch to them.
Whether these items are in good taste or not is irrelevant. These are the items that sell, and these are the items the client will sell. The plan of the curio shop must take this into account.

**Layout**

One of the most important aspects of the curio shop is control. The best layout for ease of control is a one-entrance, same-exit plan, with the cash register at the point of entrance/exit.

**Public Area**

The public shopping area should have the aisles laid out in a circular plan. The point of entrance and exit dictates this in order to avoid traffic congestion. The goods on display should be arranged around this traffic circuit according to the requirements for selling the particular item, and according to the ability of the goods to attract customers into the shop.

Goods such as the bear rugs in the Trading Post cause considerable interest, and bring people in. Pick-up items such as post cards and stationery should be located near the cash register, where idle time causes impulse buying.

Clothing is a special category. Because of the bulk of the item, and because of the necessity of custom tailoring, at least to the degree of picking the right size, a salesperson is required, and special storage. The clothing area should have direct access to the storage space. A small try-on room should be provided.

Jewelry requires small storage space, and can go anywhere on the circuit. Display counters should be glass topped, and vertically glassed where goods are displayed inside. They should be within easy reach, below the shoulder level.

Accessory items also can go anywhere in the space, but require slightly more storage space than jewelry does.

Literature dispensing, because of the nature of the site, is also an important area. Some view of the site, in correlation with the
literature describing the area, would be desirable, in order to remind
the purchaser, and arouse his curiosity. Books, pamphlets, and curios
pertaining to the slide, its cause, and its results will be in this area.
In order to prevent reading without purchasing, a counter near the cashier
would be ideal, where the cashier could handle the merchandise before
the buyer looked at it.

Flexibility in the space is a prerequisite. Columns and other
structural mechanical equipment must be kept out of the space. Counters
should be moveable. Partitions should also be moveable.

The size of this space, for 100 people is around 1500 square feet
for preliminary planning purposes.

Storage Areas

This area should be accessible, but invisible, from the public area.
The largest single storage area is clothing. This should be near a door
entering the clothing sales area. The rest of the items must be housed
in small spaces, and a large amount of shelving is required. The size of
the storage area for most shops approximates 100% of the area in the
sales area.

MATERIALS AND CONSTRUCTION

Because of the flexibility necessary, the public space should have
no structural, permanent obstructions in it. The general character
should be conducive to buying. This means that the focus of attention
should be on the goods for sale.

Lighting

In order to feature the merchandise, especially the small items,
high intensity spotlighting is desirable. An overall room illumination
should be provided. This should be in the range of 15 or 20 footcandles,
and can be provided by natural light. Natural light, however, is variable,
and some form of artificial light usually makes up the general illumination
level.
Acoustics

Again, a certain noise level is desirable, but loud noises should be muted. An acoustic ceiling is adequate to reduce the noises to the desired level. The items themselves, especially clothing, absorb much sound.

Finish Materials

The walls should form a background for the goods on display. Special consideration must be given to the ease with which items and shelving can be attached to the walls, and then moved, leaving no visible scar.

The floor should be durable, and non-descript. It should also be easily cleaned. The entrance should be especially durable, and should be cleaned every day.

The Store Front

In order to heighten the curiosity of the customer, the storefront should at least partially conceal the activities in the shop. Display area should be provided for, and an easily read sign should adorn it.

EQUIPMENT

The cabinets, drawers, shelves, and display cases should be very durable. In fact they should be so durable that they will show no signs of wear. Metal, hard plastic, and glass are good materials for the above-mentioned items.
THE DRIVE-IN

The restaurant is to house the motel patronage, mainly. However, many other people will desire to eat. To feed them, a drive-in consisting of a 30 stall drive-in service, and a counter inside service accommodating 20 persons, has been decided upon.

PLOT LAYOUT

Because of the one access provided to the site, the traffic must be able to turn around on the lot, and come out the same way it went in. The entrance exit must be closely marked, and the direction of traffic flow must also be clearly marked. Parking for the drive-in and counters must be separate.

The view must be taken into account, although it will not be as good as could be, because of the necessity of parking cars opposite others, and of having the counter face the food service area.

The parking area for the stalls should have a canopy to protect it from sun and rain. An overhang of 18 feet will protect all doors of the cars from sun and rain.

Service walks should be at least 3' wide. They should be surfaced with a resilient material, to prevent shin splints.

PLANNING

All elements of the drive-in should rotate from the kitchen. If there is more than one, then each should have a service port to the kitchen. The counter unit should be part of the kitchen unit, however, the cooking area can be partially separated, to prevent odors, and eliminate some confusion.

Kitchen

In order to reduce costs of duplicating facilities, the kitchen should be a part of the kitchen for the dining room. All the storage facilities will be handled in the large kitchen units. A diagram of the necessary equipment will be helpful to show relationships:
LEGEND

1. Open top range with oven below 
2. Food and dish warmer 
3. Heavy duty gas broiler 
4. Twin gas deep fat fryer 
5. Spreader plate 
6. Utility table 
7. Reach in refrigerator 
8. Utility table 
9. Dessert and salad service counter 
10. Ice cream cabinet 
11. Counter height refrigerator 
12. Electric hot food table

Dishwashing Area

This area has to be convenient to the tray receiving counter, and to the inside counter service area. It should also be concealed from the public.

Drive-In Stall Area

The service for this area is separate from the counter, except for the common kitchen.

Dish-up Counter

Allow pick-up space for 50% of the carhops. Each carhop can handle six cars, so a total counter space for three persons and trays should be adequate.

Cashier's Desk

Each carhop should check in her money with the cashier, along with her book of sales slips, every hour.

Counter Service

A minimum of 30 to 36 inches clear aisle space must be left behind the counter. For a service of 20 people, approximately 400 square feet of floor area must be provided. A counter high pass window, and a central
door leading to the kitchen from behind the counter are desirable.

Toilets will not be provided here. If the facilities are needed, then the ones in the other parts of the plan will have to be used. This will make the person circulate through other areas, and put him in contact with the curio shop.

MATERIALS AND CONSTRUCTION

The general construction should provide for a large canopy over the stall, and for the drive-in itself, a simple structure giving clear space in the counter service area.

Floors

Tile, Terrazzo, concrete, or composition make good floors. Surfaces which are slippery when wet are to be avoided. In service areas, a concrete floor is ideal, because of its homogeneity and washability.

Walls

Surfaces of walls have to be easily cleanable. Plants (indoors), lights, and color provide a certain amount of visual attraction.

Ceiling

The ceiling can be just about any material that is easily cleaned, looks unobtrusive, and will stay put.

EQUIPMENT

For the counter area, padded, backed, swivel, vinyl or leatherette covered stools, well anchored are necessary. The counter top should not scratch, chip, stain, or discolor easily. Hard plastic makes an ideal covering.

Food preparation equipment should conform to the requirements set forth under "Restaurant."

To facilitate car service, a microphone might be used to plan orders. A light panel signals when the waitresses orders are ready.
EMPLOYEE HOUSING

Since most of the labor force will be transient - either college students or other types of help that moves often - a residence must be provided on the site to accommodate it. A residence will also have to be provided for the manager, who will stay year-round, and for the permanent building engineer, who will also stay year-round.

A dormitory style residence for the temporary help would be the most economical. Almost all the help will be women, but segregation between sexes will have to be considered.

THE DORMITORY

Housing for approximately 60 employees must be provided here. For safety's sake, at least a quarter of this will have to be for men.

The dormitory should be out of the view of the travelers. Special access roads will be necessitated by this requirement, along with a parking lot for 30 cars, which also should be hidden from view.

Community bathrooms will be necessary, as will a community kitchen and dining area. A lounge area will be necessary.

THE RESIDENCES

The manager and building engineer will both want privacy, and ease of access to the buildings. A private entrance would be desirable, both by automobile, and by walking.

Some kind of landscaping must be provided, although it must not detract from the view from the public areas.
PROGRAM
The following lists gives the approximate sizes of the area, and the main functional features of each:

**THE MOTEL**

**RENTAL UNITS**

The rental units should: (1) have their own parking space, (2) be no higher or lower than one floor from parking, (3) have private entrances, (4) be sound insulated, and (5) be well furnished.

### Single Sleeping Unit:

- bathroom w/dressing: 40 sq. ft.
- storage:
  - clothes: 5
  - suitcases: 5
- combined sitting sleeping: 70
- entrance lobby: 10
- sub total 6 units: 130 sq. ft. = 780 sq. ft.

### Double Sleeping Unit:

- bathrooms w/dressing: 60
- storage:
  - clothes: 5
  - suitcases: 10
  - sitting area: 10
- sleeping area:
  - sitting area: 75
  - entrance lobby: 10
- sub total 40 units: 170 sq. ft. = 6800

### Family Sleeping Unit:

- bathroom w/dressing: 60
- storage:
  - clothes: 10
  - suitcases: 15
  - sitting area: 20
  - sleeping area: 100
  - Entrance hall: 10
- sub total 55 units: 215 sq. ft. = 11,825
PUBLIC SPACE

The public space should be centrally located, and closely connected to the registration lobby. It is a gathering place for motel users.

Card playing
  seating for 16 people 300

Television viewing
  seating for 20 people 600

Conversation areas
  3 @ 200 = 600

Sub total 1500 sq. ft. = 1,500

Toilet Stalls:
  Should be well marked, easily accessible from lounge area.
  2 @ 150 = 300

Sub total = 300

Public Phone Booths:
  Readily observed from lounge and registration area. Used for all calls.
  Booths 10

Sub total 8 booths @ 10 = 80

OPERATIONAL SPACE

The spaces should be unobtrusive, and easy to use.

Lobby:
  Lobby is readily accessible from outside, related to lounge. Serves as waiting room for registration. Includes seating for 10 people.
  Sub total 300

Parking for 10 cars
-3-  

Registration Area:  
Integrated with lobby. 12 foot registration counter, two desks, key sorter, storage.  
Sub total 150  

Office:  
Houses the manager during duty hours. Direct connection with registration area.  
Sub total 150  

Maid Storage, Cleaning Closet:  
Used by two maids. Services 20 rental units, houses two cleaning carts, complete change of linen, other supplies. Located in center of units served.  
Unit 100  
Sub total 5 units @ 100 Sq. ft. = 500  

Central Supply Room:  
Located near center of motel. Direct access from laundry. Easy access to maid storage. Houses one complete change of everything.  
Unit 400  
Sub total 1 unit @ 400 sq. ft. = 400  

Laundry:  
Direct access from outside by 1½ ton truck. Direct connection to storage. Must be able to supply one complete change or reusables every day.  
Unit 500  
Sub total 1 unit @ 500 500  

Mechanical:  
Central hot water. Softeners necessary. Located in middle of motel.  
Unit 200  
Sub total 1 unit @ 200 200
Service:


Unit 400

Sub total 1 unit @ 400

TOTAL SQUARE FEET - MOTEL

Sub Total - Square Feet

25,285

400

29,285
The space should be oriented for view. It should be easily identifiable from the road, and from main foot traffic paths. The curio shop should be adjacent, as should the lobby of the motel. Parking for half the patrons should be near.

**ENTRANCE AREA**

Serves as both exit and entrance. Toilet facilities and a coat rack must be handy and obvious. The cashier with space to keep out of way of main traffic located by entrance.

**Toilet Facilities:**

Could be combined with lounge toilets.

Unit = 150

Sub total 2 units @ 150 = 300

**Coat Rack:**

Space for half of guests.

Total length required is 25 feet

Access space = 100

Sub total = 150

**Cashier's Counter:**

Out of way of traffic flow

6' counter space, with cash register

Sub total = 60

**DINING ROOM:**

Seating for 200 persons. Waiter stations (5)

Access to kitchen without awareness by patrons.

Direct access from entrance. View necessary 200 persons @ 1½ sq. ft/person.

Sub total = 2400
KITCHEN

Hidden access for two 1½ ton delivery trucks adjacent to dining area. Kitchen service serves drive-in kitchen also. See diagram in Function.

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<th>Kitchen:</th>
<th></th>
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<tr>
<td>meat preparation</td>
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<tr>
<td>veg. preparation</td>
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<td>cooking</td>
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<td>cold food</td>
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<td>bakery</td>
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<td>dishwashing</td>
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<tr>
<td>circulation area</td>
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<tr>
<td><strong>Sub total</strong></td>
<td>1200</td>
</tr>
</tbody>
</table>

Kitchen Services:

dry storage            | 180   |
ref. storage           | 160   |
receiving              | 120   |
trash & garbage        | 120   |
helps facilities        | 120   |
chef's office          | 120   |
Sub total              | 820   |

PARKING AREA

Serves half of clientele
Car stall 20 x 10 = 200
Sub total 35 units @ 200= 7000

TOTAL SQUARE FEET FOR RESTAURANT 4930
CURIO SHOP

Should be on main traveler traffic access.
To house browsing space and display necessary for 100 persons. Two sales persons and an office manager are personnel. Storage is necessary for merchandise. Near restaurant.

PUBLIC AREA

Closed – circuit traffic. Same entrance-exit.
Cashier control desk.
100 people @ 15 sq. ft/person=1500
Cashier's desk w/6' of counter space
Cash register 60
1560

SERVICE AREA

Has direct access to clothing. Shelving for other goods. Delivery area for one 1½ ton truck
100% of public area = 1560
Sub total 1560

TOTAL AREA FOR CURIO SHOP

3120

PARKING

The users of the Curio Shop will be mostly motel users, restaurant users, or people touring the site. As a result, no parking is specifically required for the Curio Shop.
THE DRIVE-IN

Sub Total - square feet

THE DRIVE-IN

Should be located on easy access auto traffic route. Is to feed both auto and pedestrian traffic.

AUTO DRIVE IN

Space for 30 cars to be provided. View of one of the vistas desirable. Ease of access by service personnel necessary. Canopy over.

Stalls for 30 Cars:

Easy to see, get into, out of. One carhop for every six stalls. Service counter from kitchen.

Car space 20 x 10 = 200
Sub total 200 x 30 = 6000 sq. ft.

Counter Space for 20 Customers:

Enclosed space. Glass wall facing a view.
Two waitresses. Short orders, caters to quick service demand.

behind counter space 120
seating space 160
traffic space 300
Sub total 580 sq. ft.

Kitchen:

Pass window to indoor counter service, and to carhop service. Hidden from view. Serves quick orders. Storage in dining room kitchen. Easy access to storage. Dishwashing and tray washing necessary areas. See diagram in Function.

300

TOTAL SQUARE FEET DRIVE IN 6380

Parking:

For the counter service, 10 cars must be parked adjacent to the counter area.
MISCELLANEOUS SPACES

BROWSING AREA

Should be located in such a way that the site-seer has to pass by the curio shop and eating areas. Seating areas, both covered and uncovered necessary. View all-important. Display of site information. Possible closed area for dining room use, adjacent to dining area.

TOTAL FOR BROWSING AREA 3000

MECHANICAL SPACE

Common mechanical space for all areas, except the rental units in the motel. Equipment for air conditioning, heating, hot water supply, water purification, water pressure, gas, and general storage. Out of sight, centrally located, sound insulated.

TOTAL FOR MECHANICAL SPACE 800
EMPLOYEE DORMITORY

Hidden from view. Houses 60 people, 40 women, 20 men. Living space necessary, as well as private access, parking, and dining facilities. Accessible to place of work.

**Sleeping Facilities:**

Must be quiet, private, and sex-segregated. One bath area for all men, and two for all women. Rooms house one person a piece, have bed, desk, closet space, and window for view.

Sleeping cubicles - 60 @ 100 = 6000
bathing facilities - 3 @ 400 = 1200
bath space - 10% of net area =
10% of 7200 = 720 sq. ft.
Sub total square feet 7920

**Dining Facilities:**

Provide breakfast and dinner to all dormitory inhabitants. View necessary. Feed in two shifts.

30 seat dining area @ 12 sq. ft./seat
360
kitchen for employees dining @ 1/2 dining area
180 sq. ft.
540

**Living Space:**

Relaxation area for dorm inhabitants and guests. Facilities for movies, a library, and a large seating area required.

Library 200
seating area 600
Sub total square feet 800

TOTAL EMPLOYEE DORMITORY 9260
Parking:

Must provide one space per two dorm user.

Hidden from view, private driveway.

Parking lot for 30 cars = 6000 sq. ft.

Sub total - square feet

6000
Residences for the two permanent employees are necessary. Private access and privacy for the dwellings are also required.

- living room
- dining room
- kitchen
- bathroom
- two bedrooms
- storage
- two car garage

2000 sq. ft.

Sub total 2 units @ 2000 sq. ft. = 4000