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A Forest Service Complex for the Thompson Falls Ranger District

by

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as

A portion of the undergraduate thesis in Architectural Design submitted to the School of Architecture as partial fulfillment of the requirements for the degree of Bachelor of Architect

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Introduction

I have proposed to design a district ranger station for my thesis in architecture because of my interest in the conservation of natural resources. Since the Forest Service works for the public, it must have their approval and cooperation in order to carry out its activities efficiently. An attractive department headquarters would assist the district in projecting a good image of itself upon the public and thus allow it to receive more cooperation from them. In addition to a better relationship with the public, a well planned layout would save the department money in operational expenses and allow it to perform its activities more effeciently. In the long run, the design would aid the public as well as the district personnel working at the station.

Social Importance

Forest and grassland management in the United States is controlled by the U.S. Forest Service. This agency is a branch of the Department of Agriculture and is divided into eight regions encompassing the entire nation. Each of these regions is divided into national forests which are subdivided into local districts.

The Thompson Falls district is a 265,000 acre subdivision of the Lolo National Forest. Its headquarters are located in

the town of Missoula, Montana.[1] It is the function of the district forester to manage the forest resources and submit his recommendations for approval of the upper echelons.

The responsibilities of forest management involve making and executing judgments covering timber sales, road construction, tree planting and thinning, and range management of forest service land. Other responsibilities which usually involve state and privately owned land are pest, fire and flood control.

In addition to these acitvities, the Thompson Falls District maintains several small parks used for public recreation. They also work with the district game warden and the State Conservation Department whose responsibilities are to study and protect the natural wild life of the area. Their activities also include the control of hunting, fishing and trapping, and the stocking of game in this area.

Site Location

The Thompson Falls District is located in Saunders County approximately 100 miles N.W. of Missoula and about fifteen miles from the Idaho-Montana border. It is positioned in the western half of the Lolo National Forest and is divided into two parts by the Clark Fork River. The northern half of this district is located in the southern end of the Cabinet Mountains and the southern half of the district reaches into the Bitterroot Range.

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[1] "Field Offices of the Forest Service", U.S. Department of Agriculture, Washington, D.C.

The area designated for the future complex is on the north edge of Thompson Falls where the present district garage and work shop are located. This area has been chosen because it is centrally located in the district and is the only government-owned land near the town of Thompson Falls. Its geographical location is in the S.W. ¼ of the S.E. ¼ of section 5, T 21 N, R 29 W, in Sanders County, Montana.

Geologic and Climatic

The highest point of elevation in the district is Mount Headly with an elevation of 7,424 feet, while the village of

MEAN TEMPERATURE & PRECIPITATION

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
TEMP.°F	26.17	30.8	38.2	47.3	55.1	61.3	69.3	67.9	59.9	49.0	36.3	30.8	47.7
PERCIP	2.12	1.65	1.87	1.4	1.73	1.99	.81	.74	1.24	2.06	2.26	2.46	20.34

EXTREME TEMP. (YEARLY)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
MAX.°F	28	35	45	57	63	74	86	83	71	58	41	31	56
MIN.°F	10	15	23	31	39	45	50	48	40	31	23	15	31

EXTREME TEMP. (RECORD)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
MAX.°F	59	60	72	85	92	98	105	98	98	80	65	60	105
MIN.°F	-33	-22	-13	14	21	31	36	36	24	17	-23	-21	-33

DEGREE DAYS	1414	1100	939	609	365	176	22	57	292	623	993	1283	7873

LAST FREEZE	MAY 25
FIRST FREEZE	OCT 17
FROST FREE DAYS	120
AVER. RAINFALL	13"
AVER. SNOWFALL	43"
AVER. RE. HUMIDITY	70%
AVER. WIND	5.9 MPH from N.W.
MAX. WIND	72 MPH from S.E.

CLEAR DAYS	75	PARTLY CLOUDY	84
CLOUDY	206		

SUN ANGLES

AM	PM	AZ	ALT
Dec. 22			
12	12	180	21
10	2	151	7
9	3	148	6
8	4	132	5
7:40	4:20	129	4
March-Sept			
12	12	180	45
10	2	141	38
8	4	112	20
6	6	90	0
June 22			
12	12	180	68
11	1	145	65
10	2	121	57
8	4	33	37
4:20	7:20	55	0

Thompson Falls is at an altitude of 2,450 feet.[2] Because of this relatively low elevation for Montana and its location West of the Continental Divide, it does not have severe winters that occur in the Eastern part of the state. The above charts summarize the climatic conditions for the village of Thompson Falls.[3]

Economic

This mild, humid climate produces a dense coniferous forest which covers most of the mountainous area of the district. This forest is dominated by good stands of Douglas Fir, Red Cedar, Western Larch, and White and Ponderosa Pine. These species produce some of the best lumber in the United States and thus make this a valuable timber producing area.

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[2] Thompson Falls Ranger District Map
[3] U.S. Department of Commerce, Weather Bureau; Climate of the State of Montana, No. 24.

Although lumbering is the most important economic activity at the present time, mining played an important role at the turn of the century. There have been several thousand mining claims filed in the district since its origin in 1907. Most of these claims were only speculative activities carried out by unsuccessful prospectors; however, a few have been operated at a profit. One of these, the Copper King Mine along the Thompson River, produced several million dollars worth of ore while it was in operation, but even this mine is now unused and becoming dilapidated. But, the mining operations in the district are not totally a thing of the past. In 1969, a $3,000,000 mining claim transfer was transacted in the district between four local citizens and a Canadian mining company. It seems possible, therefore, that mining activities may again play an important role in the economic conditions of the district.

Present Conditions

The Thompson Falls Ranger Station is typical of some of the earlier forest service facilities. It was established in 1907 during a period when public finances were extremely limited, making it necessary for the district to use any buildings it could obtain which would serve the purpose. Most of these buildings are still in use but have become rundown and need repair or complete replacement. An interview with the head ranger, Erwin Purphal, revealed that funds are available to rebuild some of the facilities, but indecisions as to location and design of the new complexes are the main holdups.

One of the major problems is inadequate housing for government workers. The district should have seven to ten low-rent houses for its employees, but at the present time it has only three. These are scattered throughout the village and lack residential characteristics. One is a converted bunk house and another appears to be a remodeled garage. Those who rent from private individuals find it difficult to obtain homes adequate for living conditions at a reasonable price. Others have been forced to rent out of town and some drive as far as ten or fifteen miles to obtain a reasonable home priced within their budget.

The buildings used for office functions are a renovated store and hotel complex located on the main street of town. It contains adequate office space but could use a larger storage area. However, it has a disadvantage resulting from its inconvenient location. It is located on the south side of town while the other district facilities are located on the north side. This creates communication and supply problems which result in inefficient operations at times.

The present garage, which shelters three vehicles, is inadequate for the district's fleet of twenty trucks. The remaining space in the garage is used as storage for fire fighting equipment, building materials, spare tires, tree planting gear, unused signs, recreation equipment, and other odds and ends. The garage is a wood frame structure with wood sheathing and a tarpaper and shingle roof. The sketch on page 27 gives

a good indication of its present condition.

Storage in addition to that already existing in the present garage and office building is also required. Some storage is located in the repair shop, some in the old bunk house, and some in the summer work center which is located thirty-five miles North of town. Operations could be improved if all these warehouse areas were located near the activity to which they relate.

The present trend in management and fire protection is to use air travel for reconnaissance and supply missions. This creates a need for air fields and helicopter pads located at each district's headquarters. These fields should be conveniently located near the office, storage, and work areas of the district they serve, but, the closest landing area at the present time is in a privately owned field about one mile from the supply and work center.

Several of the lookout stations have been abandoned due to use of airplanes in fire control. This does not mean, however, that all observation towers should be deserted; and the district does plan to continue manning five of the present stations during July and August to assist the air patrol. None of these structures contain sanitation facilities or are connected to electrical power; and two of them, Driveway Peak and Eddy Mountain, must be replaced in the near future.

The old bunk house has been converted into a rental home because it can then be used the year around instead of seasonally. This has created some inconvenience to summer student

employees who find it difficult to afford an apartment and still save enough money to return to school the following fall. Another reason for discontinuing the bunk house for seasonal workers is that most of these workers have been replaced by private contractors. This work includes fire fighting, tree planting, slash cutting, and tree thinning operations which can usually be done cheaper by contracting than by hiring employees, supervised by the forest service.

The future trend, however, seems to indicate that summer employees will be used more extensively due to an increase in recreational activities. If this trend continues then housing for seasonal laborers will again become a necessary item for the district to maintain.

The summer work camp is located 35 miles from Thompson Falls near Fish Trap Campground. It is used each summer from early June until mid-September and has been used as late as Christmas in some years. When in operation there are usually about twelve to fifteen men living at this camp where they are housed and fed. There are no washing facilities here except for a creek with a water temperature of about forty degrees Fahrenheit in early August. This creek is also used for drinking water and all activities associated with the cook shack.

The cook shack has no running water or ventilation facilities and is sometimes used to assist in housing and storage for the camp. It is easily broken into, and several times each year items such as cooking utensils and sleeping bags are stolen.

The present camp housing is composed of 14' X 14' tents thrown over pale frames and set on wooden floors. These floors have become mildewed with age and are continually used to shield pack rat nests which can create a very undesirable odor. The tents give ample protection during the summer months, but are too cold for living quarters if the camp is used during the winter.

The construction of a well designed complex for this district would create a more economical organization which could serve the community better. It would also make it more attractive to the public and help it to obtain their cooperation: which an organization of this type must have.

Financial Considerations

Each forest service district operates on an annual budget which is established by Congress. This budget is intended to be sufficient to cover all expenses involved in the maintenance required within the district each year. Additional improvements such as the construction of roads and public facilities are partially financed through this annual budget and partly through income received from timber sales and range allotments. Each district is also alloted a certain amount annually for the maintenance and improvement of their district headquarters. This amount is allowed to build up for a few years but is then lost if not used within the time limit set by Congress.

The Thompson Falls District has accumulated as much money

at the present time as they are allowed by law without losing it. With this amount they plan to construct one phase of the complex in the near future and construct the remaining facilities as the finances become available. The district ranger estimates that the entire complex should be completed in three stages.

The project would probably be divided into the following phases. In the first stage the residential area would be constructed and put into operation. The second stage would include the administration area and part of the maintenance facilities and the third stage would consist of the remaining facilities required to complete the entire complex. The residential area is considered in the first stage since this is the only area that will yield a financial return on the investment put into it. The homes will return approximately $600/month in rent to the district and the barracks will yield about $200/month during the season that they are in operation. The administration and maintenance areas are left for later construction since they are used only for the district functions and do not yield a direct financial return.

Although I have no definite economic boundaries to design within, it is evident that the finances are limited. For this reason I have investigated the types of building construction required for a project of this nature and related cost estimates. Both federal and local requirements will allow either a class "C" or "D" construction in this area. Class "C" buildings are composed of masonry or concrete, exterior walls with wood or

steel roof structures. While class "D" buildings are constructed with wood or steel frame and roof assemblies.[4] The following list taken from the Marshall Valuation Service, gives some average costs which may be used as guidelines for buildings of this nature.

SINGLE FAMILY RESIDENCE

SECT. 12, p.10

CLASS	TYPE	CONSTRUCTION	COST/SQ. FT.
C	very good	brick, stone, heavy beams	18.65
C	average	brick, wood or asphalt shingles	12.60
D	very good	brick, stone, heavy beams	17.49
D	average	brick, wood, or asphalt singles	12.26

ROW HOUSES

SECT. 12, p.12

C	very good	brick, stone, heavy beams	14.84
C	average	brick, wood, or asphalt shingles	11.85
D	very good	brick, stone, heavy beams	14.22
D	average	brick, wood, or asphalt shingles	11.54

ADMINISTRATION

SECT. 15, p.14

C	average	steel or concrete frame or hearing walls	14.75

[4] Marshall Valuation Service, Marshall & Stevens Publication Co., Los Angeles, California.

D	average	stucco or wood siding and wood studs	12.29

MAINTENANCE

SECT. 14, p.10

C	good service	steel, or concrete or glulam frame, masonry curtain or bearing walls	7.85
C	average service	masonry bearing walls, bond beams and pilastery, light trusses	5.68
D	good service	wood or steel frame good siding or stucco	6.84
D	average service	light wood or steel frame, siding or stucco	4.79

Views

The proposed building site is at an elevation of 2,550 feet, and with the removal of a few trees, will have a good view to the south overlooking the village of Thompson Falls and the Clark Fork River Valley. It has a beautiful view to the east of the Clark Fork Valley, and another view to the south-west down Prospect Creek Canyon. The sketches on the following pages (26-30) show these views as observed from the proposed site.

Soil Conditions

Information on soil conditions for the area is scarce because soil tests have been limited to spot checks for agricultural purposes only. The limited information available shows that the site is located on an alluvial plane and is a mixture

of clay and large boulders down to a depth of 200 feet. This soil contains a bearing capacity greater than 3,000 lbs. per sq. ft., and would not create any problems of settlement if proper care were taken in design and construction of the complex.[5] It is a soil that drains well and is thus suited to below surface dwelling. This porous condition, however, may lead to contamination of water if care is not taken when considering sewage disposal.

Utilities

At the present time the site location is outside of the city limits but the city sewer lines run within 200 feet of the proposed site and could be connected for a nominal monthly fee. Another alternative would be to construct a septic tank and drain field for the complex, but this solution could to problems due to the existance of private wells down hill from the proposed site.

Another problem will be supplying water to the site. The city obtains its supply from a reservoir on Ashley Creek about two miles east of town. This reservoir is at a lower elevation than the proposed site, however, and the water would have to be pumped a distance of one half mile if it were to be used to supply the new complex. The present water supply at the site is from a small well which does not yield the flow required for

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[5] Mr. John R. Cloninger, Soil Scientist; Polson, Mont.

the new complex. The required flow is determined by fire protection codes and must be able to maintain a constant flow through a 2 inch diameter pipe. Tests conducted by the Forest Service indicate that a 300-400 foot well located about 100 yards north of the site will yield the required water supply necessary for fire protection. The district has already made plans to establish a well at this location sometime in 1970 and this should solve the water shortage problem.[6]

The proposed site has a good gravel road connecting it to the residential area of town. But this road is not a major artery and thus makes it difficult to locate the site from the business section of the village. Ferry Street, which ends at the edge of the Forest Service property, carries most of the traffic from the residential area to the business district. If designed properly, the main entrance to the complex could be brought off this street and thus provide a direct route from the business district to the office area.

Aesthetics

A common conception of aesthetics is that it is simply a visual phenomena. This is only an elementary definition, however, and does not reach the full meaning of the word. The Columbia-Viking Desk Encyclopedia defines it as "the philosophy of beauty and art. It studies the nature of beauty and laws

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[6] Mr. Erwin Puphal, Forest Ranger, Thompson Falls, Mont.

governing its expression."[7] It is the latter part of this definition which begins to describe architecture. In this field, aesthetics include not only the surface appearance of an object which is obvious to the eye, but the whole of the object. By this I mean all the elements which compose the object, its matter as well as its internal function, and the relationship of its separate parts to the surrounding elements.

The problem of just what elements form an attractive architectural object and thus a good aesthetic effect has been a problem to most young architects. Le Corbusier stated, "Architectural form is derived from embracing and expressing the many aspects of daily life."[8] Although this definition hits on the basis of what architecture if designed for, man and his activities, it does not explain what elements compose an attractive structure. A broader and more descriptive definition of architecture is given in Scott's book, The Architecture of Humanism. He states, "Architecture, simply and immediately perceived is a combination, revealed through light and shade, of spaces, of masses, and of lines."[9] He describes architecture more fully by breaking its composition down into three basic conditions, commodity, firmness, and delight.

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[7] Columbis University, The Columbia-Viking Desk Encyclopedia, Dell Pub. Co., Inc., New York, 1964.

[8] Paul, Heyer, Architects on Architecture, Walker and Co., New York, 1966, p. 245.

[9] Geoffrey, Scott, The Architecture of Humanism, Doubleday & Company, Inc. Harden City, N.Y., 1924, p. 157.

His definition of commodity involves mans activities in this space; what he uses it for, its practicality and his movements through and around it. By firmness he means its structure and the materials is composed of and how these elements are used to strengthen the expression of the spaces they create. Delight is created from mans relationship with space and is the aesthetic impulse created within him.[10]

Frank Lloyd Wright and his predecessor, Louis Sullivan, designed on the same principles as those brought out by Mr. Scott. Their buildings evolved from the activities within them and the structure which composed them. Wright further extended the context for a complete building to include the site which became a very important element of design to him.[11] This idea of combining the site and the building into one unit caught on rapidly in architecture throughout the world.

Just how a relationship between the site and structure is accomplished can be a very complicated problem. It may be derived by dividing the building into parts through the use of courtyards or simply by implanting gardens within the structure. Either method can be very effective or very damaging depending on the structure and its location. There have been several good examples of architecture which have been hidden because they

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[10] Geoffrey, Scott, The Architecture of Humanism, Doubleday & Company, Inc., Harden City, N.Y., 1924, p.14.

[11] Heyer, p. 62.

were smothered by vines and dense vegetation so that the real architecture in them was lost.

Another method of uniting site and structure is through the use of transparent materials. The book Language of Vision describes transparency as, "a simultaneous perception of different spatial locations. Space not only recedes but fluctuates in a continuous activity."[12] This has become popular with the use of plate glass in building construction in recent years. It has led to an openess and simplicity in design which reveals the internal elements to the outside world and lets the surrounding environment enter into the building through vision and reflections. Some good examples of this type of construction are the Geneva House in Geneva, Illinois, designed by Mies Van Der Rohe, and the Philip Johnson Glass House at New Eavaan, Conn.[13]

This "transparent" character is the uniting factor in architecture whether it relates a building to its site or a set of volumes to each other. This relationship should be obvious whether the building is constructed of glass, concrete, wood or any other material. In an article titled "Three Minutes of Silence and the Cubic Foot of Space", Jean Catera describes this importance of relationships as the major element in archi-

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[12] Gyorgy, Kepes, Language of Vision, Paul Theobald, Chicago, Illinois, 1944, p. 79.

[13] Heyer, p. 38.

tecture.

"Universal beauty does not arise from the particular character of the form but from the dynamic rhythm of its inherent relationship of its forms. Form and relationship are of equal value and neither takes precidence over the other. In the process of purifying art, all external factors are systematically eliminated; leaving form and relationship, and eventually purifying form until it attains a high degree of neutrality. Only feelings which do not evoke individual feelings or ideas are neutral. Geometrical forms, being so profound an abstraction of form, may be regarded as tending to be neutral, or as neutral as form can possibly get. But no form is absolutely neutral, so eventually only relationships are left."[14]

It is this relationship of all the elements in an area, which can be perceived by an individual and can produce sensations within him, that creates the aesthetic environment. For this reason the aesthetics of the problem in the design of a forest service complex cannot be visualized at this time. About all that I can say is that I would like to evoke a feeling of conservation in the public through the use of building and site relationships and the use of local building materials.

It is the relationship of all the elements in an area, which can be perceived by an individual and can produce sensations within him, that creates the aesthetic environment.

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[14] Jean, Caters, "Three Minutes of Silence and the Cubic Foot of Space", Image, 1966

It is difficult, at this point, to determine how I will relate all the acitivites which take place in this problem but I would like to create a feeling of conservation in my final solution. I feel this could be done best by interrelating internal and external volumes to each other and also through the use of local building materials.

The feeling I would like to create in the residential areas is one of warmth and relaxation. It should be an area where a person feels that he can become himself and do as he wishes. This feeling can be obtained through the use of durable materials and warm subtle color. But they may be livened up with a few splashes of contrasting colors to enforce the feeling of being alive.

The administration area should lend itself more towards activity and may be finished in a less relaxed color scheme while retaining a simple clear design. The reception and lounging areas should have a more relaxed atmosphere than that of the offices and may be finished in soft reposed materials. They will also be furnished with heavily upholstered furniture in an attempt to waken a feeling of well being.

In the storage and work areas I will attempt to produce a feeling of activity and durability. The finished materials in this area must be able to withstand rough usage while maintaining a good appearance with little upkeep. They should still be attractive and not evoke a cold feeling since men must be enticed to spend an 8-hour day in this area.

It is my goal to produce an interesting and functional complex for both working and relaxed living activities. I hope that the research done in writing this portion of the paper will aid me in the final outcome.

Function

There are many aspects which enter into the problem to create a good design solution as was explained under the topic of aesthetics. Under this heading or requirement I would like to deal with just the information necessary to make the complex function properly and not to determine a design solution or attempt to create an atmosphere. There are two major items which will determine a basis from which to begin a solution. These items are: the number of men and equipment occupying the space and the activities of these men and the equipment.

I interviewed the ranger and personnel manager of the Thompson Falls Ranger district in an attempt to obtain this basic imformation necessary to begin the design of a successful district complex. To verify the reasonability of the requirements set down by these men, I obtained information from the Priest Lake and Avery Ranger Districts which have each recently constructed buildings with functions similar to those required at Thompson Falls. The results obtained from these two districts corresponded closely with the requirements established by the Thompson Falls District and are outlined on the following

pages.

I would like to point out that these requirements will not be held as final when the actual design process begins. They will only be used as a means of understanding the problem more throughly and for establishing a basis from which the design solution shall evolve.

I. Residential Area

A. Family Residence-Required-$60-$90/month year-round living space for eight families. It should be accessible to the village as well as to the office area but it should not be directly located near the work area. Each unit should include the following elements:

1. Three sleeping areas; 400 sq. ft.- beds, clothing storage, storage for personal items.

2. Bathing area-100 sq. ft.; showers or bath tub, sink, towel storage, storage for personal items.

3. Kitchen-120 sq. ft.; stove, refrigerator, freezer; food storage, utensil storage, storage space, sinks, food preparation counter.

4. Dining Area; table, chairs, china storage.

5. Social Area-300 sq. ft.; comfortable chairs, sofa, TV, books, end tables.

6. Mechanical-25 sq. ft.; water heater, heating and air conditioning units.

7. Storage-50 sq. ft.; personal items, yard tools, etc.

B. Barracks-This area should provide sleeping, cooking and social areas for 12 to 14 men for the summer months. It should include the following areas:

1. Sleeping quarters-900 sq. ft.; beds, clothing storage, storage for personal items.

2. Dining Area-200 sq. ft.; table, chairs.

3. Kitchen-100 sq. ft.; store freezer, food storage, utensil storage, sinks, food preparation counter.

4. Mechanical-100 sq. ft.; hot water tank, heating and air conditioning equipment.

5. Utility Room-1,000 sq. ft.; slop sinks, scrub boards.

6. Bathing Area-300 sq. ft.; showers, sinks, urinals.

7. Social Areas-400 sq. ft.; comfortable chairs, room for TV, stereo, card tables, may be converted into recreational area for ping-pong, etc.

8. Storage-100 sq. ft.; linen and toilet articles supplied by the forest service recreational facilities.

II. Administration Areas

A. This area contains the coordination center for the entire district--should be centrally located to all activities. It must also be accessible to the public since it is through this area that communications are executed with them. It will contain areas for the following functions:

1. Rangers office-200 sq. ft.; desk, files, wall maps, chairs for clients.

2. Six Offices-1,200 sq. ft.; desk, files, wall maps, chairs.

3. Secretary & Receptionist-400 sq. ft.; desks, files, typewriters, reception counter, chairs for waiting clients, display areas, information bulletins.

4. Conference-400 sq. ft.; table,chairs,

movie facilities, map displays.

5. Radio Room-150 sq. ft.; radio equipment, operators chairs, tables and maps.

6. Storage-60 sq. ft.; office materials, drafting materials, radio equipment, maps.

7. Womens Room-100 sq. ft.; wash cloths, sinks, spruce-up counter, lounge chairs.

8. Mens Room-100 sq. ft.; wash cloths, sinks, urinals, shower stalls, dressing room, lockers.

9. Mechanical-60 sq. ft.; heating and air conditioning equipment, hot water supply.

10. Drafting Room-200 sq. ft.; drafting tables, and equipment for two men.

11. Utility Room-40 sq. ft.; janitorial facilities.

III. Maintenance Areas

A. I have placed all areas of labor which are not executed in the administration section into this category.

1. Truck Storage-6,000 sq. ft.; space to park 20 vehicles.

2. Truck Maintenance-1,100 sq. ft.; space for two vehicles, grease racks, welder, cutting torch, work bench, tool storage, tire storage, tire mounting machine, tire pump, parts storage.

3. Saw Storage-150 sq. ft.; storage area for chain saws.

4. Saw Repair-150 sq. ft.; work area, tool storage, parts storage.

5. Fire Equipment-500 sq. ft.; store fire packs, back pumps, fire hoses, shovels, etc.

6. Miscellaneous Storage-1,200 sq. ft.; signs, park equipment.

7. Gas and Fuel-must be located 50 ft. from surrounding buildings, includes a 1,000 gal. gas storage tank, gas pump, grease, joint storage.

8. Helicopter Pad-10,000 sq. ft.; level surface clear of all obstructions and away from elements which may create winds tunnels.

9. Pump House-300 sq. ft.; 2 pumps, 3-350 gallon water tanks, 2-23 gallon chlorine tanks, one clorinator.

10. Weather Station-100 sq. ft.; it must be located in the open and include instur-ments for weather analysis.

11. Lookout Stations-200 sq. ft.; remotely located; living quarters for one man or a couple for the summer months; beds, clothes storage, storage for personal items, cooking facilities, food storage, food preparation area, chairs, communication equipment to head-quarters, fire location equipment, and a wash room. Also include power generator, fuel supply and parking areas.

12. Work Center-This area is remotely located also and must provide living quarters for 12 men similar in function to that outlined under barracks for the residential area. In addition to these items, it will include the following facilities:

    a. Saw and Tool Storage-2,000 sq. ft.; store chain saws, fire packs, shovels, axes, etc.

    b. Gas House-100 sq. ft.; must be 50 ft. from surrounding struc-tures, storage for gas, oil, and grease.

    c. Outside Recreation-basket ball, touch football, horseshoes, etc.

d. Truck Storage-area to store three forest service vehicles.

IV. Automotive Parking

A. Residential Parking-25 vehicles located near the residences or barracks.

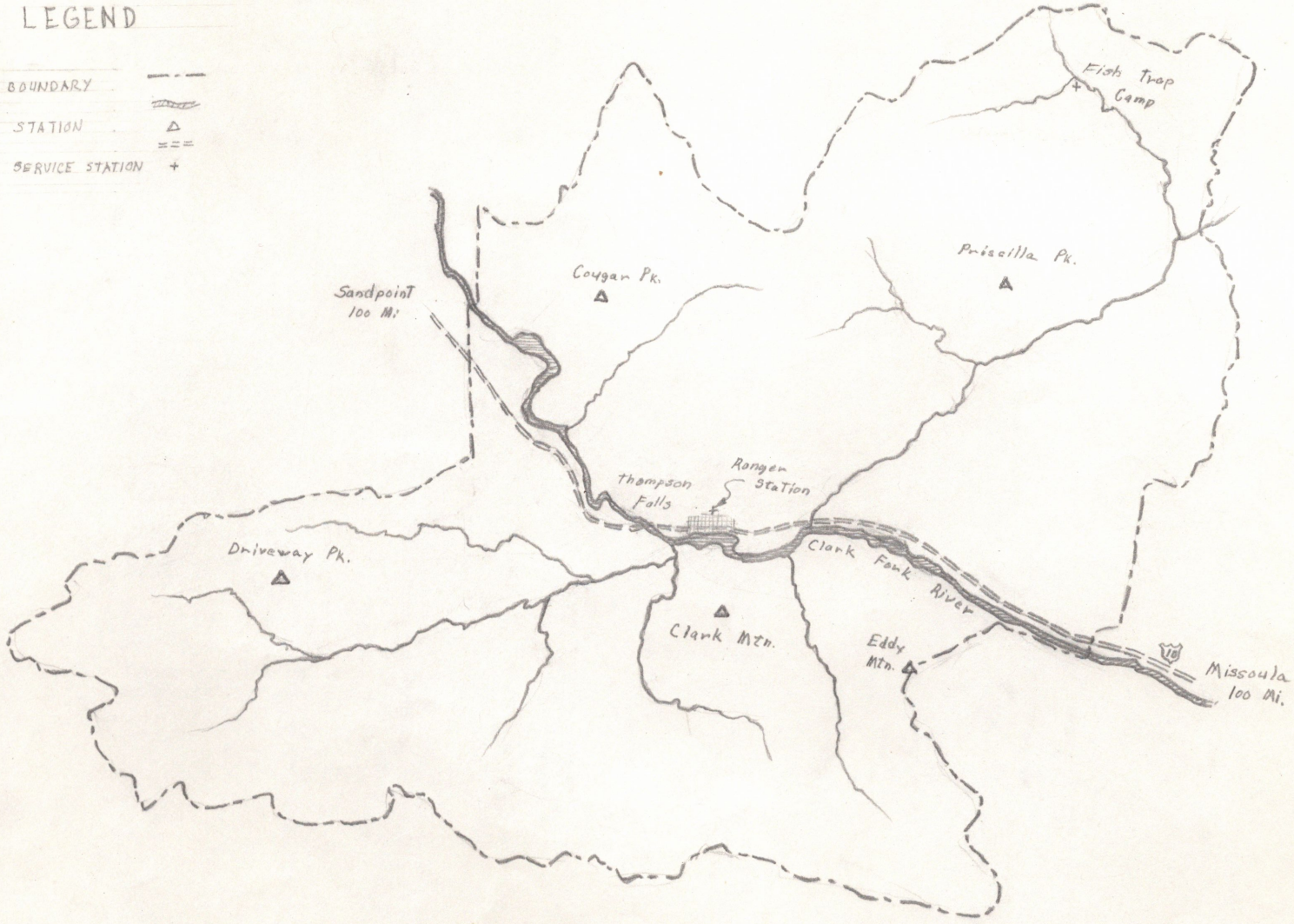
B. Public Parking-10 vehicles located near the administration site.

C. Employees Parking-25 vehicles located near the administration and truck storage areas.

D. Truck Parking-area for loading 20 vehicles for days work.

E. Work Center Parking-park 10 vehicles.

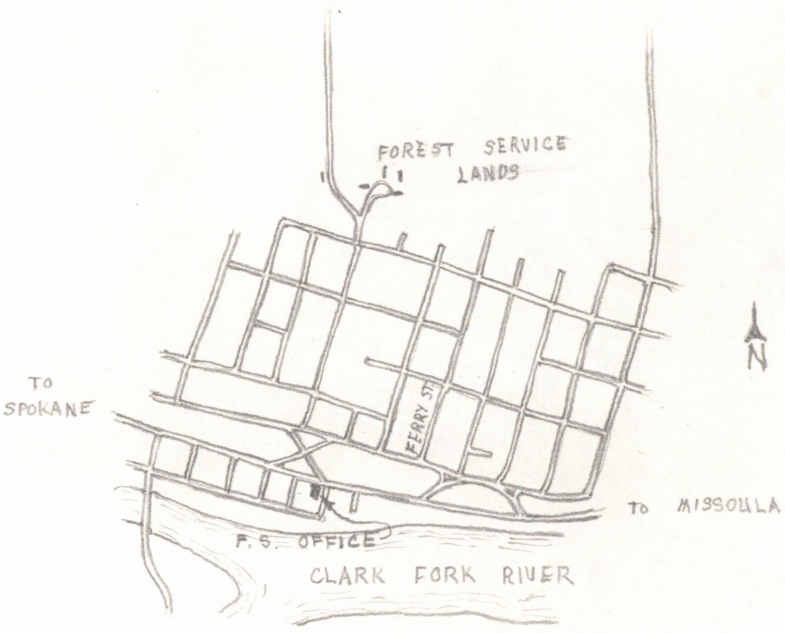
F. Lookout Station Parking-park three vehicles at each station.



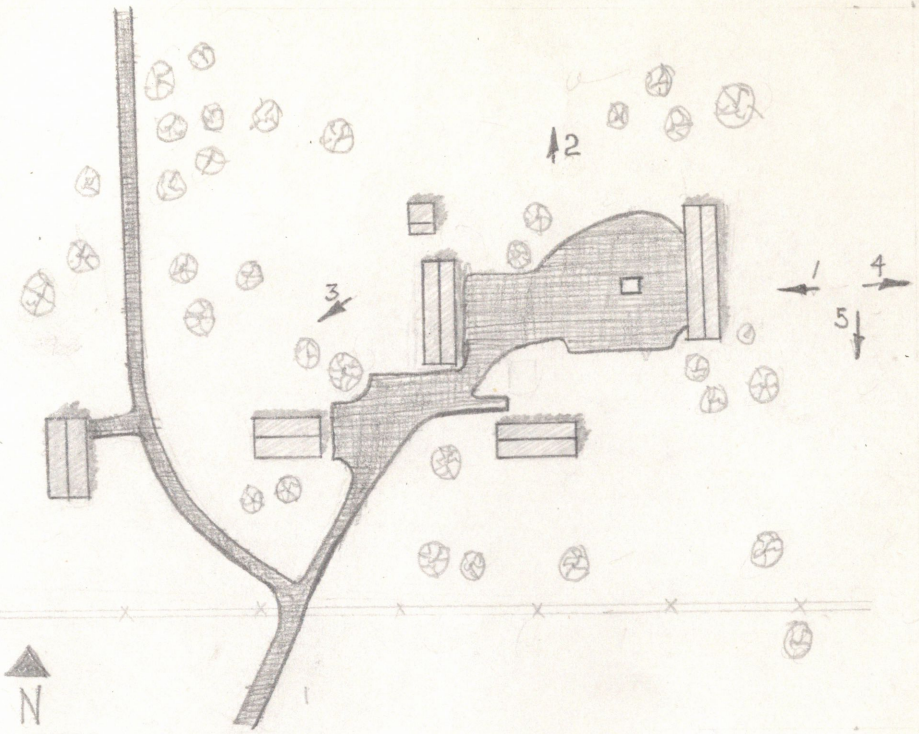
THOMPSON FALLS RANGER DISTRICT



EXISTING GARAGE



THOMPSON FALL, MONTANA



SITE LOCATION



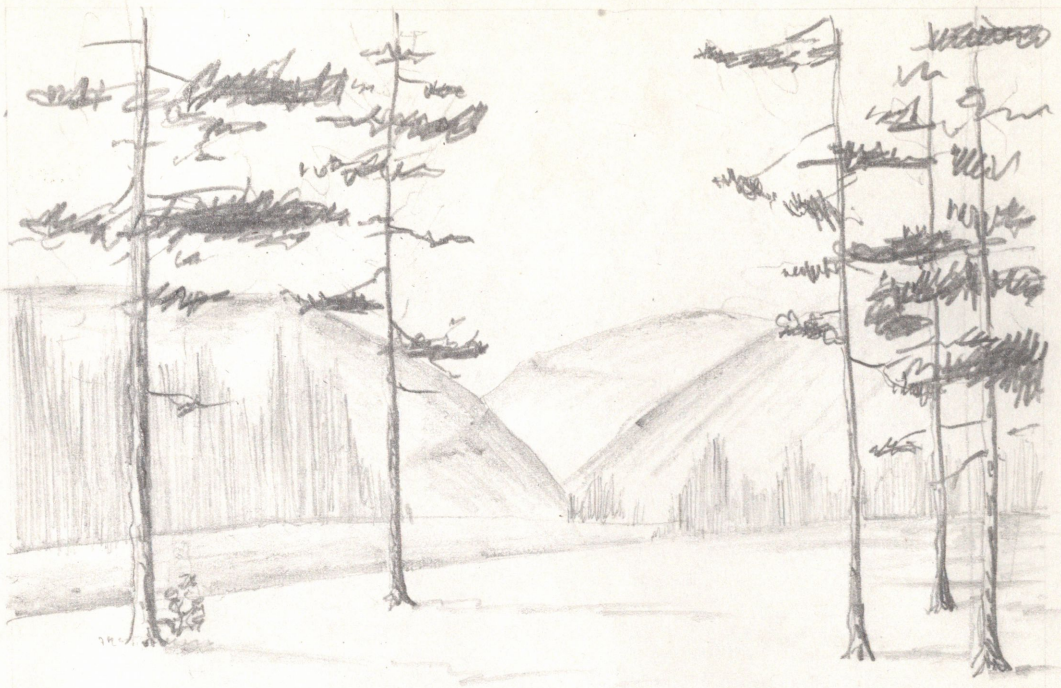
VIEW No[illegible] LOOKING WEST



VIEW No 2 LOOKING NORTH



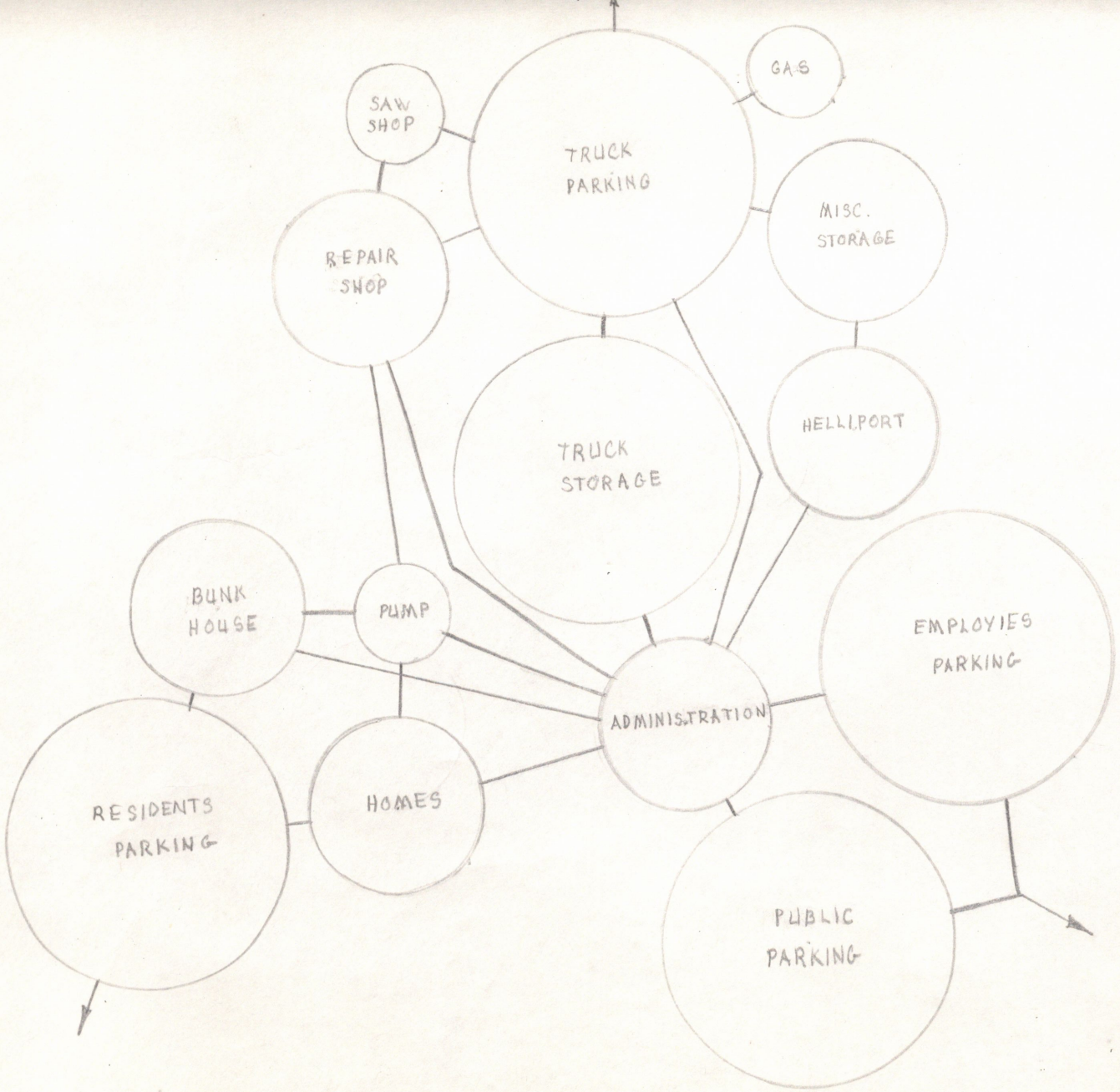
VIEW No 3 S.W. TOWARDS PROSPECT CR.



VIEW No. 4 LOOKING EAST



VIEW No 5 LOOKING SOUTH



CIRCULATION DIAGRAM

BIBLIOGRAPHY

1. Field Offices of the Forest Service, U.S. Department of Agriculture, Wahington, D.C.

2. Thompson Falls Ranger District Map.

3. U.S. Department of Commerce, Weather Bureau; Climate of the State of Montana.

4. Marshall Valuation Service, Marshall & Stevens Publication Company, Los Angeles, California.

5. John R. Cloninger, Soil Scientist, Polson, Montana.

6. Erwin Puphal, Forest Ranger, Thompson Falls, Montana.

7. Columbia University, The Columbia-Viking Desk Encyclopedia, Dell Pub. Co., Inc., New York, New York, 1964.

8. Paul Heyer, Architects on Architecture, Walker and Company, New York, New York, 1966, p. 245.

9. Geoffrey Scott, The Architecture of Humanism, Doubleday & Company, Inc., Garden City, New York, 1924, p. 157.

10. Ibid., p. 14.

11. Heyer, p. 62.

12. Gyorgy Kepes, Language of Vision, Paul Theobald, Chicago, Illinois, 1944, p. 79.

13. Heyer, p. 38.

14. Jean Catera, "Three Minutes of Silence and the Cubic Foot of Space", Image, 1966.

Summary

I feel that the best way for an agency to advertise is for it to use its own materials. Because the Forest Service works with the natural elements, I attempted to use these materials in the construction of the buildings in the Thompson Falls complex. The use of local lumber and stone emphasizes the fact that the materials in the area are valuable for industry as well as recreation. In working with the site plan I attempted to incorporate a popular idea of conservation now being pushed by all conservation minded persons. This is to change the land as little as possible when industrial activity must take place. I therefore attempted to construct buildings in locations so that very little land work or tree removal would have to be done.

The site plan was arranged so that the road which leads to the administration building feeds directly off Ferry Street. This street is the main artery from the down town area to the residential area of the town and thus makes it easy to locate the Forest Service headquarters. When driving up this entrance the first parking area is reserved for visitors and clients and is located on the same side of the entrance drive as the administrative building. With this arrangement the office building will draw visitors into the proper parking lot and then to the proper building.

Workers who do not live in the district housing would travel the same direct route as the visitor upon entering the administrative area except that they would continue to the second parking lot. This lot is on the right side of the road and away from the administrative building. From here the honchos go to the office building, pick up their orders for the day and continue on to the assembly area. All

other workers go directly from the parking area to the work assembly area.

The district housing is located near enough to the work area so as to make it convenient for these men to walk to work. At the assembly area the vehicles are loaded with men and equipment for the days work and then dispersed to their designated jobs.

The residential area is separated from the administrative area by a small park. This separation gives the men more of a feeling of getting away from their work than if the two areas were closely located. The residences were positioned to open onto the park area with a view of the pond. They also take advantage of the view down the Clark Fork Valley in the ESE and WNW directions.

The recreation area is located near the bunk-house since the men living here would make the most use of it even though others may use it to some extent. It was also located away from the rental homes to eliminate noise in the residential area.

The fire fighting training area is located north of the complex in the wooded area between it and the mountains. This area is used only a few times a year and thus becomes a part of the forested mountain-side. The area directly to the east of the administration building is relatively open and flat at the present time and could be used effectively as an air strip for small planes in the future.

The office building is designed to allow a free flow of communications between the administrative personel. The radio storage, and drafting areas are located at one end of this area to reduce the chance of noise or messy conditions from interfering with the other activities. The Ranger is located at the near end of this area in a position to command the other men while maintaining a close relationship with the public.

His office is more enclosed to permit him more privacy when he desires it. The meeting room is located on the opposite side of the reception center than the office area so that the public is not as likely to interfer with the administrative activities. The administration area was located on the north side of the main entrance to allow a direct relationship between office and field personnel.

The residences were designed for $70 to $90 monthly rent and thus the two story duplex was considered. I did not use apartment homes because I felt the separation between homes allowed for a more segregated feeling between occupants. It also allowed for a more open, natural patio area for each unit while maintaining a degree of privacy in this area. I attempted to change the character of the residential area from that of the administrative area to aid the occupants in separating themselves from their working atmosphere; however, I retained the character of the natural stone and wood materials of the area while doing this.

The main idea in this design was to provide for a free direct flow of travel between the different areas allowing for a convenient and economic operation of the organization. The secondary goal was to convey the atmosphere of the natural elements in determining the character of the buildings.

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