United States
Department of
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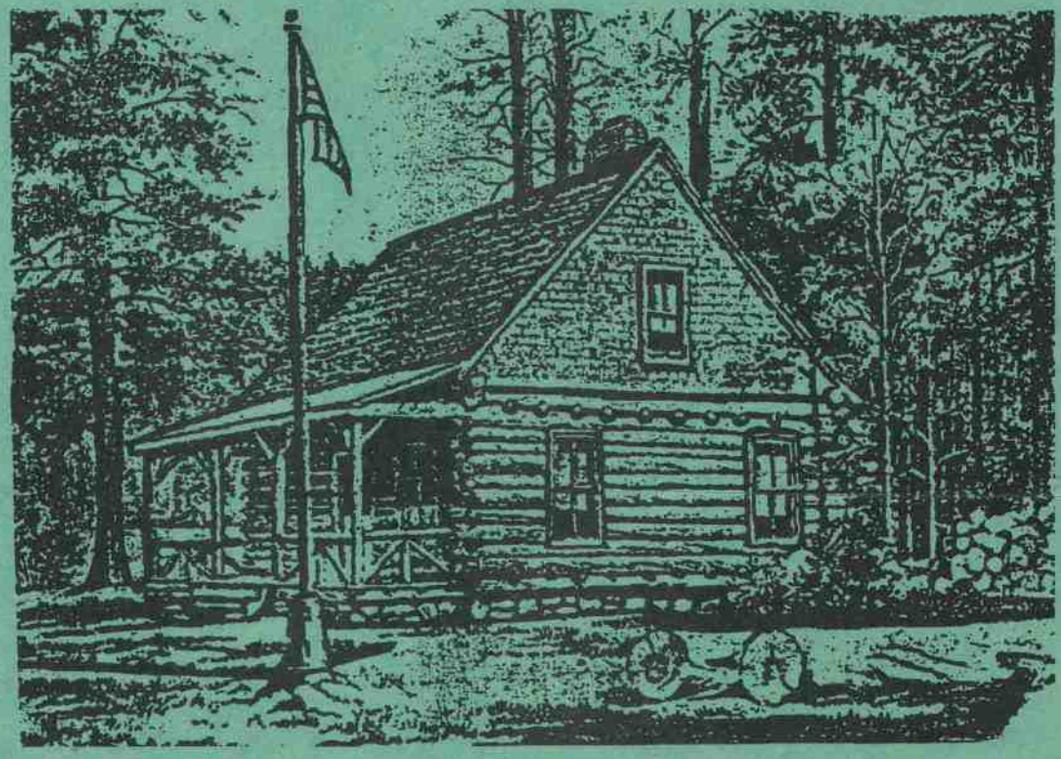
Forest Service

Engineering Staff

EM-7310-8

July 1999

A History of the Architecture of the USDA Forest Service



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A History of the Architecture of the USDA Forest Service

by John R. Grosvenor, Architect
Pacific Southwest Region

Cover illustration: Rendering of a ranger dwelling by W. Ellis Groben, 1938.

Dedication and Acknowledgements

This book is dedicated to all of those architects and building designers who have provided the leadership and design expertise to the USDA Forest Service building program from the inception of the agency—to Harry Kevich, my mentor and friend who guided my career in the Forest Service, and especially to W. Ellis Groben, who provided the only professional architectural leadership from Washington, DC. I salute the archaeologists, historians, and historic preservation teams who are active in preserving the architectural heritage of this unique organization.

A special tribute goes to my wife, Caro, who has supported all of my activities these past 38 years in our marriage and in my career with the Forest Service.

In the time it has taken me to compile this document, scores of people throughout the Forest Service have provided information, photos, and drawings; told their stories; assisted in editing my writing attempts; and expressed support for this enormous effort. Active and retired architects from all the Forest Service Regions as well as several of the research stations have provided specific information regarding their history. These individuals are too numerous to mention by name here, but can be found throughout the document. I do want to mention the person who is most responsible for my undertaking this task: Linda Lux, the Regional Historian in Region 5, who urged me to put something down in writing before I retired. Her support has continued during the whole process of producing this document.

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Chapter 1 Eras

"How many a man has dated a new era in his life from the reading of a book"

—Henry David Thoreau, *Walden*

1905–1917: From the Ground Up, or the Predesign Phase

When the Forest Service was established in 1905, employees carried out their duties in rented rooms in towns, in abandoned homesteads, and in tents in the field. Resources were so limited that these rangers even had to provide their own horses. The few Government-owned buildings that existed were small, poorly designed by the employees on the ground, and inadequate for conducting day-to-day business.[1] These administrative buildings were largely reflective of the rangers' personal preferences, as well as the materials, tools, and time available to them. Thus, these buildings, which had no apparent stylistic influences on appearance or construction, could be described as "pioneer." The special relationships between the barn, cabin, and corrals were similar to those of typical homestead layouts.

What is believed to be the oldest ranger station in the Forest Service, and certainly in Region 1, is located on the Bitterroot National Forest. Alta Ranger Station, as it is called, was built in 1899 for the Department of the Interior's General Land Office by pioneer forest rangers Nathanial Wilkerson and Henry C. Tuttle, who paid for the materials from personal funds that were never reimbursed. This sturdy 13- x 15-foot one-story log cabin (figure 1–1) served as a ranger station for 5 years. In 1904, it was sold to a private owner.[2]

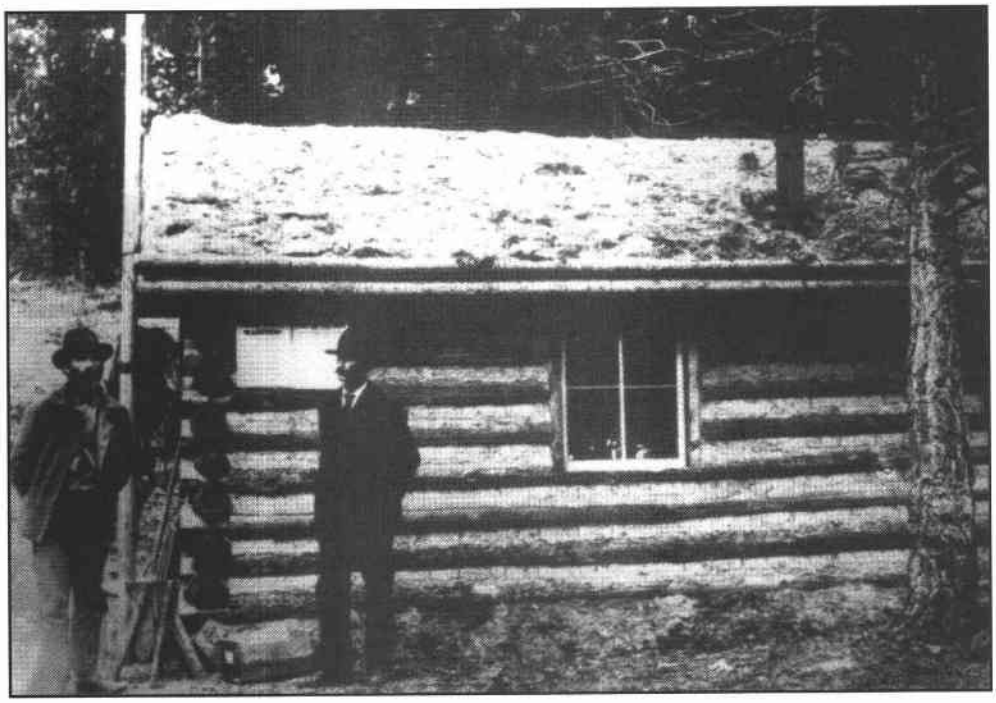


Figure 1–1. *Alta Ranger Station, Bitterroot National Forest, Region 1, built in 1899*

The earliest post-1905 Forest Service building that is still standing is the Wapiti Ranger Station on the Shoshone National Forest in Wyoming. This log-cabin ranger station was originally constructed in 1904 as two buildings: a three-room living quarters and a separate office. The buildings were joined by enclosing the space between them sometime before 1908 (figure 1–2).

During the early years, a forest ranger's living conditions were fairly primitive, and expenses and meals were usually paid out of the rangers' own pockets. In 1905, District Ranger Raymond Tyler, assigned to the Lake Tahoe Forest Reserve, submitted the following request:

> Living accommodations in the Reserve have always been poor. The cold winter rain and snow of late spring and fall make it unhealthy to live in tents during the season. Our horses shiver in the icy winds and grow poor. If we bought hay we had little or no means of keeping it dry. When snow and bad weather come a ranger is compelled to live at some hotel and stable his horses, which is very expensive and more than I believe the Department expects. Therefore I ask that the Department allow some appropriation and ranger labor to build a house and barn.

Ranger Tyler's pleas for assistance were apparently heard. The following year, a house with three bedrooms, a kitchen, and a large sitting room was erected. The total cost of the house was estimated at $150. This building was perhaps the first Government-owned facility on what is now the Eldorado National Forest.[3]

Rangers such as Raymond Tyler relied heavily on Gifford Pinchot's *The Use Book* of 1905 for guidance which stated:

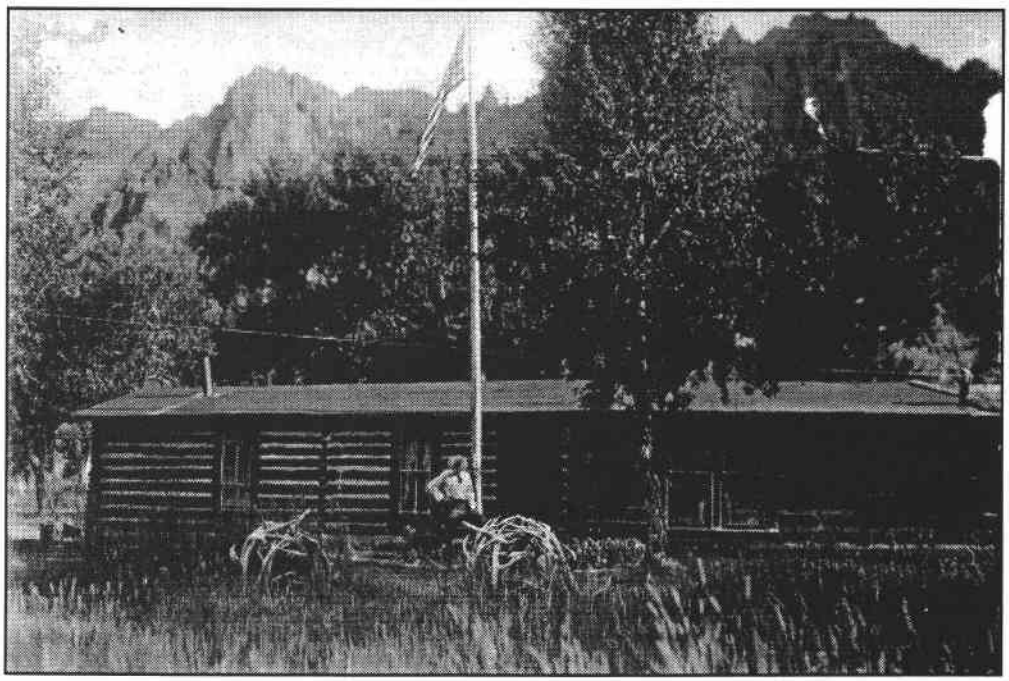


Figure 1–2. *Wapiti Ranger Station, Shoshone National Forest (1908)*

> Eventually all the rangers who serve the year round will be furnished with comfortable headquarters. It is the intention of the Forest Service to erect the necessary buildings as rapidly as funds will permit. Usually they should be built with logs with shingle or shake roofs. Dwellings should be of sufficient size to afford comfortable living accommodations to the family of the officer. Rangers' cabins should be located where there is enough agriculture land for a small field and suitable pasture for a few head of horses and a cow or two, in order to decrease the often excessive expense for vegetables and food. He will be held responsible for the proper care of the buildings and the grounds surrounding them. It is impossible to insist on proper care of camps if the forest officers themselves do not keep their homes as models of neatness.[4]

Pinchot's instructions were straightforward enough, but a centrally located administration, poor communications, lack of personnel, and misinterpretation of new regulations often resulted in a lack of uniformity in field operations, including plans for improvements. Also, appropriations for improvements were more often based on arbitrary spending limitations established by Congress rather than on need.

Pinchot also established a ranger exam to eliminate undesirable ranger candidates. Applicants were expected, among other things, to be able to handle an axe and were tested on their knowledge of cabin construction. The Washington Division of Engineering was created in 1908, the same year that forest administration was decentralized into eight Districts, each with its own Engineering Division.

The design and feeling incorporated in the earliest administrative buildings placed importance on ideologies as well as function. Gifford Pinchot promoted the agency, its mission, and its policies, and Forest Service architecture played an important role in Pinchot's vision.

In Colorado, Ranger James Cayton selected the site in a secluded clearing near a spring for his yearlong station (figure 1–3). From his diary written 30 years later:

> In September 1909 Forest Ranger Jolly Boone Robinson and I first started the improvements at this station. They consisted of a log barn and a three-room house. Ranger Robinson was given the task to cut and peel green blue spruce trees while I went out to work on my district.
>
> When I returned, I took my bride of just a few days to the station site, where we lived in tents, cooking over a camp fire, then later on an old cook stove. We built the barn first and put the shingle roof on it, then moved into it as there was nearly two foot of snow on the ground and snowing most of the time. We chinked the barn, then dug a hole in the dirt floor, mixed the mud and daubed it on the inside. The barn made quite comfortable living quarters as compared to tents.
>
> We laid up four rounds of logs for the house before we discontinued work for the winter. The next summer with the help of two others we completed laying up the logs for the house, installed partitions, put on the shingle roof and put in the doors and windows.

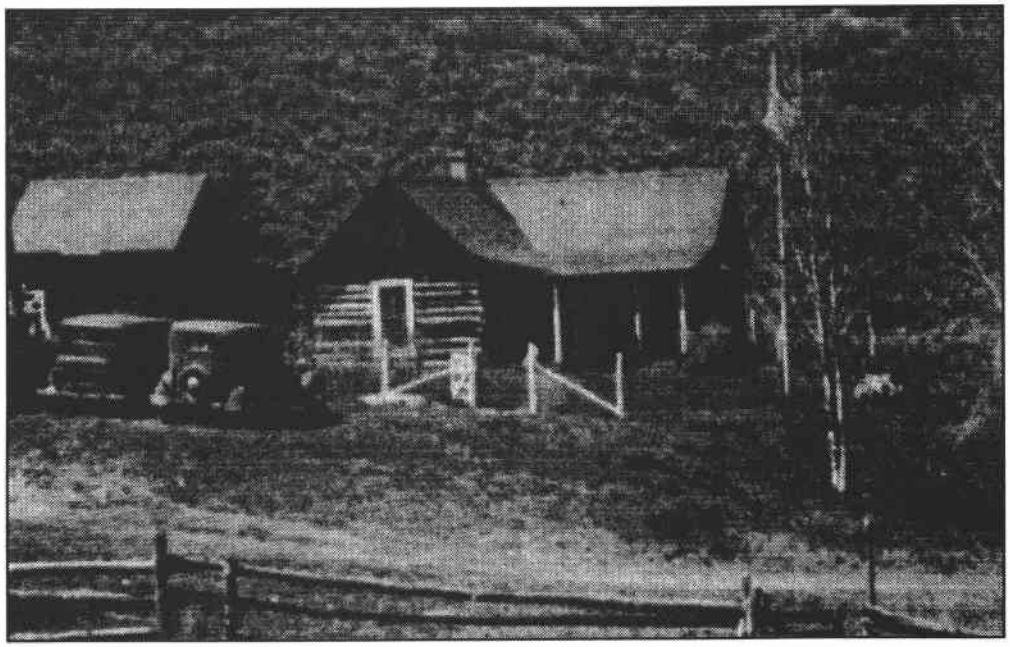


Figure 1–3. *Cayton Ranger Station, Region 2 (1910)*

> During that summer season of 1910 my wife and I put the chinking in the house and daubed it with mud. We also built the brick chimney, she being the hod carrier. That summer we moved into the Ranger Station, making it a year around headquarters from then until 1919 when I resigned and we went to California for her health.[5]

Much of the rural architecture before 1900 was constructed with no formal architectural style. Utility, time, and the availability of materials were the principal forces behind their method of construction and appearance. Formal architectural expression and detailing were generally adapted variations of the local vernacular architecture. Depending largely on the availability of milled lumber, houses and offices were wood-frame or log construction.

Temporary guard stations were often established at intervals of 1 day's ride on horseback from the established office in town (figure 1–4). These were used for fire patrols and overnight camping. Some were constructed exclusively for a timber sale. Important considerations for site placement included the availability of water, protection from the elements, accessibility to mail delivery, and existing or potential access to telephone lines.

After 1907, with creation of district offices (now regional headquarters), supervisors' headquarters, and ranger stations, more emphasis was placed on regional standardization of architecture. Originally, Forest Service architecture was epitomized by the simple log cabin, but that building type was superseded by rustic wood-frame structures of more conventional building techniques. The Forest Service intended to project an image of cleanliness, efficiency, and dedication to the public it served, and a crude log cabin did not fit that image. Exceptions were in the Pacific Northwest and northern Rockies, where log construction continued to be popular and was more economical.

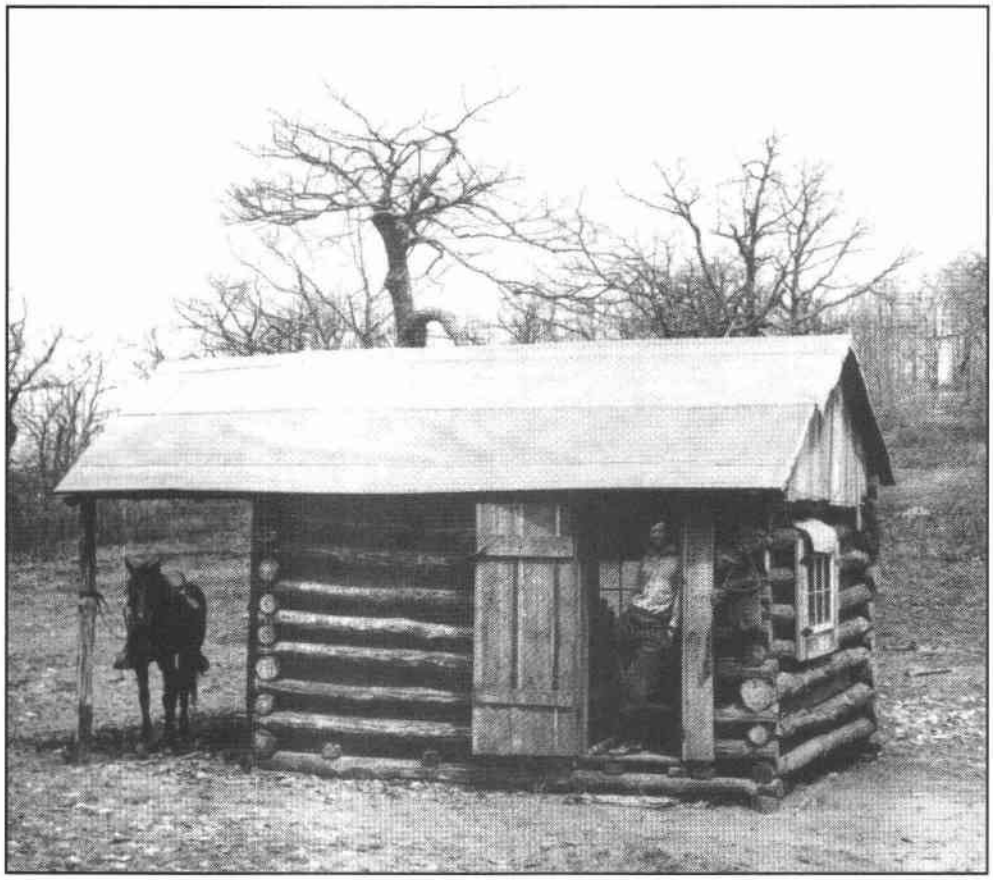


Figure 1–4. *Log shack used as a temporary camp near Silers Bald, Wayah Ranger District, Nantahala National Forest, North Carolina (1916)*

Limited funding forced early forest rangers to prioritize improvement work. Eldorado National Forest Supervisor Kelley reported:

> Improvements constructed now are more necessary for the efficient development of the forest and their [the rangers'] work in conjunction with fire plans, but in ranger district management I believe there is one thing a ranger should study out thoroughly and that is what improvements work should be done in the district. In making recommendations for permanent improvements, the prime issue is protection and the relation that the recommended improvement bears to it. We all know that our improvement appropriations are small and we must overlook a few little things and pay more attention to larger projects such as telephone lines, pastures, barns and houses, but I believe telephone lines are the most important. December 1912.[6]

In 1913, improvement appropriations for the California District totaled $60,000 for fiscal year 1914. The following year's allotments were increased by $5,000, but both construction and maintenance were covered by these funds.

Final authorization for new construction required approval from the Washington Office. Standard architectural plans were nonexistent prior to 1917; the development of floor plans, exterior appearance, and materials were left

up to the individual ranger, with only a dollar limitation controlling the finished building. Most of the work was done by Forest Service employees using the knowledge, skills, and labor available at the local unit.[7]

On remote forests and sites located away from population centers, rangers designed and built the structures themselves. But there were examples where the buildings were constructed by private contractors due to lack of personnel on each forest and the lack of carpentry skills.

Looking at the remaining examples of these early buildings around the Nation shows certain trends. In the Rocky Mountain areas from Canada to Mexico, there is a predominance of log structures; on the West Coast (California, Oregon, and Washington), the buildings tend to be more wood-frame structures built from milled lumber. East of the Mississippi River, most of the national forest lands were purchased, and many of the Forest Service buildings were existing structures from the farms bought to make up the forests.

During this earliest era of the Forest Service, there were no known architects, private or public, involved in developing building plans or architectural style. Very few of the buildings from this earliest period have been preserved, and those that remain have been added to, remodeled, or changed their function. Most of the information about them comes from historic letters, reports, and oral traditions. Figures 1–5 through 1–9 demonstrate the style typical of this era.

Notes

1. Dana E. Supernowicz, *Contextual History of Forest Service Administrative Buildings in the Pacific Southwest Region*, p. 4.
2. USDA Forest Service, *The National Forests of the Northern Region: Living Legacy*, p. 230.
3. Ibid.
4. USDA Forest Service, *The Use Book*, p. 108.
5. Les Joslin, *Uncle Sam's Cabins*, pp. 64-67.
6. Supernowicz, pp. 5-6.
7. Ibid.

Forest Service Buildings of the 1900's and 1910's

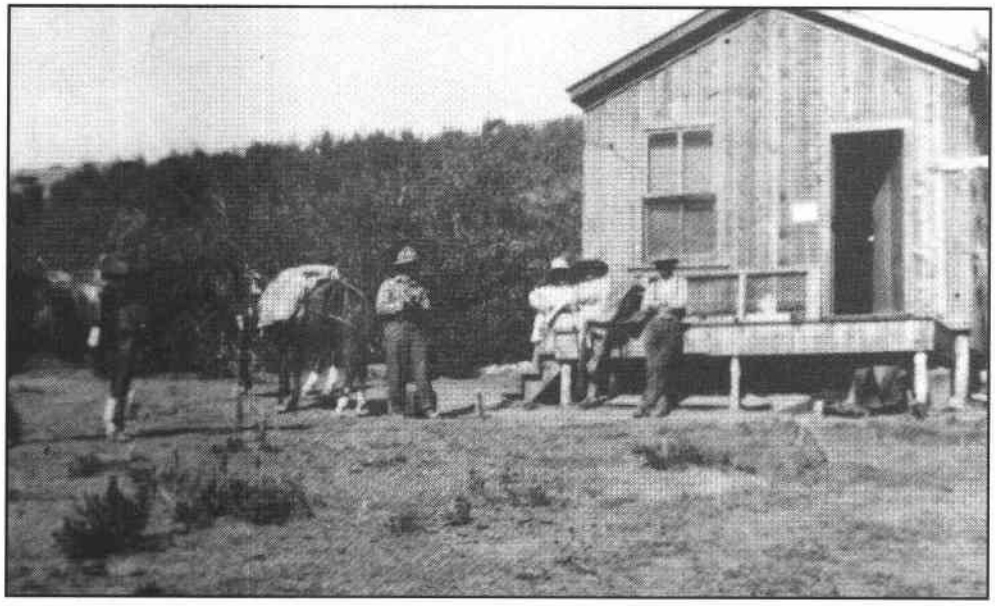


Figure 1–5. *Martin Creek Ranger Station, Santa Rosa Ranger District, Humboldt-Toiyabe National Forest, Region 4 (Nevada) (1912)*

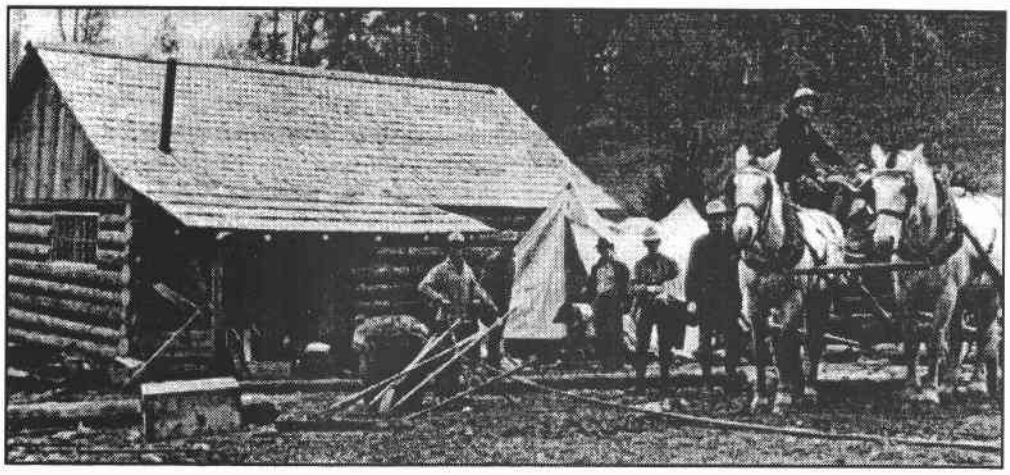


Figure 1–6. *Rangers on the Sierra National Forest construct the Jerseydale Ranger Station in the early 1900's. Dolly and Dick, the Reserve's work horses, assisted.*

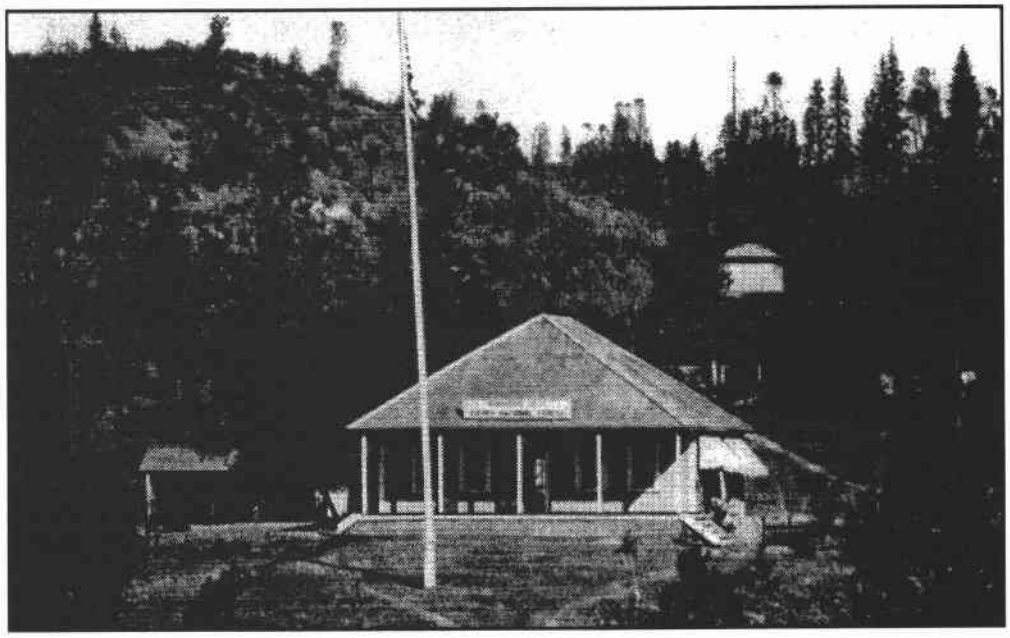


Figure 1–7. *Supervisor's Office, Bridge Station, Sierra National Forest, Region 5 (1912)*

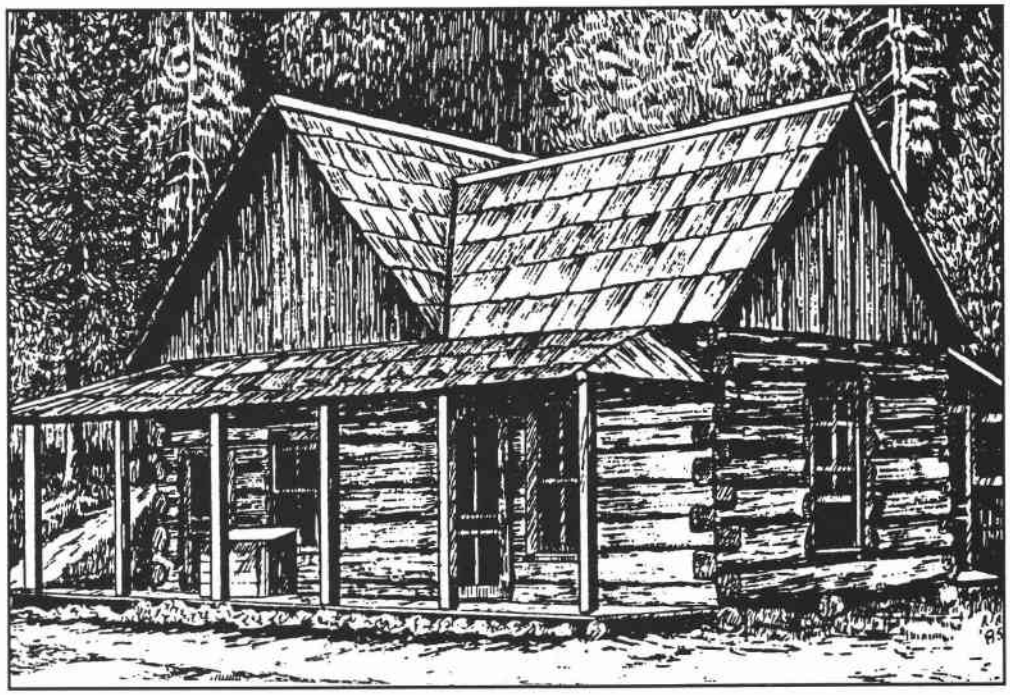


Figure 1–8. *Falls Ranger Station, Region 1 (1911)*

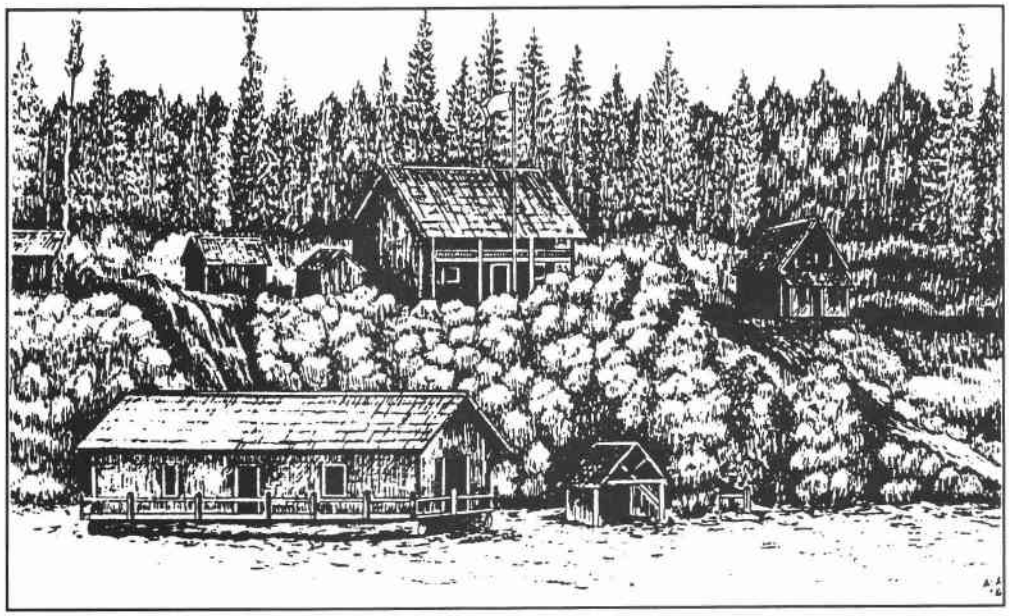


Figure 1–9. *Boathouse, Priest Lake Ranger Station, Region 1 (1911)*

1917–1933: From Above

When the Nation entered World War I, many sawmills were closed because of labor and management conflicts, and the cost of lumber and materials increased. Improvements constructed during this period were generally modest in size and features. As of 1917, there was still no record of a Forest Service architect.

In the California Region, Regional Forester Coert DuBois issued an Improvement Circular on May 1, 1917. As DuBois explained:

> The designs for buildings included in this Manual cover the field of buildings generally. From time to time, however, to meet special needs, small buildings, the plans and estimates for which are not included in this Manual, will be constructed. Maintenance of buildings already constructed now and then will require carpenter work of various kinds. The following chapter is written with a view of securing better construction and a higher grade of maintenance work by setting forth certain standards of construction and by giving ideas of how to do certain things which, to the inexperienced man, are more or less puzzling. Unless previous authority is secured, the specifications with respect to the dimension of materials for different purposes and the general type of construction shall apply to all common miscellaneous construction and repair work.[1]

The designs for the circular had been developed during the two previous years. They called for standard wood-framed construction in the larger structures with log construction employed for smaller buildings. The buildings were small and inexpensive to erect. The estimated cost for the 1D dwelling (figure 1–10) was $112 in labor plus materials, well within the $650 building spending limitation (see appendix B for plans and a list of

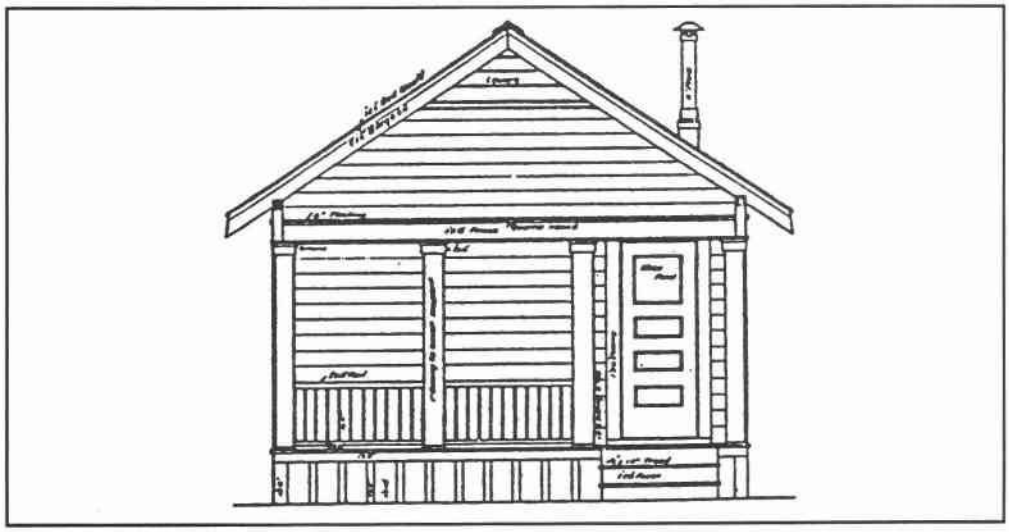


Figure 1–10. *The classically inspired 1D dwelling, Region 5 (1917)*

materials). The buildings reflect the influence of the Craftsman architecture of the era and were obviously designed with an eye to more than strictly functional requirements. Designs such as dwelling 1D, with its classic, temple-inspired front porch, overhanging eaves, clapboard siding, and gable roof, would be right at home in any working-class neighborhood of the era.

While circumstances at times required the substitution of less finished material for the milled lumber, rusticity does not seem to have been the aim of the designers. If one compares the kind of buildings constructed by the National Park Service with the buildings built by the Forest Service in the 1910's and 1920's, it becomes apparent that the latter were not really all that rustic. In fact, given the mission of the Forest Service, it could be argued that rusticity would have been an inappropriate goal for the designers of the DuBois-era structures to pursue.[2]

In the Region 2 Office of Engineering, James Brownlee, a mechanical engineer, was overseeing the design and construction of administrative improvements based on the Forest Service policy that stated, "Each new improvement [shall be] carefully planned, and all details of construction [shall be] carefully included in each plan."[3] These plans exhibited increasing use of the bungalow style (figure 1–11). Another influence changing the style of the buildings was that a growing number of rangers after World War I were trained in the forestry schools on the East Coast. These men lacked the pioneer construction skills, and many stations were constructed by building contractors.[4]

The 1928 Forest Service National Manual of Regulations and Instructions was the first Service-wide publication to address design policy since the Use Book. It stated that dwellings would be built only when it was impractical to rent living or office space. Office space was to be provided apart from dwellings. The first office designs from the various Regions would appear 3 years later. Garages were for official vehicles only.[5]

A companion to the National Manual, the Construction and Maintenance (C&M) Handbook, was also issued. Included in the C&M Handbook were plans for various types of buildings. These were not mandatory, but were used in many Regions of the Forest Service.

A significant innovation in Region 1 fire control planning was the development of the Ninemile Remount Depot on the Lolo National Forest. The Forest Service had always relied on horses and mules for getting supplies into the backcountry to fight fires, and in the early years the common practice was to hire commercial pack stock when the need arose. The rise in the number of automobiles and trucks in the 1920's, however, had caused a commensurate decline in the number of horses. In 1929, Clyde Fickes recommended that the Forest Service acquire its own reserve of pack stock and saddle horses at some central location, where they could be trucked to any point in the Region at short notice. Fickes had in mind the old remount depots of the U.S. Cavalry, where saddle horses were trained for issue to replace lost mounts. Although Fire Chief Howard Flint and others in the Regional Office opposed this idea, Regional Forester Evan Kelley gave it his approval.

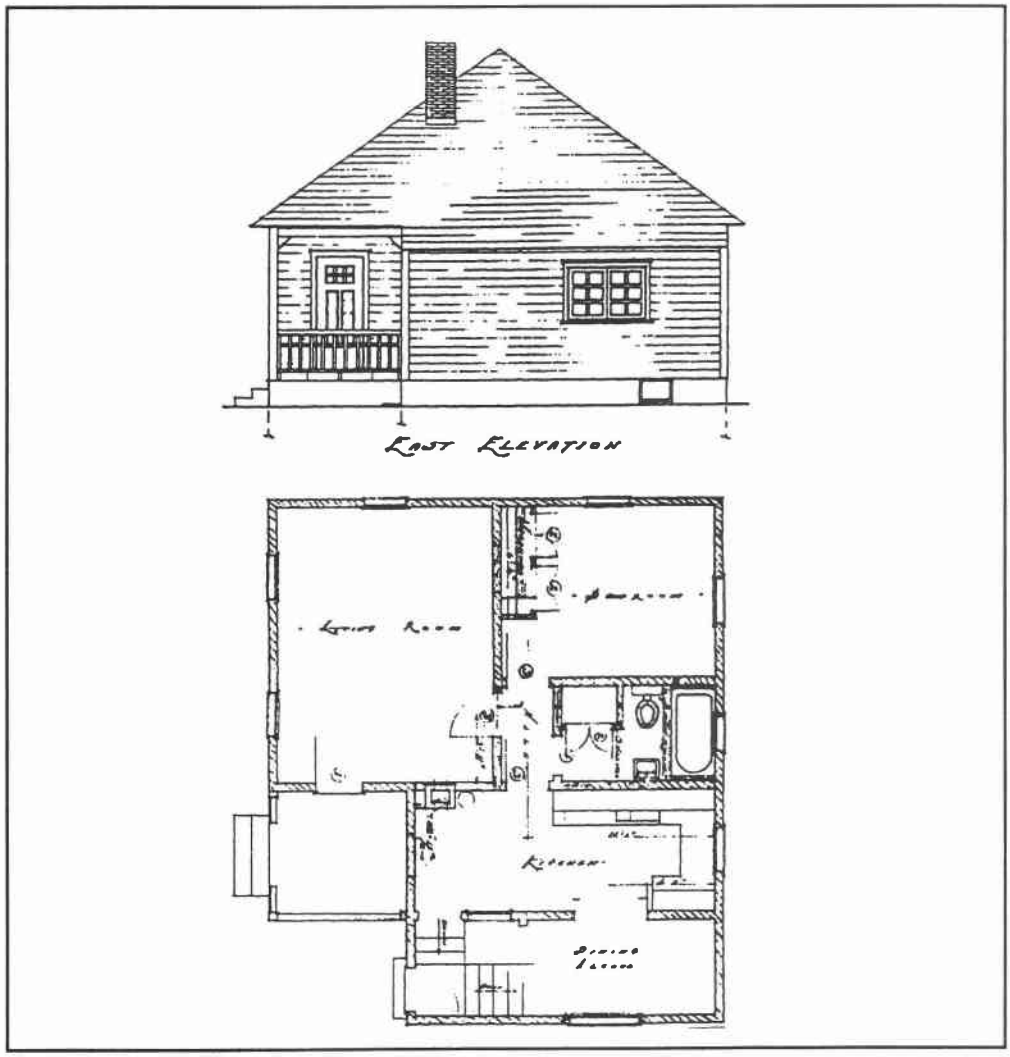


Figure 1–11. *Plans for ranger dwelling, Glade Ranger Station, Region 2*

Kelley put Fickes in charge of the remount operation, but he gave it close supervision, too. William Fox, the first professional architect, designed most of the buildings. Many of the facilities and equipment were completely innovative, such as the horse trucks designed specifically for transporting a standard pack string of nine mules and a saddle horse. "Kelley ... really wanted it to function as planned," writes Fickes. "No one else in the RO wanted to have much to do with it because they were afraid they would get their fingers burned. After we made it prove its worth, then everybody wanted to get into the act." The Ninemile Remount Depot was a complete success; its value increased as the level of activity rose.[6]

William Fox designed the buildings for Ninemile in the Cape Cod style of architecture. The site plan was devised to look like a Kentucky horse farm, with clean white buildings, corrals, and tree and grass landscaping (figures 1–12 and 1–13). The reasons for selecting this type of architectural style are unclear; however, it appears to have been the personal choice of Fickes and Kelley.[7]

Figure 1-12. *Residence, Ninemile Ranger Station, Lolo National Forest (1931)*

Figure 1-13. *Office, Ninemile Ranger Station, Lolo National Forest (1931)*

By 1930, Forest Service appropriations shifted to emphasize fire protection structures rather than administrative improvements. In a letter to the forest supervisors, Region 5 Regional Forester S.B. Show stated that, unlike past practices, the Washington Office was now emphatic about not transferring funds from one function to another. As Show pointed out, "The money allotted for protection improvements must be spent on such and no trans-

fers should be made between administrative or protection improvement construction and maintenance projects without approval."[8]

By the 1930's, rangers were required to own their own vehicles rather than horses. Motor vehicles helped stimulate a road construction boom in the 1920's that resulted in increased recreational use and timber and mineral extraction. Rangers used automobiles and trucks to expedite their field work, and their families enjoyed easier access to the supplies and social contact available within nearby communities. This initiated an administrative policy shift that resulted in the consolidation of districts and the replacement of full-time rural ranger stations with seasonal or temporary stations served in the summer by rangers who lived in towns the rest of the year.

The introduction of designed office space in 1931 and the construction of various other buildings at administrative sites increased the need for site planning. Guard stations may have had only a single one-room cabin, but typically consisted of a two- or three-room dwelling and a small barn. Another innovation at this time was the combination office building that included office, storage, and living quarters when built at remote locations. The architectural appearance of these differed throughout the country depending on the local styles and materials available. Figures 1–14 through 1–17 show some of the styles of this time period.

In 1932, the Washington Office requested that the Regions develop a careful policy and program before beginning any major Government-owned improvement project, and suggested that the following factors determine the need for such projects:

1. Location.
2. Certainty as to permanence.
3. Adequacy of present plant.
4. Annual rental and other costs of present plant.
5. Chance to rent satisfactory facilities, including chance to get satisfactory facility constructed for rental to the Service.
6. Full and complete cost for site and construction of a permanently satisfactory plant.
7. The $2,500 building limitation required construction of buildings of proper design.
8. Annual maintenance and upkeep cost of such a Government-owned plant.

Public opposition to Forest Service personnel and policy continued during this period. Buildings therefore continued to blend with the local culture, much as they had in the earlier period. The separation of office and residence had practical applications, but may also be reflective of the Forest Service's goal of integrating the rangers into the fabric of the community by physically separating them after hours from their official duties.

Notes

1. Supernowicz, pp. 7-8.
2. Ibid., p. 8.
3. Jim Schneck and Ralph Hartley, *Administering the National Forests of Colorado*, p. 47.
4. Ibid.
5. Schneck and Hartley, *Evaluation of R-1 Forest Service Owned Buildings for Eligibility to National Register of Historic Places*, p. 48.
6. Historical Research Associates, p. 58.
7. Ibid., p. 95.
8. Supernowicz, p. 10.

Forest Service Buildings of the 1920's and 1930's

PHOTO BY LES JOSLIN

Figure 1-14. *Ranger residence, Cabin Lake Ranger Station, Deschutes National Forest, Region 6 (1923)*

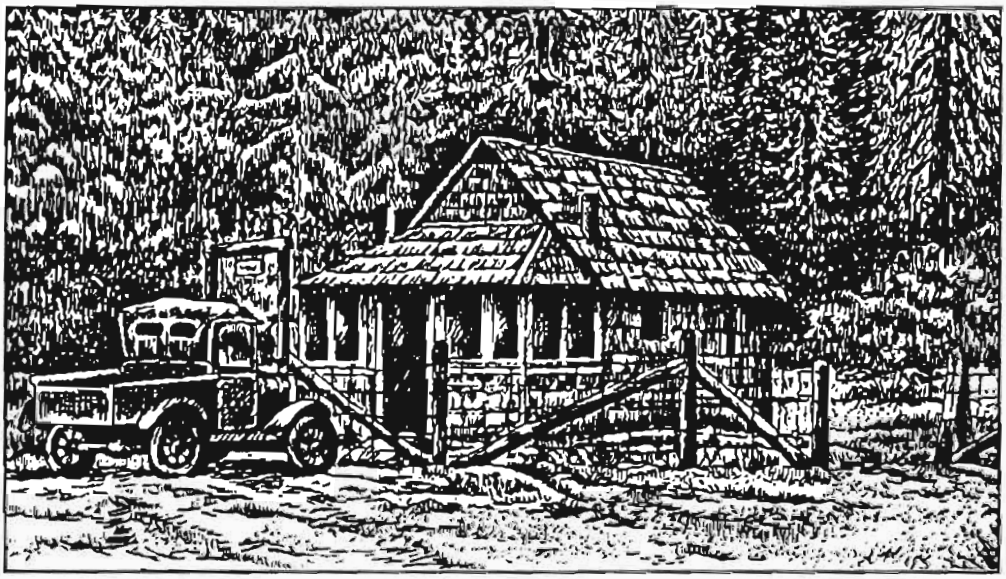


Figure 1–15. *Pelki Ranger Station, Region 1 (1925)*

Figure 1–16. *Twin Lakes Ranger Station, Region 1 (1924)*

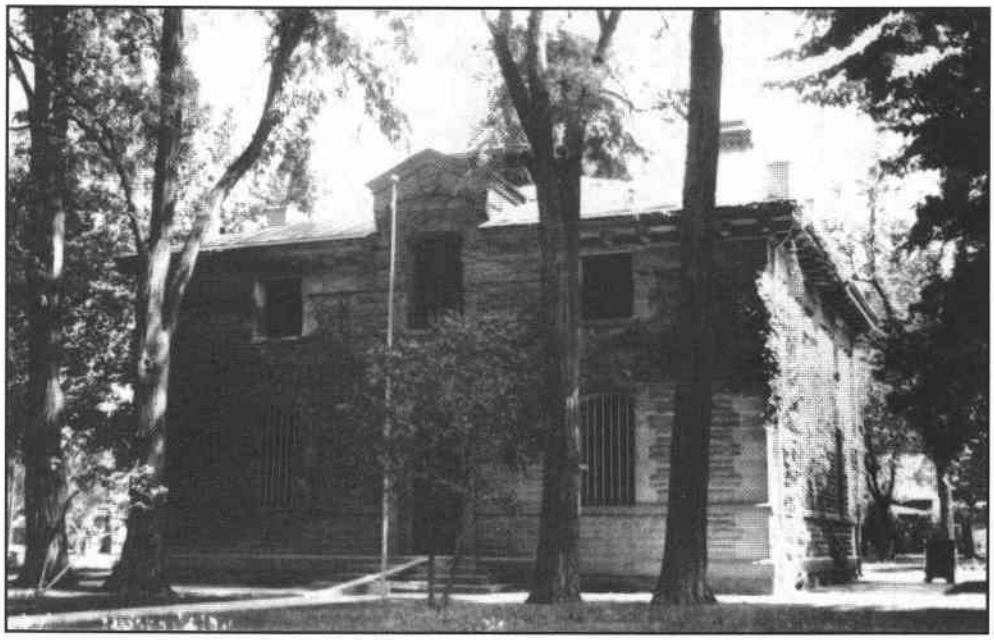


Figure 1–17. *Boise Assay Office remodeled as the Supervisor's Office, Boise National Forest, Region 4 (1933)*

1933–1938: Groben Dictates

T.W. Norcross was Chief Engineer of the Forest Service from 1920 until 1947. Sometime around 1933, he hired the first and only Washington Office architect, W. Ellis Groben. Groben was a graduate of the University of Pennsylvania and attended the Ecole des Beaux-Arts in Paris. He was doing residential design when he came to the Forest Service, and he had served briefly as chief architect for the city of Philadelphia. He put his skills as both residential designer and public administrator to work guiding the Forest Service as it continued to create its own style of architecture.

Groben felt that current Forest Service design did not "possess Forest Service identity or adequately express its purposes," so his time with the Forest Service was spent producing concepts for Forest Service buildings. A book of "Acceptable Plans, Forest Service Administrative Buildings" was issued in 1938. Norcross, in his cover letter, stated:

> The purpose of this collection of building plans, developed in the respective Regions for various types of buildings, is to make the best ones available for the Forest Service generally. This does not signify that the present collection contains all that are meritorious and acceptable.
>
> However, by reference to this volume, a plan may be found that will suit the purpose, either in whole or in part, thereby frequently obviating the necessity of preparing an entirely new scheme.[1]

In the foreword to this publication, Groben says:

> Forest Service areas are not exclusively parks nor recreational in character but, in addition to offering these facilities, they serve highly utilitarian purposes generally, as a result of which it becomes necessary to provide buildings to adequately accommodate and house the personnel and equipment required to properly conduct the varied phases of Forest Service work.
>
> No matter how well buildings may be designed, with but a few exceptions, they seldom enhance the beauty of their natural settings. They are, however, required and necessary to satisfy definite uses which arise to meet human needs, in spite of their encroachment upon Nature's pristine beauty.
>
> For the benefit and assistance of all those concerned, it has been deemed highly desirable to present the best thought in these matters in a convenient manner by assembling this collection of plates to be known as Acceptable Plans, Forest Service Administrative Buildings.[2]

Concerning style, Groben says:

> The designs now in vogue are based upon variations of imported styles, foreign in character to a particular Region and not unlike other city or suburban buildings. Accordingly, they fail to possess Forest Service identify or to adequately express its purposes. Consequently, they are subject to adverse criticism, much of which is well founded.

To accomplish the desired results, Regions not fortunate enough to have any traditional architecture must resort to the development of original designs based upon typical regional prototypes, refraining from the use of established styles now recognized as unrepresentative of the ideals and purposes of the Forest Service.

Therefore, the first step in this procedure is to zone the Region for architectural styles, based upon climatic characteristics, vegetation, and forest cover. This has been done very logically by one Region in the following manner:

Type of Country	**Style of Architecture**
Desert or semidesert	Adobe or Pueblo
Grassland	Ranch-house type
Woodland (pine, fir, or spruce)	Timber types
Alpine	Alpine type (stone or stone and rough timbers)

These general classifications represent a reasonable subdivision of the Region into localities typified by different natural characteristics and the respective type of design appropriate to each.[3]

The drawings on pages 28 through 32 show examples of Groben's architectural styles.

The preface to "Acceptable Plans" starts with:

In assembling this collection of plans and elevations, known as Acceptable Plans, Forest Service Administrative Buildings, the Division of Engineering has undertaken to select those which embody the recognized principles of scientific, economic planning, which satisfy present-day needs as a guide for similar future structures.

In no sense are they to be construed as 'Standard Plans' for the simple reason that, as more fully explained in the subsequent text, no plans can be singled out and designated as a universal standard. The moment a so-called 'Standard Plan' has been prepared to satisfy existing requirements, it immediately becomes subject to further improvement to suit conditions which do not remain fixed or standard but which are continually changing.[4]

Following in the preface, Groben gives a short course on Architecture.

Site Investigation. Once the need for a building in a particular locality has been determined, the next step is the selection of a desirable site, a matter which cannot be successfully accomplished without a thorough knowledge of all the physical conditions concerning it.

To simplify this undertaking, a standard form entitled 'Questionnaire Covering Conditions at Proposed Sites of Forest Service Building Developments' has been prepared to provide a convenient and uniform system of tabulating all the vital statistics necessary for a practical decision.[5]

Comprehensive Planning. While the subject of planning is entirely too extensive to attempt a complete discussion of it here, nevertheless,

there are certain recognized fundamentals which should be seriously considered.

He goes on to list nine issues to be covered and then moves on to the type of building plan to be considered:

> The success of planning individual buildings depends to a large extent, upon knowledge and experience in determining the type of plan which best fulfills its specific requirements.
>
> For this purpose, one must be familiar with such plan types as the square or 'box' plan, the rectangular plan, the 'T', 'L', 'H', 'U', and other shaped plans, as well as their respective advantages or disadvantages.[6]

He says the book was assembled for the purpose "... of making immediately available a group of typical plans, based on those principles of correct planning in which such fundamentals as ample daylight, cross-ventilation, direct circulation, etc., are paramount and in which the following faults of bad planning do not occur."[7]

He then lists 11 faults common to his observations of past planning. These include dark interior spaces, dangerous stairways, failure to provide a vestibule where weather extremes occur, rooms used as passageways (figure 1–18), rooms having insufficient usable wall space, bedrooms where a bed must be located in a corner next to a wall and moved to make it, linen closets in bathrooms, insufficient closet space, and excessive central hallways, which are uneconomical.

From there he moves on to preliminary data, listing facts the designer should obtain prior to starting planning and designing relating to the standard plans in the book.

Next he deals with the orientation of the building and rooms in their relation to sun, prevailing winds, type of room involved, climate of the site, and so forth. He specifically talks about location of the kitchen in cold climates; it should be on the north exposure due to its cook stove. This would be the warmest room and in that position would afford the other rooms with protection against cold north winds. He provides a diagram that covers all of the above[8] (figure 1–19).

Groben then covers the topics of topography, elevation design, service facilities, minor structures, and delineation (drafting of the plans for construction). He states:

> Groups of buildings should possess similarity of character and appearance, based upon correct principles of design, whether or not they conform to any particular style. The Sandpoint Ranger Station, Idaho, Region 1 [figure 1–20], is an excellent example of uniformity of style.[9]

The conclusion of the preface states:

> The planning of buildings and their construction, etc., are matters involving not only a thorough technical knowledge but also a broad understanding of social and economic conditions. ... It is hoped that this collection of plates will be found useful in planning Forest Service

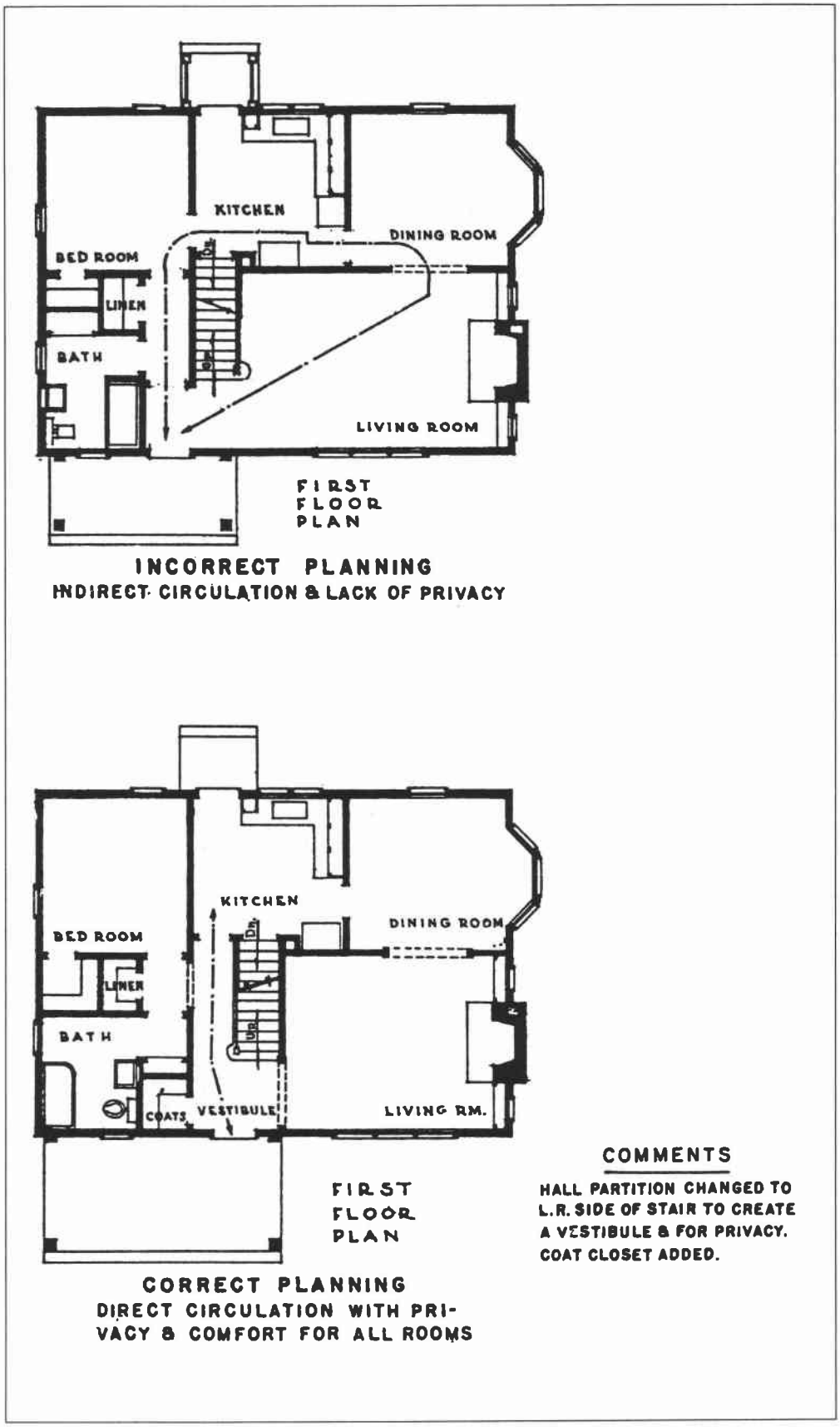


Figure 1–18. *Groben provided guidance to help architects avoid using rooms as passageways*

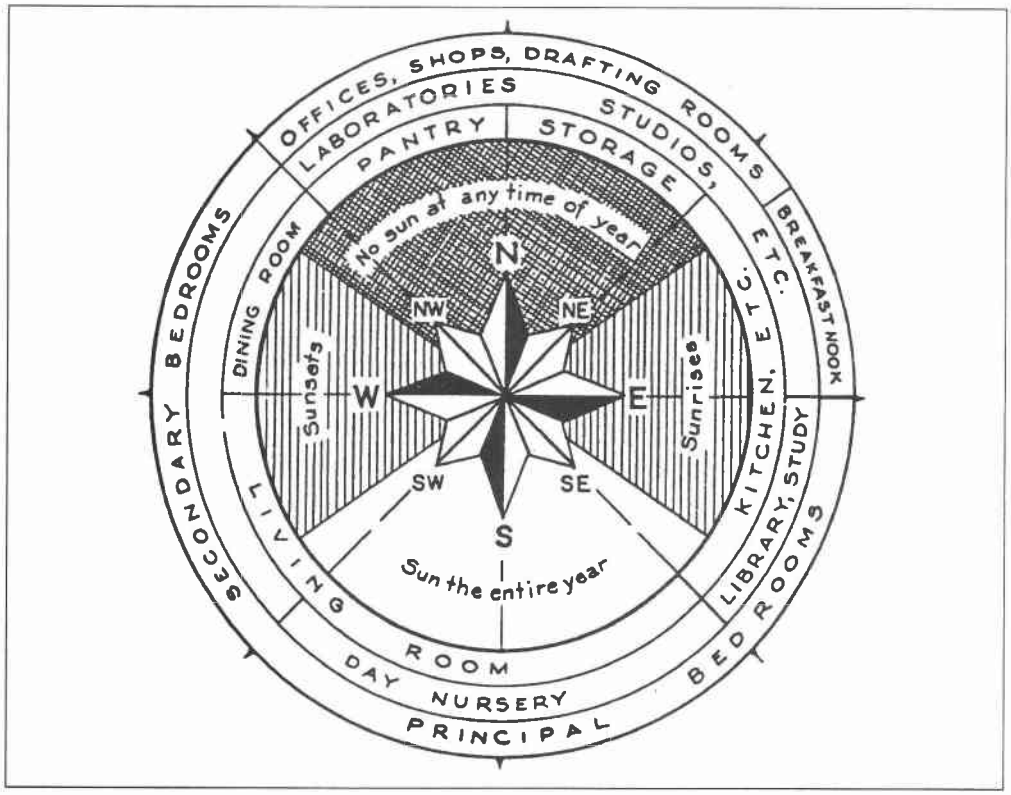


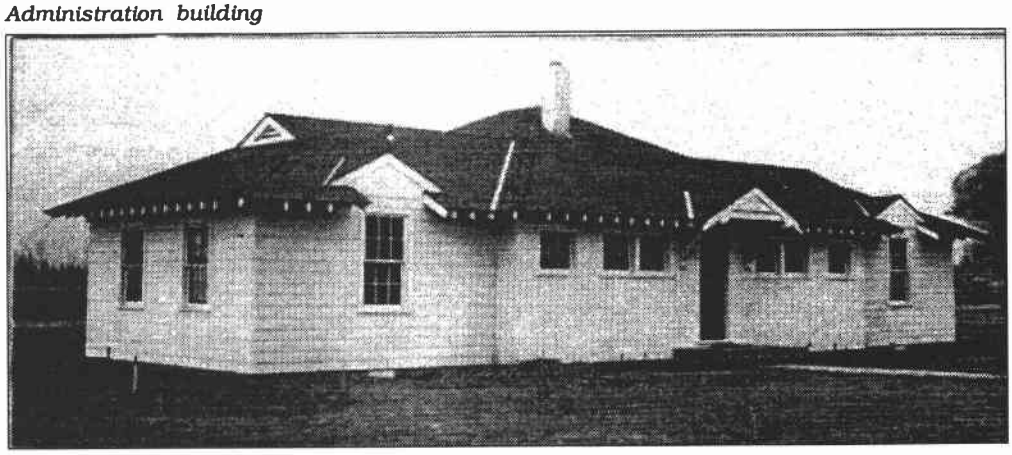
Figure 1–19. *Groben's diagram on building orientation*

> structures and that the various Regions may be assisted constructively by having been assembled and presented in this manner.[10]

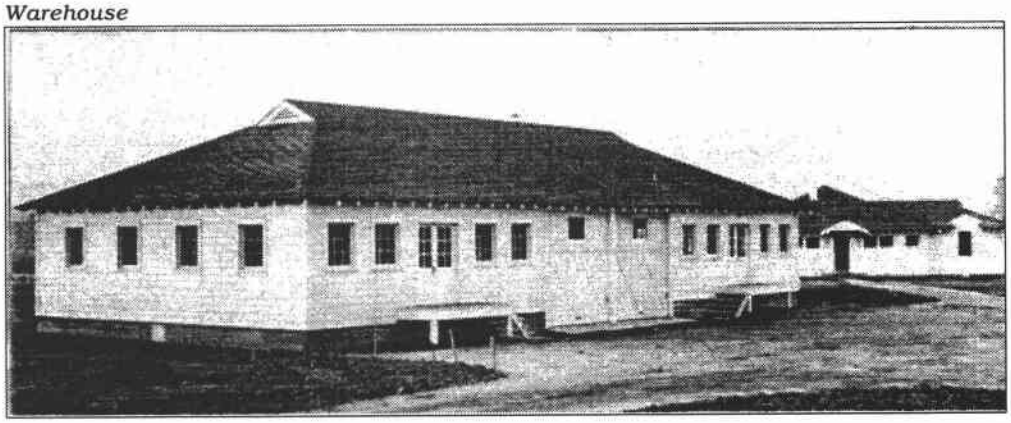
The preface is 23 pages long and includes several drawings, plans, and charts. The rest of the book covers various types of buildings, with floor plans, styles of elevations, and sketches. Groben felt this 'bible' would provide better architecture for the whole agency.

During this era, design was first to be more influenced by Forest Service philosophy than by national or local stylistic trends. In these designs can be read the architects' struggle to reconcile regional and national Forest Service design policies, current architectural trends, and local building traditions. The Regions had the opportunity to use, modify, and create their own building designs. These sometimes conflicted, as in the anomalous Art Deco or Classic Revival designs, but more often resulted in the more successful blending of philosophy, style, and local tradition promoted by the designs illustrated in "Acceptable Plans, Forest Service Administrative Buildings." Mostly devoid of superfluous ornamentation, it was the richness of texture, sense of craftsmanship, and juxtaposition of shapes and materials that made these buildings aesthetically pleasing. These structures reflect both national and local architectural trends and building philosophies of the Forest Service that include utility, respect for nature, and harmony with the environment.

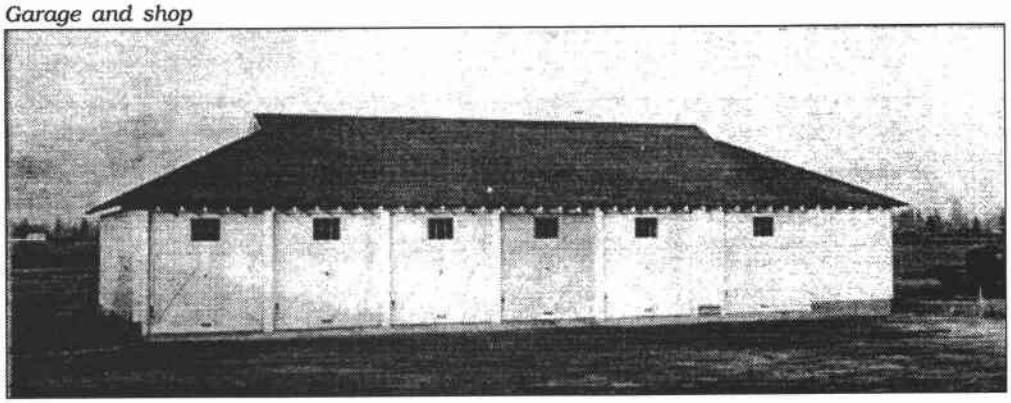
Administration building



Warehouse



Garage and shop



Gas and oil house

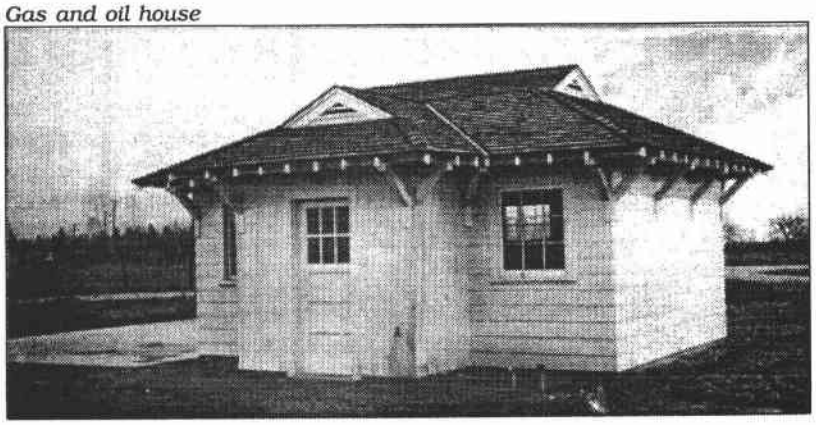
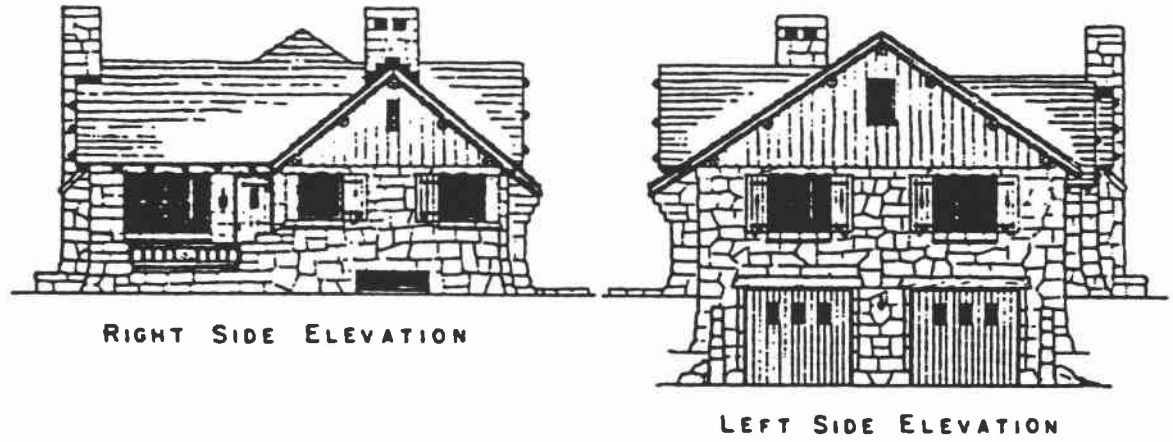


Figure 1-20. *Sandpoint Ranger Station in Region 1 was praised by Groben for its uniformity of style*

Notes

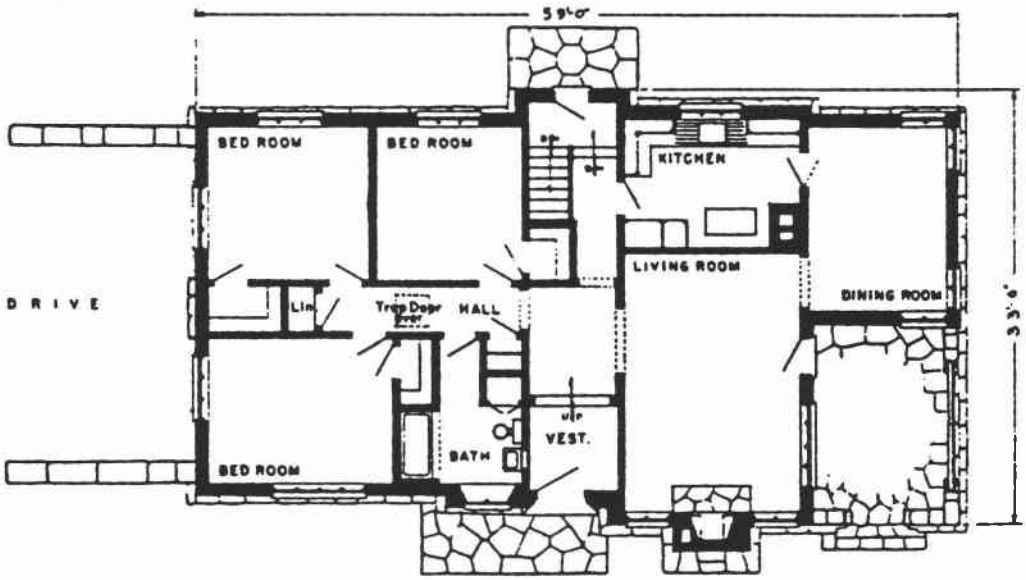
1. USDA Forest Service, *Acceptable Plans, Forest Service Administrative Buildings*, Cover letter accompanying distribution.
2. USDA Forest Service, *Acceptable Plans, Forest Service Administrative Buildings*, Foreword.
3. Ibid.
4. Ibid., p. A-3.
5. Ibid., p. A-4.
6. Ibid., p. A-5.
7. Ibid., p. A-10.
8. Ibid., p. A-15.
9. Ibid., p. A-17.
10. Ibid., p. A-23.



RIGHT SIDE ELEVATION

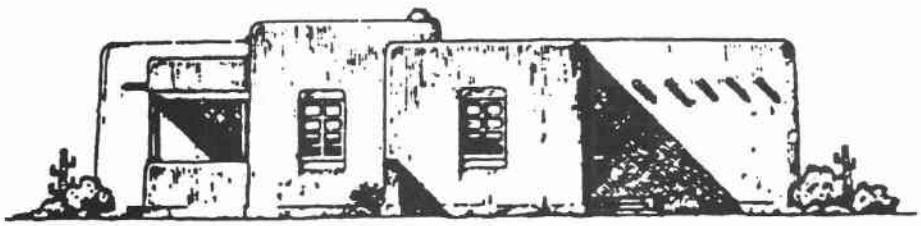
LEFT SIDE ELEVATION

FRONT ELEVATION

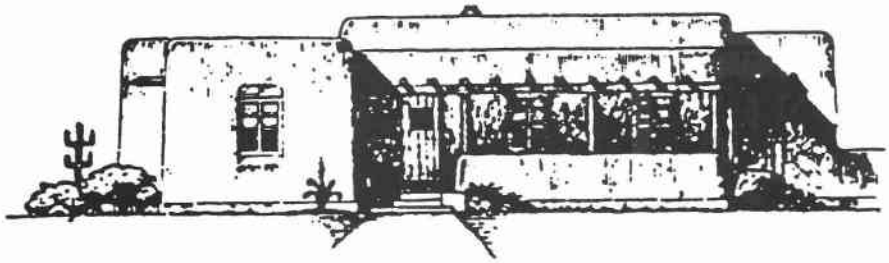


FIRST FLOOR PLAN

Figure 1–21. *Estes Park Ranger Station, Region 2*



SIDE ELEVATION



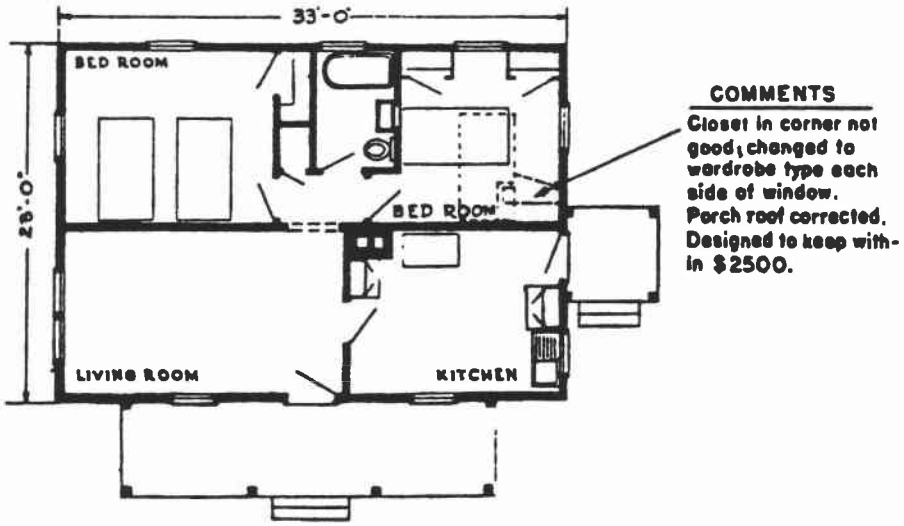
FRONT ELEVATION

FLOOR PLAN

Figure 1-22. *Residence, Huerfano Ranger Station, San Isabel National Forest, Region 2*

END ELEVATION

FRONT ELEVATION



FIRST FLOOR PLAN

Figure 1-23. *Four-room house, Sublimity Forest Community, Region 7*

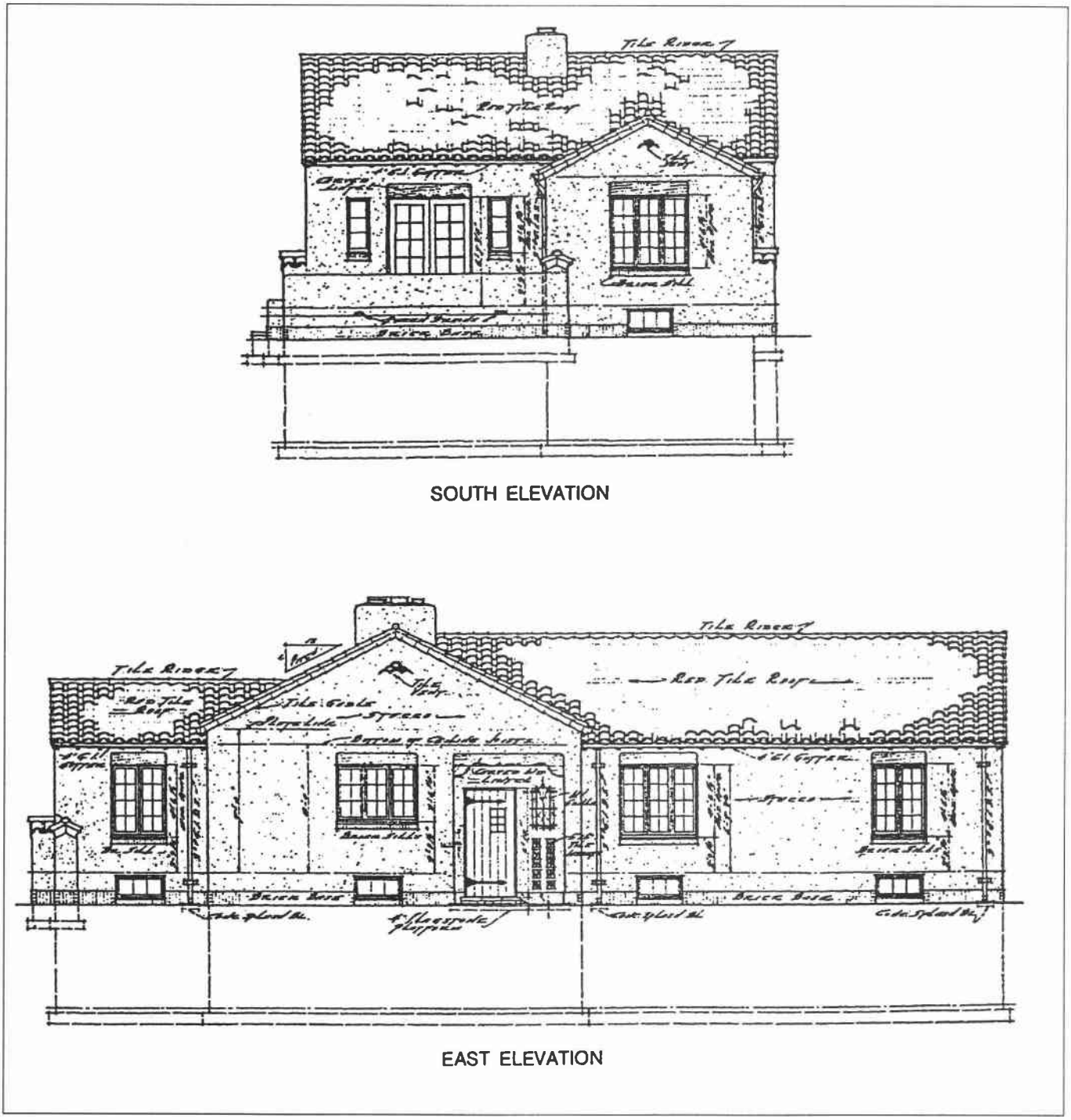
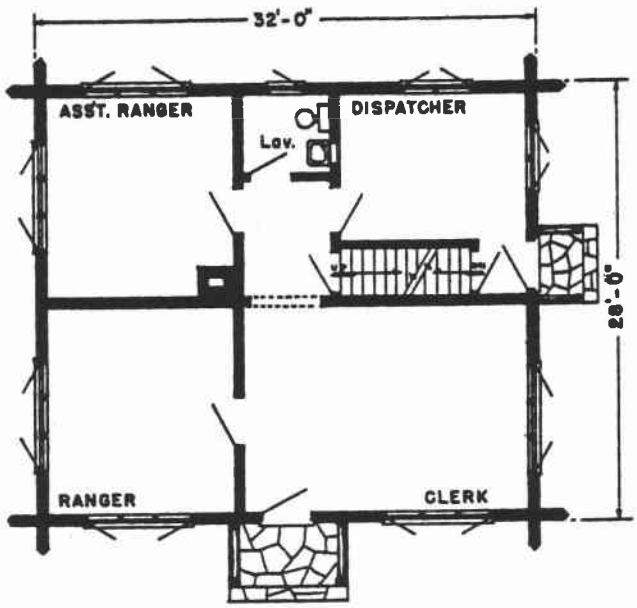


Figure 1–24. *Building elevation, dwelling no. 1, Pagosa Springs Ranger Station*

SIDE ELEVATION

FRONT ELEVATION



FLOOR PLAN

Figure 1-25. *Log Ranger Station Office, Region 9*

1934–1946: Civilian Conservation Corps to the End of World War II

Before the creation of the Civilian Conservation Corps (CCC) by President Franklin Roosevelt in 1933, the Forest Service operated with limited Government support and financial resources to oversee its vast and untamed domain, then found itself on the verge of unprecedented expansion. The newly elected President put men to work doing environmental conservation on public lands; the Forest Service, which managed a major portion of these lands, presented a perfect vehicle for implementing the goals of the New Deal. Some 250,000 men were put on the Federal payroll, working for the common good.

Secretary of Agriculture Henry A. Wallace graphically and succinctly described the state of the Nation's natural resources:

> Thoughtlessly we have destroyed or wounded a considerable part of our common wealth in this country. We have ripped open and to some extent devitalized more than half of all the land in the United States. We have slashed down forests and loosed floods upon ourselves. We have torn up grasslands and left the earth to blow away. We have built great reservoirs and power plants and let them be crippled with silt and debris, long before they have been paid for.[1]

What began as an ambitious project soon mushroomed into one of unprecedented scale, as the number of men enrolled in the CCC doubled its size within its first 2 years. More than 3 million men had signed on by 1942; almost half of the total output was administered by the Forest Service, much of it going into construction.

Because the national forests were not parks, they were intended to serve highly utilitarian purposes and not be exclusively recreational. It was necessary to provide buildings adequate to accommodate and house the personnel and equipment required to conduct properly the varied phases of Forest Service work. In accordance with the decentralized organization of the Forest Service, each component became responsible for specific elements of planning and implementation. Ellis Groben had just started in the Washington Office when building designs were needed quickly for the CCC projects (see the previous section in this chapter for more information on Groben's design concepts).

In the Region 1 office, Clyde Fickes was placed in charge of recruiting a staff of architects, landscape architects, and mechanical draftsmen to supervise the improvement program. William Fox, a Butte native and recent graduate of the University of Washington's School of Architecture, was hired as the first architect. During his interview with Fickes for the position, Fickes told Fox he wanted an architectural staff to design all the buildings required by the Forest Service. Fox was skeptical, thinking the job would entail more

structural engineering than architecture. Fox eventually headed a staff of six or seven architectural draftsmen.

Fox designed the buildings for the Fenn Ranger Station with the "Georgian" appearance (figure 1–26). This complex is located in rural Idaho and administered by the Nezperce National Forest. All of the buildings are wood frame and exhibit combinations of structural and decorative details that give them a "Georgian" look. These include the use of hip roofs and dormers and the decorative door surrounds at the front entries. A rustic appearance is achieved through the use of natural stone facing on the bottom one-third of the buildings and/or the use of wide board siding.

Region 2 hired its first professional architect, S.A. Axtens, in 1936. Although he stayed only 1 year, he was involved in the design of several stations, including the Delores Ranger Station on the San Juan National Forest (figure 1–27). He attempted to follow Groben's statement: "Practical and workable plans lend themselves readily to good elevation design."

After Axtens left, W. Earle Jackson supervised a staff of 11 architects who produced detailed plans for nearly every building constructed in the Region during this era. Designs included a variety of dwellings, office buildings, garages, and barns, as well as various associated buildings. Supervisor dwellings were constructed near the headquarters in at least 12 of the 14 forests. The Region 2 style was more rustic than any other; it included uncoursed local stone or brick, walls of peeled or shaved logs or wide clapboard siding, and moderately pitched roofs with wood shingles or shakes (figure 1–28). Pueblo-style buildings were built only in the southern half of Colorado where that style was commonly seen.

Region 2 had ambitious long-range plans for construction of administrative facilities, and this was the first time it had the means to pursue them.[2] Fifty-six CCC camps were in operation in the Region by August 1933.

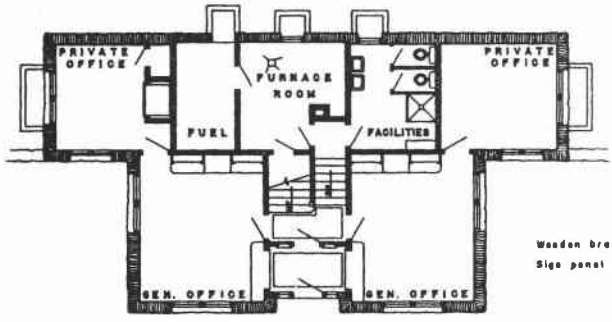
The designers responded to climatic conditions, especially the deep snows found at higher elevations, by raising the foundations of rustic-style buildings several feet above grade. Simple gable roof forms, strongly reinforced, were meant to cleanly shed heavy snow, which fell away from the building because of the deep overhangs. Many porches had large areas adjacent to and protective roofs over the entries.[3]

The use of wood as a construction material was perhaps the ultimate expression of Forest Service values, and designers took every opportunity to use it. Wood was cheap, readily available, and reflected the pioneer architectural traditions of Rocky Mountain architecture. Rustic style was especially appropriate for the mountains, where wood shakes, native stone, and logs were available.

The rustic tradition made use of modern technologies and covered them with materials that appeared handcrafted and traditional. Rustic design utilized stone veneer over unreinforced poured concrete foundations; milled log cabin siding imitated the appearance of real logs.

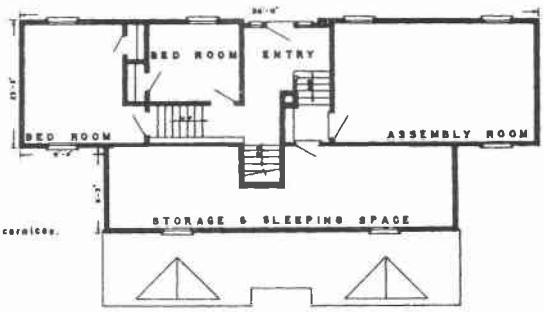
FRONT ELEVATION

SIDE ELEVATION



FIRST FLOOR PLAN

Comments
Wooden brackets removed from cornices.
Sign panel revised.



SECOND FLOOR PLAN

ADMINISTRATION BUILDING
FENN RANGER STATION
HELENA NATIONAL FOREST
REGION 1

Figure 1-26. *Fenn Ranger Station, Nezperce National Forest, Region 1*

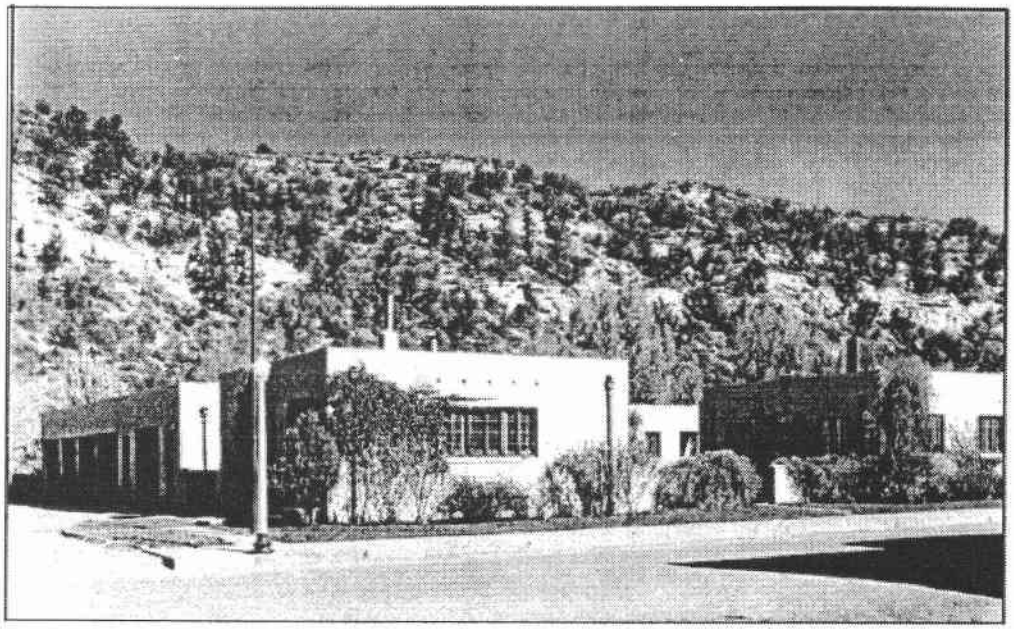


Figure 1–27. *Delores Ranger Station, San Juan National Forest, Region 2 (1933–1938)*

Figure 1–28. *Land's End Shelterhouse, Grand Mesa National Forest, Region 2 (1937)*

Region 2's rustic architecture was highly reflective of the Forest Service philosophies of harmony, utility, and the use of natural materials. Forest Service personnel took great pride in their buildings. Extensive construction records document the extraordinary care taken by rangers in making sure their buildings were as well built as possible. This rustic architecture used a strong horizontal emphasis, complimentary colors, extensive use of wood and stone, and lower overall massing to harmonize with the Rocky Mountain environment. It characterized vernacular building techniques and construction in its axe-cut log crowns and rafters, saddle notching,

and unfinished stone while simultaneously utilizing the latest construction technology available. Interiors utilized wood or wood byproducts to every extent possible.[4]

In Region 3, 15 CCC camps were opened. Numerous facilities were constructed on national forest land. Administrative facilities included staff and crew residences, offices, storage buildings and barns, garages, warehouses, and fire lookout towers. A distinctive architectural style identified these new facilities with the Forest Service.

A bungalow type with low pitched gable roofs sheathed with asphalt shingles also became common (figure 1–29). Rafter ends were exposed under wide eaves. Exterior chimneys were prominent. This style was popular for Arizona national forests. A Spanish type with flat roofs with parapeted walls also emerged. Offices and dwellings had narrow, tile-covered shed roofs above entryways and porches. Only a few buildings were built with this style.

In New Mexico, buildings were designed using a pueblo style. Also having flat roofs with parapeted walls, the parapets were stepped in a line using a regular pattern. Standard plans used vigas projecting in front and rear. Wood lintels were installed over windows and entrees but not exposed. Construction materials were limited to adobe with stucco veneer.

Region 4 hired its first architect in 1928. George Nichols remained with the Region until 1956. His first significant project was the development and design of a Regional Headquarters, which was funded by Congress in 1931 as part of a Deficiency Bill (a precursor to the CCC program). This project is described in the section on Administrative Buildings.

Figure 1–29. *Crown King Ranger Station Office, Prescott National Forest, Region 3 (1936)*

One focus of construction by the CCC was recreation facilities; these included toilets, bathhouses, campground tables, stoves, and shelters.

Regional Forester S.B. Show authorized the hiring of a private firm of professional architects, Norman Blanchard and Edward J. Maher, to form the Region 5 architectural unit. These were the first professional architects in the Region, and they produced all the buildings constructed until 1938.

In the *California Ranger* dated June 16, 1933, Chief of Lands L.A. Barrett said that the new architects would bring a renaissance in Forest Service ranger station architecture:

> The firm has been engaged for the purpose to create an 'All-American' style. Old World influences are barred and Uncle Sam's new ranger stations will represent only the best of the U.S.A. Not only will the lines of our ranger stations be revamped, but the color scheme will be improved. The green roof will be retained, but the French-battleship gray paint ... will be changed to a brown stain to blend appropriately with the colors of the forest.

Blanchard and Maher described what their architectural style was to be: a "Mother Lode" style influenced by William Wurster's vernacular building designs, later known as "California Ranch House style."

In 1935, the $2,500 building limitation was in effect. However, no contributed labor was allowed except for the CCC crews, which were used primarily for rough labor such as constructing basements, rough framing, roofing, and building rock walls. Blanchard and Maher noted that:

> In order to keep all buildings, large and small, within such a comparative unit cost, methods rather unusual at the time were necessary to effect such economy.[5]

The team developed similar designs for 13 separate categories of buildings: dwellings, lookouts, fire barracks, offices, garages, warehouses, and barns. The first year it was estimated that 450 structures were constructed at elevations from sea level to over 8,000 feet. To overcome the problems of climate variability, a standard structural design was used throughout all buildings, with specific design requirements for severe snow and extreme heat and cold.[6]

Where other areas of the United States were experimenting with prefabrication, Blanchard and Maher decided that this system had little to offer on the West Coast. Rather than prefabrication, they adopted a "ready cut" design. The ready-cut system of building was adapted to home and commercial building construction shortly after 1900. This was similar to the automobile industry's system for mass production. During the 1920's, the growing home market had created a demand for inexpensive housing, in particular for suburban tract housing. The depression of the 1930's only increased the demand for affordable housing and designs such as the ready-cut house.

The ready-cut system used pre-cut lumber rather than preassembled components. It allowed for field innovation and reduced the shipping vol-

ume. Builders in California preferred the system to prefab and felt it provided a better more aesthetic finished building.

Wood was the preferred material in California, and administrative buildings were finished with wood both inside and out. The architects explained:

> The outside finish was clear, all heart redwood or western cedar. This was installed over building paper and shiplapped diagonal sheathing. On the inside, clear Douglas-fir or ponderosa pine was used to panel the interior.[7]

Region 5's mass ordering and ready-cut materials distribution benefited both the lumber industry and local communities. The majority of the buildings begun in 1933 were completed before winter with the help of the CCC crews. The Regional Engineer wrote:

> Reports are all in and tabulated on the status of our ready-cut building and warehouse program as of November 15. By unanimous agreement of reviewing officers, first prize goes to the San Bernardino, with the Stanislaus, Lassen, Mono Modoc and Santa Barbara receiving honorable mention. [*California Ranger*, December 1933]

Between 1933 and 1936, some 1,200 buildings were constructed in California. In addition to supervisor's headquarters, ranger and guard stations, and experimental station facilities, fire lookouts were erected in large numbers—45 in one contract.[8]

Blanchard and Maher's work for the Forest Service reflects several of the major themes that ran through American architecture of the 1930's. Their use of the ready-cut construction system was one of many experiments with unconventional building techniques, which can be seen as an effort on the part of the architectural community to contribute to solving the Nation's pressing economic problems. Use of what they called the Mother Lode style of building was part of a larger effort on the part of American architects to develop architectural styles that were seen as being appropriate to regional historic and environmental conditions. Even in their use of the Colonial Revival mode, they were responding to the national vogue for that type of design, which in the mid-1930's was the most popular architectural image in the country for domestic design.[9]

In Region 6, once the forests provided pertinent data regarding site orientation and topography, the Regional Office architect, Tim Turner, was able to design individual buildings that were appropriate, attractive, and practical. Design of elevations was to some extent limited by the use of a restricted number of materials native to the area for exterior construction. Climatic conditions, environment, and economy also imposed certain limitations. The sizes, shapes, and finished surfaces of the various forms of wood used in the exterior walls of frame buildings were the attributes that largely determined their design. Only mass, line, proportion, window and door design, and color remained unrestricted.

The administrative structures of Region 6 are not highly stylized log and stone buildings reminiscent of pioneer technologies, but are still distinctly rustic (figure 1–30). More refined, they are at the same time decorative and

functional. The gable roofs, with pitch appropriate to climatic conditions, were the primary design, with variations such as hipped gables or gabled hips common. Porches, hoods, and dormers repeated the roof shape and trim. Roof materials were wood shingles or split shakes.

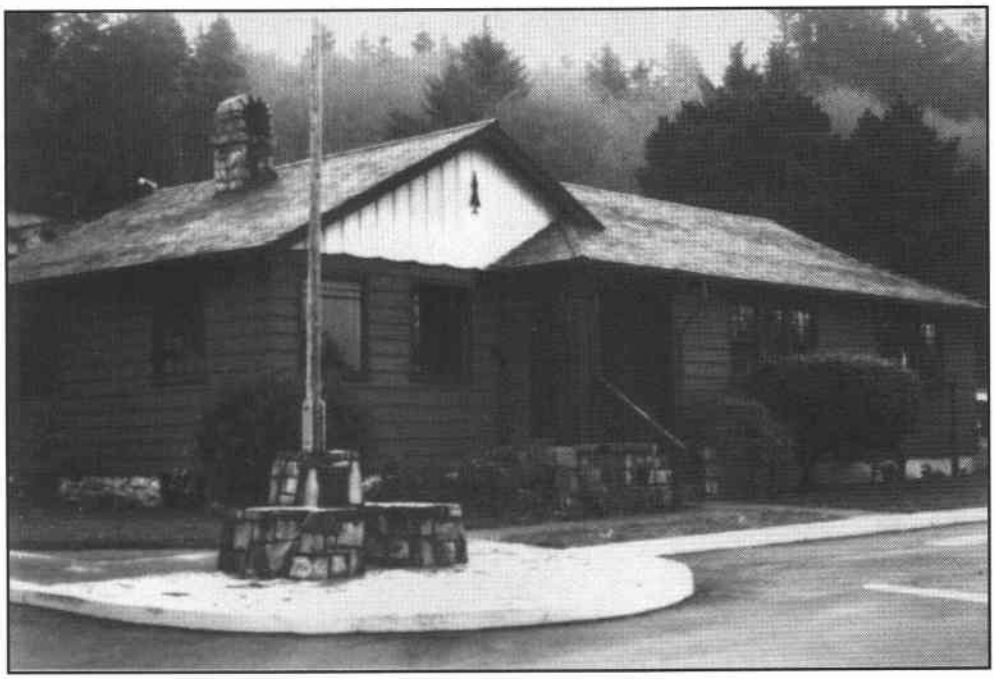


PHOTO BY LES JOSLIN

Figure 1-30. *Gold Beach Ranger Station Office (top) and residence, Siskiyou National Forest, Region 6 (1936)*

Recreation structures were also constructed in Region 6. The Recreation Handbook, as revised in May of 1933, stated:

> The Forest Camp should not take on the appearance of a museum or arboretum. Odd and contorted trees may be left, but we find that the average tourist wishes to see straight, healthy and vigorously growing trees and shrubs.

Rustic recreational architecture in the campgrounds developed by the CCC represented entirely new construction in most cases. For the children, some campgrounds afforded playground facilities designed by the Regional Office architects.

Region 8 hired DeFord Smith as Regional Architect in 1934. Smith was a graduate of the University of Pennsylvania in architecture. He was very busy during the CCC era, producing 14 designs in 1934, 43 in 1935, 68 in 1936, 69 in 1937, 75 in 1938, and 64 in 1939. These designs consisted of picnic shelters, toilets, residences, offices, bunkhouses, lodges, and fire towers (see figures 1–37 and 1–38 on pages 46 and 47). He considered his most notable projects as Mt. Magazine Lodge (1939), Wayah Bald Observation Tower (1938) (see figure 2–74 on page 103), and various bridge designs for Puerto Rico.

Also in Region 8, the CCC razed "undesirable structures" such as cabins and outbuildings left by former owners or occupants to prevent their use by squatters. In later years, only a few foundation stones and bases for chimneys remained to mark the site of these former mountain homes.

Among the notable structural achievements in Region 9 was the building of the Chippewa National Forest Headquarters in 1935 (figure 1–31). CCC and WPA craftsmen constructed a Finnish-style notch-and-groove log building. This is considered the largest log building of its kind; it was made of native

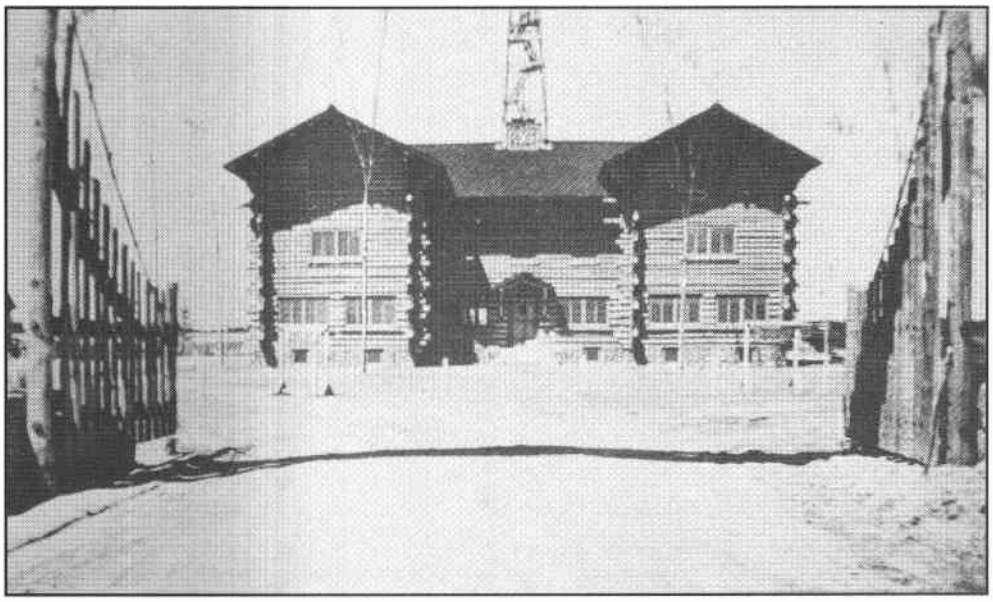


Figure 1–31. *Headquarters Building, Chippewa National Forest, Region 9*

red pine and finished with other local materials. The 50-foot stone fireplace was constructed with glacial boulders collected from the nearby area. This structure is listed on the National Register of Historic Places.

In Region 10, a significant Depression-era project was the Petersburg Ranger Station compound. When first requested in 1935, there was little hope of getting a Federal building for this small town in southeast Alaska. District Ranger J.M. Wyckoff aggressively pursued the project with other officials who needed office space. In the submittal to Congress, the Regional Forester noted, "It would be to our advantage to have a building which would also house the Customs Service Office, as it could during the Ranger's absence give the public information it might require ..." Emergency Relief Act funds purchased a 50- x 100-foot corner lot for $650. A Colonial Revival style two-story, split-foyer office building and adjoining garage were designed and constructed by locally hired CCC members. Each floor of the wood-framed building was 24 x 28 feet. A semicircular wooden arch marked the entrance of the otherwise plain, square structure.[10]

A common element in most of the buildings constructed by the CCC is the "pine tree" logo of the Forest Service and the Civilian Conservation Corps. Nationwide, the pine tree is found in many shapes, sizes, and forms on the buildings of that period. A good example is on the Gallop Ranger Station on the Mt. Baker-Snoqualmie National Forest in Region 6 (figure 1–32). Because the pine tree symbol appears on structures in all Regions of the Forest Service, it seems certain that a directive suggesting its inclusion in design was issued from the Washington Office. The phenomenon is too widespread to be a regional innovation, and it is limited to Forest Service structures. Pine trees were cut from single boards or formed by silhouettes joined by two boards; sometimes they were cut from one board and applied to another (figure 1–33).

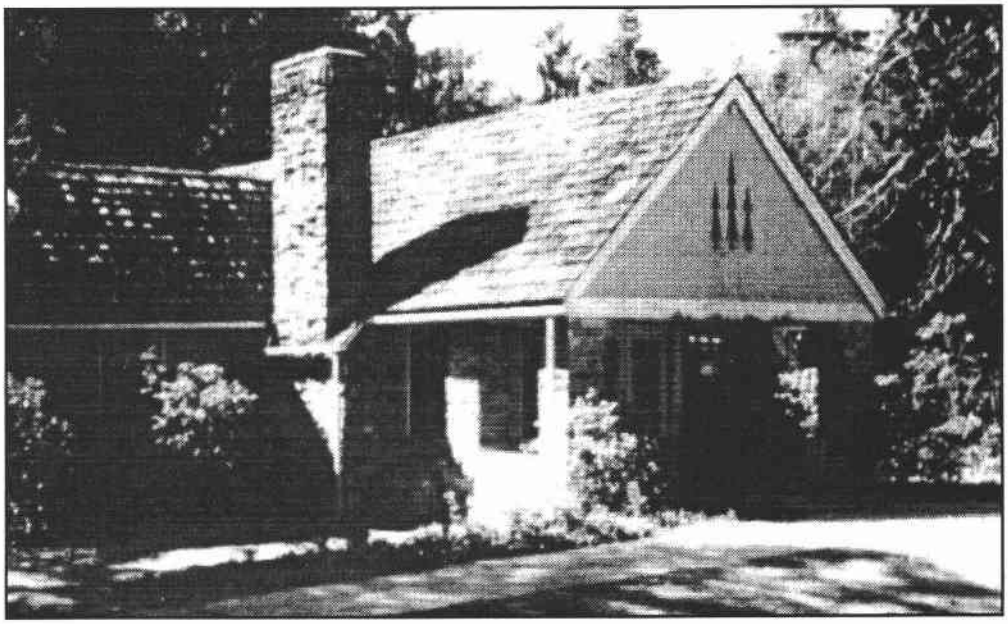


Figure 1–32. *Residence, Gallop Ranger Station, Mt. Baker-Snoqualmie National Forest, Region 6 (1936)*

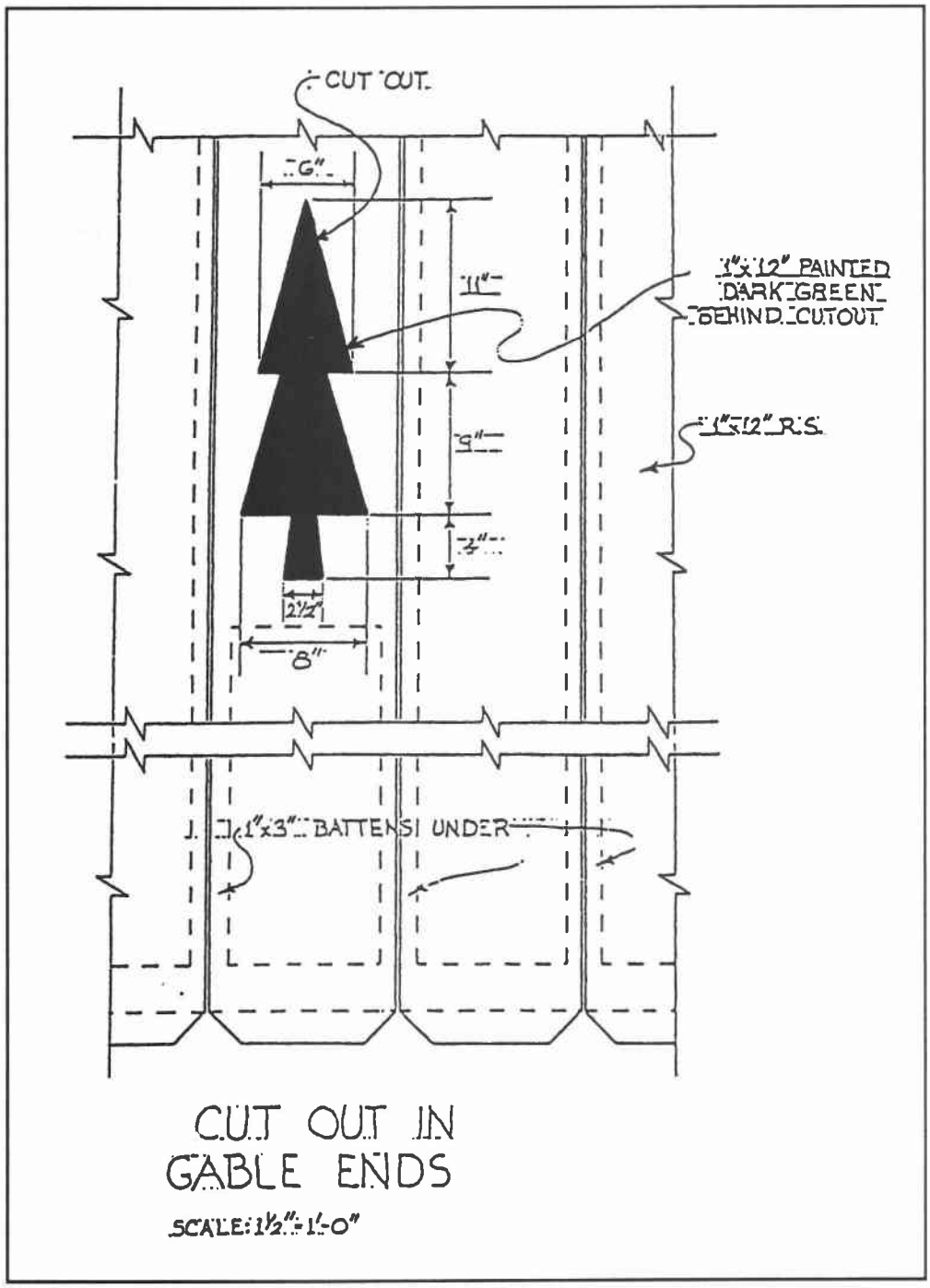


Figure 1–33. *The distinctive pine tree logo was a common element in most of the buildings constructed by the Civilian Conservation Corps*

As end products of an important Federal response to the Depression, CCC constructions are associated with events that are significant in the Nation's history. Because they embody the distinctive characteristics of a period and type of construction, the rustic buildings on national forest lands are significant in American architecture; many exhibit excellence of design and possess high artistic values. Figures 1–35 through 1–41 show additional examples of the buildings built during this era.

In 1940, Ellis Groben, in *Architectural Trends of Future Forest Service Buildings*, attacked what he felt was "the inappropriate practice of designing buildings which did not work well in [floor] plan, but were accepted and even praised because their exteriors blended well with the environment." Though not abandoning his stance on the appropriateness of regionally responsive design, Groben called for more creativity in formulating, where appropriate, a style uniquely representative of the Forest Service.

When the declaration of war was issued in late 1941, the CCC crews were quickly inducted into the armed services. The program soon became history as the need for a make-work program diminished and the full focus of the Nation was put toward defeating the Germans and Japanese.

Shortly after the United States entered the war, it became apparent that much more natural rubber would be needed than might be available. Because of the demonstrated ability of the Forest Service to organize and handle emergency procedures, the Forest Service was selected to handle the guayule rubber project in the Southwest. Guayule, resembling sagebrush, was a natural shrub in this area, containing up to 20 percent natural rubber.[11]

A major part of this project was the design and construction of labor camps, and a large number of nurseries were set up to grow the guayule plants from seed to seedlings. Jim Byrne, then Regional Engineer in California, was named chief engineer for the project. He called together architects from Regions 1, 5, 6, and 9. Clyde Fickes from Region 1 was in charge with Harry Coughlan, also from Region 1, Keplar Johnson from Region 5, Gif Gifford from Region 6, and Nels Orne from Region 9 along with many support people who produced the plans and supervised the construction. Until the end of the war, when the project was disbanded, much of the focus of the Forest Service architects was designing and constructing the infrastructure for growing guayule plants. At the end of the war, two rubber extraction plants were operating, and plans were on the table for four more extraction plants. Approximately 6 million pounds of rubber were dispatched to rubber processing plants by the war's end.

At the end of the war, all of the architects named above returned to their previous positions as architects in the Regions. All but Harry Coughlan were Regional Architects. Harry became Regional Architect in Region 1 shortly after the end of the war.

Notes

1. Throop, *Utterly Visionary and Chimerical: A Federal Response to the Depression—An Examination of Civilian Conservation Corps Construction on National Forest System Lands in the Pacific Northwest*, p. 7.
2. Schneck and Hartley, *Administrating the National Forests of Colorado*, p. 60.
3. Ibid., p. 72.
4. Ibid., p. 88.
5. Supernowicz, p. 15.
6. Ibid.
7. Ibid.

8. Ibid.
9. Ibid., p. 18.
10. Joslin, pp. 229-230.
11. USDA Forest Service, *The History of Engineering in the Forest Service*, p. 6.

Forest Service Buildings of the CCC Era

Figure 1–34. *Warren Guard Station, Payette National Forest, Region 4 (1934)*

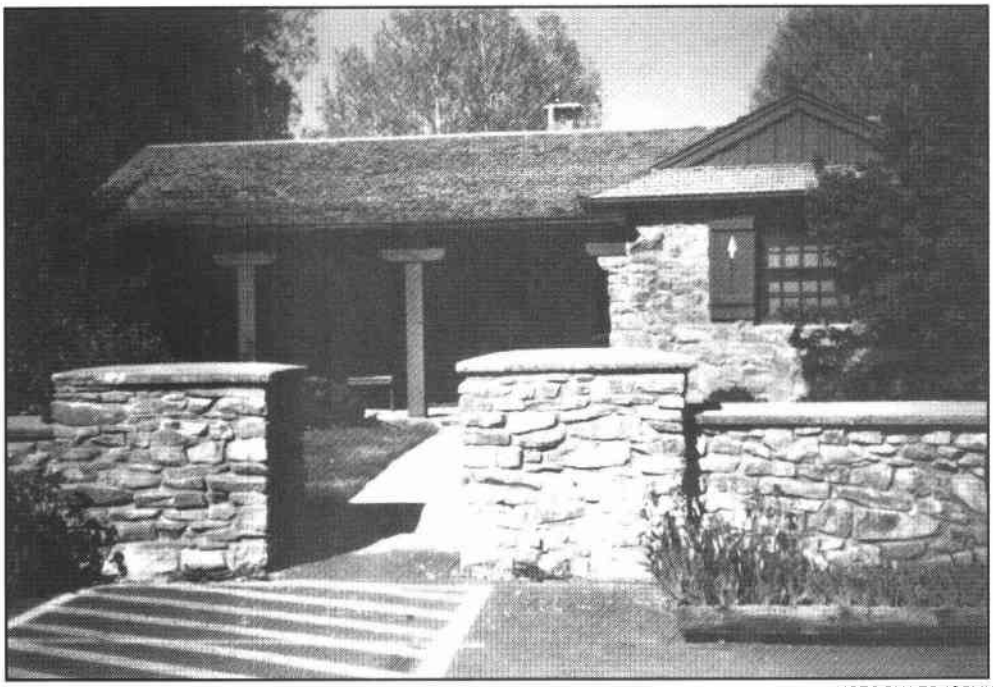


PHOTO BY LES JOSLIN

Figure 1–35. *Bly Ranger Station Office, Fremont National Forest, Region 6 (1936)*

Figure 1–36. *Crown King Ranger Station barn and shop, Prescott National Forest, Region 3 (1936)*

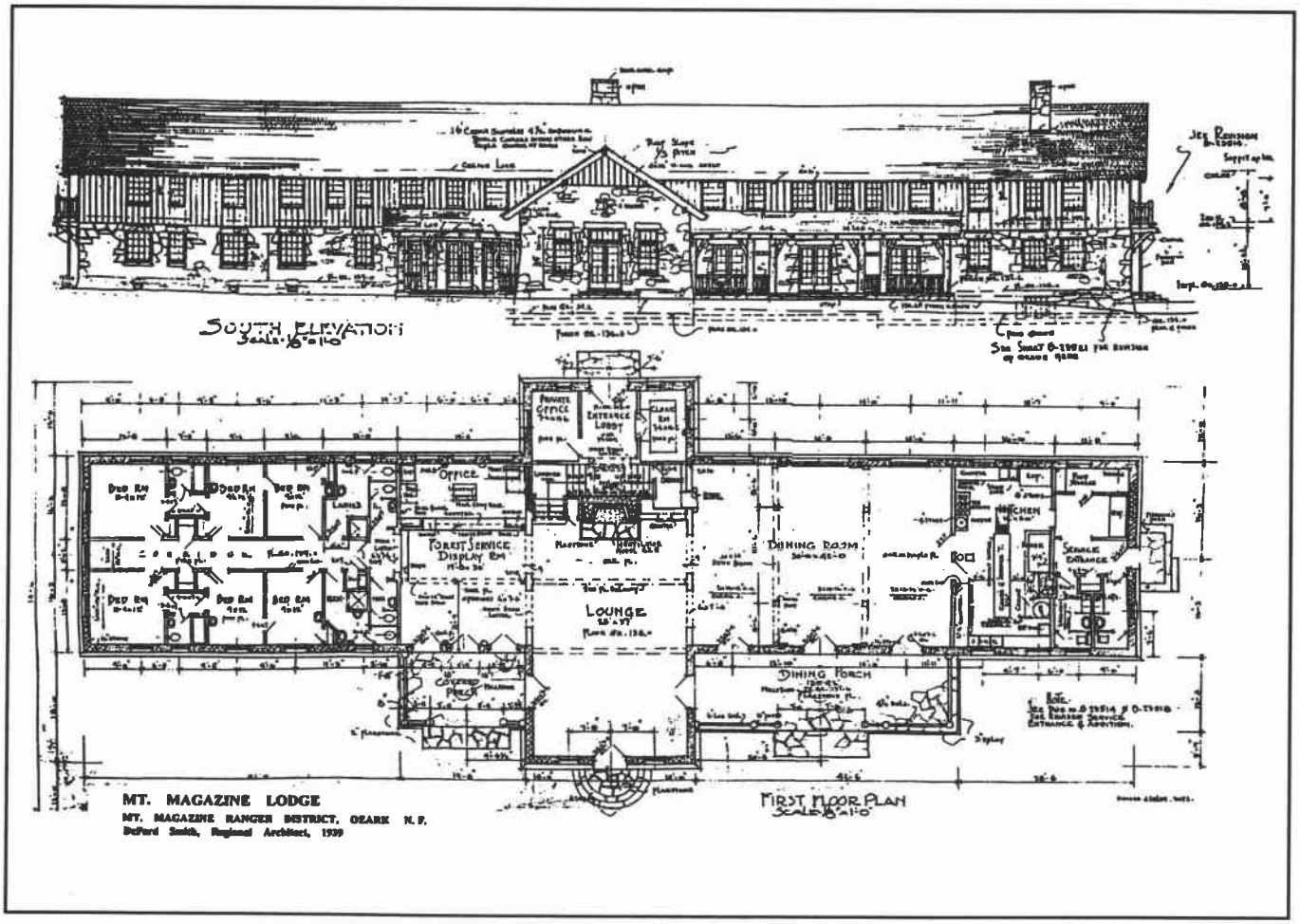
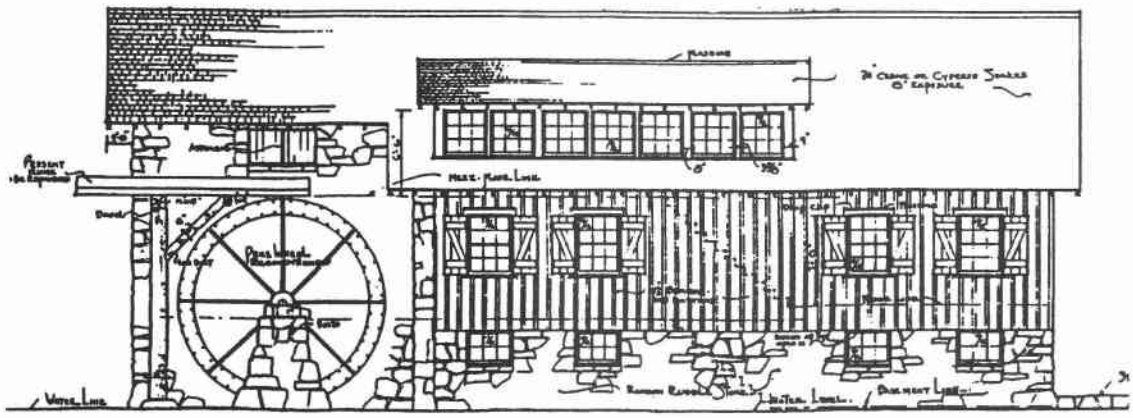


Figure 1–37. *Mt. Magazine Lodge, Ozark National Forest, Region 8 (1939)*



REAR OR CREEK ELEV.
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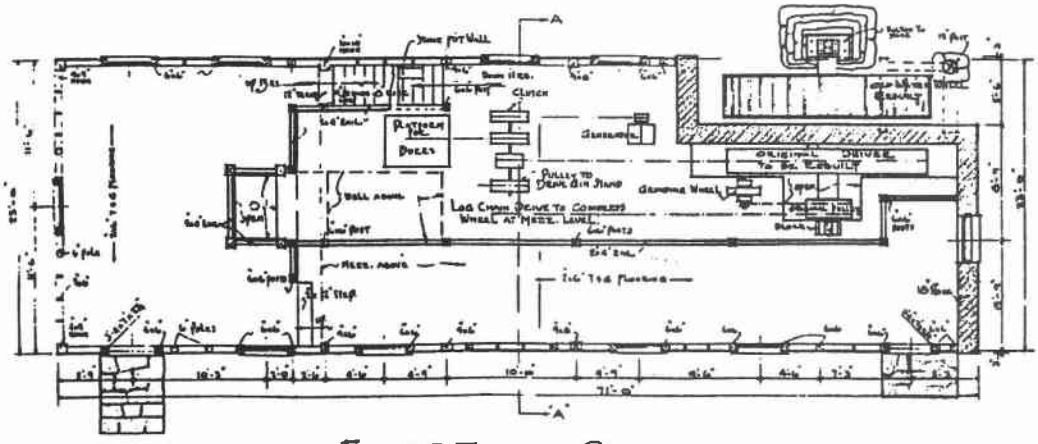

FIRST FLOOR PLAN
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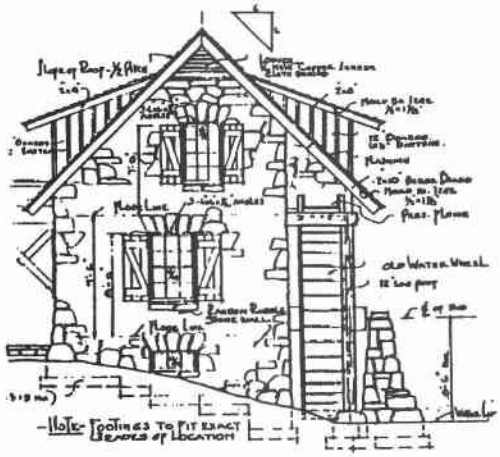


SOUTH SIDE ELEVATION
SCALE 1/4"=1'-0"

Figure 1–38. *Blanchard Springs Mill, Ozark National Forest, Region 8 (1938)*

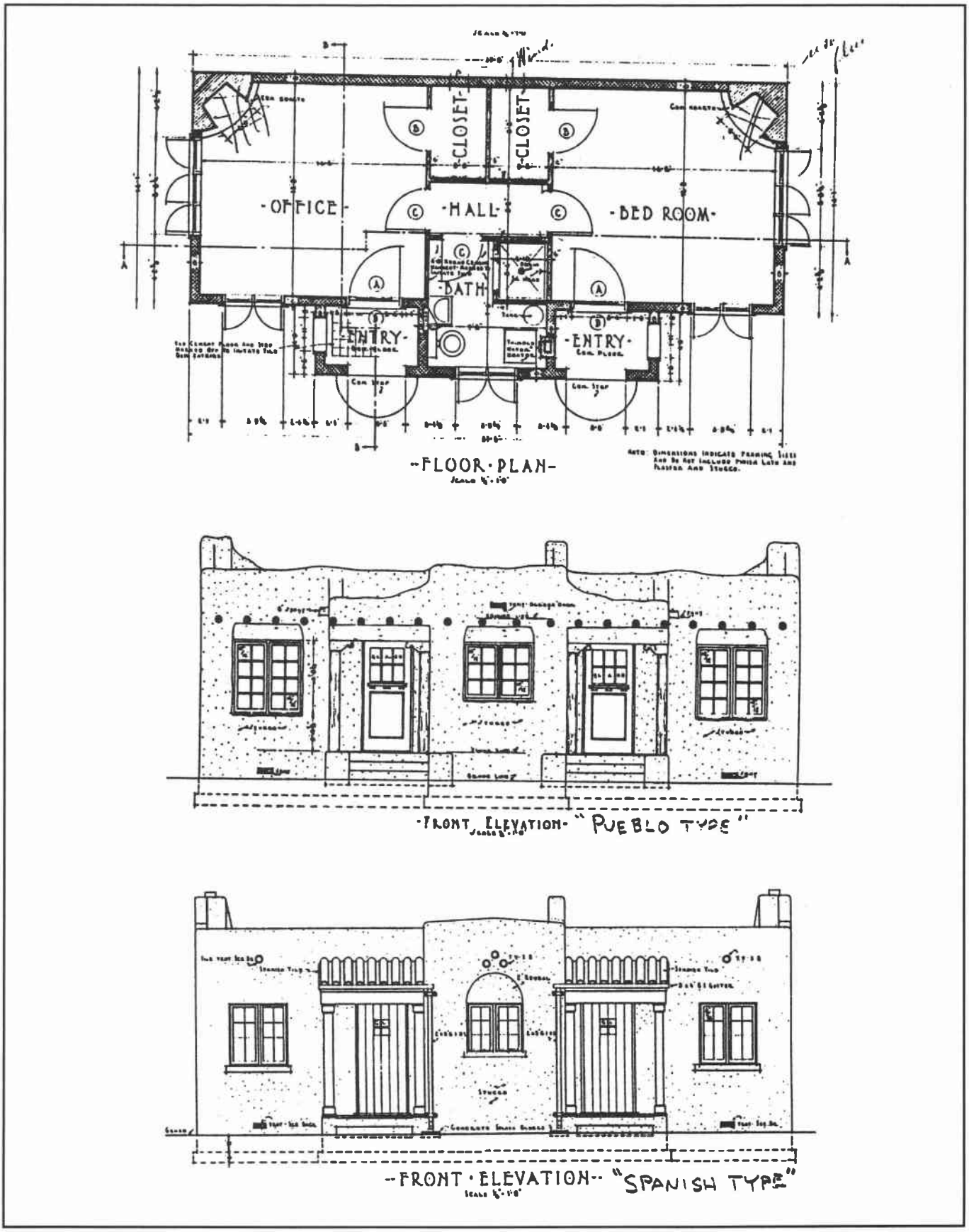


Figure 1–39. *Standard ranger office and quarters, Region 3, designed in the Spanish style*

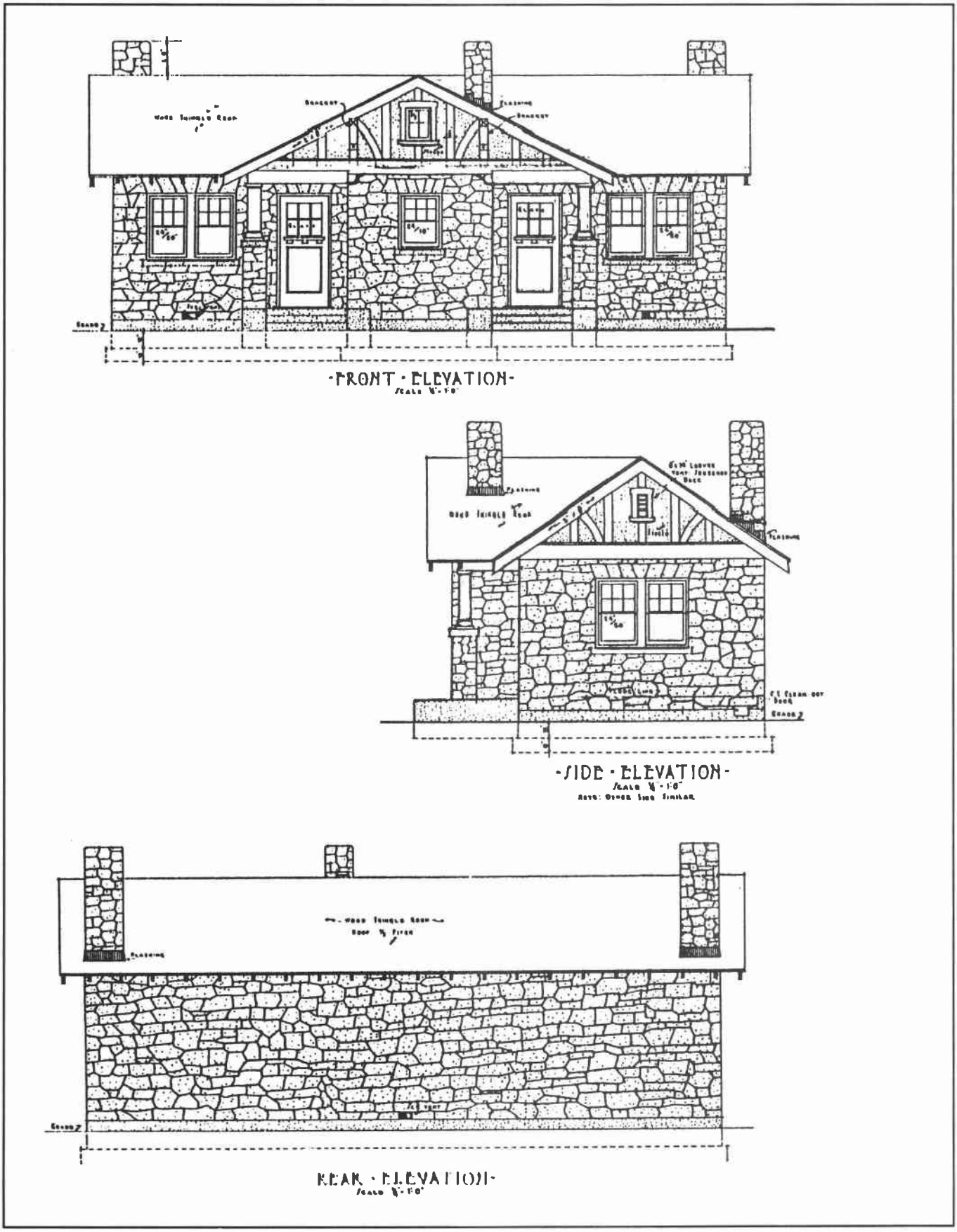


Figure 1–40. *Standard ranger office and quarters, Region 3, designed in the bungalow style*

1946–Present: The Modern Period

After the war, there were many changes in the focus and organization of the Forest Service. One was an increase in recreational use of national forest land, which led to a renewed emphasis on facilities construction, including campgrounds, restrooms, boat ramps, and trails. In 1947, 25 percent of the maintenance and improvement dollars were authorized for recreation improvements. The architects who had been working on the guayule project returned to their regional positions and started hiring new, younger graduate architects.

The era of handcrafted construction ended with the disbandment of the CCC. Attention shifted toward postwar plans for expansion. Projects in progress before 1942 were completed, but construction of new improvements had been halted by the war. Shifts in the use of the forests resulted in changes in administrative methods; some permanent ranger stations became "work centers," a new term coined to replace the outdated "guard station," which had acquired the wrong connotation during the war.

Regional Architects

The following paragraphs provide a brief outline of individuals who served as Regional Architects during this period. See Chapter 3, People, for more detailed information on the design styles of contributing architects.

At the start of 1946, Regions 2, 3, 7, and 8 did not have Regional Architects. This void remained in some Regions until the end of the 1950's or later.

In Region 1, Clyde Fickes left the Forest Service before the end of the war, and Harry Coughlan took over the position of Regional Architect. Most of the work just after the war was custodial, bringing the many buildings and stations that had been neglected back to standard and correcting safety hazards. The need for additional staff did not occur until the early 1950's, when Congress enacted legislation to provide improved and additional recreational facilities. Art Anderson was the first professional hired in Region 1 after the war, and he took over as Regional Architect when Coughlan retired in 1965. In 1972, Bob LeCain became Regional Architect and Anderson took over as administrative and planning leader. When LeCain retired in 1985, Dave Dodson took over the position and remained until 1990. Josiah Kim was the Regional Architect from 1990 to 1997.

In Region 2, W. Earle Jackson departed sometime in 1942 and the Regional Architect's position was not filled until Wes Wilkison was hired in 1958. When Wilkison retired in 1981, Dave Faulk became Regional Architect.

Region 3 did not have a Regional Architect of record until George Kirkham was hired in the mid 1960's. George Nichols did building designs for the Region from Ogden during the CCC era. After Kirkham left, Lou Archambault took over the position. Soon after, Hal Miller transferred from Portland to become Regional Architect. In the early 1990's, Kurt Kretvix became Regional Architect.

George Nichols in Region 4 was not part of the guayule project. There are no records during the war years to indicate whether he went into the military or just continued working for the Forest Service. In 1946, he was listed as the Regional Architect. William Turner was hired in 1958 to assist in the design work and took over as Regional Architect when Nichols retired. When Turner retired, Wilden Moffett took over the post of Regional Architect.

Keplar Johnson returned to his position as Regional Architect in Region 5 after the guayule project. Like most American architects, he was increasingly influenced by the modern movement in architecture after World War II. In several of his postwar buildings, Johnson continued the design themes that had marked the Region's building program of the 1930's. But even in these structures, Johnson was influenced by the ideas of the modern movement. Johnson revised many of Blanchard and Maher's plans and designed a number of new plans for specific sites within the Region.

After Johnson's retirement in 1962, Harry Kevich was named Regional Architect. Kevich increased the architectural staff by hiring young architects just out of college. He played a more managerial role and delegated most of the design work to this staff. They developed a more contemporary, modern style building for the California Region. Bob Sandusky became Regional Architect upon Kevich's retirement in 1985.

Tim Turner continued as Regional Architect in Region 6 during the war years, and he continued to work until a heart attack caused an untimely death in 1951. A.P. "Benny" DiBenedetto was hired to replace him from the Army Corps of Engineers. When DiBenedetto took over as Research Architect for the Pacific Northwest Station, Ken Reynolds was named Regional Architect. When Reynolds left, Joe Mastrandrea served as Regional Architect. JoAnn Simpson was Mastrandrea's successor.

Region 8 was without a Regional Architect from 1942, when DeFord Smith departed, until 1968, when William Speer was hired. Because there was no lead architect in Atlanta, Speer went to San Francisco to serve an apprenticeship under Harry Kevich and John Grosvenor. Speer spent a year working in Region 5, doing the designs for Region 8, before returning to Region 8 to continue as Regional Architect.

Nels Orne returned from the guayule project in 1945 and continued as Regional Architect in Region 9, where he worked until his appointment to Branch Chief for Facilities in 1965. His successor was Jim Calvery from Region 5. Upon Calvery's retirement, Dave Dercks was named Regional Architect.

Shortly before World War II, Linn Forrest transferred to Juneau to serve as the first Regional Architect for Region 10. His tenure did not last very long, as he and his son opened a private practice in Juneau in 1952. After Forrest left, George Danner, a technician, provided leadership in the design and maintenance of buildings until his retirement. At this time, there is no professional architect in Region 10.

Projects

In 1952, improvement projects nationwide were focused on rehabilitation, relocation, replacement, or reconstruction of older facilities. The Chief's message again emphasized the need for prior approval for construction projects to ascertain whether the project was essential to efficient program operation. In the mid-1950's, funding for construction remained low—only $100,000 was available nationwide. The following years were characterized by continued decentralization, specialization, and increasing workloads for rangers and staff. Forest engineers bore the responsibility of overseeing improvement programs on individual forests.

The early 1960's ushered in another era in Forest Service administration that demanded an architectural response. New "make work," educational, and other social economic programs brought accelerated public works, Job Corps, prison labor camps, Youth Conservation Corps, and other programs to the national forests. These work programs provided educational opportunities, vocational training, and practical skills in construction and other forestry activities for young and unemployed people. Congress allocated enormous funding for these and similar programs, which brought the Forest Service a huge influx of design and construction projects (figure 1–41).

In the 1970's, the emphasis turned to clean water. Water pollution abatement brought the Forest Service many millions of dollars to provide modern campgrounds and sewer systems to serve recreational and administrative sites. Since the early 1960's, the architectural staffing in the Regions had grown to be equal to or greater in size than that of the CCC era. About this time, there was a reduction in Job Corps centers in several Regions (Cali-

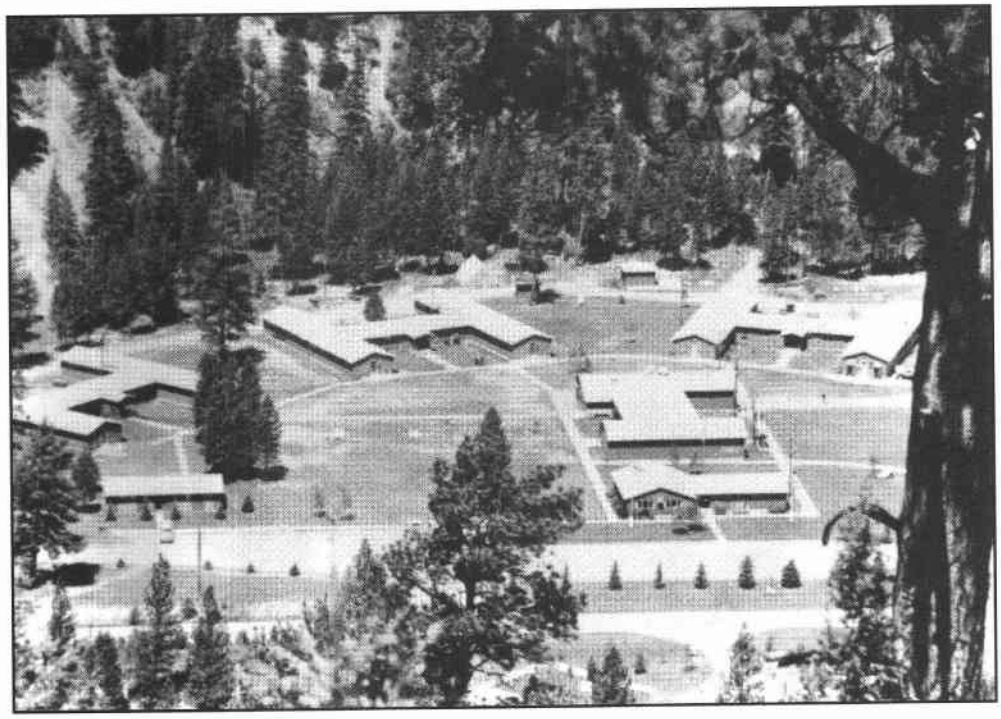


Figure 1–41. *Trapper Creek Job Corps Center, Bitterroot National Forest, Region 1 (1965)*

fornia, for example, went from five centers to none). As of this date, there are still six centers in Region 8 as well as centers in Regions 1, 2, and 6.

Forest Service Research relied on the Regions to provide the design and maintenance of the buildings on the experimental forest and station headquarters and laboratories. A.P. "Benny" DiBenedetto was the first professional architect hired on staff to do the designs for the Pacific Northwest Experiment Station in 1961. Bob Sandusky was hired by the Pacific Southwest Station in 1965. The other research stations continued to rely on the Regions or private architectural firms for their building designs. The North Central Station is the only research station that still has an architect on staff.

Beginning in the 1960's, the architectural staffs in the Forest Service took on a more philosophical design approach rather than concentrating on specific styles or themes. Contrary to Groben's dictates of the 1930's, architects produced designs that fused the modern with the vernacular of the past, seeking designs appropriate for the forest environment and comparable with the existing buildings on the sites.

Some of the new, innovative programs and projects like the Job Corps, accelerated public works, the Clean Water Act, and visitor centers have allowed the Regions to hire additional architectural staff. In addition, cooperative work with other agencies has allowed additional use of recently graduated architects.

Chapter 2 Building Types

"The fate of the architect is the strangest of all. How often he expends his whole soul, his heart and passion, to produce buildings into which he himself may never enter."

—Johann Wolfgang von Goethe,
Elective Affinities

Administrative Buildings

The category of Forest Service buildings with the greatest number and most diverse types is administrative buildings. These cover all areas of work and living needs. Lookout towers are part of this group, but will be covered separately. Administrative buildings include offices, dwellings, barracks, messhalls, bunkhouses, warehouses, shops, fueling stations, and nursery buildings. Architectural styles tend to fall into eras, location within the Nation, and local trends and materials available. There is more consistency within each site, at least regarding materials.

In the earlier eras, the plan layout for buildings was limited by availability of designers and the buildings' functions. Most of the 1938 "Acceptable Plans" book covered administrative buildings, giving many floor plans and various elevation styles. As the first Service-wide compilation of this type, most of the Regions used it only as a starting point for their designs and did not copy the individual buildings.

There is more continuity within the various Forest Service Regions throughout the eras than there is between Regions during an era. Traced to climate, local materials available, and overlap of personnel between the eras, this can be seen in the regional plans and elevations shown in the 1938 "Acceptable Plans" book. Another difference between Regions is the year the first architect was brought on staff.

Offices

Through the various eras, the need for and the size of office buildings has changed tremendously. At the start, Forest Service contact with the public was limited and a small room rented in the nearest town was sufficient. It was not until the 1930's that buildings with the primary use of office space and public contact were required and constructed. Even then they were one to four rooms located in the nearest town to the forest land being managed. After World War II until the 1970's, the largest district offices had only 5 to 15 rooms, but with a better public contact area. Supervisors' offices during the 1930's and 1940's were smaller than district offices in the 1980's.

The design and styles of offices follow the regional styles and eras described in chapter 1. Not until the modern era were the differences between Regions dependent upon who was the design architect rather than the direction of the agency. Once the "Acceptable Plans" book went out of favor and there was no architect in the Washington Office, the Regions began to establish their own design style (sometimes even within a Region there were State styles). There was still a predominant use of wood with pitched rather than flat roofs, but as we approach the present day, more and more of the materials conform to the regional standards. Figures 2–1 and 2–2 and the photos and drawings on pages 68 through 80 show these variations in design and style.

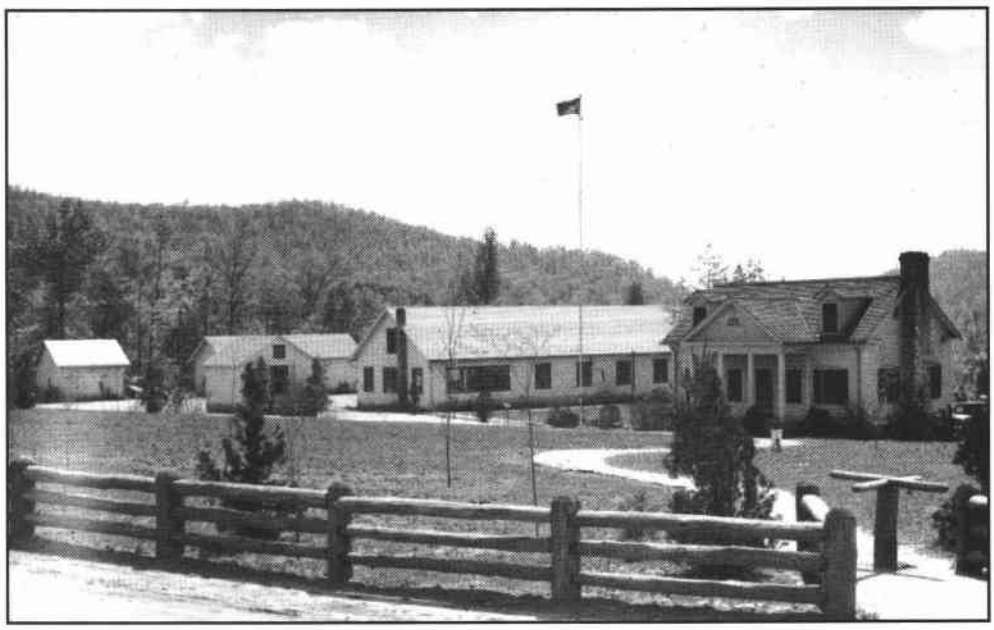


Figure 2–1. *Blue Ridge Ranger Station Office and warehouse, Blairsville, Georgia*

Figure 2–2. *Groveland Ranger District Office, Groveland California, Region 5 (1991)*

The only Regional Office designed and constructed by the Forest Service is in Ogden, Utah (figures 2–3 and 2–4). George Nichols, the newly hired Regional Architect for Region 4, was given the task to develop plans for a Government-owned structure when the leased office first occupied in 1909 became inadequate. He presented his concept for a square four-story building near the center of town to the Regional Forester in October 1928. After submission upward, Senator Reed Smoot of Utah came to Ogden. He agreed that the Forest Service should remain in Ogden and stated that he

would support the new office. He passed this information on to the Treasury Department, then responsible for Federal buildings. They sent W. Arthur Newman, District Engineer, Treasury Department Field Force, Office of the Supervising Architects, San Francisco, California, to Ogden to make a study of the leased building occupied and the plans developed by Nichols. Newman went through the entire building with Nichols and the Regional Forester and agreed with the Forest Service proposal.

The Second Efficiency Bill, which passed both houses of Congress in February 1931 and was subsequently signed by the President, included $300,000 for the building. As with many political issues, along with the appropriation of dollars came directions from above. In this case a local architectural firm, Hodgson-McClenahan, was given the responsibility for preparing the final contract documents, using much of what Nichols had recommended and documented. The final building was a brick and terra cotta Art Deco structure, three stories of offices with a basement and a greenhouse on the roof.

The construction contract was awarded to Murch Brothers of St. Louis for $229,000. The National Lumbermen's Association wrote a letter objecting to the design and requesting a greater utilization of wood in the construction of the building. Several changes were made: wood piling, wood frames and sashes on the first floor, hardwood floors (oak) for all offices, wood bases, and wood trims on the first floor.

Housing

Provision for housing of Forest Service employees has been a need since the earliest days. Tents and lean-to's to log cabins were the prevalent housing during the first era of the agency. Later, when families stayed with the rangers and offices were set up in town, more sophisticated dwellings were built on the same compound as the office and warehouse or storage area or near them on another lot (figure 2–5).

Figure 2–3. *Region 4 Office, Ogden, Utah (1933)*

Figure 2–4. *Entrance detail, Region 4 Office*

Figure 2–5. *Ranger Residence, Pestigo Ranger Station, Nicolet National Forest, Region 9 (1936)*

When fire suppression and timber sales became part of the administration of the National Forests, there came a need for housing for crews. Early barracks were just residences with extra bedrooms and a larger kitchen and dining room. In the 1930's, crews were larger and totally male, so the housing for crews included bunk rooms, lounges, large bath facilities, and kitchen and dining areas (figures 2–6 and 2–7).

There was very little change in single-family dwellings and crew quarters during the next 30 years except for materials and styles based on the Region. In the 1960's, several changes created different design approaches. First, the crews became larger and more diversified (fire, timber, recreation, lands, wildlife, and so forth) and worked in the field in different seasons. The buildings took on a character of either meeting the needs of a special workgroup such as a fire crew (figure 2–8), or the crews were housed in separate smaller buildings (see figures 2–40 and 2–41 on page 81 for some examples). Another trend during this phase was the use of trailers as portable camps that would follow the work. In California, one forest had more than 100 small trailers that were taken to the field in the spring and stored at lower elevations during the winter.

When the Job Corps was founded during the Johnson Administration, the Forest Service was one of the major players in providing space and work for this new venture. The first centers were trailers or modular structures purchased under Department of Labor design standards. Because there were so many being started at the same time, long delays in delivery were encountered, so the various Regions went into a crash design program to construct stick-built structures for the centers. Many of the trailers did not last very long. Region 5 and the Bureau of Reclamation in Denver were

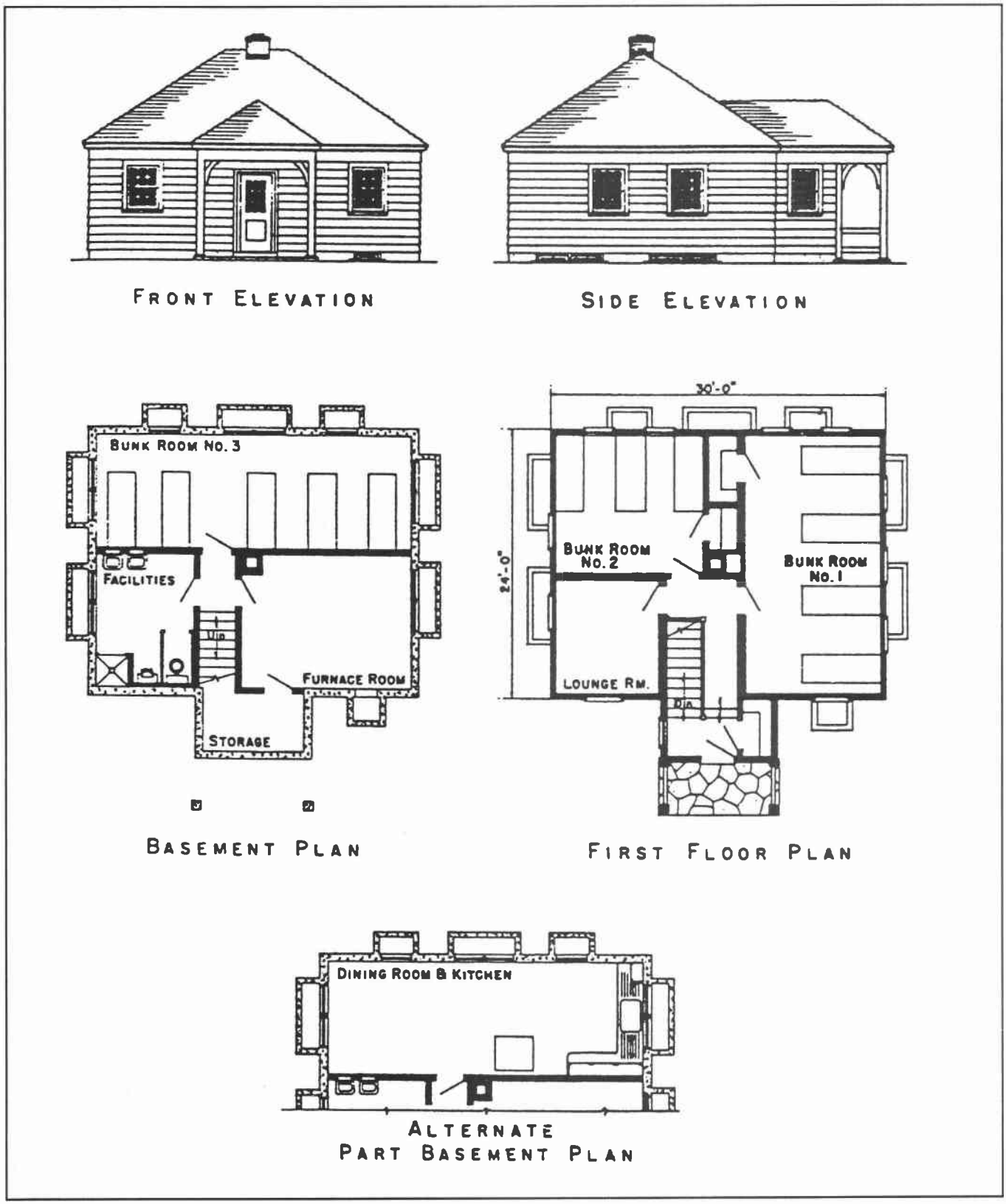
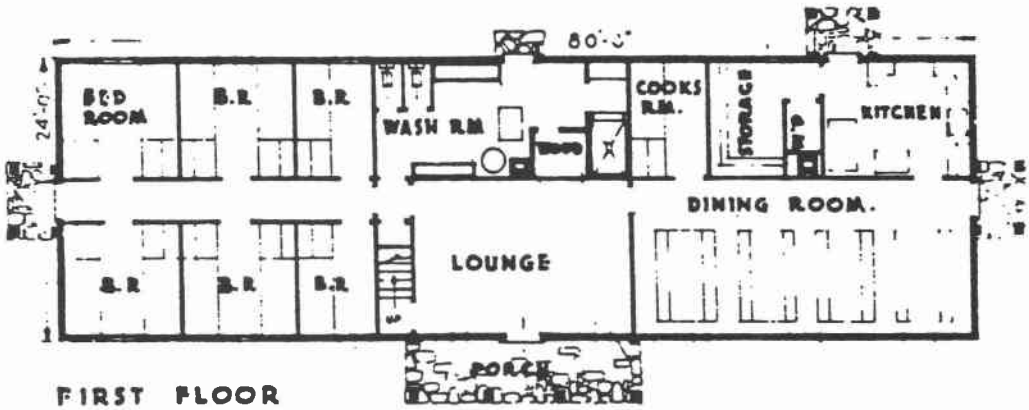


Figure 2–6. *Bunk house, Region 1*



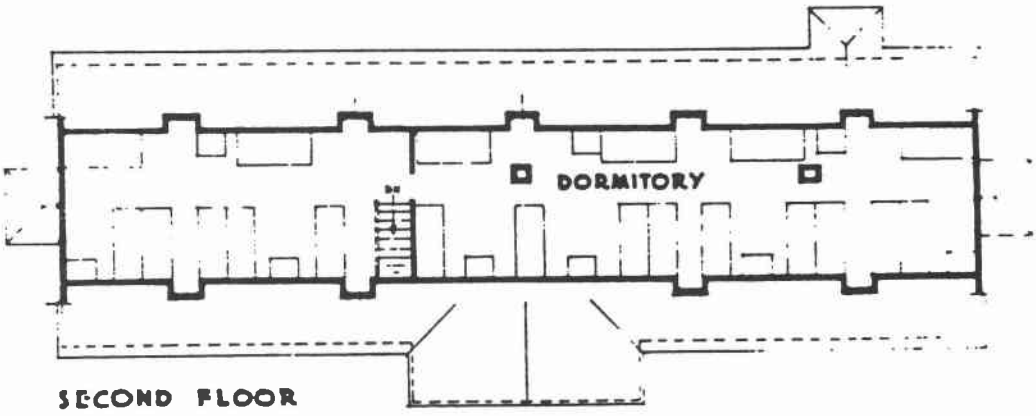


Figure 2–7. *Thirty-person crew house, Region 6*

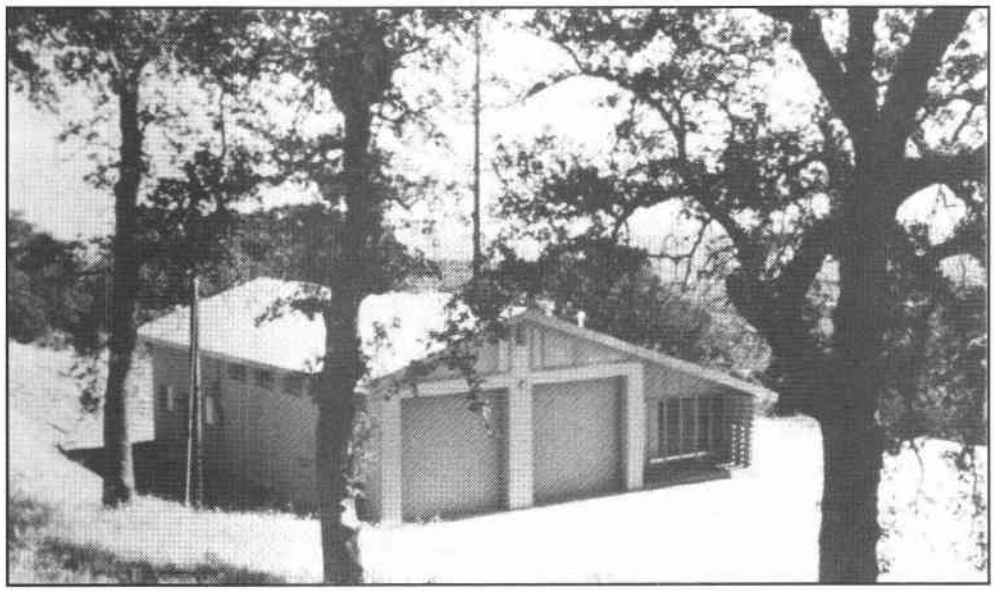


Figure 2–8. *White Oaks Fire Station, Los Padres National Forest, Region 5 (1967)*

given the task of designing replacement buildings for these damaged trailers. A concept of pole buildings was developed for housing and dining facilities (figures 2–9 and 2–10). The architects in California were given Certificates of Merit by Chief Ed Cliff for their work (see figure 3–15 on page 216).

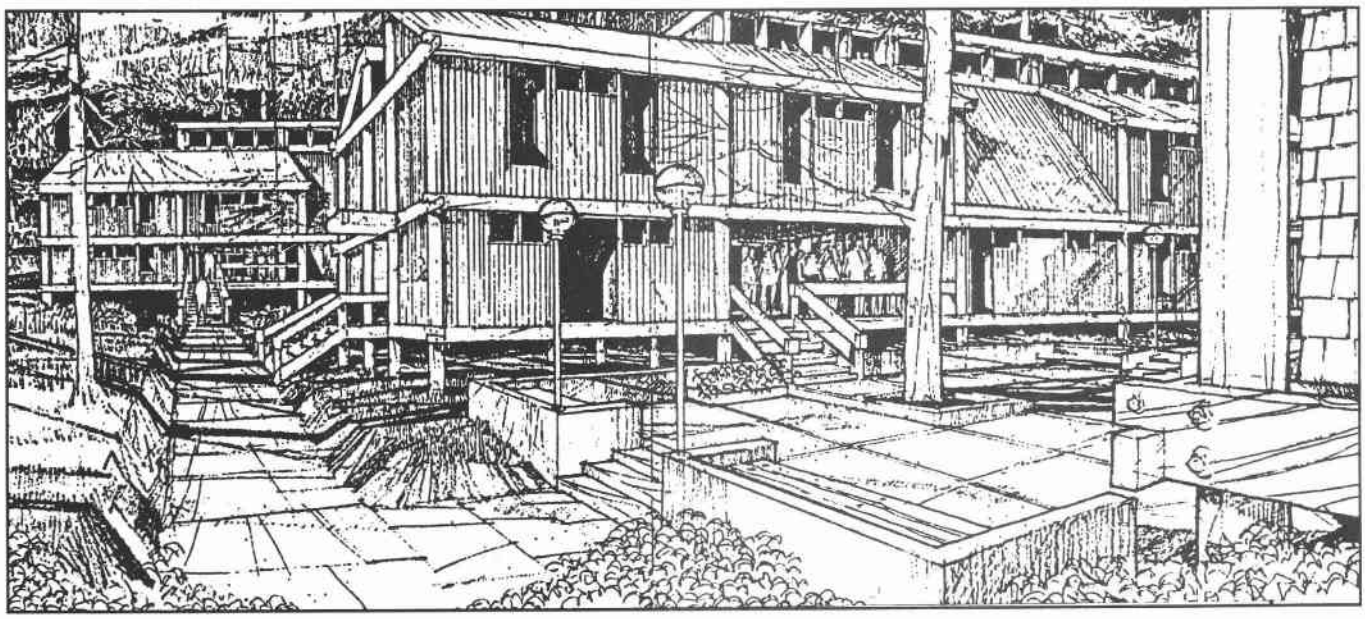


Figure 2–9. *Concept for Job Corps dormitories*

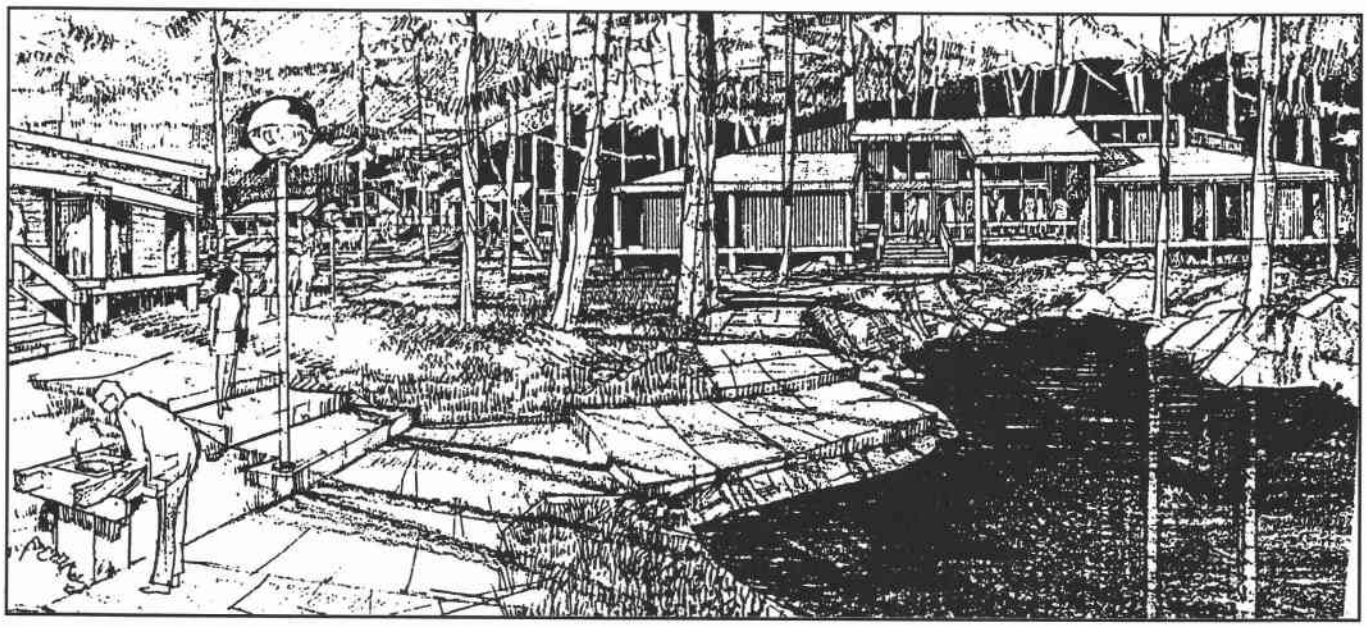


Figure 2–10. *Concept for Job Corps kitchen and messhall*

Warehouse and Storage Facilities

Few of the Forest Service warehouse and storage facilities are unique to the agency. As with any organization that provides its own facilities to cover all administrative activities, many diverse building types are needed. During most of its history, the Forest Service has owned a fleet of automobiles and trucks; therefore, the need for autoshops has been a necessity (figure 2–11). Also, since many of the areas administered are in the mountains, horse and mule barns, including hay storage, have been needed (figure 2–12). Warehouse and storage buildings have been needed for firefighting supplies and equipment, recreation, operation and maintenance, and timber management, as well as for other specialized forest management activities. Additional examples of warehouse and storage building designs can be found in Figures 2–56 through 2–60 on pages 89 to 91.

Nursery Buildings

Sometime in the early 1900's, the Forest Service started a tree planting program to regenerate the forests after tree harvesting and fires (figure 2–13). The buildings required for these processes—germination of seeds, packing of seedlings after lifting from growing beds, storage of seedlings until planting, and so forth—provided challenges to the designers and architects. Examples of successful nursery building projects include the administration building at the Savenac Nursery in Region 1 (figure 2–14). The Savenac Nursery has operated continuously since it was established in 1909 near Haugen, Montana.

A tree storage building at the Mt. Shasta Nursery in California designed in the early 1940's had 12-inch-thick walls filled with redwood bark to keep the trees in a dormant state from November until planting in April or May of the next year. Another cold-storage building can be found at the Placerville Nursery (see figure 2–15). The most recent nursery complex designed and constructed was in Albuquerque, New Mexico, in the mid-1980's.

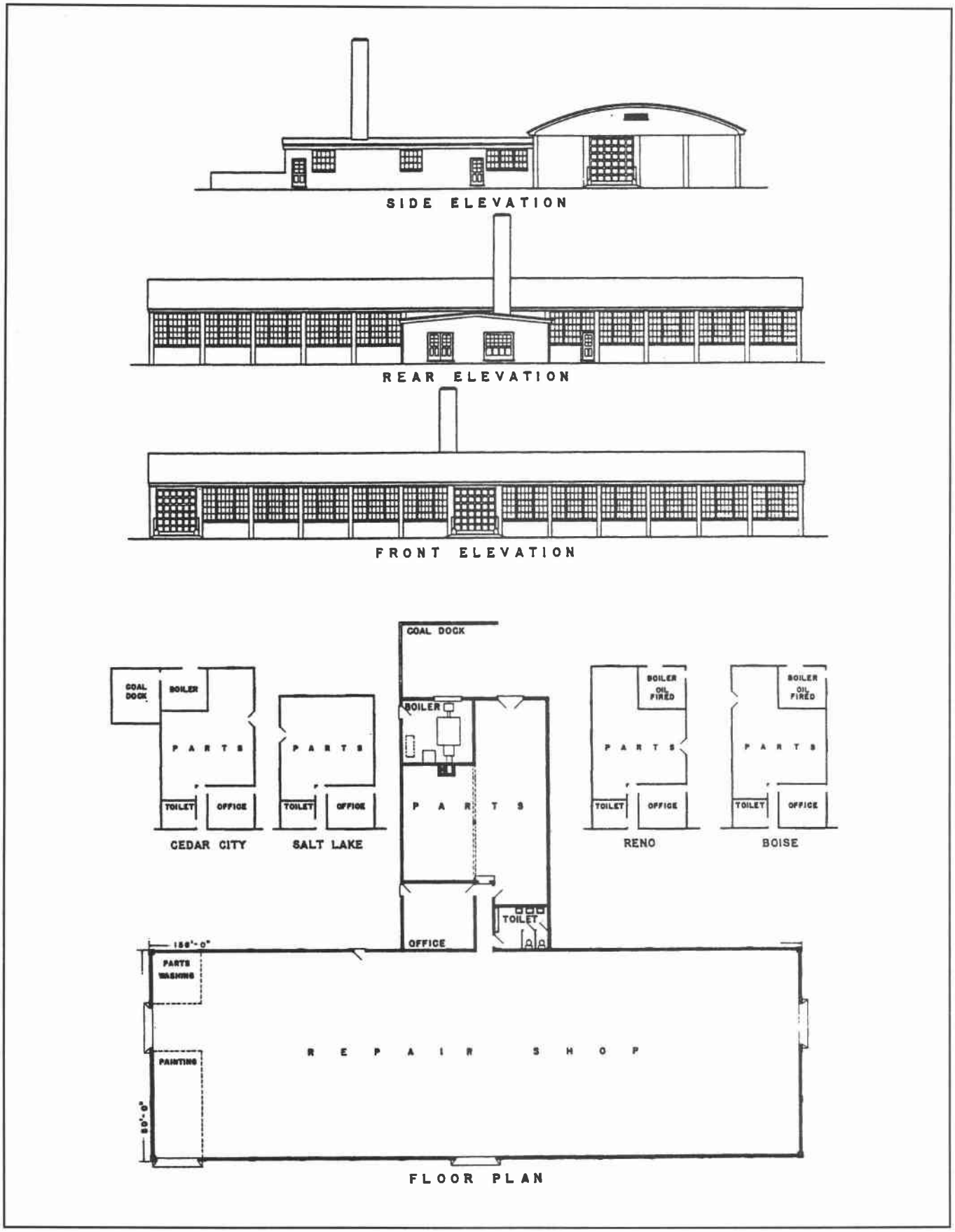


Figure 2–11. *CCC Central Repair Shop, Region 6*

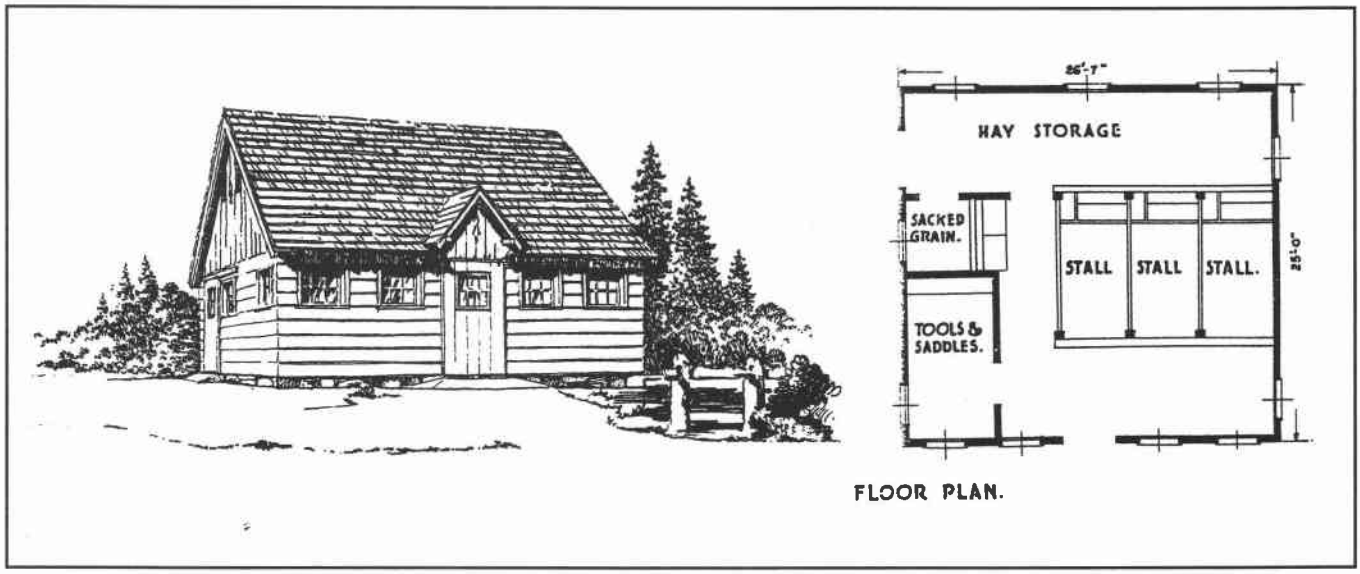


Figure 2–12. *Three-horse barn, Region 6*

Specialized Fire Suppression Facilities

In the late 1950's and early 1960's, a major change came to Forest Service fire management operations as the airplane became a major player in fire suppression. Three Regions took the most active role in providing the new buildings and amenities at airports near small communities. Region 1 built at Missoula, Montana; Region 5 at Redding, California, and Region 6 at Redmond, Oregon. Examples of these types of buildings can be found in Figures 2–61 through 2–63 on pages 92 and 93.

Figure 2–13. *Western yellow pine beds, McCloud Nursery, Shasta National Forest, California (1914)*

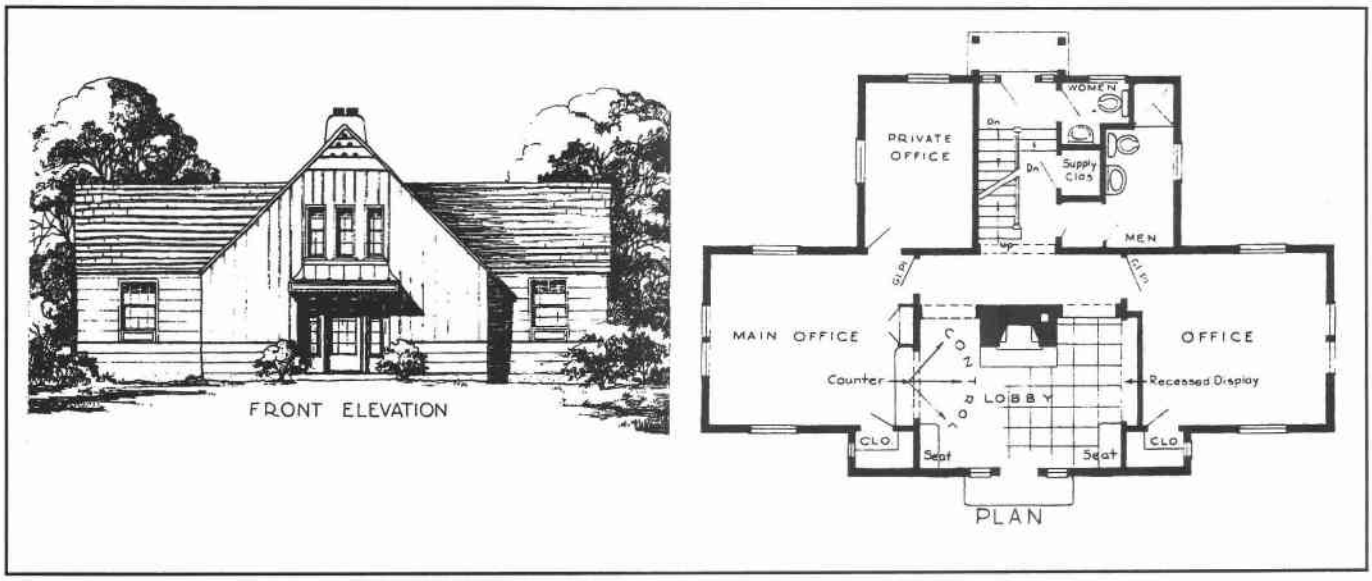


Figure 2–14. *Administration Building, Savenac Nursery, Region 1*

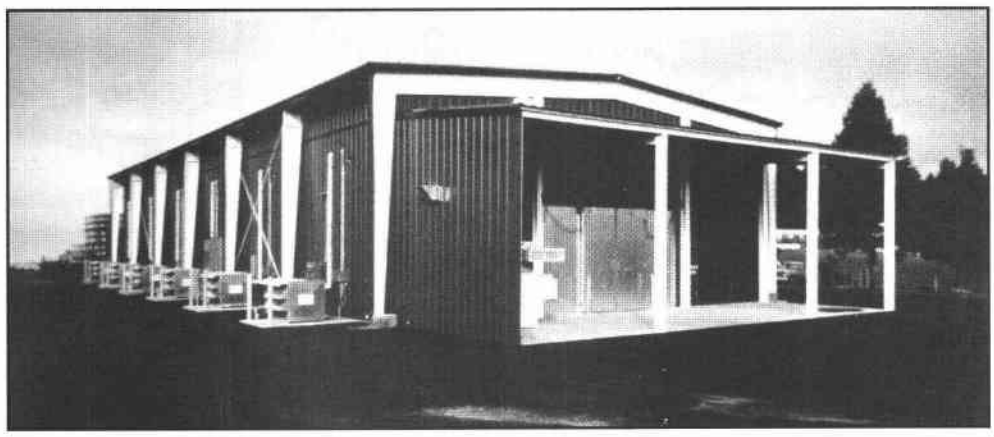


Figure 2–15. *Cold Storage Building, Placerville Nursery, Region 5 (1980)*

Gallery of Forest Service Administrative Buildings

Offices

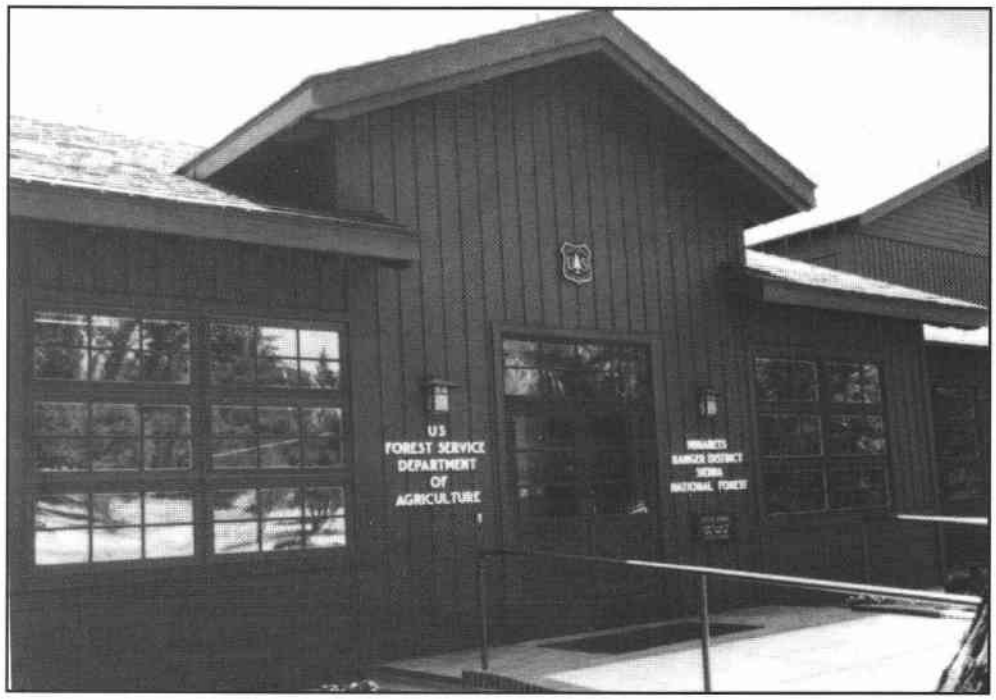
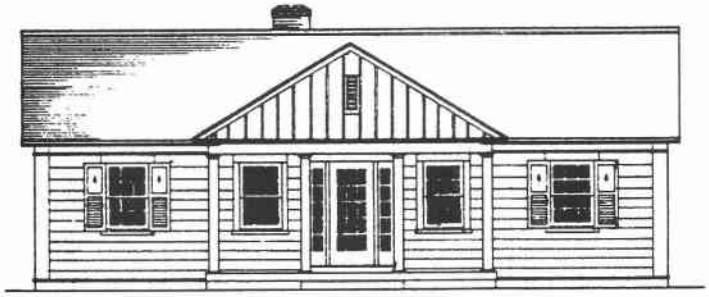


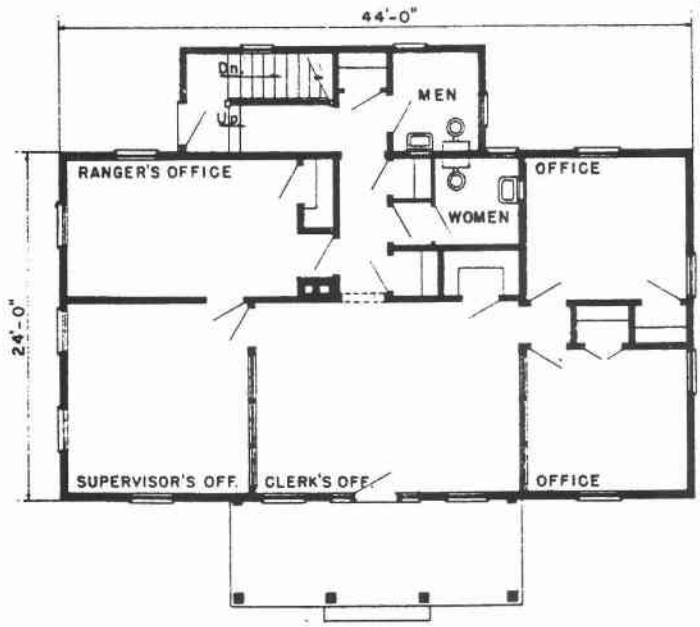
Figure 2–16. *Minarets Ranger District Office, Sierra National Forest, California*

Figure 2–17. *Brush Creek Office, Grand Mesa National Forest, Region 2 (1936)*

SIDE ELEVATION



FRONT ELEVATION



FLOOR PLAN

Figure 2–18. *Office Building, Region 4*

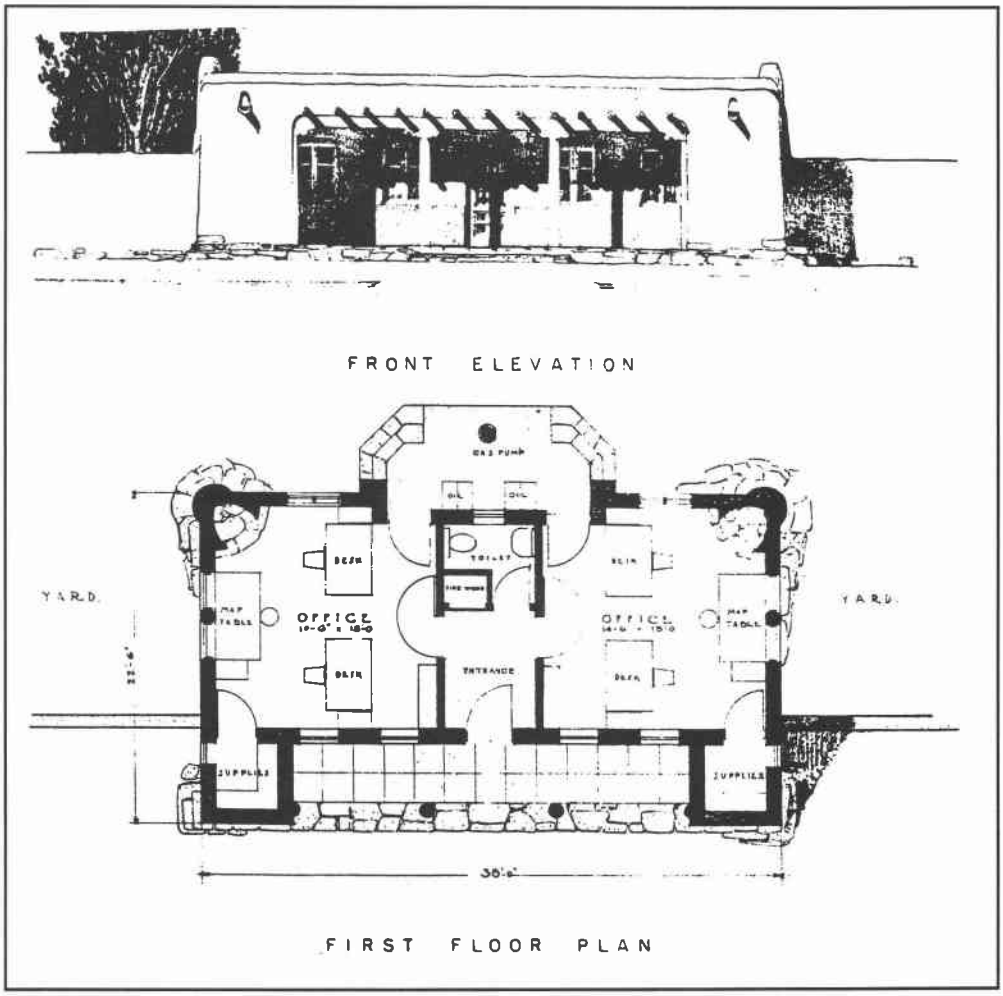


Figure 2–19. *Magdalena-Augustine District Office, Cibola National Forest, Region 3 (1938)*

Figure 2–20. *Quilcene Office, Olympic National Forest, Region 6 (1968)*

Figure 2–21. *Quinault Ranger Station, Olympic National Forest, Region 6 (1974)*

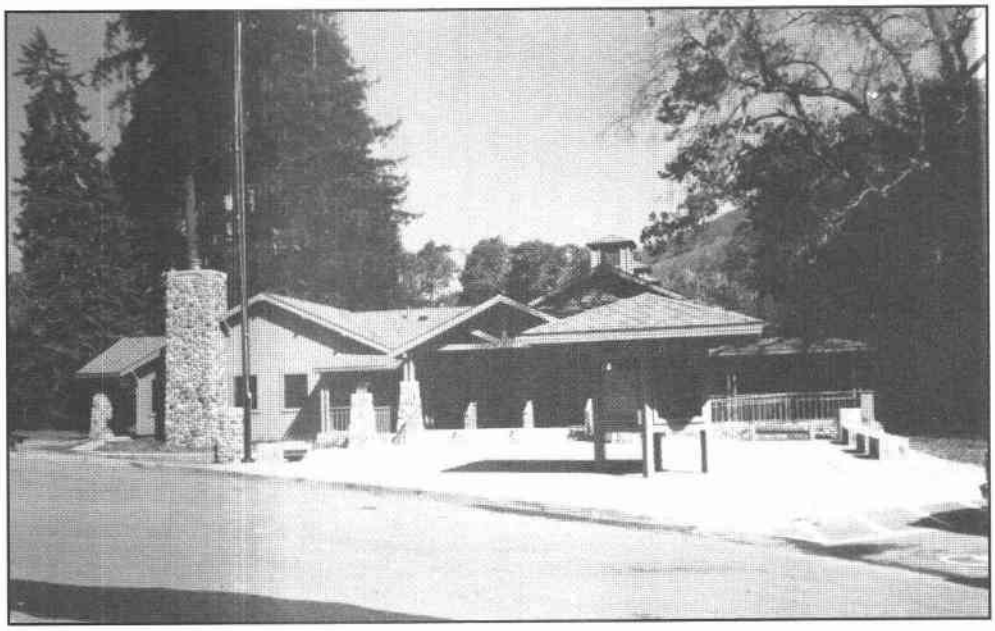


Figure 2–22. *Big Sur Multiagency Office, Los Padres National Forest, Region 5 (1989)*

Figure 2–23. *Hebo District Office, Siuslaw National Forest, Region 6 (1972)*

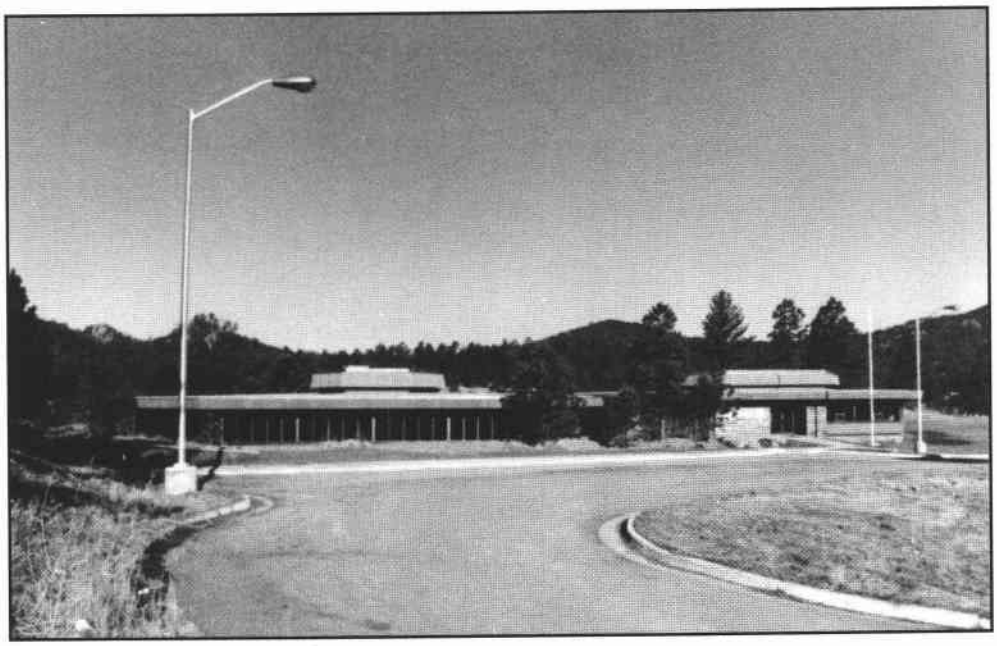


Figure 2–24. *Black Hills National Forest Supervisor's Office, Custer, South Dakota, Region 2 (1980)*

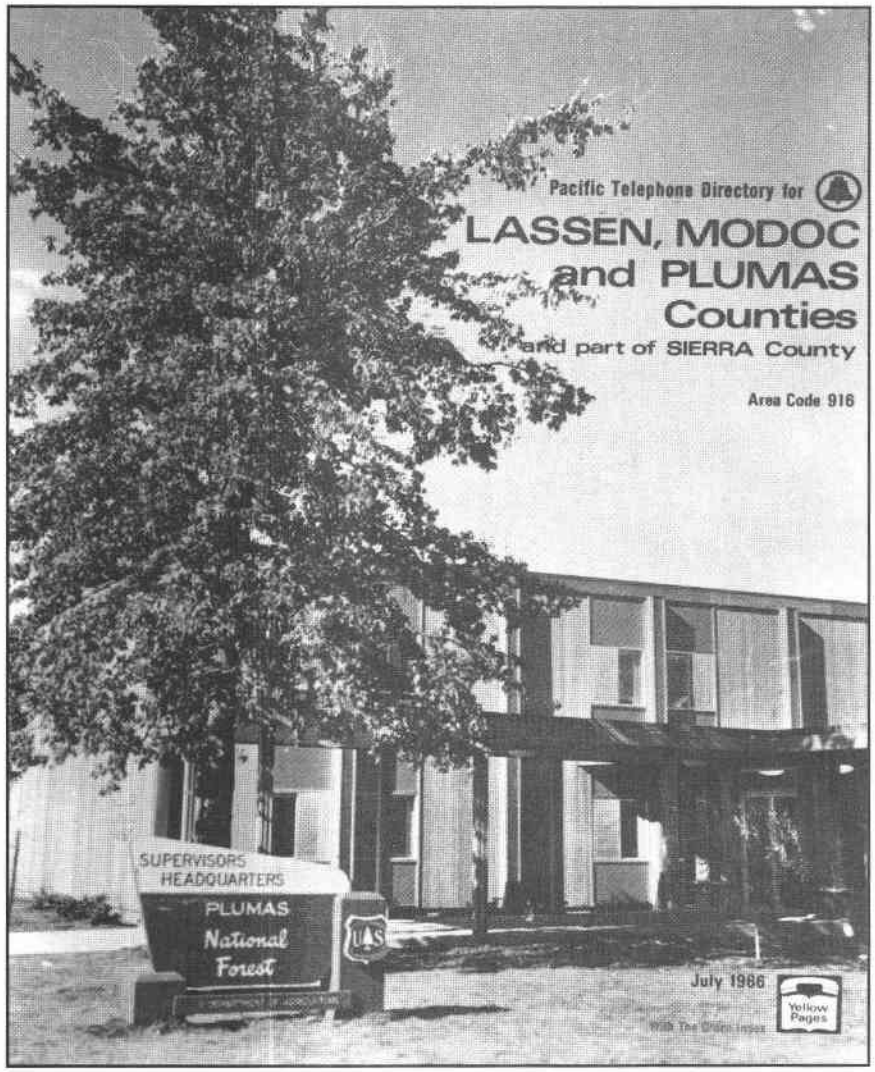


Figure 2–25. *Plumas National Forest Supervisor's Office, Quincy, California, Region 5 (1962)*

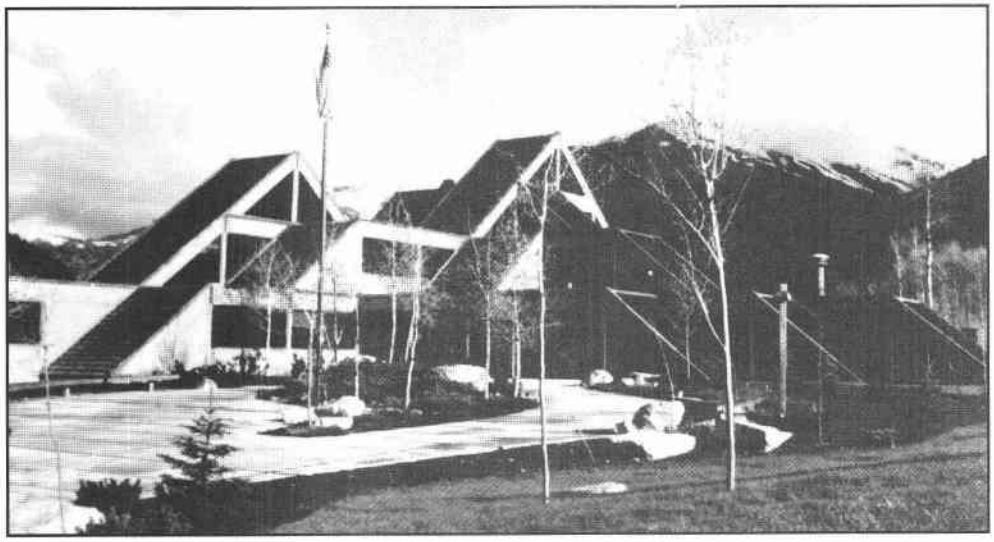


Figure 2–26. *Sawtooth National Recreation Area Ranger Office, Ketcham, Idaho, Region 4 (1978)*

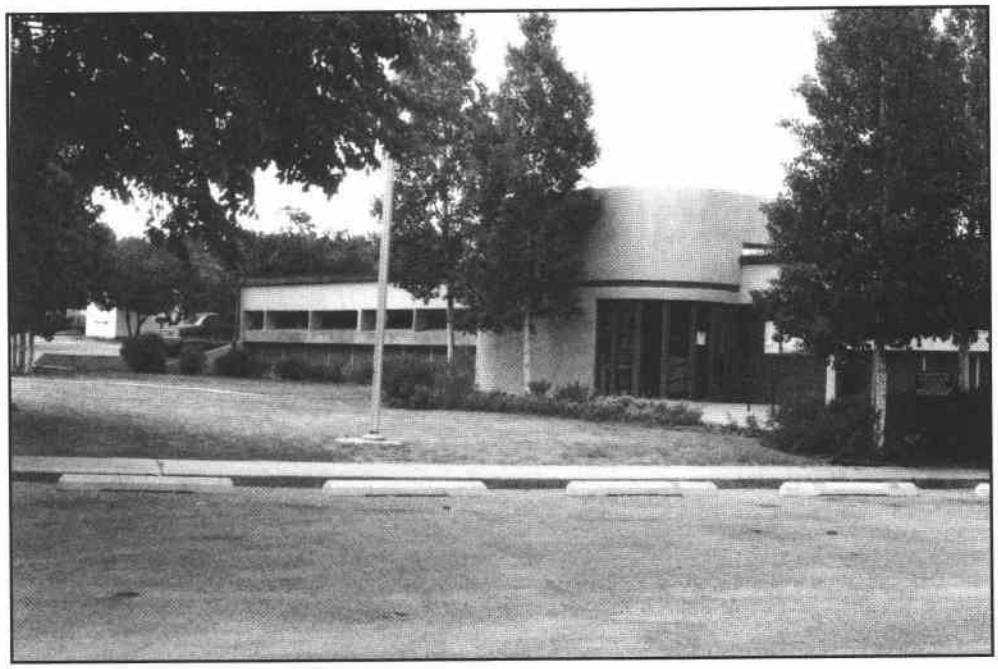


Figure 2–27. *Pecos Ranger Station, Santa Fe, New Mexico, Region 3 (1994)*

Figure 2–28. *Supervisor's Office, Bridger-Teton National Forest, Region 4 (1966)*

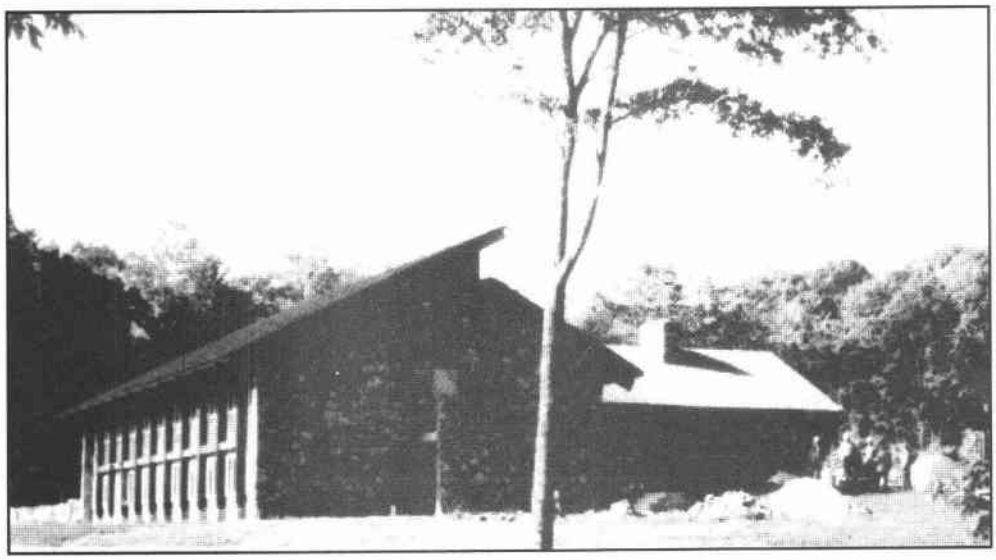


Figure 2–29. *Mount Rogers Ranger Office, Jefferson National Forest, Region 8*

Figure 2–30. *Tuskegee Ranger Office, National Forests of Alabama, Region 8*

Figure 2–31. *Sanpete District Office, Manti-LaSal National Forest, Region 4 (1994)*

Figure 2–32. *Entrance detail, Sanpete District Office, Manti-LaSal National Forest, Region 4 (1994)*

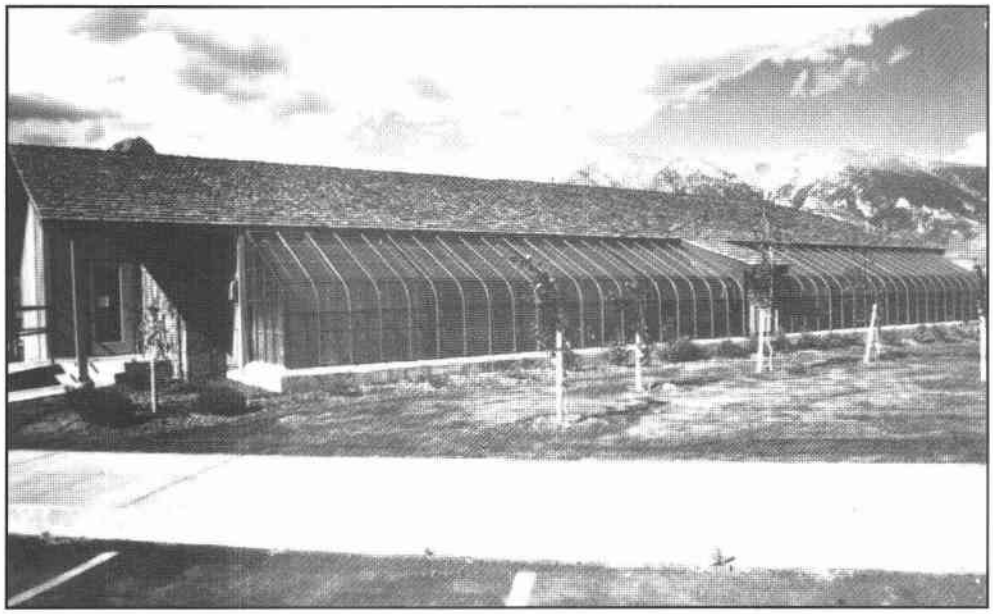


Figure 2–33. *Lost River District Office, Challis National Forest, Region 4 (1983)*

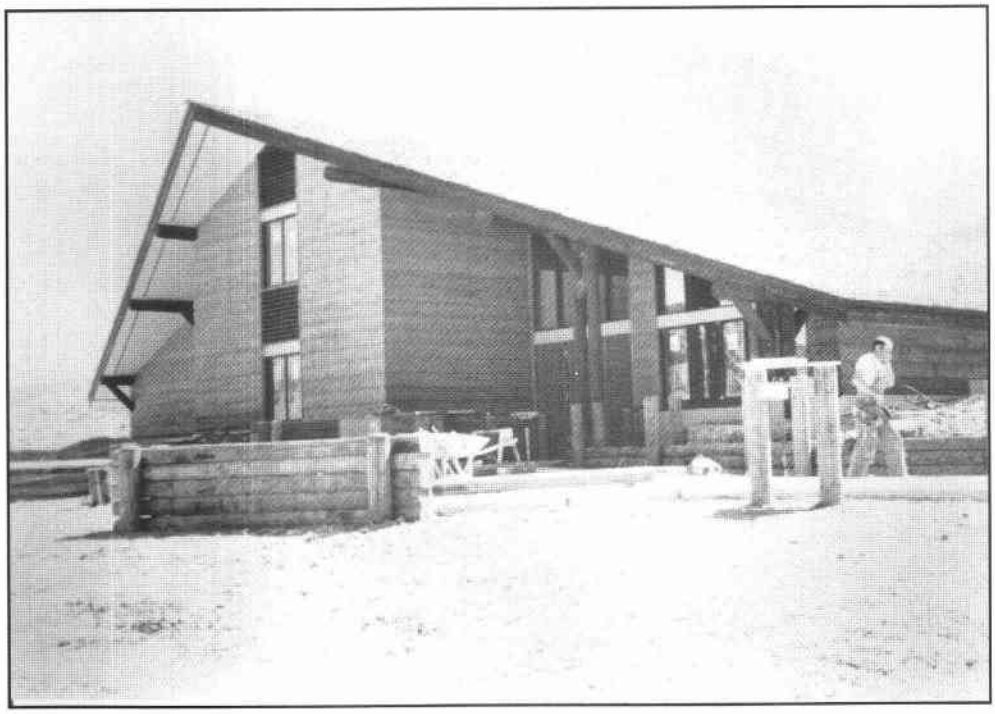


Figure 2–34. *Wise River Ranger Office, Beaverhead National Forest, Region 1 (1982)*

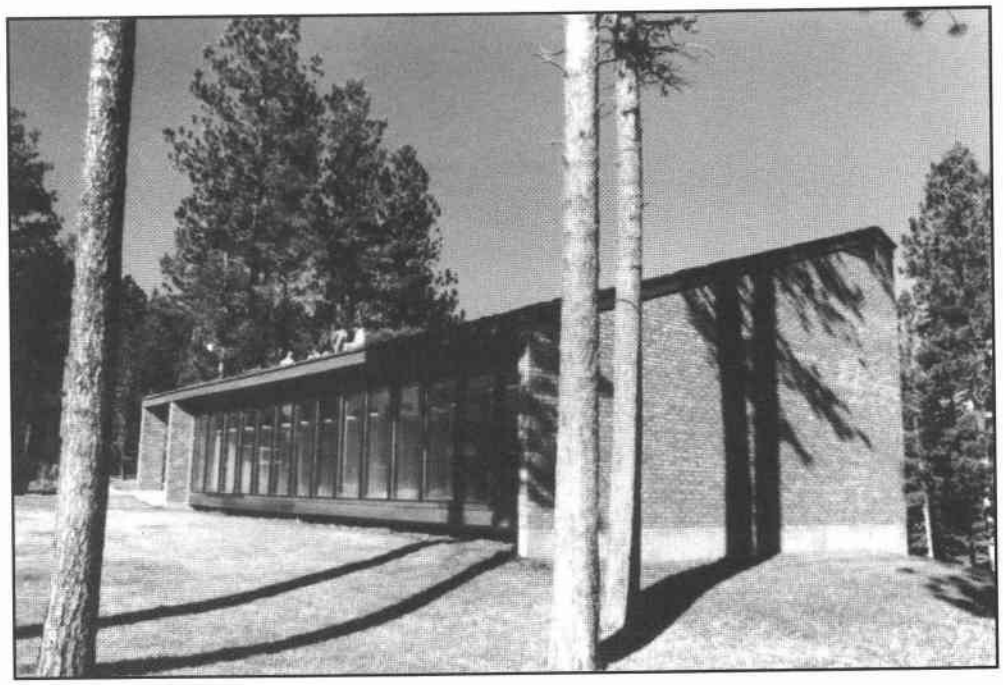


Figure 2–35. *Box Elder Job Corps Center Office, Region 2 (1974)*

Figure 2–36. *Catalina Ranger Office, Caribbean National Forest, Region 8 (1980)*

Figure 2-37. *Saguache Ranger District Office, Rio Grande National Forest, Region 2 (1985)*

Figure 2-38. *Bienville Ranger Office, Bienville National Forest, Mississippi, Region 8 (1980)*

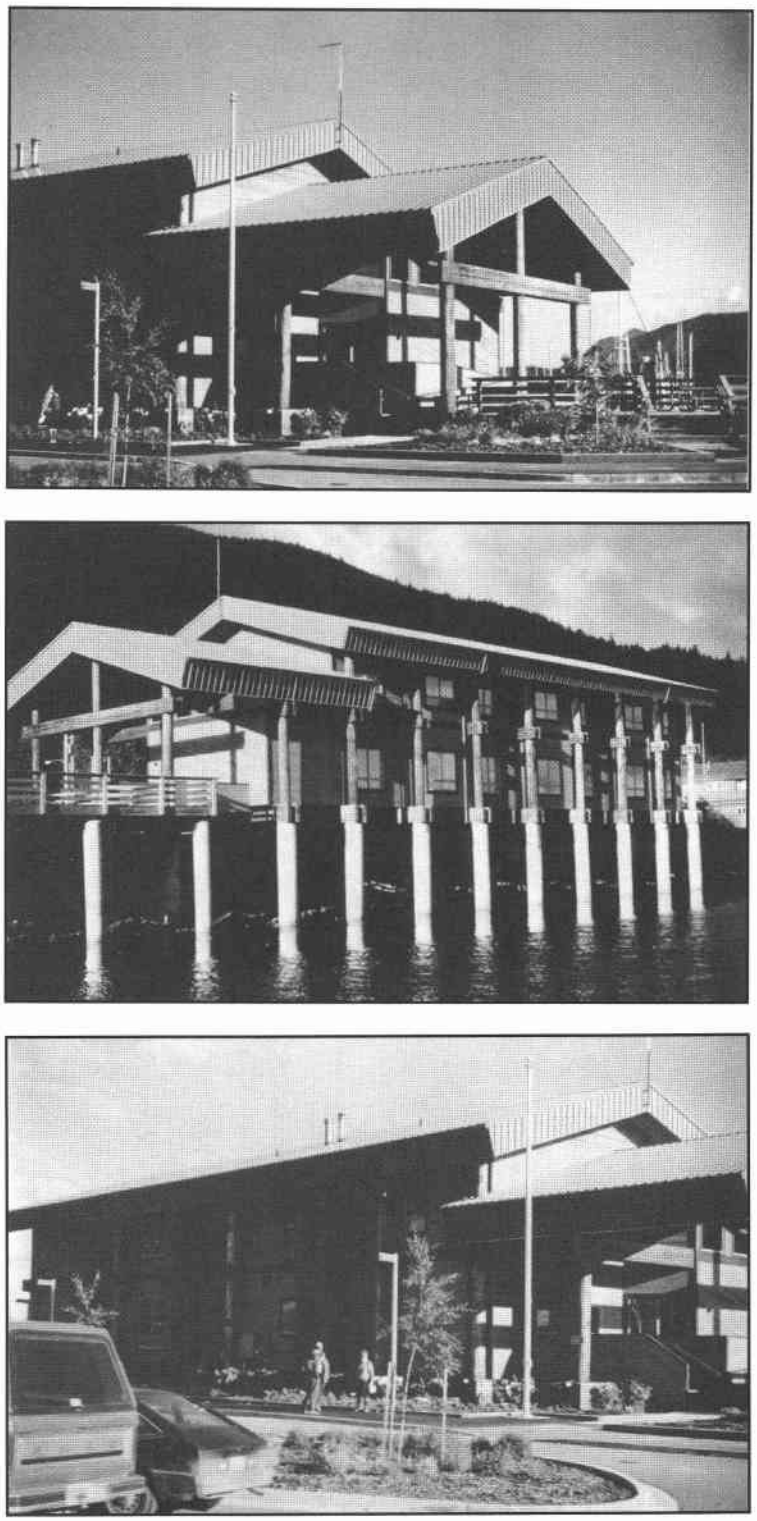


Figure 2–39. *Ketchikan Ranger District and Misty Fiords National Monument Administrative Offices, Ketchikan, Alaska, Region 10 (1986)*

Figure 2–40. *Black Rock Crew Quarters, Sequoia National Forest, Region 5 (1969)*

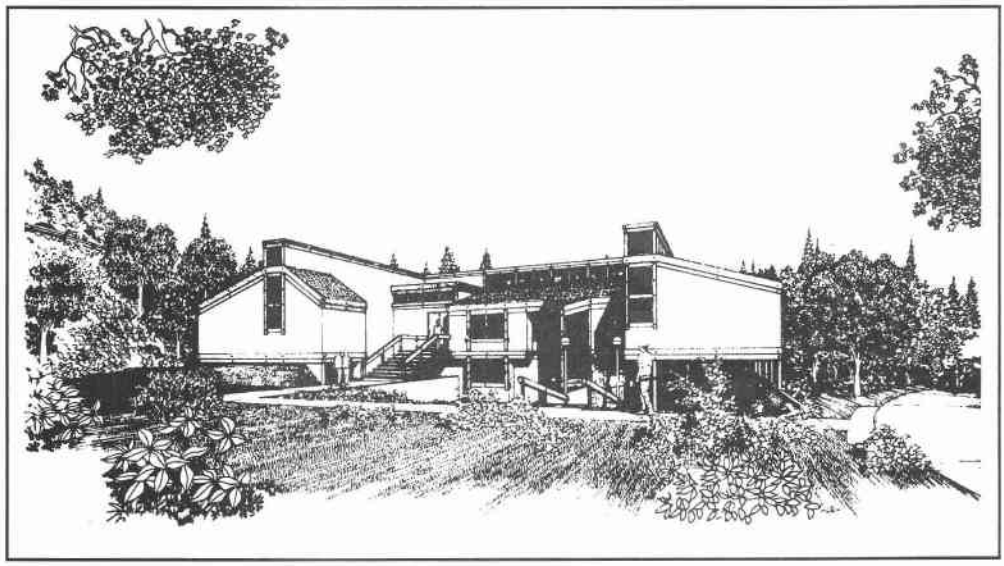


Figure 2–41. *Dalton Barracks, Angeles National Forest, Region 5 (1974)*

Figure 2–42. *West Yellowstone Barracks, Gallatin National Forest, Region 1 (1972)*

Figure 2–43. *Ten-person barracks, Tyrrell Work Center, Bighorn National Forest, Region 2*

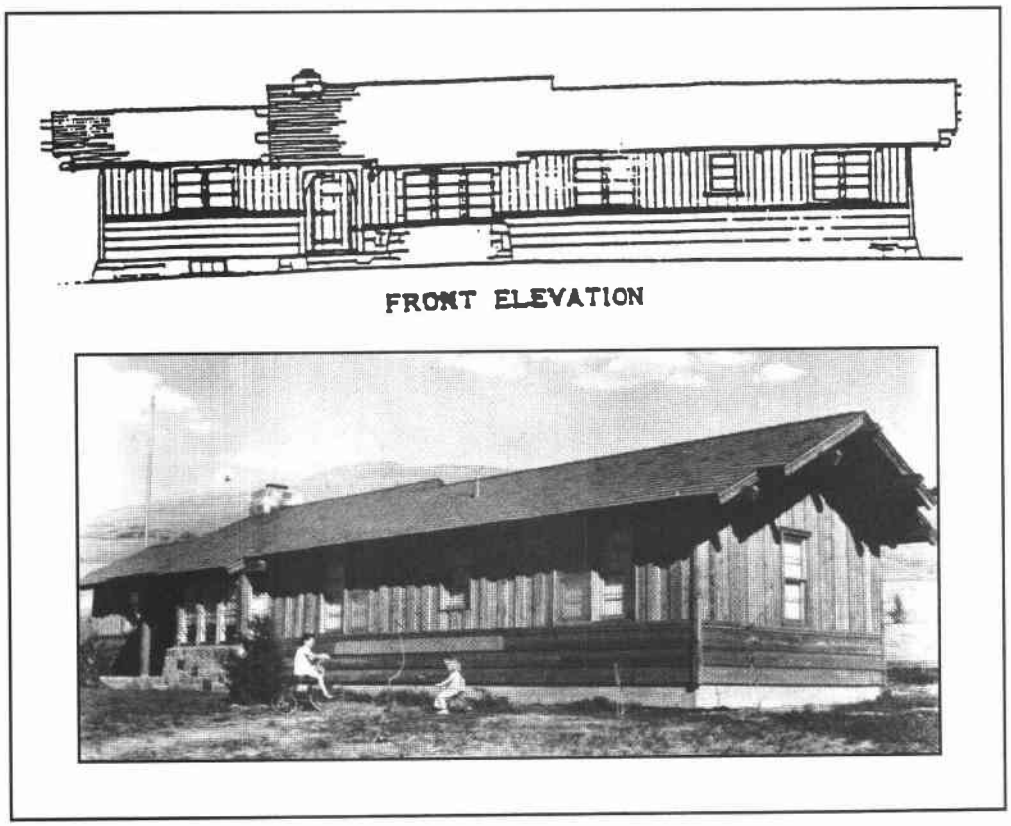


Figure 2–44. *Philipsburg Ranger Station residence*

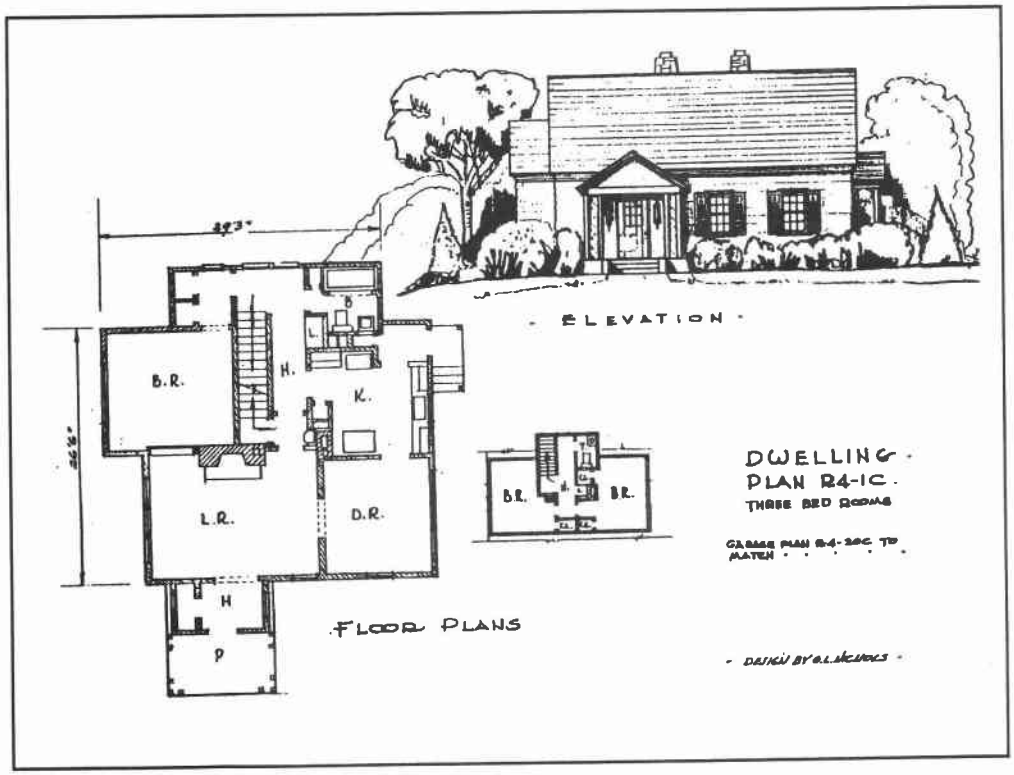


Figure 2–45. *Three-room dwelling, Region 4*

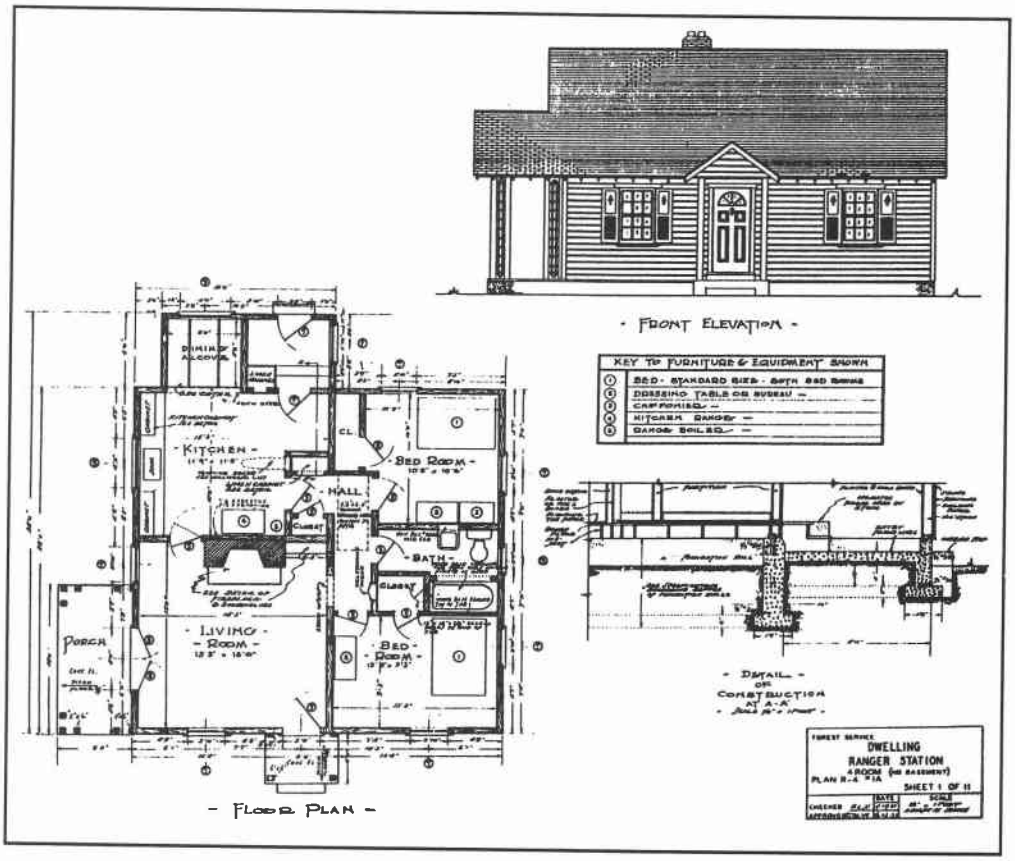
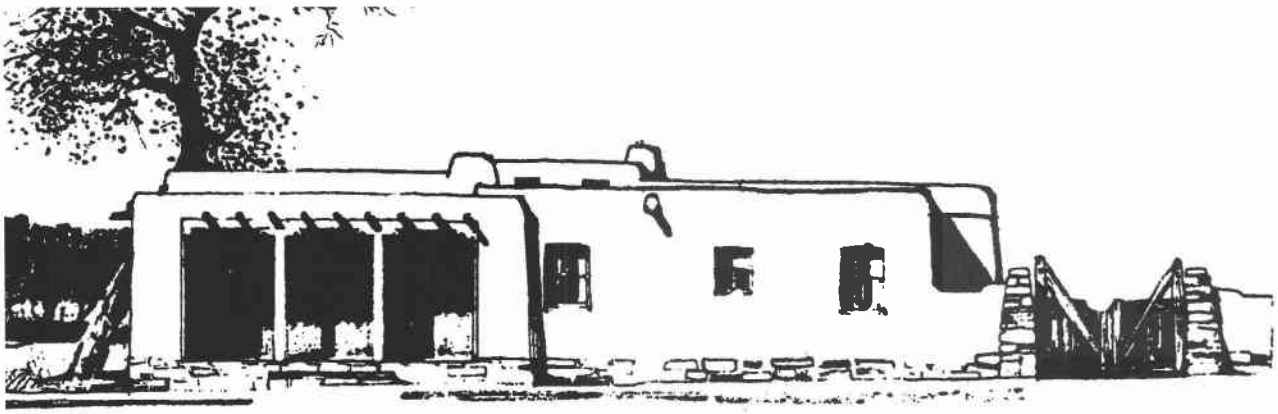


Figure 2–46. *Four-room dwelling, Region 4*

Figure 2–47. *Residences, Avery Ranger Station, Panhandle National Forest, Region 1 (1982)*



FRONT ELEVATION

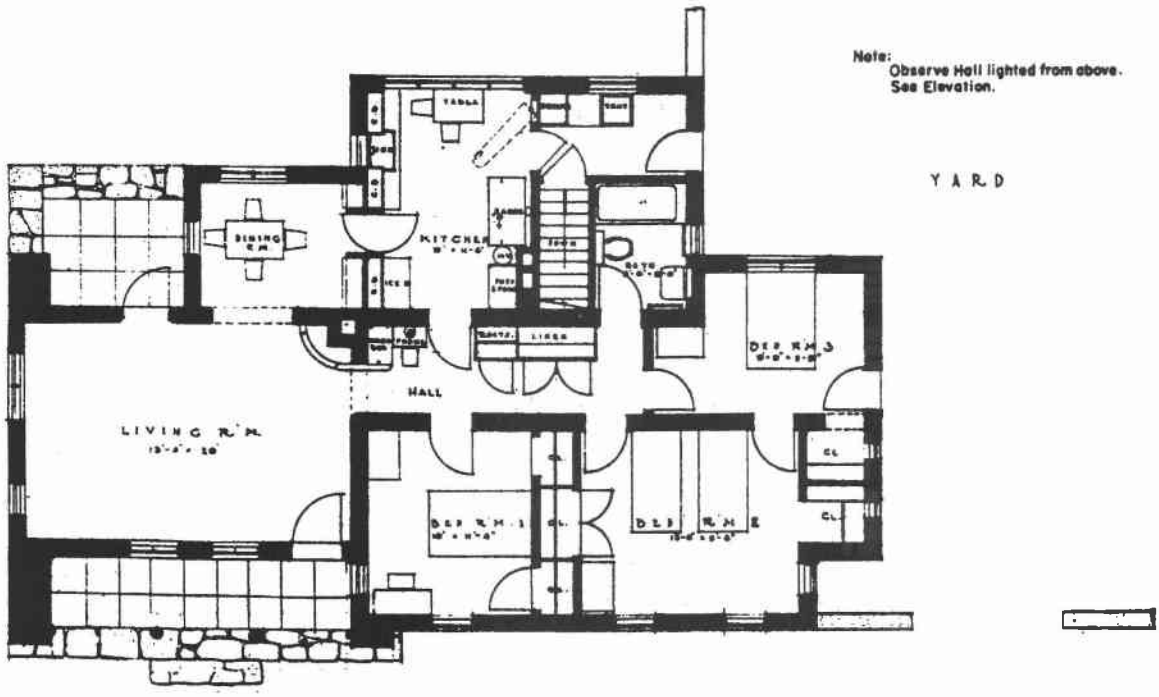


Figure 2–48. *Ranger district capitan dwelling, Lincoln National Forest, Region 3 (1938)*

Figure 2–49. *Residence, Bailey Ranger Station, Pike National Forest, Region 2 (1937)*

Figure 2–50. *Supervisor's residence, Clear Creek Ranger Station, Arapaho National Forest, Region 2 (1939)*

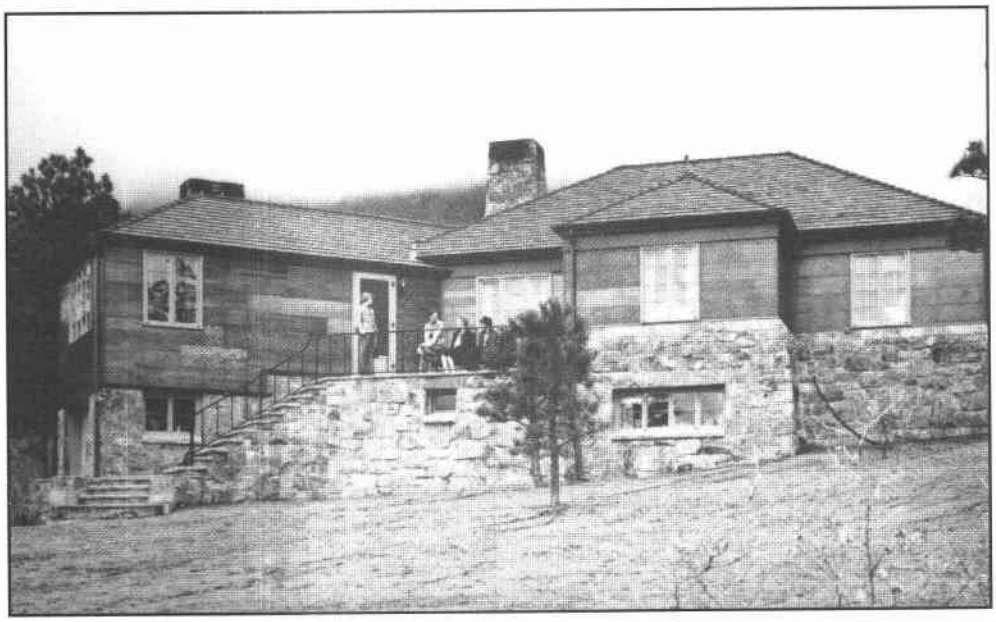


Figure 2–51. *Nurseryman's residence, Monument Nursery, Pike National Forest, Region 2 (1939)*

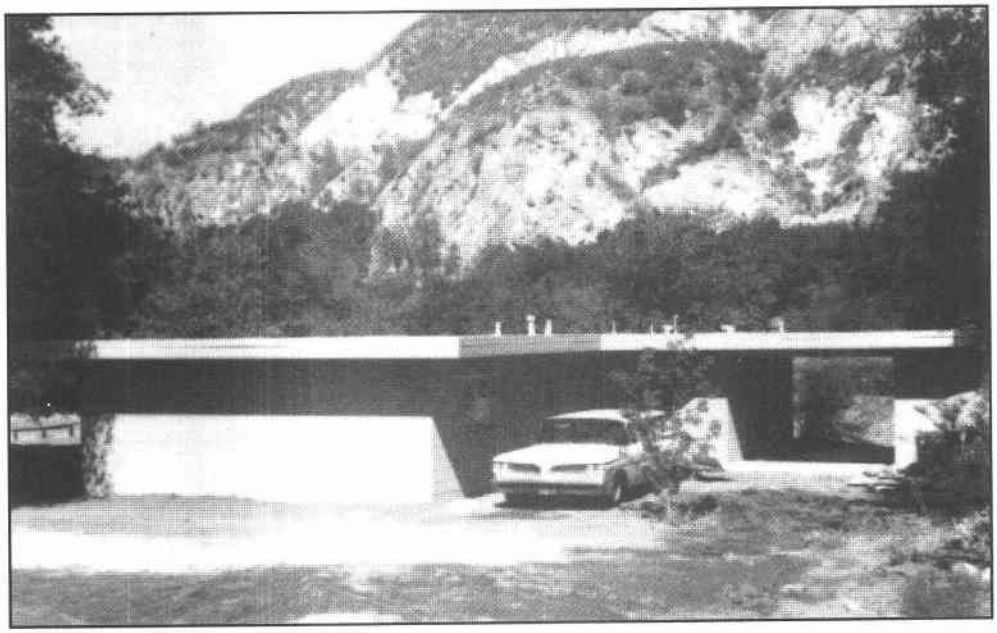


Figure 2–52. *Concrete-block residence, Angeles National Forest, Region 5 (1960)*

Figure 2–53. *Pole building in snow country, Sequoia National Forest, Region 5 (1970)*

Figure 2–54. *Dwelling, South Park Ranger District, Pike-San Isabel National Forest, Region 2 (1975)*

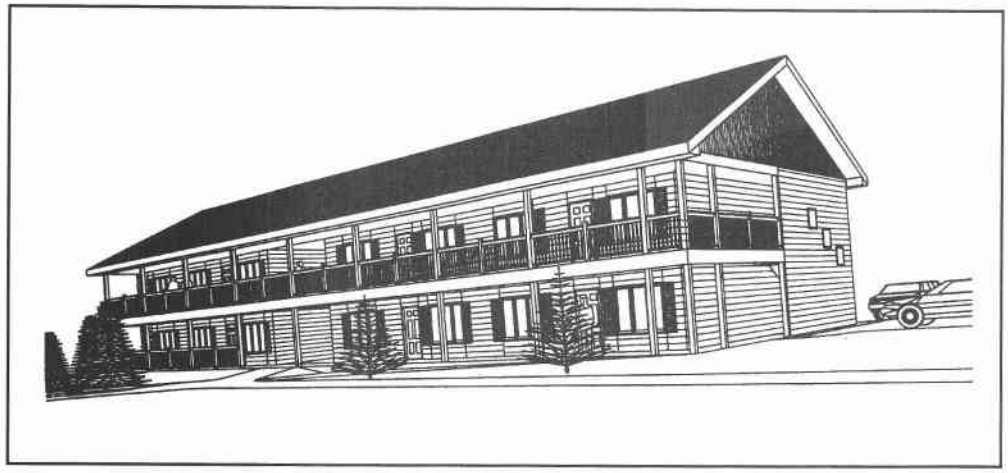


Figure 2-55. *Petersburg apartment complex, Tongass-Stikine Area, Region 10 (1998)*

Warehouses and Storage Facilities

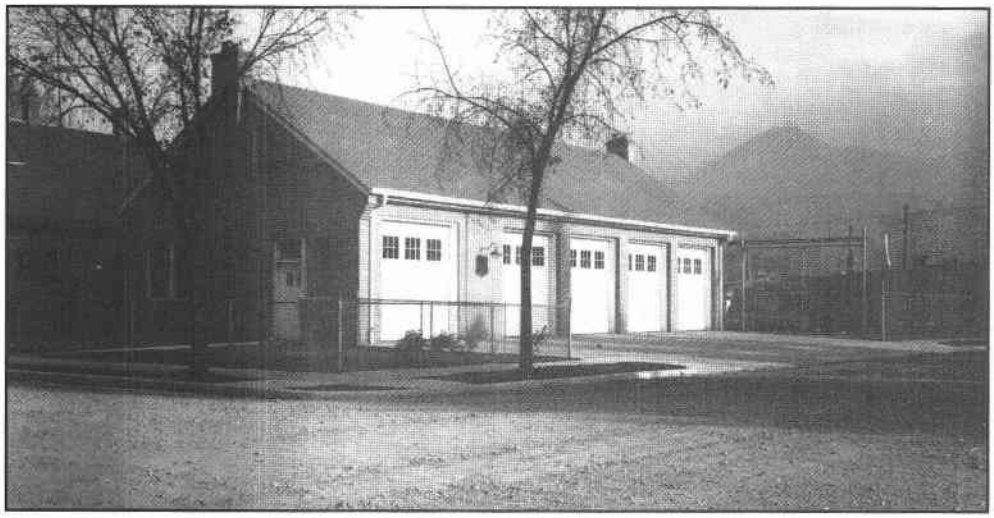


Figure 2-56. *Cochetopa Warehouse, Salida Work Center, San Isabel National Forest, Region 2 (1938)*

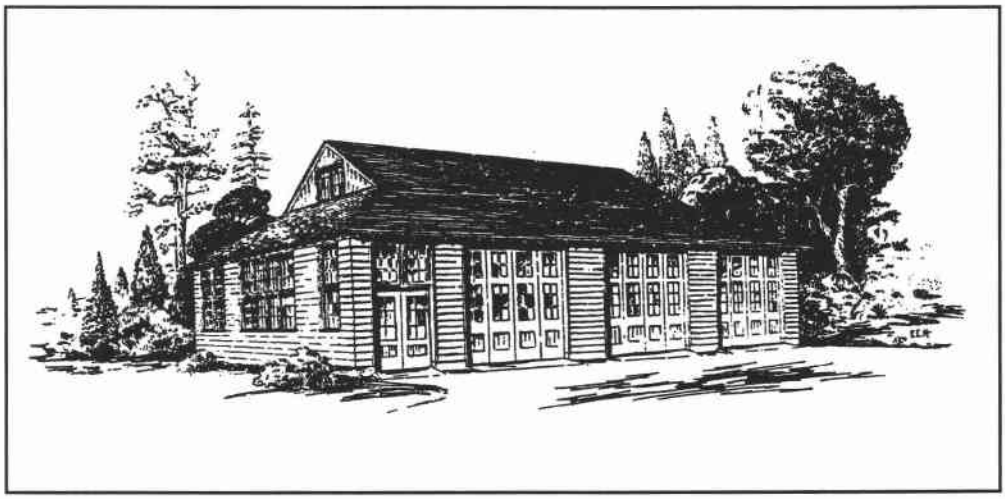


Figure 2–57. *Warehouse and shop, North Bend Ranger Station, Snoqualmie National Forest, Region 6 (1937)*

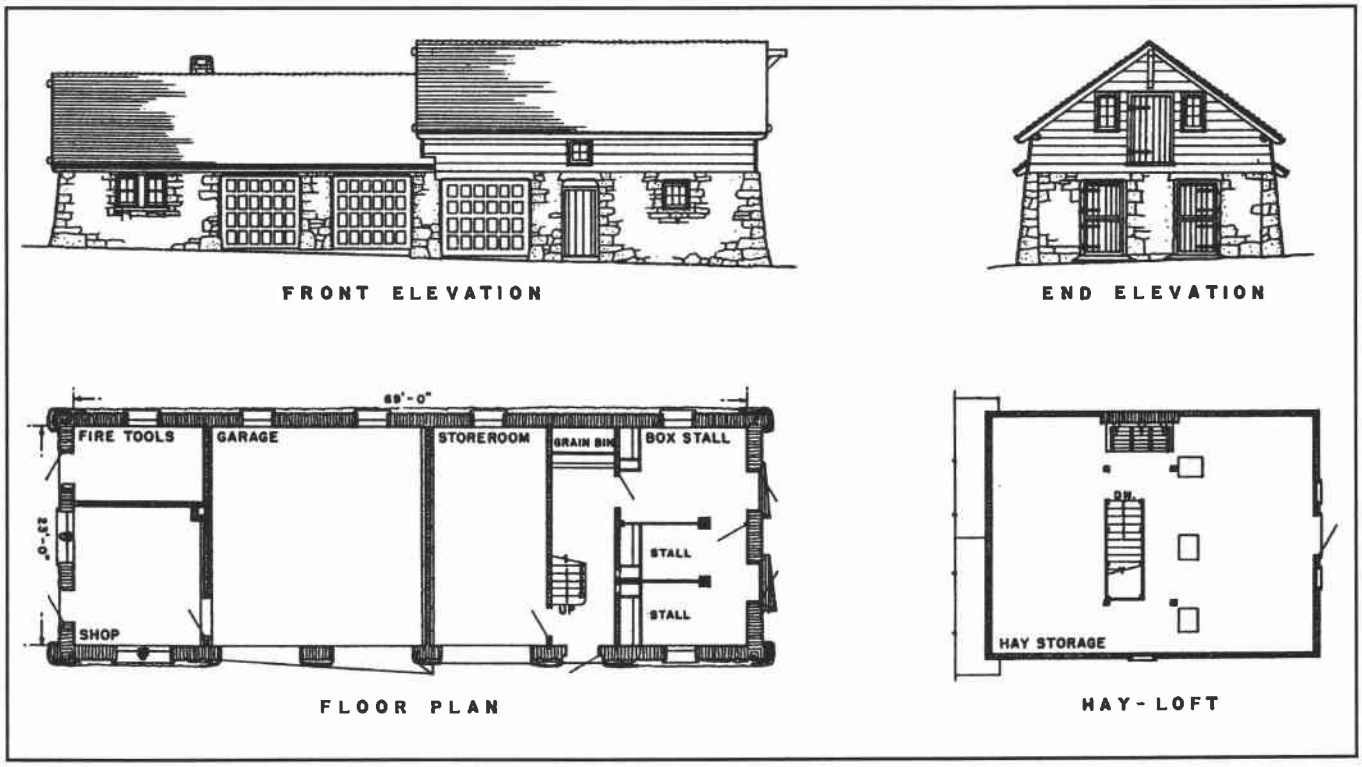


Figure 2–58. *Shop and barn, Anita Moqui Ranger Station, Kaibab National Forest, Region 3*

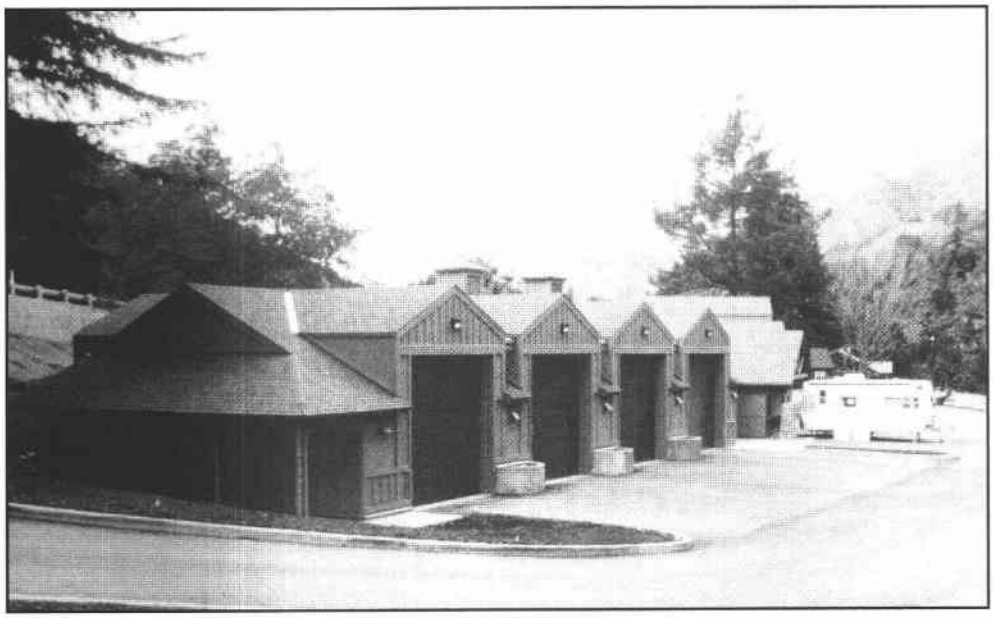


Figure 2–59. *Big Sur Warehouse, Los Padres National Forest, Region 5 (1992)*

Figure 2–60. *Mule Creek Boat Dock and Monorail, Shasta-Trinity National Forest, Region 5*

Figure 2–61. *McCall Smokejumper Training Base, Payette National Forest, Region 4 (1987)*

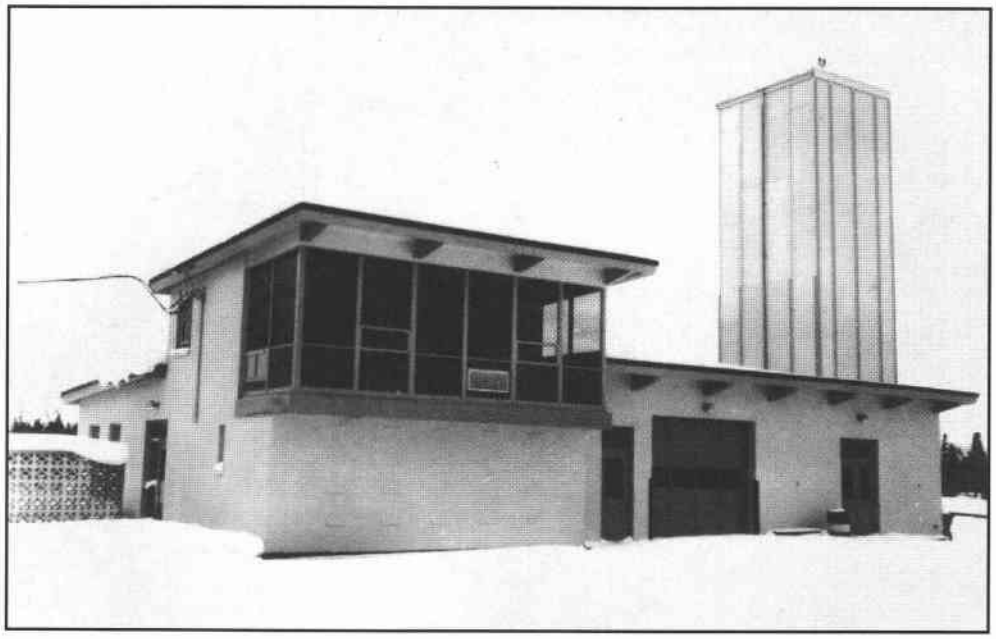


Figure 2–62. *West Yellowstone Fire Control Center, Montana, Region 1 (1965)*

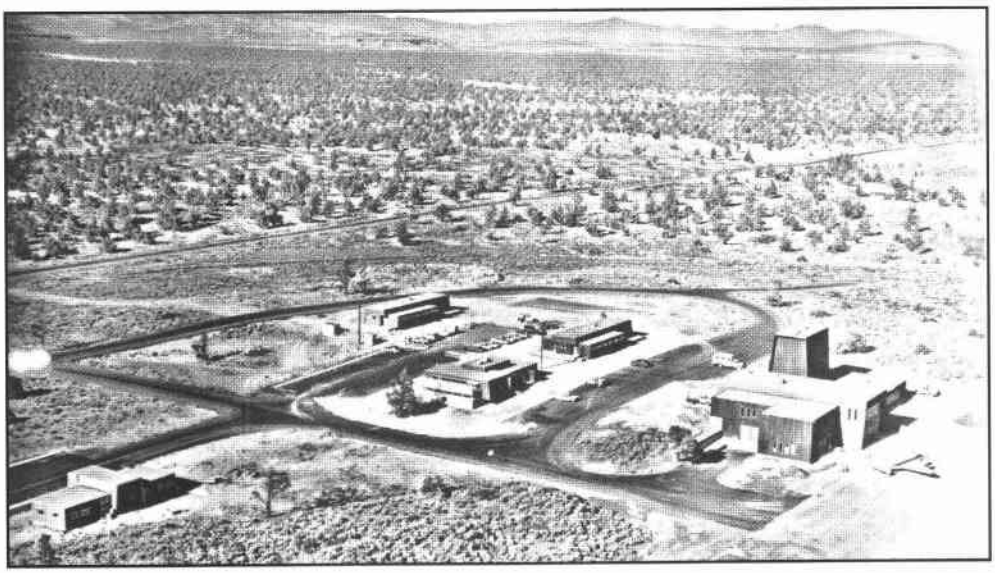


Figure 2–63. *Air Center, Redmond, Oregon*

Lookouts

The Lookout

'Way above the forests, that are in my care,
Watching for the curling smoke – looking everywhere,
Tied onto the world below by a telephone,
High, and sometimes lonesome – living here alone,
Snow peaks on the skyline, woods and rocky ground,
The green of Alpine meadows circle me around,
Waves of mountain ranges like billows of the sea –
Seems like in the whole wide world there's not a soul but me.
Peering thru the drift of smoke, sighting thru the haze,
Blinking at the lightning on the stormy days,
Here to guard the forests from the Red Wolf's tongue
I stay until they take me down, when the fall snows come.

— Robin Adair
California District Newsletter, April 1927[1]

The detection and control of fires in remote wildlands has posed a special problem to the Forest Service throughout its history. Federal involvement in fire control began with the National Park Service and was later introduced into the forest reserves. The need for fire detection and prevention increased as more land was set aside by the Federal Government and as destructive fires increased.

During the early 1900's, the General Land Office carried out extensive surveys to properly place monuments to mark forest boundaries. Mapping was done on each forest, and it was probably during this time that specific mountaintops were considered for detection locations.

The greatest single motivator for fire protection within the Forest Service was its Chief, Gifford Pinchot. Part of Pinchot's plan was to convince the public that the Forest Service mission included fire detection and prevention. Pinchot and many of his followers believed that wildland fires should be prevented whenever possible or, if that failed, that fires be suppressed. Pinchot's vision would shape the future Forest Service, but lack of funding restricted the development of fire control until the second and third decades of the 20th century.[2]

In a paper written in 1910, Henry Graves stated:

> The mere fact that a tract is carefully watched makes it safer, because campers, hunters, and others crossing it are less careless on that account. By an efficient supervision most of the unnecessary fires can be prevented, such as those arising from carelessness in clearing land, leaving campfires, and smoking; from improperly equipped sawmills, locomotives, donkey engines; etc.
>
> One of the fundamental principles in fire protection is to detect and attack fires in their incipiency. In an unwatched forest a fire may burn for a long time and gain great headway before being discovered. In a forest under proper protection there is some one man or corps of men

> responsible for detecting fires and for attacking them before they have time to do much damage or to develop beyond control.

The earliest lookouts were high peaks with an unobstructed view, with tents as shelters and short mapboard stands for pinpointing the smoke on maps. After 1905, tall trees, crude observation-only towers (figure 2–64), platforms, and small log cabins began to be used.[3]

By 1911, cabins and cupolas (figure 2–65) were being constructed on mountaintops. In 1914, Aeromotor Company observation-only towers with 7- x 7-foot wood or metal cabs were approved in several Regions. A commonly built lookout tower design was the timber tower, which was used as early as 1914. Its design borrowed from similar designs used for years by the oil industry.

In 1914, Coert DuBois in *Systematic Fire Protection in the California Forests* wrote:

> The lookout man's dwelling, office and workroom should be centered in one house, on one floor, and in one room. The room can not be less than 12 feet square, and must be so constructed that at any moment of the day, with the turn of the head, he can see his whole field. He must be fixed so that while he is cooking, eating, reading, writing, dressing, washing his clothes, walking about, or sitting down, he can not help but be in the best position to see.[4]

Forests in Region 1 began to experiment with lookout construction as early as 1915. The first lookout tower in Region 1 was erected in 1916; it comprised a small cab mounted on a windmill tower. Two of the earliest lookouts in the Region were built according to the standard District 6 design. The so-called D-6 lookout was a 12- x 12-foot frame structure with an observation cupola centrally located on the gable roof. A third lookout of this vintage was the Cedar Mountain Lookout on the St. Joe National Forest. This two-story frame structure followed an improvised plan and is apparently unique.[5]

Some lookout points required a tower to obtain a view over the treetops. This type of structure had to be durable against extreme weather conditions, high winds, and lightning strikes. In the late 1920's, Clyde Fickes designed a prefabricated lookout cab that was used extensively throughout Region 1. It was said that the cab did not become rigid until the windows were installed.[6] Lookout construction in Region 1 received high priority in the 1920's; between 1921 and 1925, 61 structures were completed. Between 1926 and 1930, an additional 130 were built. By the end of the decade, the total number of occupied points reached approximately 800.[7]

In the Rocky Mountain Region, despite the acknowledged need for fire detection facilities, no official funding was allocated for construction of fire cabins or towers until the early 1910's. As a result, cabins and towers built during this era were typically constructed by rangers using scrap materials or materials that could be found on site. Even this, however, was a step up from the tents that had been previously used to shelter lookouts. There were few standardized designs in Region 2 through the 1950's.[8]

The Leon Peak Lookout on the Grand Mesa National Forest in Region 2 (figure 2–66) is believed to have been constructed in 1911 and 1912 by Clay Withersteen with the help of Rosco Bloss, a local seasonal Forest Service

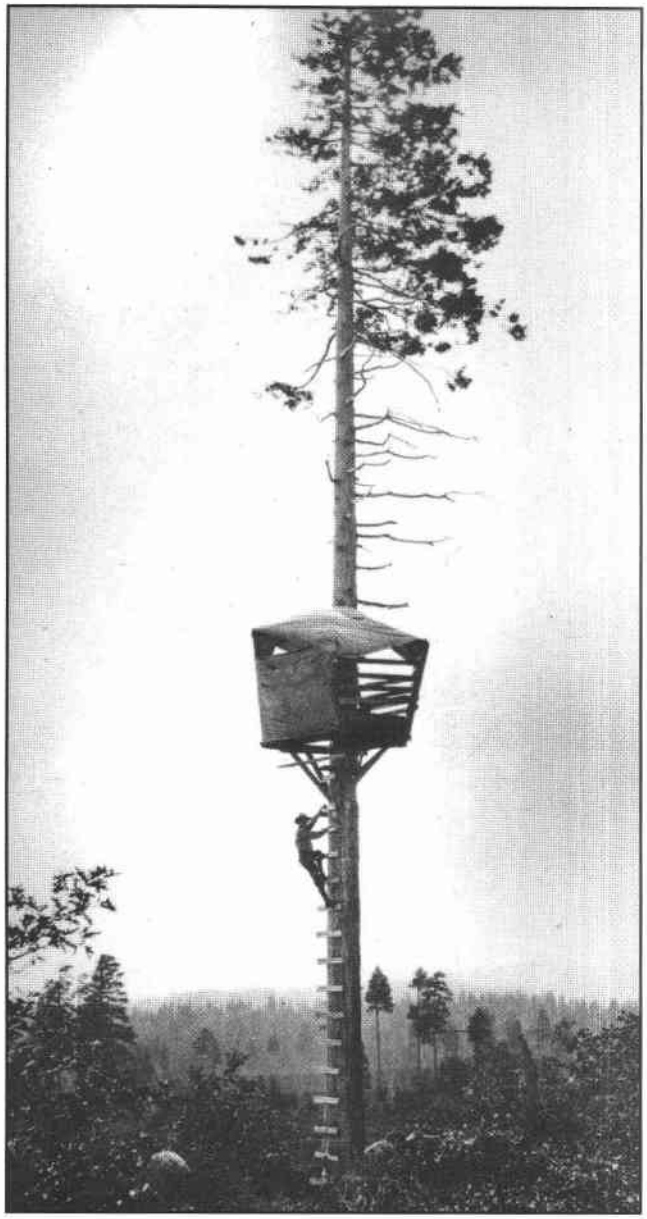


Figure 2–64. *Lookout tree on Bull Hill, Lassen National Forest, California (1912)*

Figure 2–65. *Signal Peak Lookout, Sierra National Forest, Region 5 (1910)*

employee who was an accomplished carpenter. Bloss was lookout guard in the summers of 1914 and 1915. All materials were carried up by backpack. The cupola cabin topology of this lookout consisted principally of a square log room with a glass observation cupola centered on its pyramidal roof.[9]

In California, the 14- x 14-foot duBois design of 1917 established the basic floor plan for all live-in cabs built since. The duBois plans indicate that the cab could be placed on timber towers, but no height specifications are given. The tower design was of a nonbattered type similar to railroad water-tank towers. Since then, the live-in observatory has been the preferred design for California, no doubt a result of duBois's insistence that the operator should be kept in direct sight of the seen area at all times; in effect, maximizing the potential to spot and locate fires—day or night.

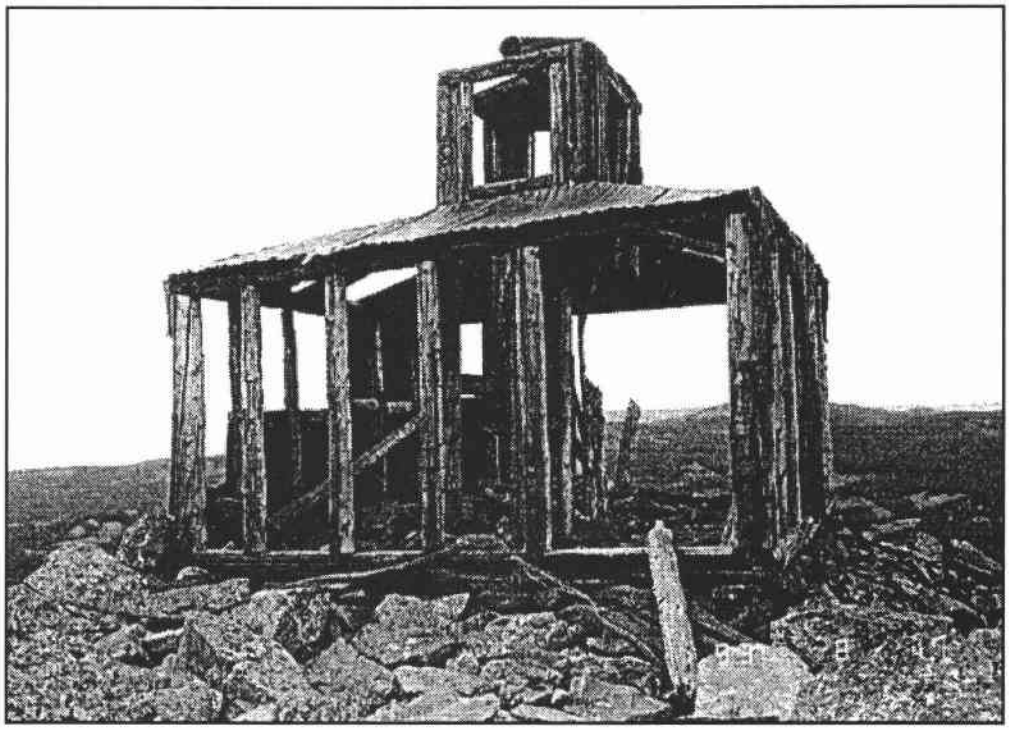


Figure 2–66. *Leon Peak Lookout (photo taken August 1993)*

In the early 1930's, California Regional Forester S.B. Show formed an investigative group at the California Forest Range and Experiment Station to scrutinize every aspect of fire detection. The group, headed by Edward Kotok, provided a report of its findings in 1933, just prior to the inception of the Civilian Conservation Corps. The Region immediately took advantage of the CCC workforce and initiated a massive program of construction projects, including 250 lookout towers and cabs built between 1933 and 1942.[10]

The 1937 circular "Planning, Constructing, and Operating Forest-Fire Lookout system in California" noted:

> The lookout house is probably the most distinctive structure used in forest-fire control. It now represents the product of 20 years of evolution and reflects many features that have become standard through long experience by the Forest Service. The details of design vary and are still in process of change, but the main features now conform closely to the essentials of a common design.[11]

During World War II, the Aircraft Warning Service was established, operating in 1942 and 1943. Aircraft Warning Service volunteers staffed selected lookouts 24 hours a day, 365 days a year.

After the war, the increase in air pollution limited visibility around large urban areas. Use of the forests grew, road systems expanded, and citizen reports of fire began to equal reports by lookouts. Coupled with the increased aerial surveillance and later satellite surveillance, the use of the lookout tower correspondingly diminished.

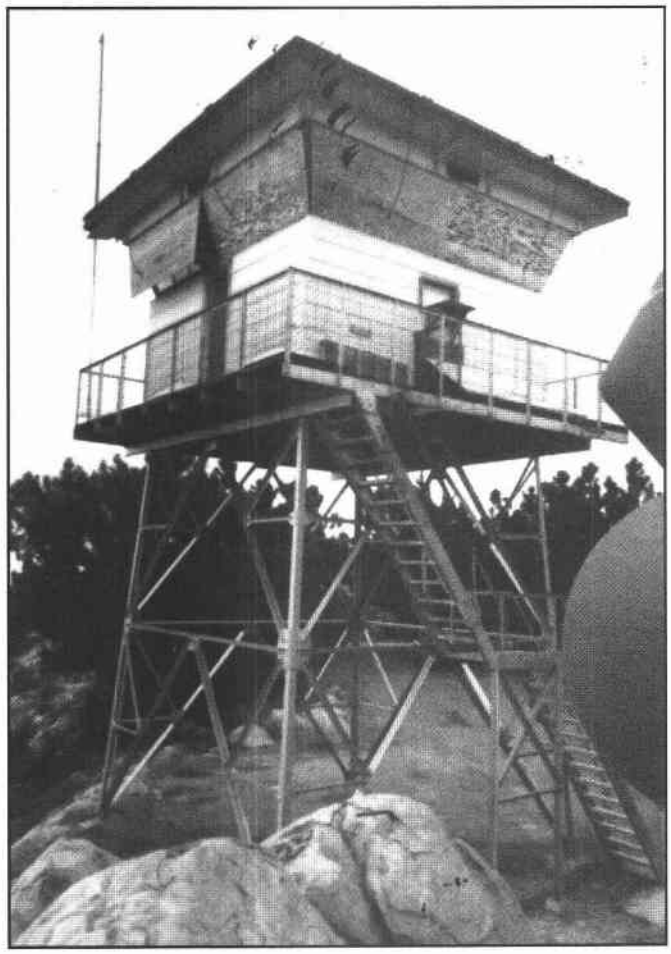


Figure 2–67. *LaCumbre Peak Lookout, Los Padres National Forest, Region 5 (1945)*

Just after the end of World War II, Keplar Johnson in Region 5 designed an "experimental lookout" for La Cumbre Peak on the Los Padres National Forest (figure 2–67). The lookout was innovative, with a steel frame cab, columns, roof beams, ties, and girders. It also had sloped windows similar to those on airport control towers. The project was funded jointly by the Washington Office and Region 5. Compared with other lookouts, La Cumbre Peak was somewhat expensive, costing $6,500. With the loss of the CCC and lean budgets after the war, funding for similar projects was rare.

The last new lookout in California was the Antelope Peak Lookout on the Lassen National Forest (figure 2–68). Built in 1977 with cooperative funding from NASA, the project tested solar energy technology. A 1979 *Sunset* magazine included an article on this structure: "Sun powers lookout":

> "A neat twist to kerosene lamps." That is how one forest ranger described the new solar system that provides light and power for the Antelope Peak lookout tower in the Lassen National Forest. The nation's first to be powered by solar cells has a panoramic view from the top of timberland and meadows, Mount Shasta, Mount Lassen and cool blue Eagle Lake. Atop the 7,684-foot peak, the hexagonal tower sits poised like a rustic spaceship. On its south-facing side are eight panels

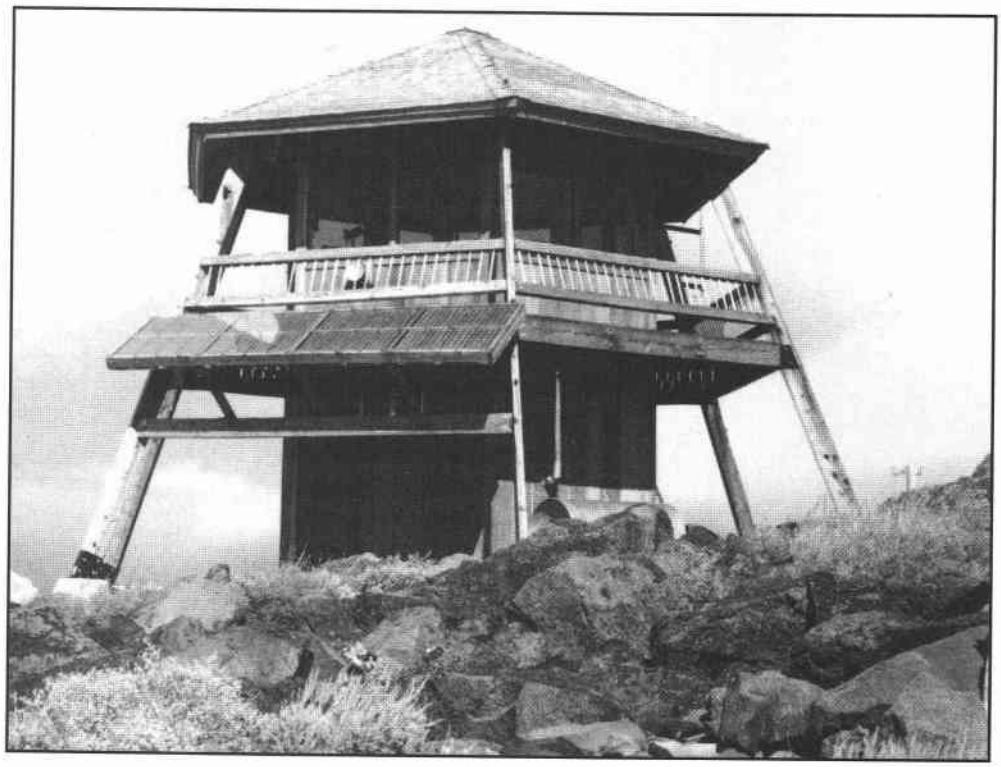


Figure 2–68. *Antelope Peak Lookout, Plumas National Forest (1974). This was the last lookout designed in Region 5, a wood tower and cab built in cooperation with NASA to test solar electric panels. Bob Sandusky was the designer.*

that can generate 300 watts at high noon. When sunlight strikes the silicon wafer cells, they produce enough electricity (stored in 18 batteries) to operate the stations lights, radio, waterpump and appliances that include a refrigerator and a small television—"all the comforts of home," as fire lookout Virginia McAllister says.

The lookouts who spent their time in these remote, isolated forest environments had to be self-contained people with a sense of humor. A lookout at the Timber Mountain Lookout on the Colville National Forest in Region 6, wrote the following poem in 1948:

I like FS biscuits;
think they're mighty fine.
One rolled off the table
and killed a pal of mine.

I like FS coffee;
think it's mighty fine.
Good for cuts and bruises
just like iodine.

I like FS corned beef;
it really is okay.
I fed it to the squirrels;
funerals are today.

Figures 2–69 through 2–74 show additional examples of lookout design styles in several Regions.

Notes

1. Mark Thorton, *Fixed Point Fire Detection: The Lookouts*, p. 4
2. Ibid., pp. 23 -24
3. Ibid., p. 6
4. Ibid., p. 8
5. Historical Research Associates, p. 38.
6. Ibid., p. 8
7. Ibid., p. 38
8. Schneck and Hartley, p. 96
9. Ibid., p. 97
10. Thorton, p. 16
11. Thorton, p. 42

Figure 2–69. *Bald Mountain Lookout, Sierra National Forest, Region 5 (1910)*

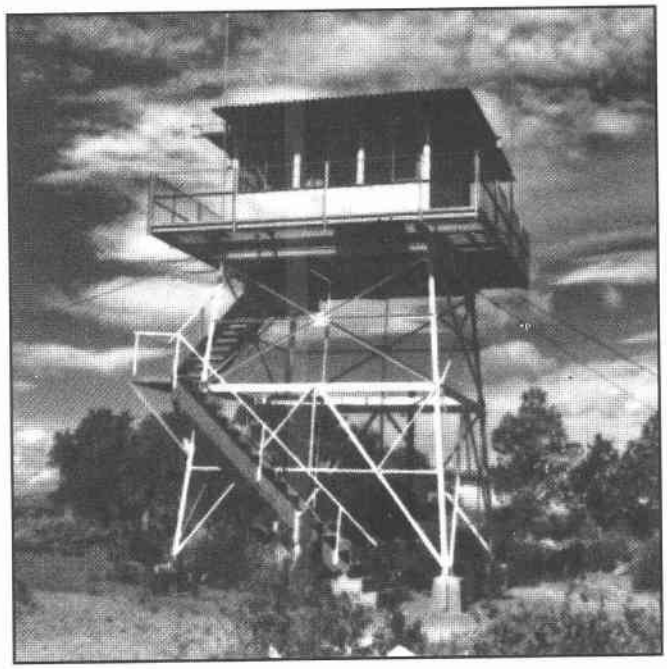


Figure 2–70. *Blue Mountain Lookout, Modoc National Forest, Region 5 (1930)*

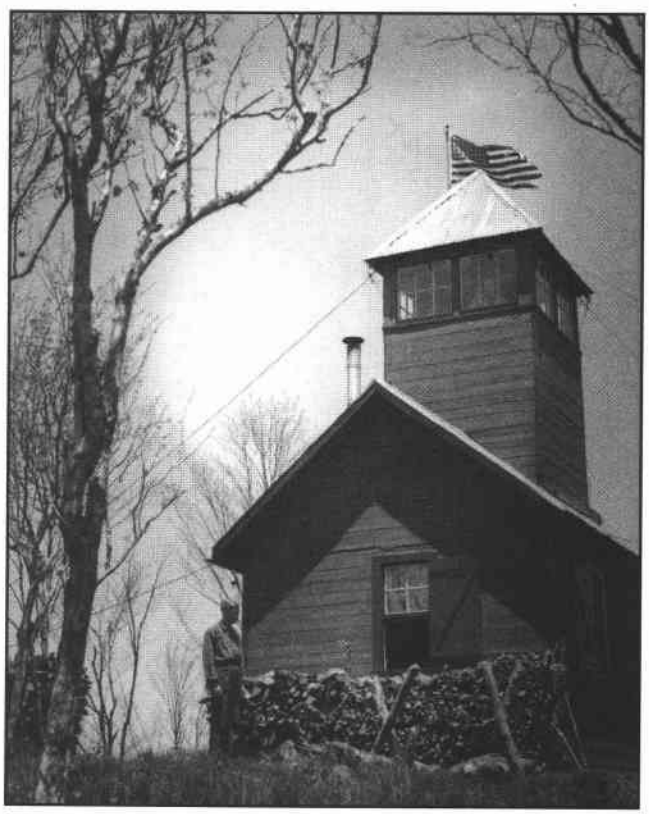


Figure 2–71. *Hayes Lookout, Nantahala National Forest, North Carolina, a low wooden enclosed structure with a 6- x 6-foot cabin built by the CCC in 1939*

Figure 2–72. *Blue Point Lookout, Cascade Ranger District, Boise National Forest, Region 4 (1920)*

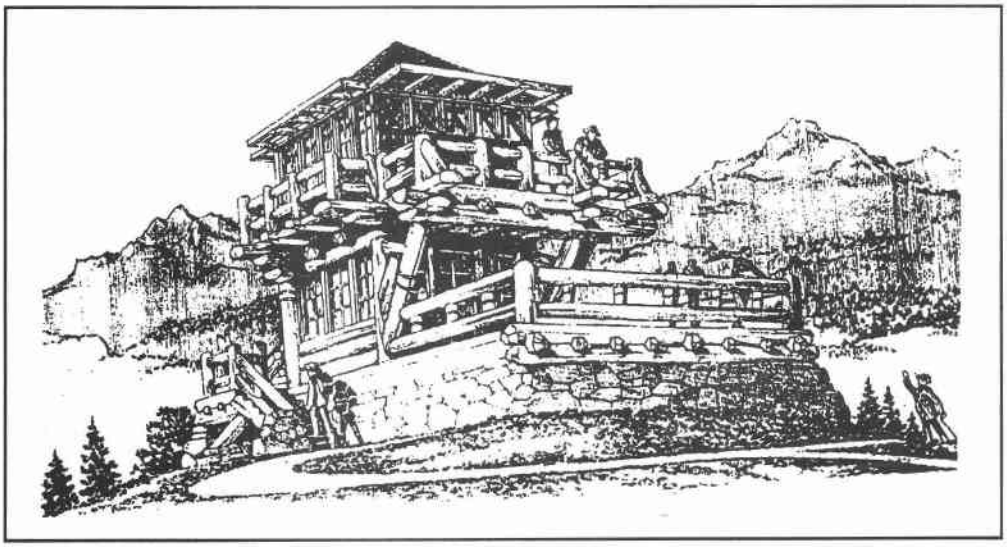


Figure 2–73. *Sketch of an early Region 6 lookout*

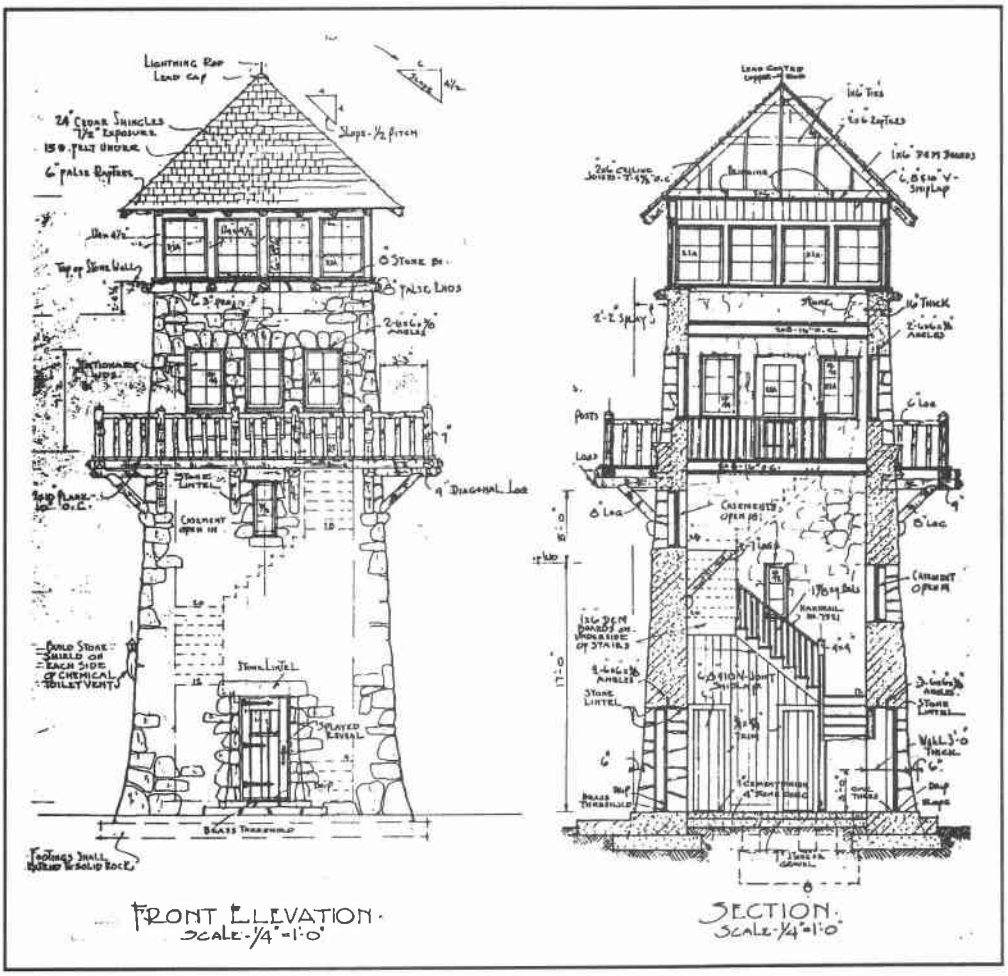


Figure 2–74. *Wayah Bald Observation Tower, North Carolina (1938)*

Recreation Buildings

The category of buildings with the second greatest number and diversity of types is recreation buildings. In a 1940 supplement to the "Acceptable Plans" book, Groben writes:

> All recreation structures should be designed to serve their intended purpose, be of architectural and engineering soundness, and harmonize with the forest environment of recreation areas as much as possible, consistent with utility, good structural design, and reasonable cost of construction and maintenance.
>
> The very fact that recreation structures should harmonize with the environment precludes definite standardization of design. Functional requirements also vary somewhat with locality and are likewise difficult to standardize in definite pattern.[1]

Foresters became aware of the demand for recreation well before the creation of the National Park Service in 1916. The 1913 annual report stated, "Recreation use of the Forest is growing very rapidly, especially on Forests near cities of considerable size."[2] The creation of the National Park Service in 1916 touched off an interagency land struggle that spurred limited Forest Service development of a variety of recreational sites and buildings, including campgrounds, trails, shelters, and toilets, as well as encouragement of summer home sites and structures, throughout the 1920's. Americans visited the national forests in record numbers, due in part to greater access to automobiles and the development of roads within the forests. In 1925, somewhat more than 5 percent of the amount spent on new buildings supported campground development.

One writer summarized the influence of roads on the growth of recreational use in the national forests:

> Although it was not their original purpose, the 'fire roads' did much to open the forests to recreational use by hunters and hikers who still gratefully use them today. The development, especially after World War II, of four-wheel-drive vehicles such as jeeps made these trails even more popular. CCC men also built trails for hiking, especially short ones to spots of particular natural beauty of interest, often providing bridges and steps for visitors also.
>
> Since road building and automobile ownership were making the forests accessible for recreation, the Forest Service put some of the CCC boys to work building campgrounds. A campground might include shelters, toilet facilities, picnic tables, fireplaces, parking lots, and water supply systems. ... Bathhouses were built at some good swimming areas.[3]

The Forest Service had good reasons for welcoming recreation use of the forests. One reason was to obtain broad-based political support for the development of the forests. Public demand for access to the forests translated into Federal dollars for road construction, which in turn increased the

value of all other natural resources the forests possessed. Americans were visiting the national forests in increasing numbers, mainly because automobiles gave them unprecedented ease of access. But the values that drew them to the forests ran deep. To the dismay of many, the United States was becoming an urban nation; the 1920 census revealed that for the first time a majority of U.S. citizens lived in communities with populations greater than 2,500. Americans were adjusting rather nervously to a faster pace of life. The first areas of greatest concentration of summer visitors were on the Angeles National Forest of southern California, the Mt. Hood National Forest in northern Oregon, and the Pike and San Isabel National Forests in central Colorado, all in mountains near cities.[4] Forest Service management plans for recreation aimed first at preserving scenery: belts of timber were left uncut along highways, around lakes and campgrounds, and in settings that were attractive for summer homes.

Having closed the Columbia River Gorge Park to the development of summer cabins or private resorts, the Forest Service found itself forced to assume greater responsibility for the recreational facility development it had done in other areas of high recreational potential. During the summer of 1916, the Mt. Hood National Forest developed the Eagle Creek Campground within the Columbia River Gorge Park. Apparently for the first time, the Forest Service undertook the construction of a public campground in the modern sense. Facilities included camp tables, toilets (figure 2–75), a check-in station, and a ranger station.[5] Ranger Albert Weisendanger and his wife welcomed many visitors to the campground, which provided a convenient place to stop along the now historic (but then under construction) Columbia Gorge Highway.

Construction of recreational improvements accelerated during the 1930's. CCC enrollees nationwide constructed numerous campground structures. The next acceleration of recreation development came in 1957 under the "Operation Outdoors" program, which expanded recreation in the national

Figure 2–75. *First substantial toilet building, Mt. Hood National Forest, Region 6 (1916)*

forests. Today the national forests are the public's number one recreational destination point.

The "Campground Improvement Manual" from Region 5, dated March 1, 1933, states: "The most important feature on a campground, both from the viewpoint of the camper and sanitation, is the latrine."[6] This manual includes six latrine types as regional standards (for example, figure 2–76 shows the design for localities of heavy snowfall). These designs were developed over a 10-year period. The manual includes a bill of materials for all designs. Flush toilets were rare during this time.

In the Improvements section of the Region 6 Recreation Handbook, dated February 23, 1935, under Registry Booths, it states: "... suggested types of special registry booths ... used at class A camps ... should be places near natural gathering places."[7] The designs are quite rustic (figure 2–77).

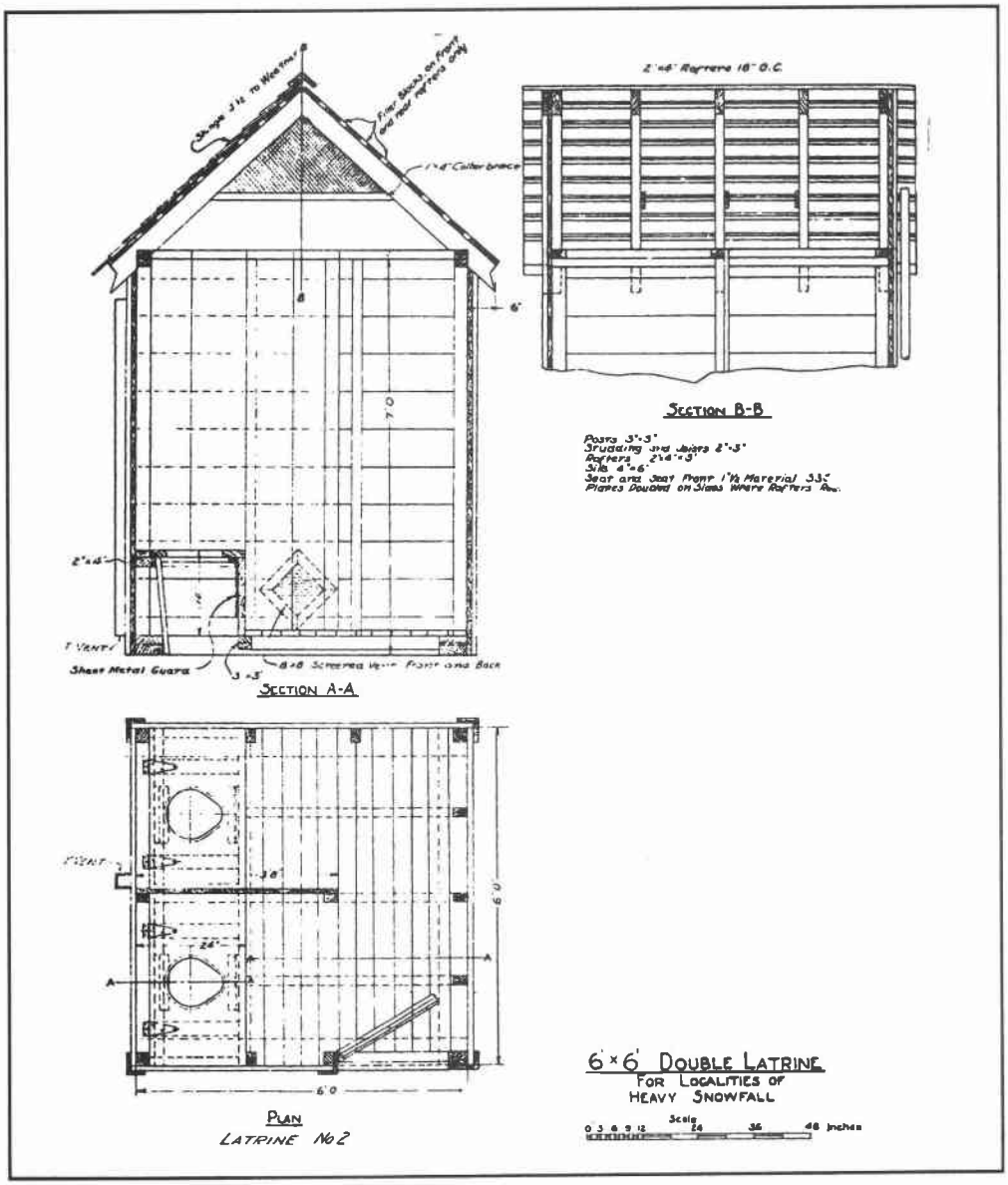


Figure 2–76. *Double latrine design from Region 5 Campground Improvement Manual (1933)*

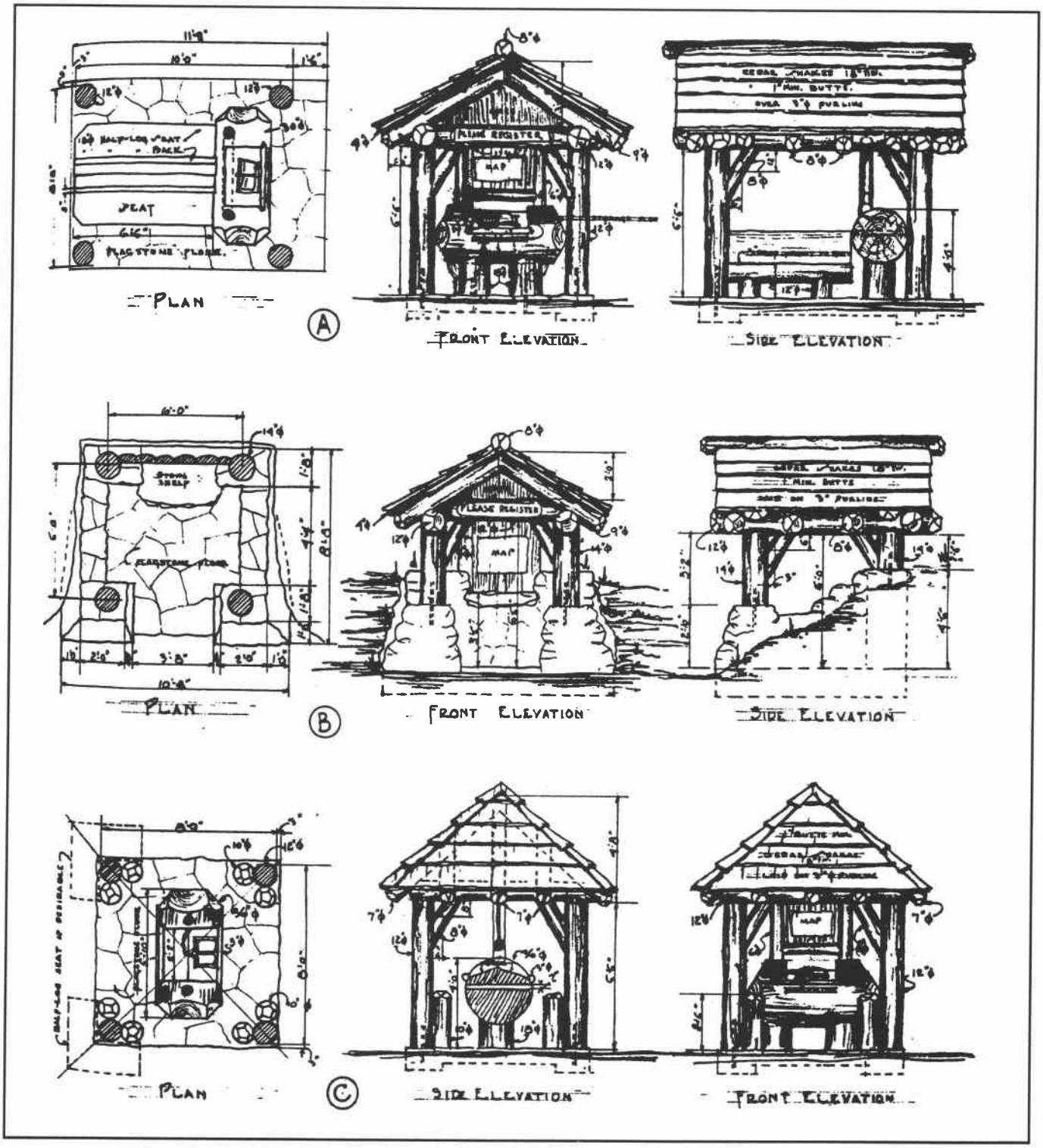


Figure 2–77. *Design for a registry booth from the Region 6 Recreation Handbook (1935)*

In the Eastern Region's "Handbook of Administration—Recreation," dated March 15, 1935, under Forest Camp Facilities, it states: "Comfort stations will be provided throughout Forest Camps at convenient locations to accommodate the people in that vicinity. The structures themselves will be designed to give efficient service for the use and will be of pleasing proportions and finish" (figure 2–78).

In a foreword to a report in 1936 by consulting landscape architect A.D. Taylor, Acting Chief of the Forest Service C.M. Granger noted:

> ... that the increasing social use of our National Forests places a great responsibility on us to preserve the natural aspects of the forests, and at the same time to provide areas and accompanying facilities for the many kinds of recreation activities for which so many millions of people enter the National Forests each year.[8]

In the 1960's, Congress passed a bill funding construction of campgrounds at new and existing reservoirs and lakes in the Nation; these had a considerable impact on the Forest Service recreation design and construction program. This increased funding started a trend toward campgrounds with larger capacity in the more urban forests.

Almost all Regions publish a catalog of standard recreation structures that is edited at least every 5 years. The most prevalent single type of building for the recreation public is the toilet structure. These range from screened backcountry (wilderness) toilets to one-hole pit toilets for remote camp-

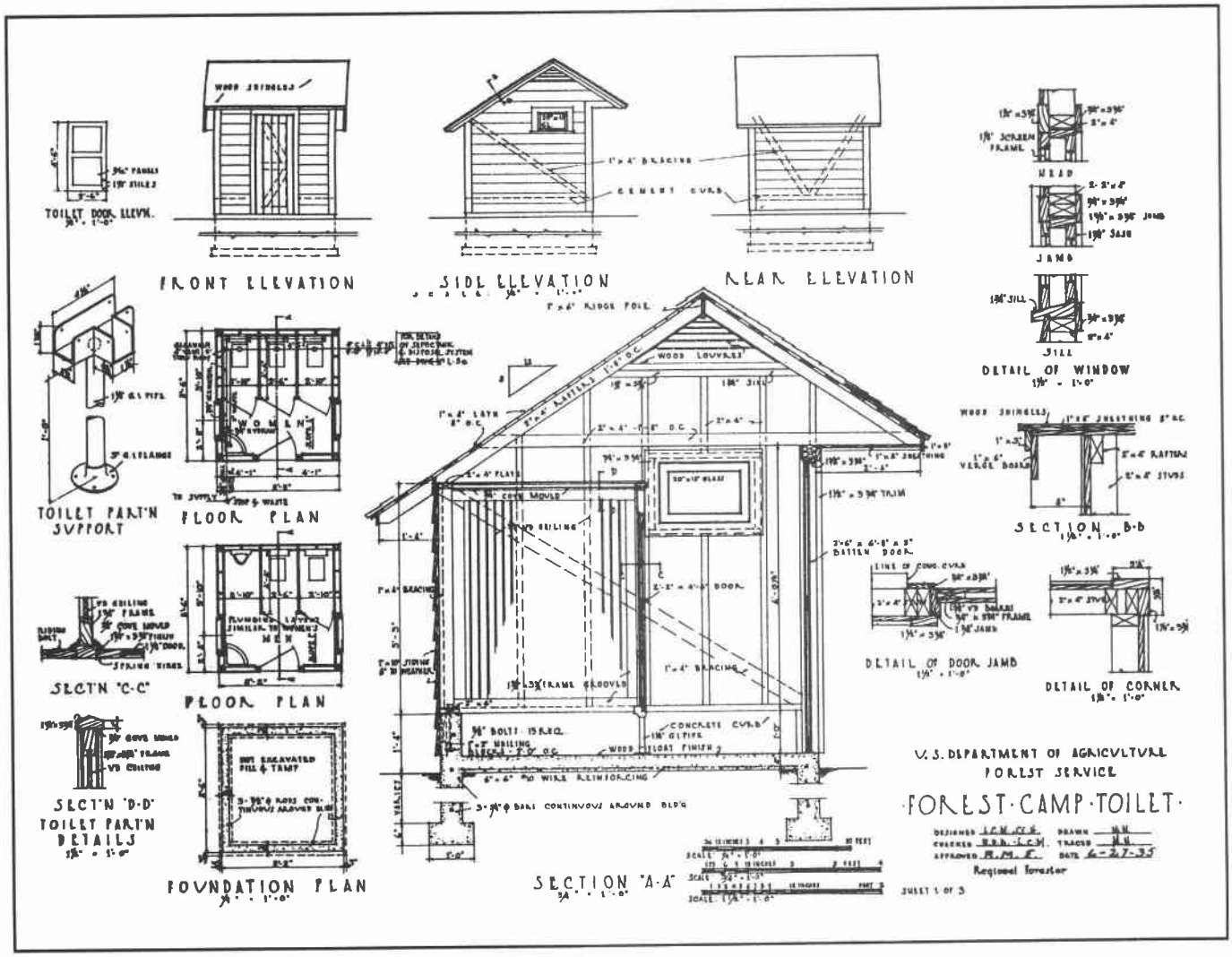


Figure 2–78. *Design for a comfort station from the Eastern Region's Recreation Handbook (1933)*

grounds to the flush comfort station for urban-type campgrounds. Because most new architects start out with a toilet design or redesign, there are as many different designs as there are designers. See figures 2–79 through 2–92 for additional examples of toilet buildings, including modern vault and flush toilets.

A continuing concern with vault and pit toilet buildings was, and still is, the venting of the holding tank for the human waste. Odor and insects have made these structures less attractive to the national forest recreational visitor. Over the years, the designs of toilet buildings with holding tanks or pits have employed any number of inventive solutions; these have included fans, solar heaters, wind diverters, and other devices to increase the flow of air upward out of the vault to decrease odors in the building. Briar Cook, a research engineer at the Forest Service's San Dimas Equipment Development Center in California, spent the last years of his career attempting to devise a "sweet smelling toilet." One year he spent many hours down in the tanks doing an inventory of all items deposited there (his list was several pages long). His final "gift" to the agency was a series of toilet buildings with technical innovations to properly vent the vaults to keep unwanted odors and insects out of the interiors of these buildings. These were shown to perform well in laboratory tests, but if the buildings were constructed in the wrong location or orientation in the field, the venting did not work.

Looking at the styles of the various recreation structures of the Forest Service shows that the predominate character of these buildings in the rural areas is rustic—labor intensive with logs, wood shakes or shingles, rough planks, and stone. In urban areas, the buildings are more finished, with plywood siding or concrete blocks and flat roofs, and are more visible to the public. The variety of building types and design styles can be seen in figures 2–93 through 2–102 on pages 119 to 124.

In the early 1990's, recreation became the number one use of the national forests as well as the greatest money maker for the U.S. Treasury from receipts. Since the mid 1990's, more and more programs have focused on the recreational needs within the national forests, including refurbishing, rebuilding, and adding to the recreational structures.

Notes

1. USDA Forest Service, "Recreation Structures," *Acceptable Plans*, p. 2.
2. USDA Forest Service, "A History of Outdoor Recreation Development in National Forests, 1891–1942," p. 2.
3. USDA Forest Service, *Mountains and Rangers: A History of Federal Forest Management in the Southern Appalachians, 1900–91*, p. 78.
4. USDA Forest Service, "A History of Outdoor Recreation," p. 3.
5. Ibid., p. 4.
6. USDA Forest Service, *Campground Improvement Manual*, p. 9.
7. USDA Forest Service, *Recreation Plans—North Pacific Region*
8. Taylor, *Problems in Landscape Architecture in the National Forests*, Foreword.

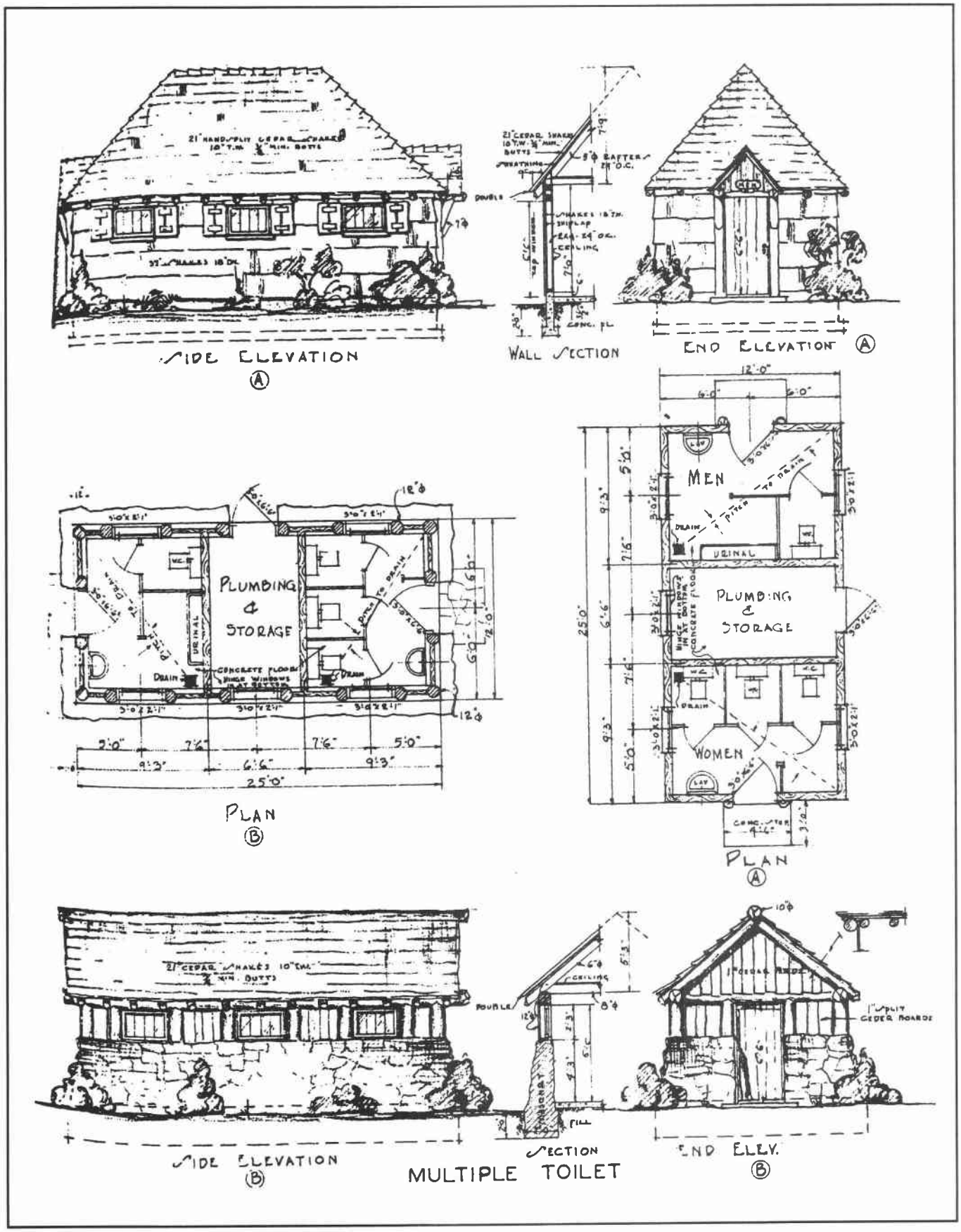


Figure 2–79. *Comfort station with separate multiple toilets, Region 6 (1936)*

Toilet Buildings of the 1930's

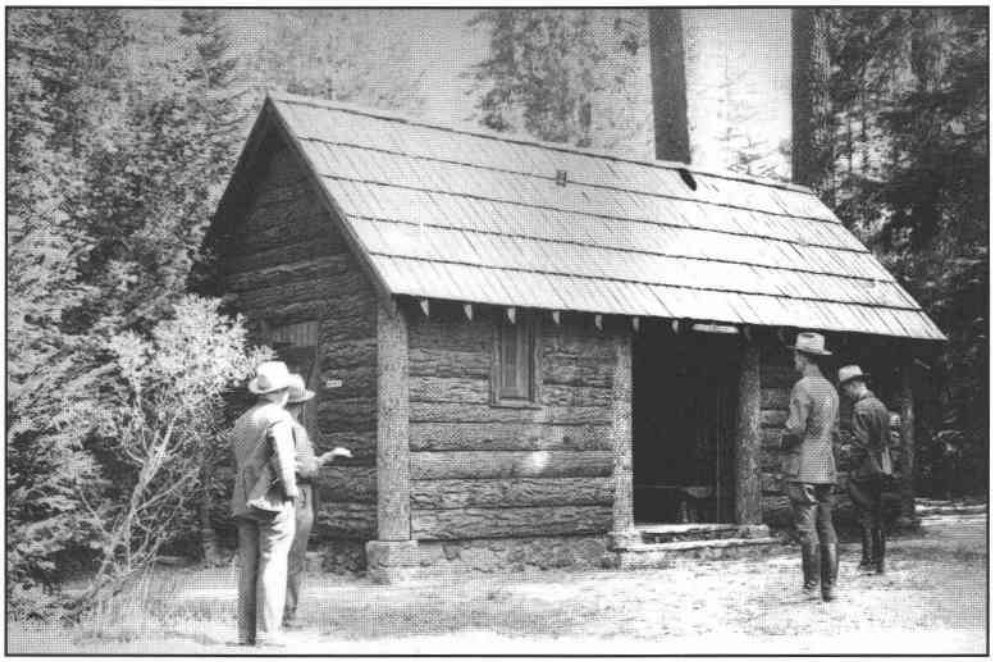


Figure 2–80. *Combination toilet and registration building, Rogue River National Forest, Region 6 (1936)*

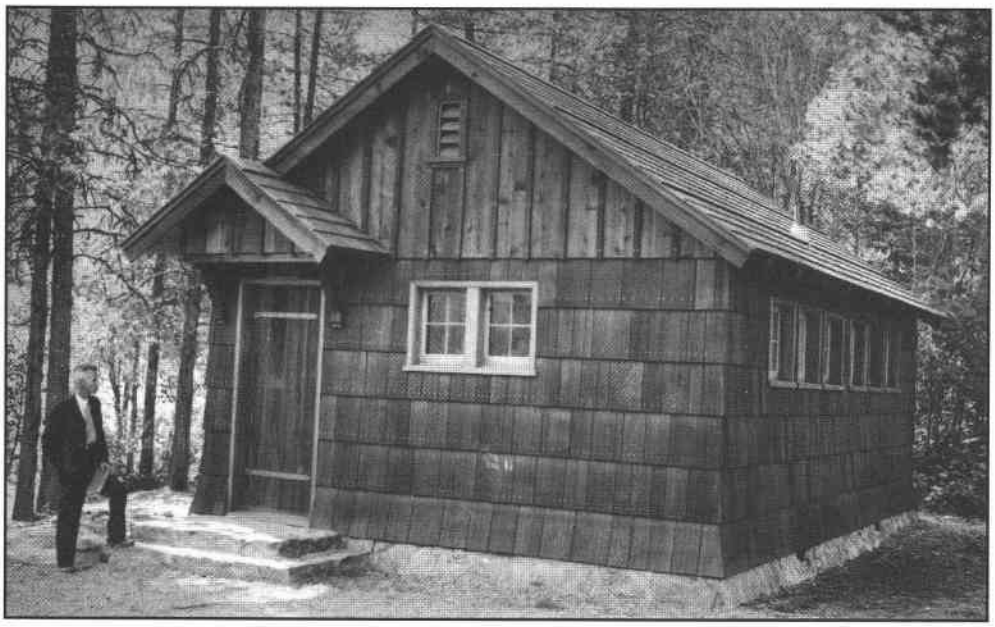


Figure 2–81. *Toilet building and bathhouse, Kaniksu National Forest, Region 1 (1936)*

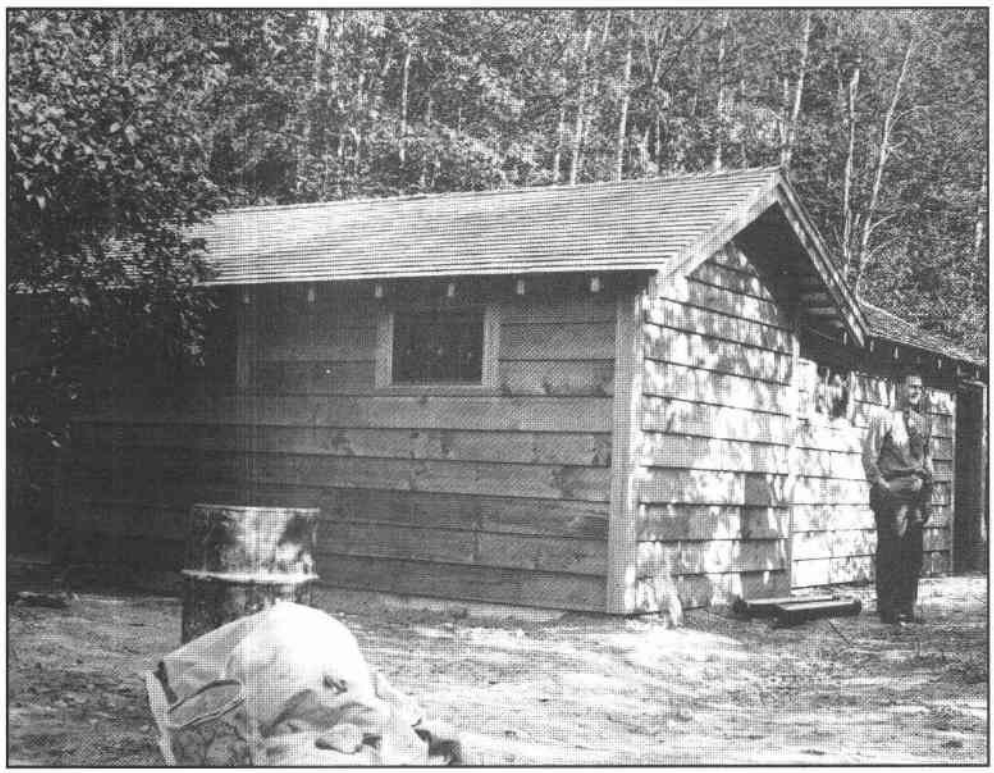


Figure 2–82. *Toilet building, White Mountain National Forest, Region 7 (1936)*

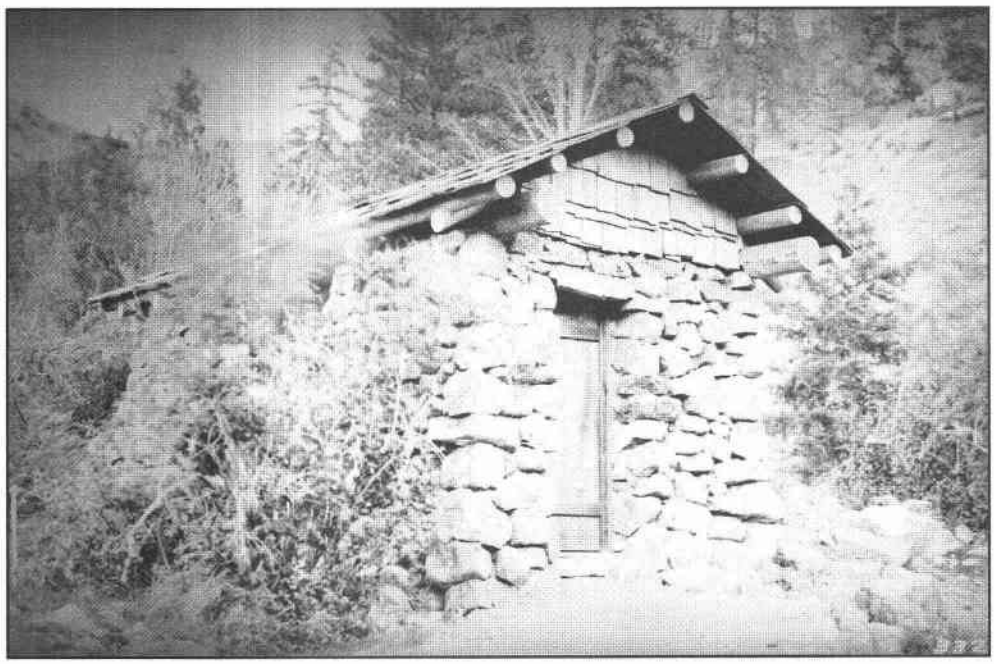


Figure 2–83. *Toilet building, Chelan National Forest, Region 6 (1936)*

Figure 2–84. *Seedhouse Campground toilet, Routt National Forest, Region 2 (1935)*

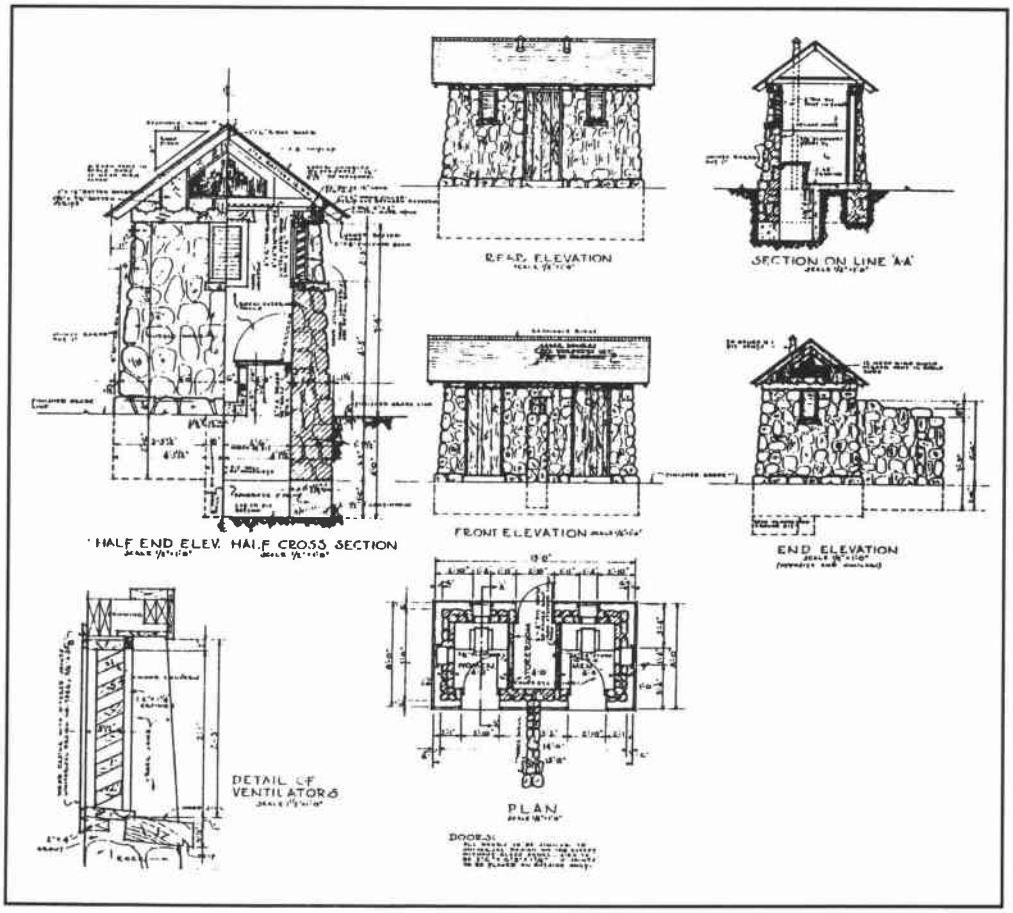


Figure 2–85. *Region 4 standard two-unit comfort station (1934)*

Modern Vault Toilets—Designs of the 1960's

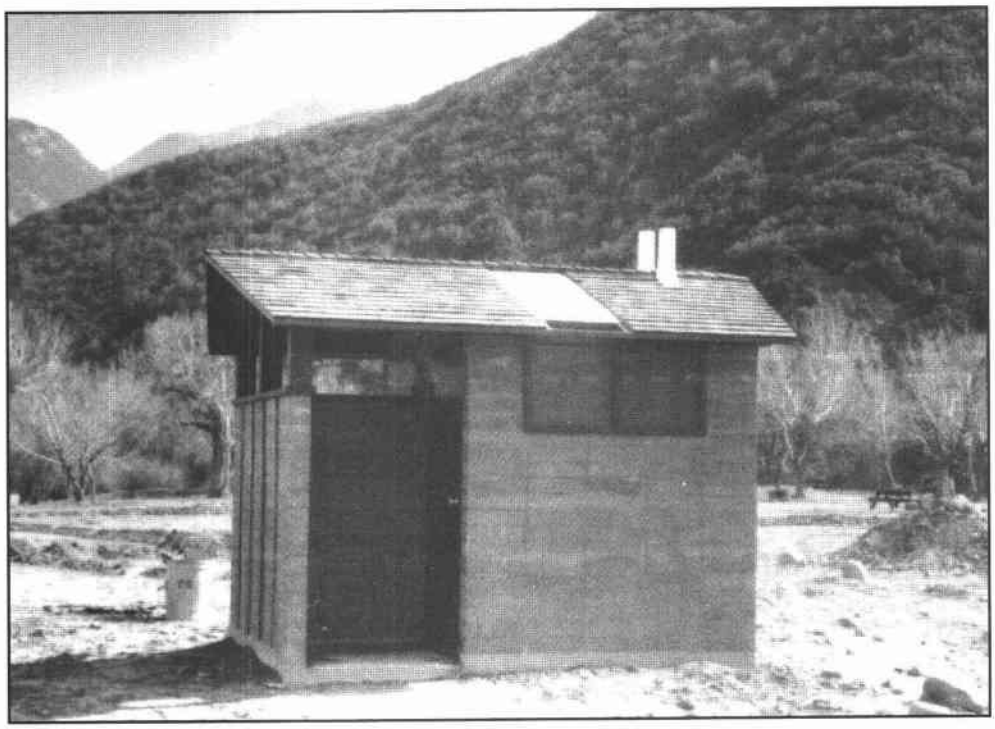


Figure 2–86. *Two-hole vault, southern California, Region 5*

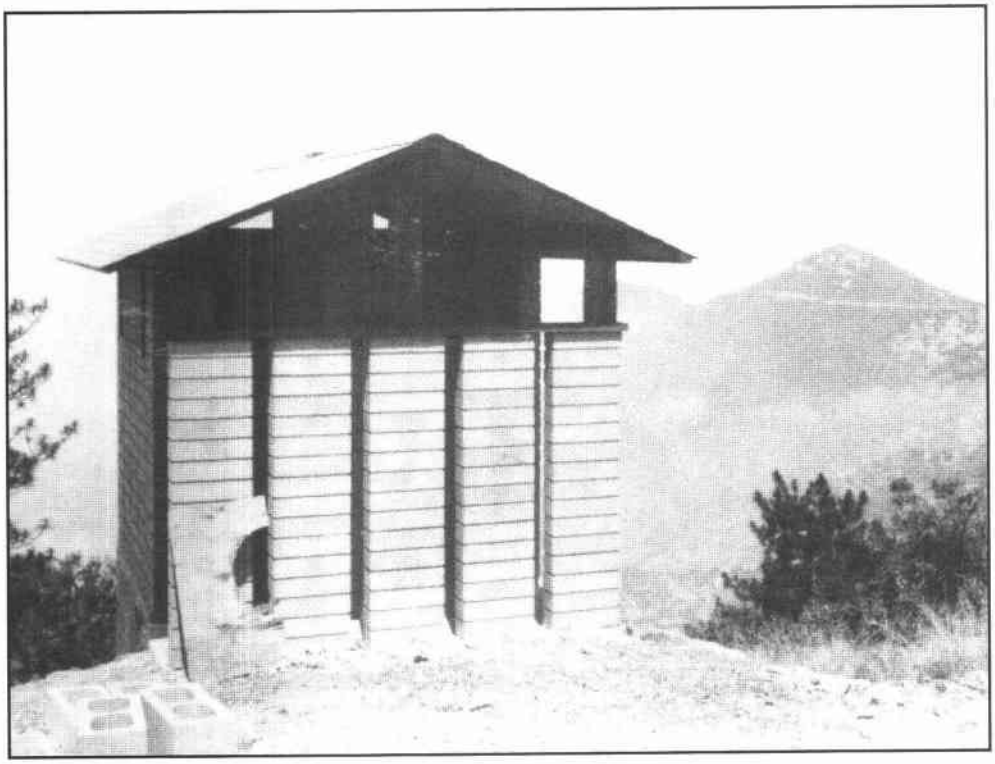


Figure 2–87. *Mountaintop vault structure, Region 5*

Flush Toilets

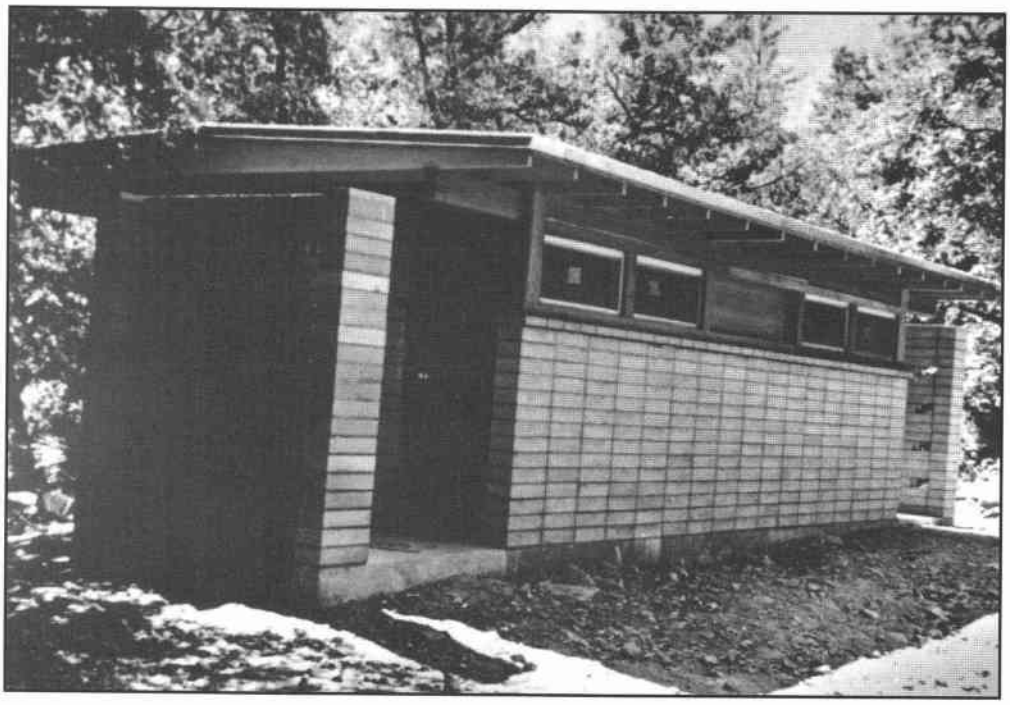


Figure 2–88. *Flush toilet, San Bernardino National Forest, Region 5 (1960)*

Figure 2–89. *Flush toilet, Plumas National Forest, Region 5 (1960)*

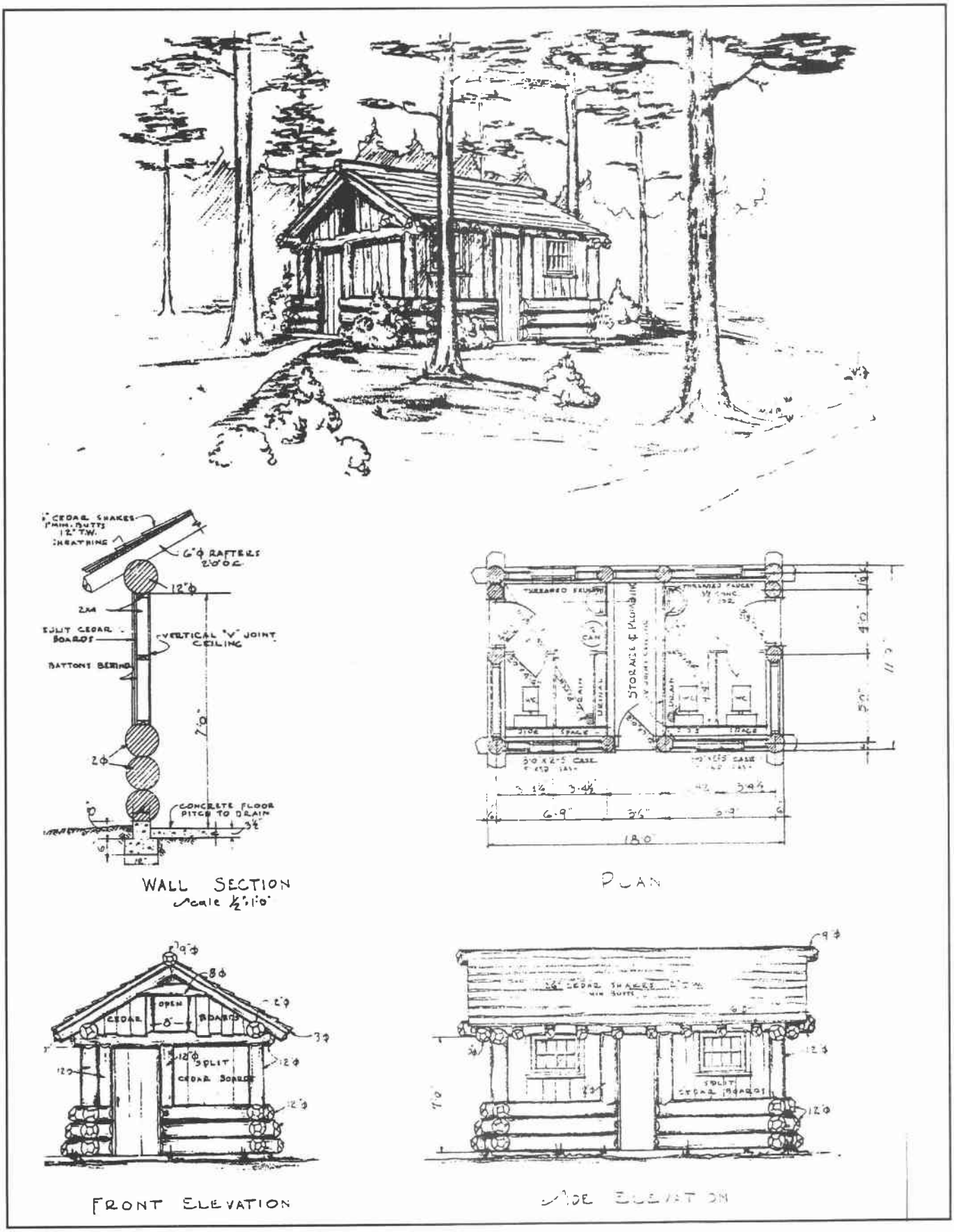


Figure 2–90. *Combination flush toilet, Region 6*

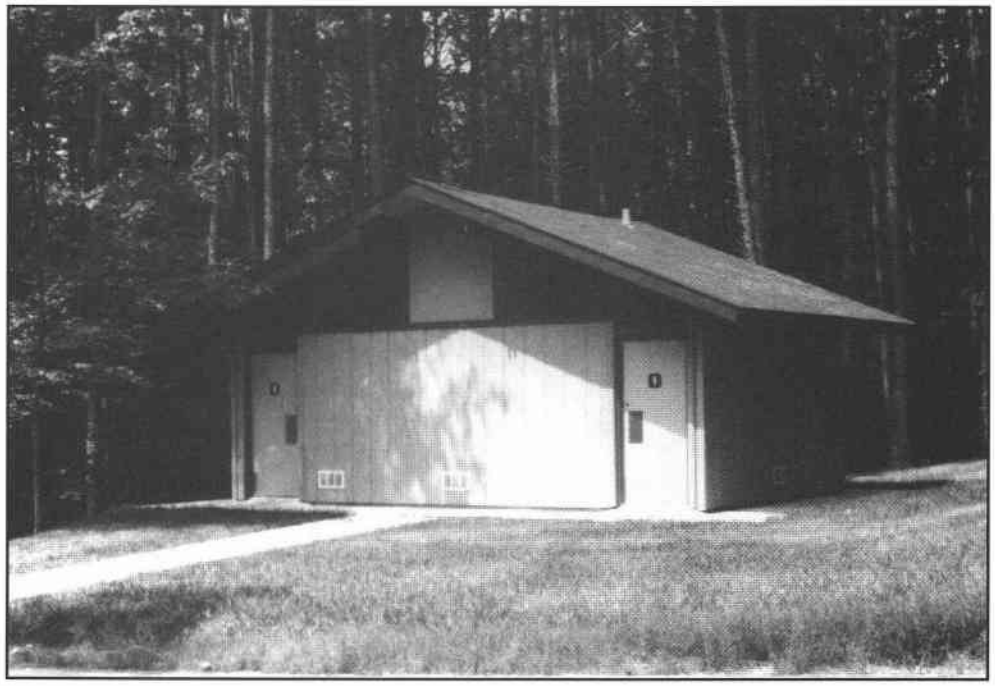


Figure 2-91. *Modern flush toilet, Region 8 (1980)*

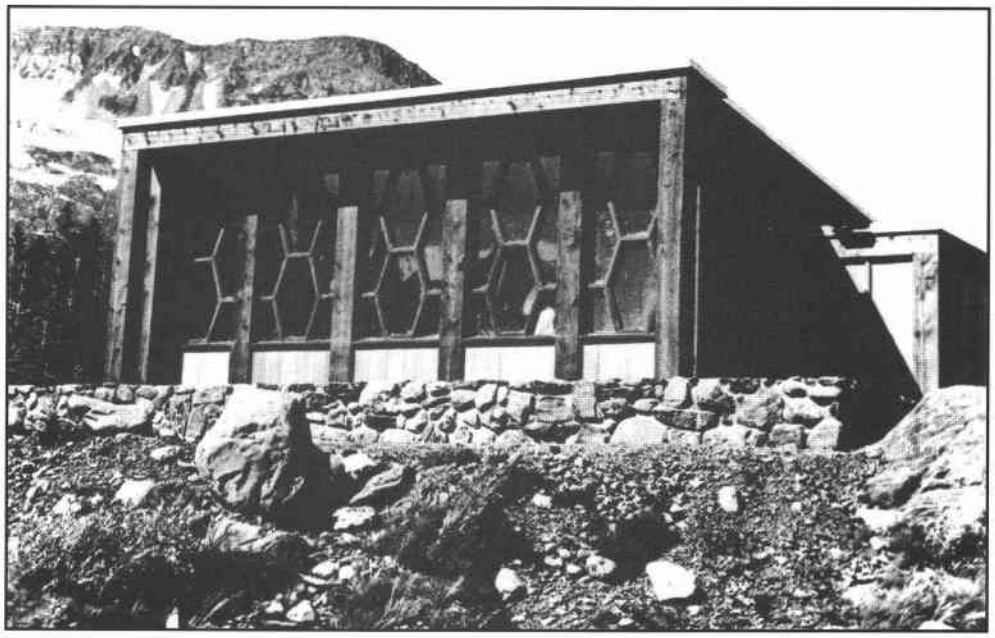


Figure 2-92. *Portage Glacier restroom, Chugach National Forest, Region 10 (1962)*

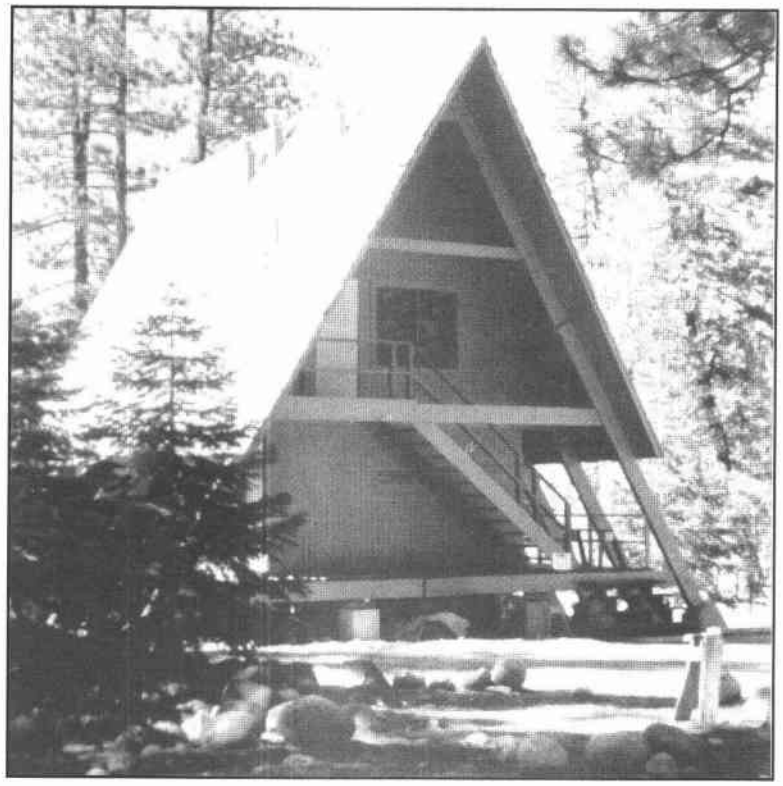


Figure 2–93. *Mono Hot Springs bathhouse, Sierra National Forest, Region 5 (1963)*

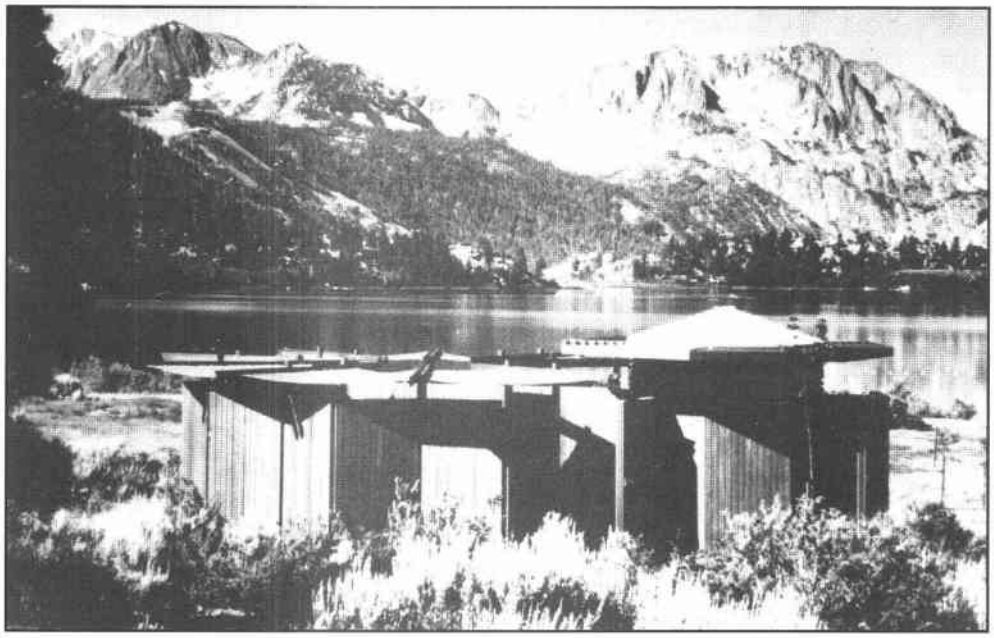


Figure 2–94. *Change pavilion, June Lake, Inyo National Forest, Region 5 (1964)*

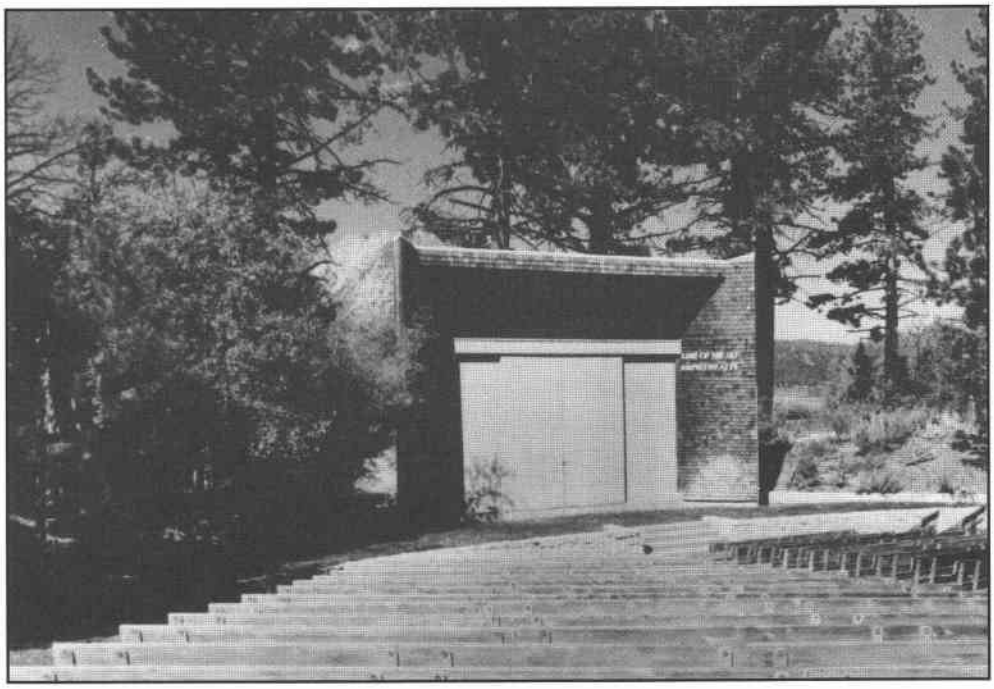


Figure 2–95. *Amphitheater with rear-projection building, Lake Tahoe Visitor Center, Region 5 (1964)*

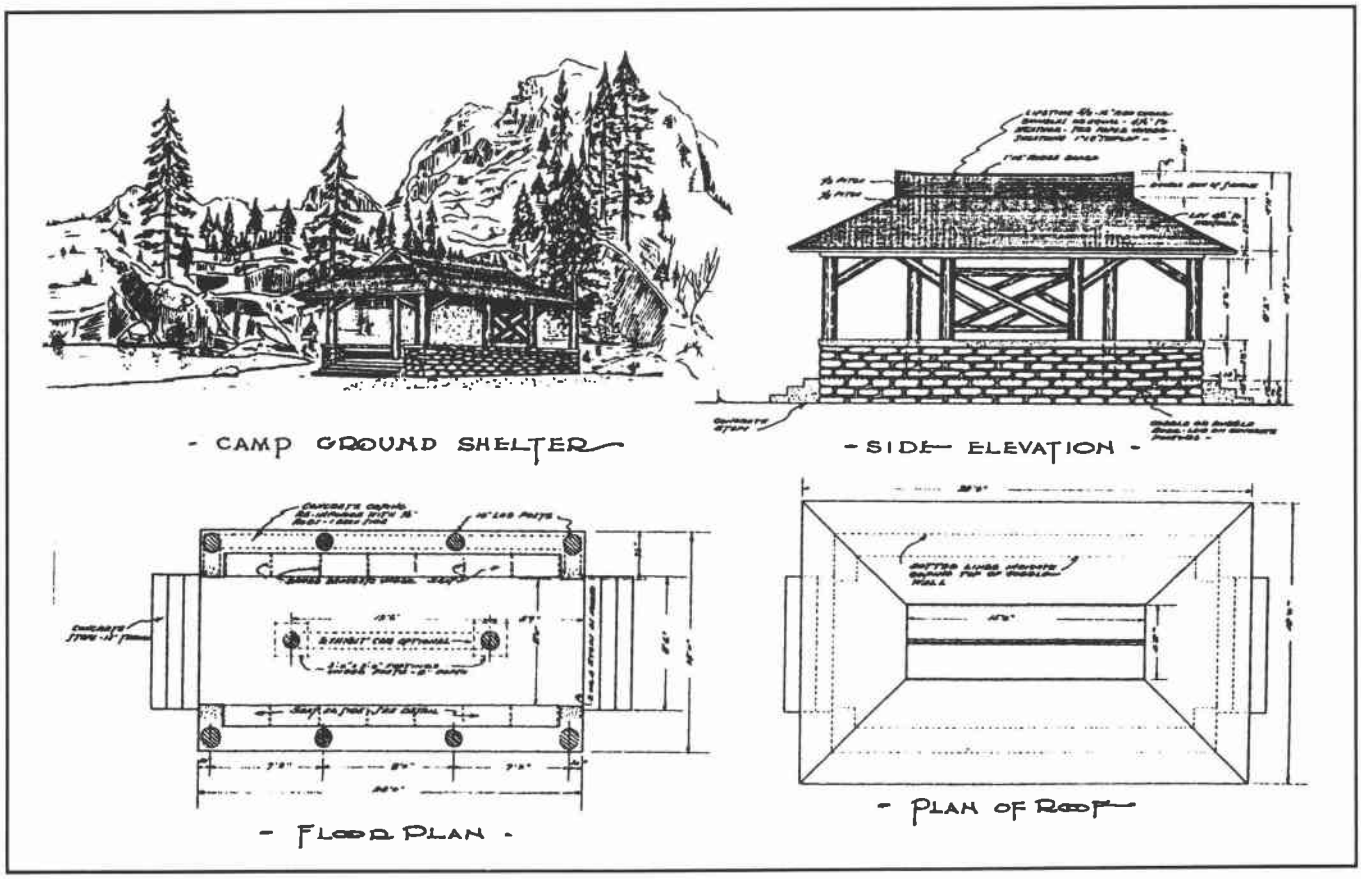


Figure 2–96. *Standard Region 4 campground shelter (1934)*

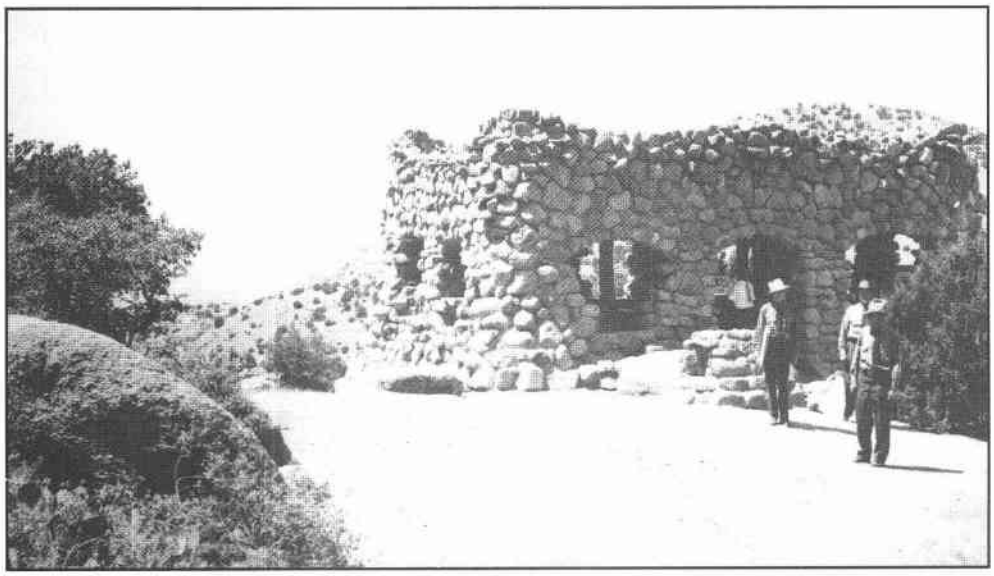


Figure 2–97. *Picnic shelter, Cibola National Forest, Region 3 (1936)*

Figure 2–98. *Interior detail of picnic shelter, Cibola National Forest, Region 3 (1936)*

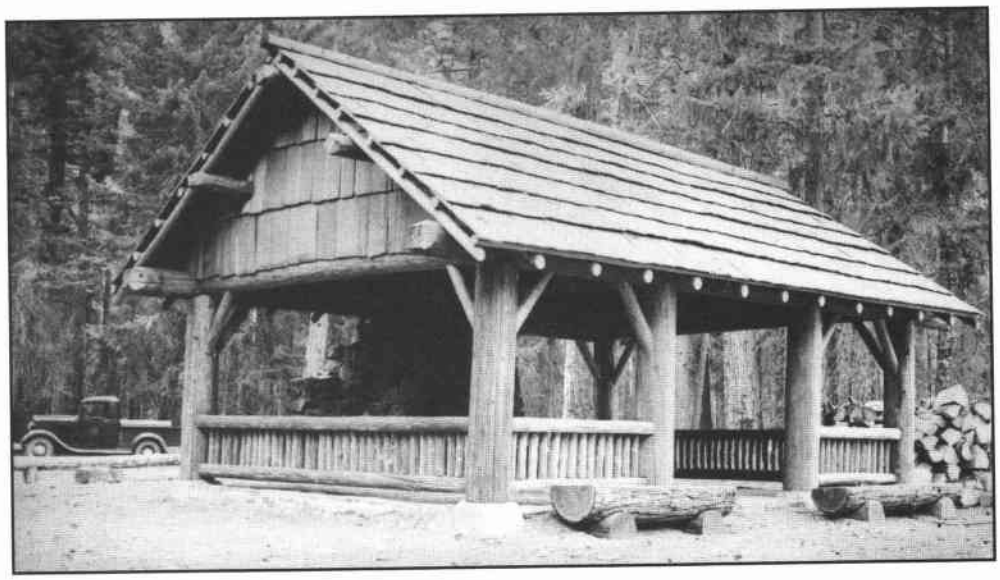


Figure 2–99. *Picnic shelter, Snoqualmie National Forest, Region 6 (1936)*

Figure 2–100. *Picnic shelter, Longdale Recreation Area, George Washington National Forest, Region 8*

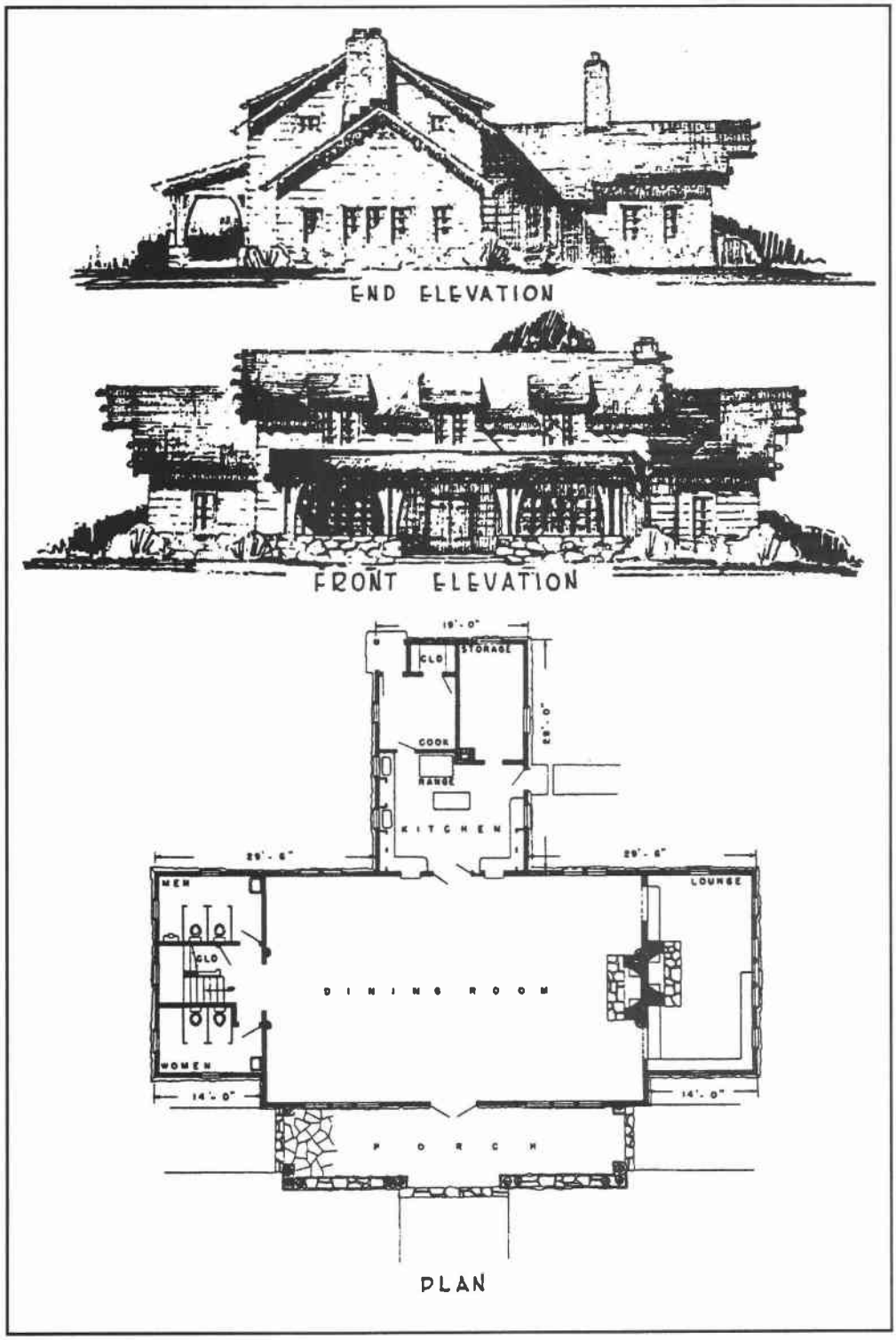


Figure 2–101. *Messhall, Organization Camp, Wyoming National Forest, Region 4*

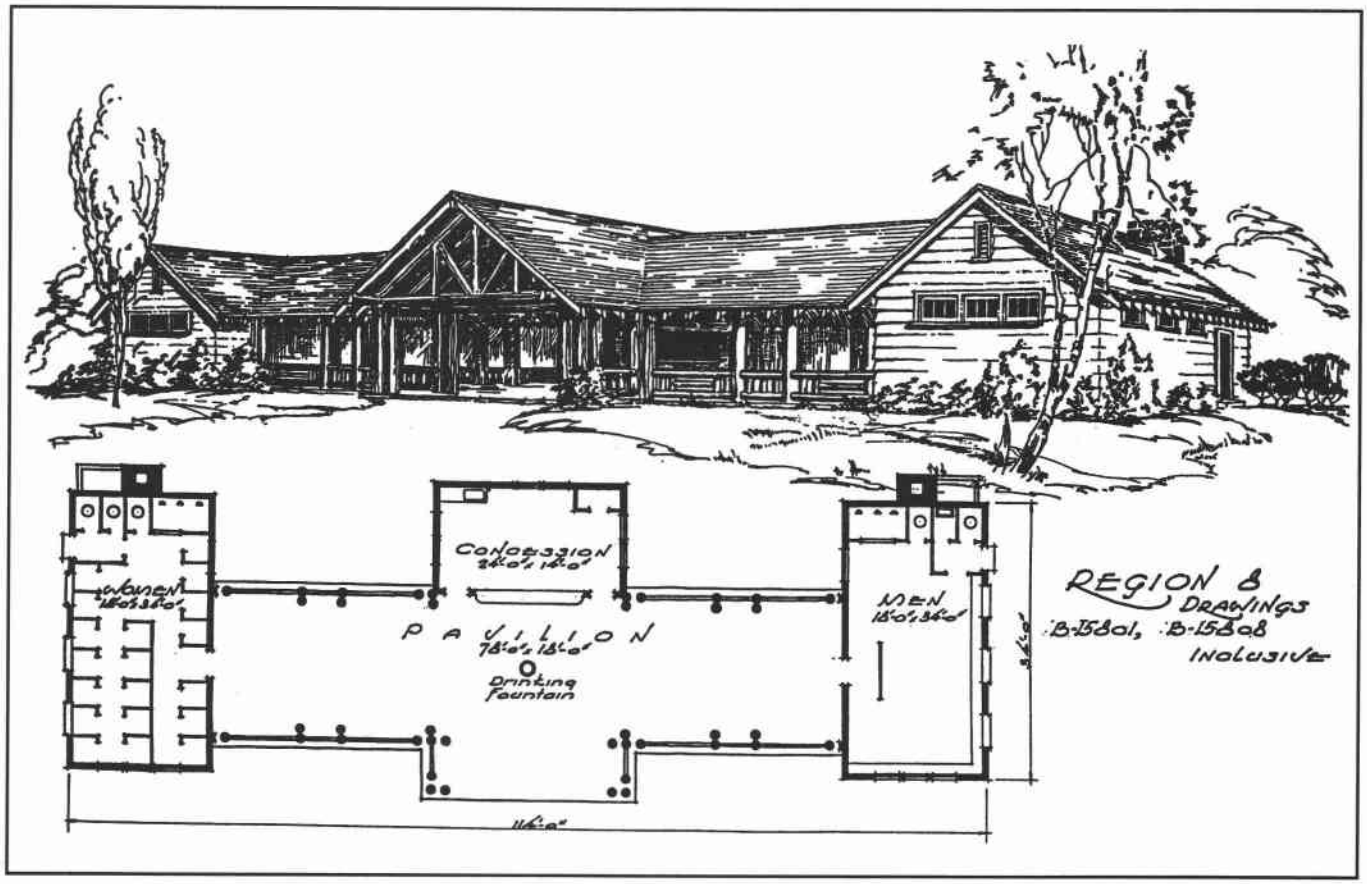


Figure 2–102. *Bath house and pavilion, Region 8*

Timberline Lodge: A Legacy from the WPA

Hundreds of thousands of visitors come to Timberline Lodge each year, making it one of the top two tourist attractions in the State of Oregon. Timberline Lodge stands just above the timberline on the south side of Mount Hood in the Oregon Cascade Range. A majestic structure in wood and stone, it was built mostly by Works Progress Administration (WPA) labor between 1936 and 1938. The lodge is traditional in style and has similarities with wilderness hotels, but it is unique to the Forest Service because it was designed by agency architects. It is one of only two national historic landmark properties in the National Forest System. The other is Grey Towers in Milford, Pennsylvania—Gifford Pinchot's ancestral home.

A project application form for a WPA grant for the Timberline project, a year-round recreation center on Mount Hood, was sent to Washington on September 7, 1935. The initial role of the Forest Service in the Timberline project was that of sponsor, but in a limited capacity. The project was guided by the Mount Hood Recreational Association, an unincorporated group of Portland citizens who were interested in the development of recreational housing facilities at Timberline on the slopes of Mount Hood. While stating that the Forest Service would supervise the development, the Mount Hood Recreational Association clearly planned to exercise control over the architecture of the hotel.

There was no money available to pay for the 6 percent fee a private architectural firm would charge for the design of the hotel. Forest Service Headquarters recommended that Gilbert Stanley Underwood be consulting

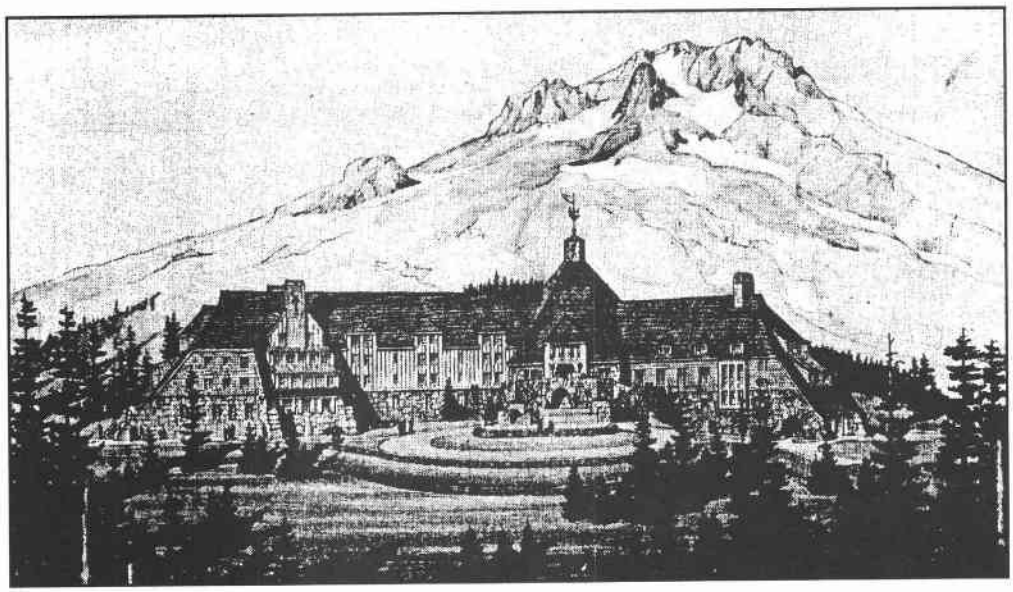


Figure 2–103. *Rendering of proposed Timberline Lodge by Linn Forrest (1935)*

PHOTO BY PAUL CALLICOTE

Figure 2-104. *Tim Turner (center front) poses with Timberline Lodge workers in 1937*

architect and that the design be done by a team of Forest Service architects headed by Tim Turner from the Region 6 office. Underwood was noted for his design of the Ahwanee Hotel in California's Yosemite National Park and a lodge at Zion National Park and for his work with the Union Pacific Railroad, including stations in Omaha and Kansas City. His name appears on some sketches of elevations for Timberline Lodge, but not on any of the construction drawings.

The team of Forest Service architects for the Timberline Lodge included Turner (as leader), Linn Forrest (lead designer for the lodge), Gif Gifford, and Dean Wright. These were all men who had grown up in the Northwest and who brought many years of experience with all facets of architecture, including hotel design, to their positions in the Forest Service. They were men who were familiar with historic architecture and yet kept abreast of current developments on both the national and international levels.

Turner led this team to produce a unique design and details for the only major recreation development on Forest Service land by the WPA. Turner was given the task to provide Forest Service inspection of the construction of the lodge.

The design of the lodge was called "Cascadian" and was thought of as an American version of European Alpine architecture. E.J. Griffith, in an interview in 1976, said:

> "America has never developed any highland architecture as the Alpine of Europe. So an attempt was made to establish a distinctive style, which subsequently was given the name of Cascadian architecture. With steep sloping roofs, massive and rugged walls to meet the weight of the snows and force of winds, the design was the development of a pioneer motif ..."

The strength of the design of Timberline Lodge is in the head house and its long, sloping roof (figure 2-105). It is a unique and powerful structure.

Nonetheless, for the time when it was built, the lodge was traditional rather than innovative in style. The architects of Timberline Lodge were less influenced by the "modern movements" from the Bauhaus or Art Deco than by European chateau and alpine architecture. These traditional styles were the antecedents of Timberline Lodge.[1]

Forrest designed the carved panel of an American Indian chief wearing a headdress on one of the entrance doors (figure 2–106). The beadwork at the bottom of the panel between the braids is made up of the initials of the Forest Service architects, the Regional Engineer, and their secretary: JF (James Frankland, Regional Engineer), WIT (Tim Turner, supervising architect), HG (Gif Gifford, architect), DW (Dean Wright, architect), EDC (Ethel Chaterfield, secretary), and LF (Linn Forrest, architect).[2]

Construction began on June 13, 1936, even though the plans were not actually approved until July. Ward Gano, a recent engineering graduate from the University of Washington, was assigned by the Forest Service to be the resident engineer inspector. The weather was a primary consideration in this construction project. It was necessary to frame the building during the summer of 1936. Fortunately, the first snows did not start until December that year.[3]

The lodge was formally dedicated by President Franklin D. Roosevelt on September 28, 1937. The President called the lodge "a monument to the

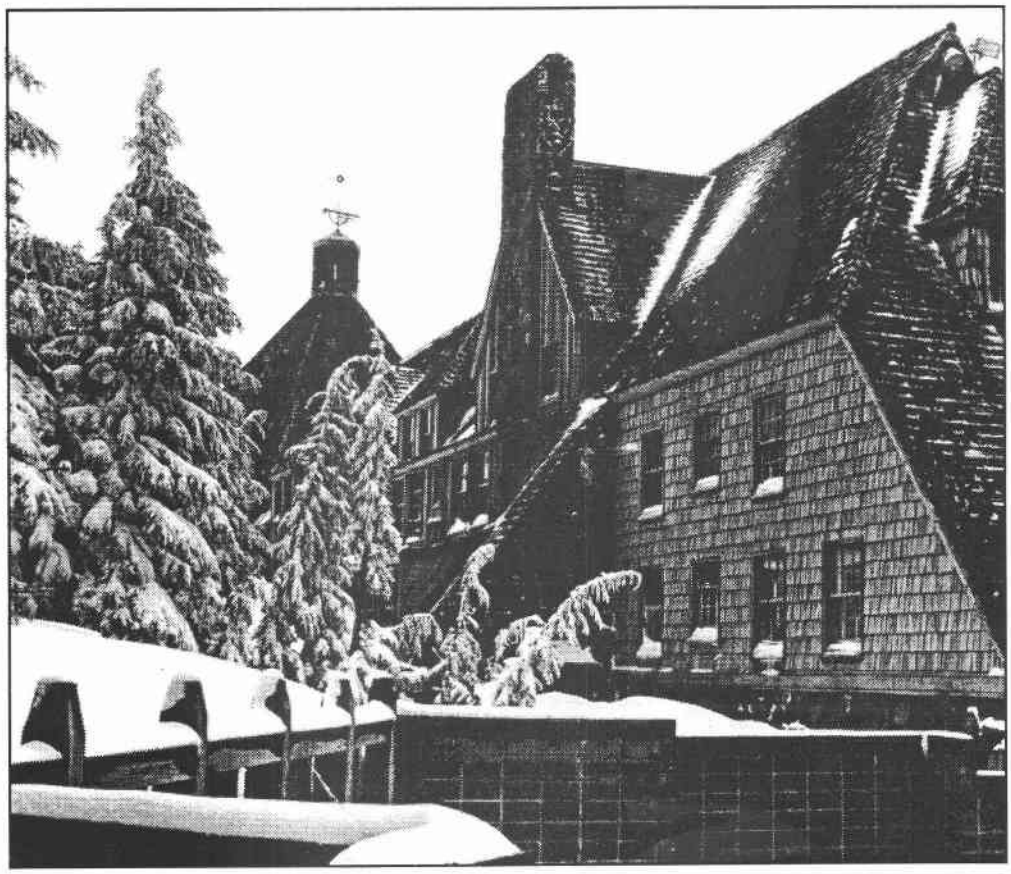


PHOTO © BY LAWRENCE HUDETZ

Figure 2–105. *Exterior view of Timberline Lodge*

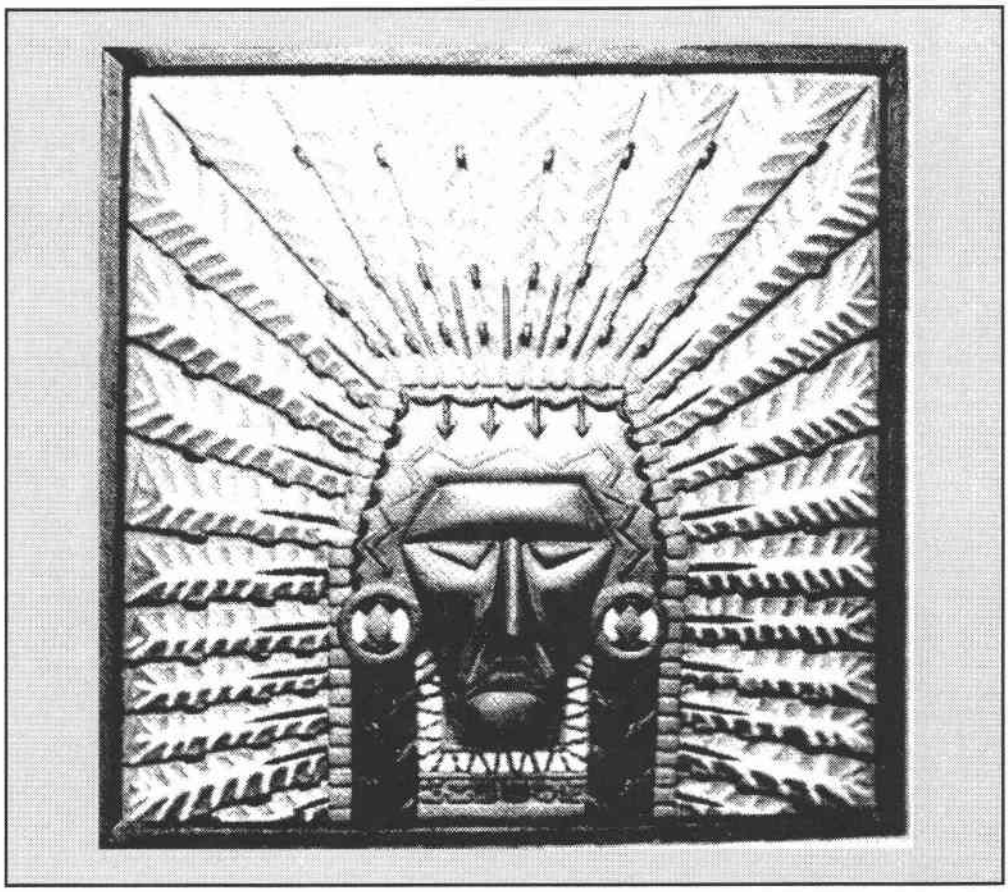


PHOTO © BY LAWRENCE HUDETZ

Figure 2-106. *Carved panel detail from Timberline Lodge door*

skill and faithful performance of workers on the rolls of the Works Progress Administration."

As the Timberline project neared completion in 1938, the Forest Service called for bids from hotel companies interested in operating it. Very few bids materialized, and the Mt. Hood Development Association appealed to Portland businessmen to form an operating company. The lodge was not opened to the public until February 4, 1938.

The architects of Timberline Lodge felt that the lodge was designed both for people who could afford to stay in the individual guest rooms and also for younger, generally less wealthy skiers, who would stay in the dormitory. The architects did not anticipate the heavy use of the lodge by summer visitors, nor could they predict the future boom of skiing as a popular sport.

Notes

1. Griffin and Munro, p. 5.
2. Ibid., p. 79.
3. Ibid., pp. 6-7.

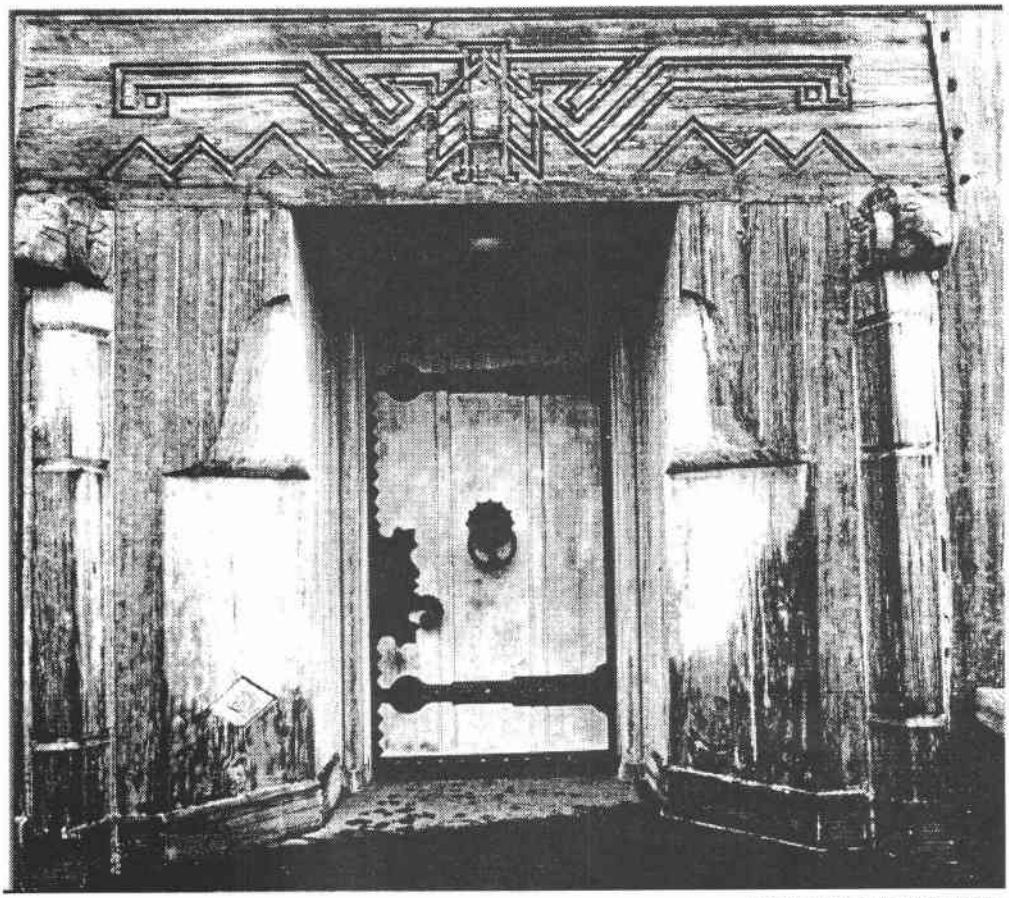


PHOTO © BY LAWRENCE HUDETZ

Figure 2–107. *Doorway, Timberline Lodge*

Visitor Centers

Recreation in the national forests has been seen as one of the primary multiple-use categories since the concept was first articulated by Gifford Pinchot in the early 1900's. Camping, hiking, hunting, and other outdoor recreational activities have taken place on national forests since they were formed.

Although the Park Service developed and implemented the concept of visitor information centers early in its history, the concept is still fairly new to the Forest Service. Most visitor contact points have been, and still are, made in the ranger district headquarters, where the public receives maps and directions from the clerk in the reception area. However, facilities designed to offer visitor information services are a way to help the public not only to enjoy the national forests but to understand the nature of the resources and their management.

For the design architects, visitor center buildings became a vehicle for their most creative expressions. Many of these structures were designed by Forest Service architects. Even when the designs were given to private architectural firms, the prospectuses and preliminary plans and styles were dictated by Forest Service architectural staffs. The styles of the buildings reflected more contemporary architectural elements than most of the other building types. The structures were built in areas of the national forests that were unique in their settings and that attracted a large number of visitors.

Just as the toilet building was the "bane" of the designer, the visitor center was the "joy." The high point in many a Forest Service architect's career was the assignment to participate in the development, design, and production of plans for new visitor centers. The buildings produced both by Forest Service architects and private firms are a positive reflection on the agency.

The first building designed and constructed as a visitor information center was the Mendenhall Glacier Visitor Center, built in 1961 near Juneau, Alaska. Conceptual ideas and sketch plans were developed by the Regional Office recreation staff. The proposal and plan for the observatory arose from a need for a comfort station (public toilet facility) at this already popular attraction, which for public convenience included a trail, viewing area, and sign. Linn Forrest Architects of Anchorage, Alaska, was contracted to prepare the construction documents. Forrest was one of the architects on the Timberline Lodge design team during the 1930's. The simple needs of the first concepts grew to include an observatory with a coffee shop, concessionaire apartment, office, and storage space (figure 2–108).

In 1991, it was time to bring the building up to the present needs and codes (especially the Americans with Disabilities Act). During the years 1995, 1996, and 1997, funding was provided to make the changes designed by a private architectural firm out of Seattle, Washington.

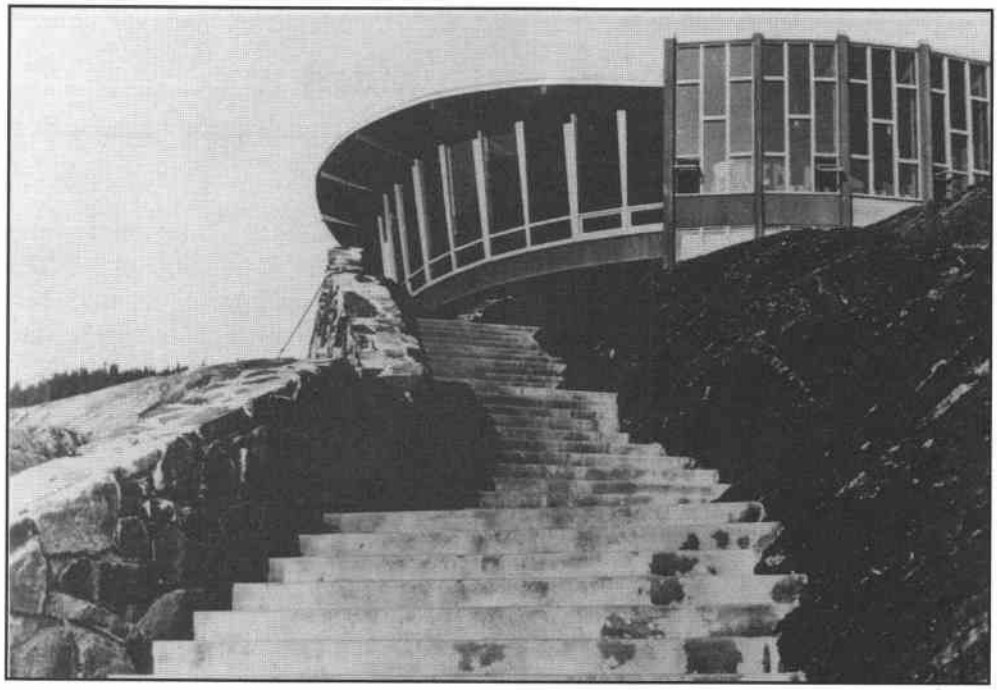


Figure 2–108. *The first Forest Service visitor center at Mendenhall Glacier, Juneau, Alaska (1961)*

An unusual and challenging example of this building type was the Stream Profile Chamber at South Lake Tahoe, California (figures 2–109 and 2–110). The architectural design prospectus was completed in September 1964. Richard Modee, a new architect on the Regional Office engineering staff, was assigned the design of the building and John Grosvenor was assigned as the liaison between the forest and the Regional Office. Modee was a graduate student in landscape architecture at the University of California at Berkeley; he had a B.A. in architecture from the Rhode Island School of Design.

Grosvenor and Modee went up to the proposed building site before the winter snows began in 1964. The forest had done the surveying and had staked an approximate location on the ground. The two architects also met with Bob Morris to discuss the exhibits and how they would affect the flow of people in the structure. Modee had a rough sketch of the building showing the viewing windows and the entrance and exit ramps. Morris had some good suggestions regarding the shape and layout of the interior space. At the end of the meeting, the three felt they had a good understanding of the project and proposed to meet again just after the first of the year.

There were some difficult structural engineering issues. First was how to keep the structure from floating in the winter, when the water level in the meadow was close to the surface. Second was how to keep the moisture out of the underground chamber, both intrusion from underneath and water flowing down the two ramps. Third was how to span the large room with a sloping roof.

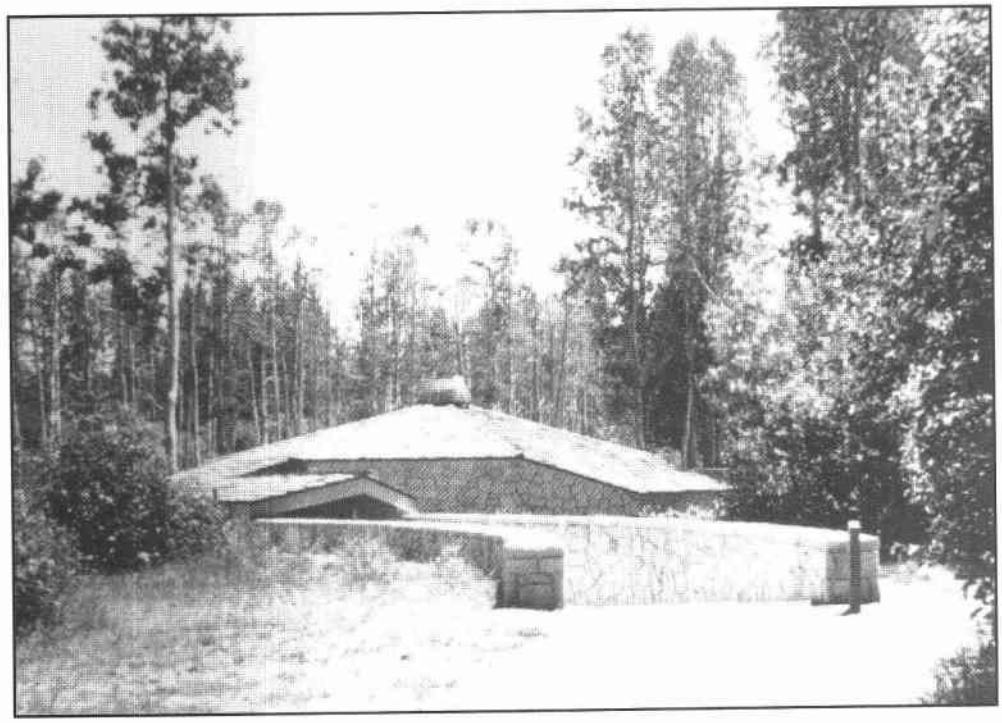


Figure 2–109. *Stream Profile Chamber, South Lake Tahoe, California, Region 5*

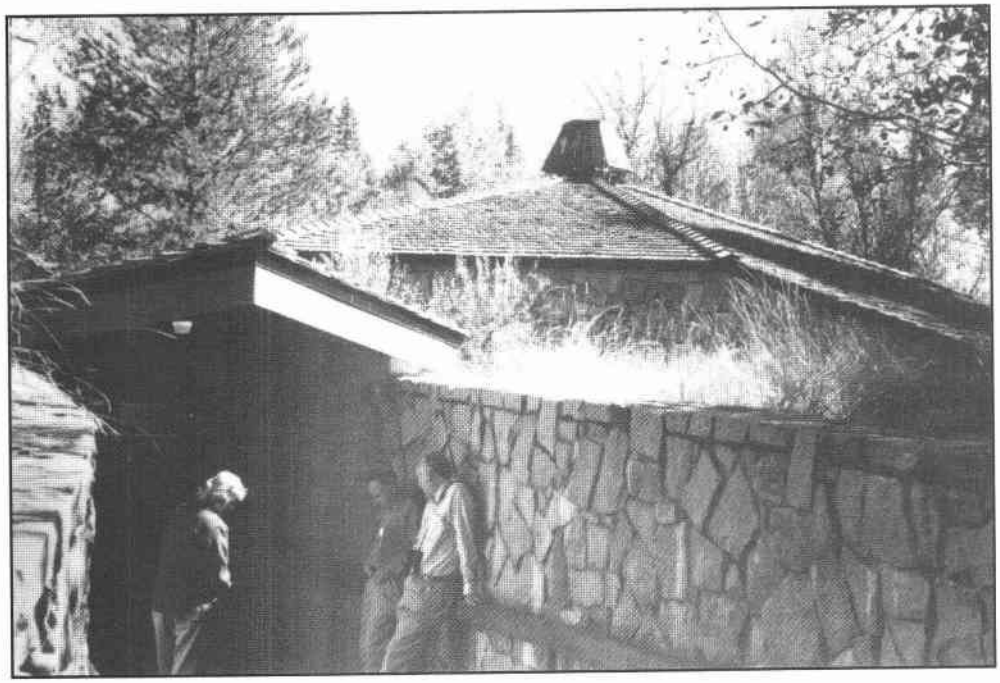


Figure 2–110. *Stream Profile Chamber, entrance detail*

The architectural engineering firm selected was Pregnoff and Mathhis of San Francisco, with Ken Mathhis as structural designer. Mathhis had worked for the Forest Service in bridge design before going into private practice.

Modee finished the preliminary design sketches and made a ½-inch-scale model (figure 2–111), and Grosvenor prepared a preliminary cost estimate. In the spring of 1965, Modee, Grosvenor, and Morris, made a presentation to Forest Supervisor Doug Leisz and Forest Recreation Officer Ellis Smart. The preliminary estimate for the building alone was $45,000. Over and above this would be the trail to the building, the stream diversion and pool, and the exhibits. Morris had completed the exhibit prospectus, focusing on public education regarding stream pollution, life and history of the Kokanee salmon, and resource management of the Lake Tahoe watershed, including Taylor Creek, the location of the Stream Chamber.

Leisz and Smart were pleased with what had been developed up to this point. They made some suggestions to the design team and agreed to prepare a budget request to the Chief for fiscal year 1966 funding, hoping for a start of construction in spring 1967. Smart was given the task of preparing the total estimate and writing up the request for the structure.

Assuming there would be no problems in getting the funds, Modee started the final design soon after returning from the meeting. He had a predesign meeting with Mathhis to go over the structural concerns. The Eldorado engineering surveyors started right away doing the site survey, including the water table depth.

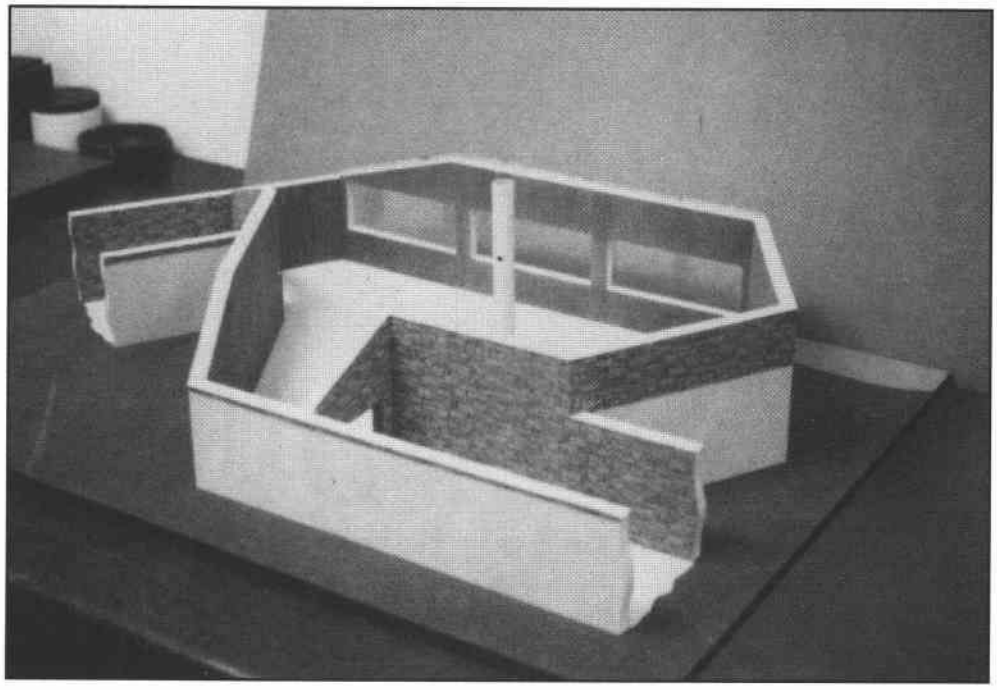


Figure 2–111. *Scale model of Stream Profile Chamber*

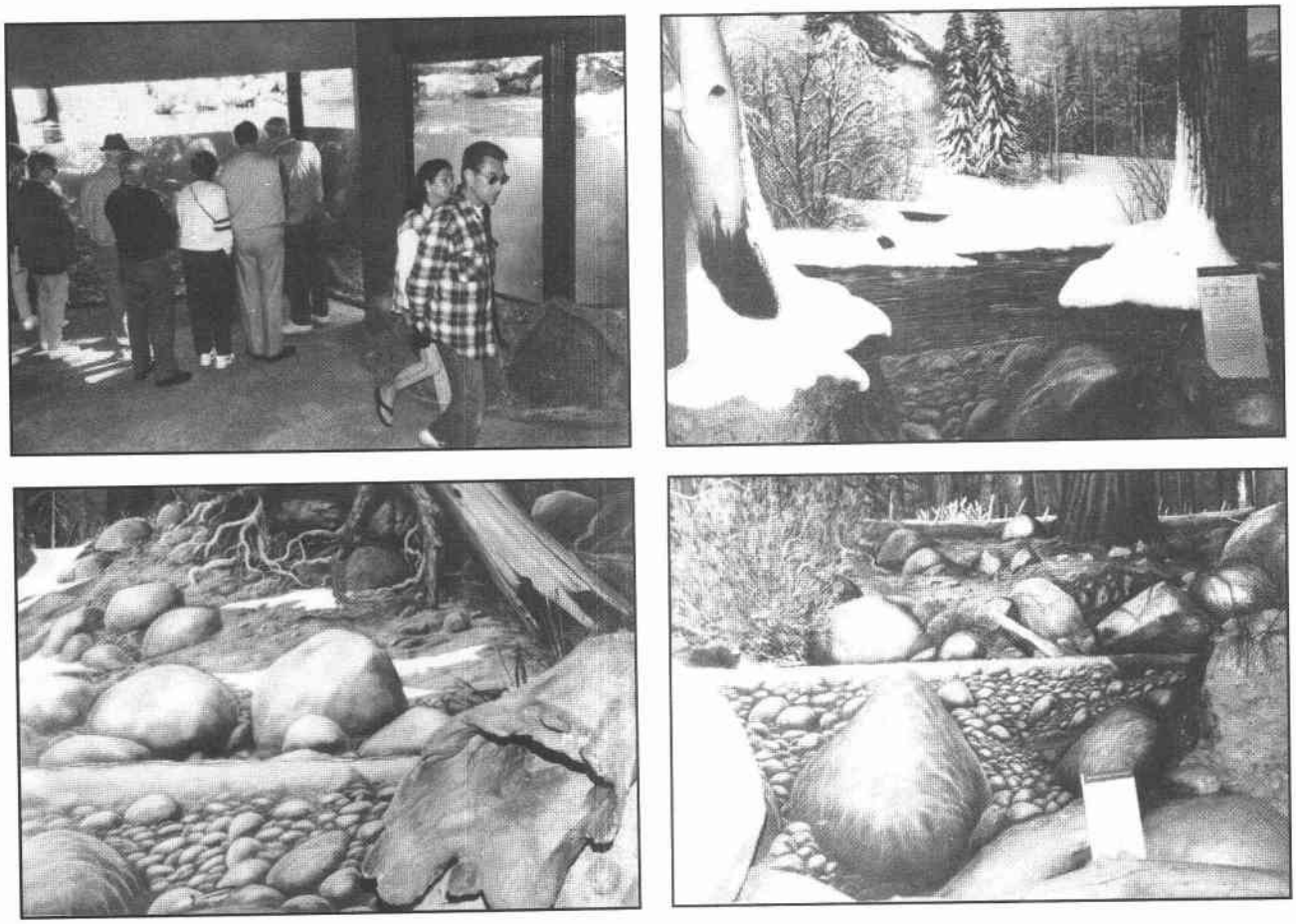


Figure 2–112. *Interior views of remodeled Stream Profile Chamber*

Completed in 1967, for 30 years this building has drawn thousands of visitors each summer to look through the 30 feet of viewing windows and see fish swimming in the manmade pool (figure 2–112). In October 1997, a rededication of the building was held after a major remodeling of the interior (costing $640,000—half of which came from private donors). The windows had been greatly modified to articulate into the building and into the pool; one of the ramps had been modified to meet the latest accessibility standards; and the interior exhibits had been modernized. More than 3,000 people came the first day to see the changes (the building had been closed for 2 years).

Figures 2–113 through 2–138 on pages 137 through 151 show the range of architectural styles used for the Forest Service visitor centers throughout the Nation over the years. Table 1 contains a list of the Forest Service visitor centers.

Table 2–1. National Forest Visitor Centers

Region/Forest	Name	Built
1–Gallatin	Quake Lake	1966
1–Clearwater	Lolo Pass	
1–Flathead	Hungry Horse	
2–Arapaho/Roosevelt	Idaho Springs	1964
2–Black Hills	Pactola	1969
2–Nebraska	National Grasslands	1991
2–Bighorn	Burgess Junction	1992
2–Nebraska	Prehistoric Prairies	Proposed
3–Coronado	Sabino Canyon	1963
3–Gila	Gila Cliff Dwellings	1967
3–Apache-Sitgreaves	Big Lake	1967
3–Carson	Ghost Ranch	1970
3–Coronado	Palisades	1970
3–Kaibab	No. Kaibab	1991
3–Coronado	Columbine	1992
3–Coronado	Portal	1993
3–Apache-Sitgraves	Mogollon	1993
3–Tonto	Roosevelt Lake	1994
3–Kaibab	Williams Depot	1994
3–Lincoln	Sun Spot Solar Observatory	1997
4–Sawtooth	Red Fish Lake	1963
4–Ashley	Flaming Gorge	1965
4–Ashley	Red Canyon	1966
4–Sawtooth	Sawtooth NRA	1977
4–Uinta	Strawberry	1983
4–Briger-Teton	Briger-Teton	1991
5–Eldorado	Lake Tahoe	1964
5–Shasta-Trinity	Trinity Lake (destroyed by fire)	1964
5–Eldorado	Stream Profile Chamber	1967
5–Inyo	Mammoth Lakes	1967
5–Angeles	Chilao	1980
5–Inyo	Mono Lake	1990
5–Angeles	Grassy Hollow	1996
5–Inyo	Shulman Grove	1997
5–San Bernardino	Big Bear	1997
5–Sequoia	Lake Isabella	1997
6–Siuslaw	Cape Perpetua	1967
6–Deschutes	Lava Lands	1975
6–Gifford Pinchot	Mount St. Helens (Silver Lake)	1986
6–Gifford Pinchot	Mount St. Helens (Coldwater)	1993
6–Gifford Pinchot	Mount St. Helens (Johnston Ridge)	1996
6–Mt. Hood	Multnomah Falls	
6–Wallowa-Whitman	Hells Canyon	
8–Chattahoochee	Brasstown Bald	1963
8–North Carolina	Cradle of Forestry (destroyed by fire)	1964
8–North Carolina	Cradle of Forestry	1984
8–Ozark-St. Francis	Blanchard Caverns	1969
8–Chattahoochee	Anna Ruby Falls	1988
8–Caribbean	El Portal del Yunque	1996
8–George Washington	Massanutten	
8–Jefferson	Mt. Rogers	1972
8–Jefferson	Natural Bridge	
9–Superior	Voyagers	1963
9–Monongahela	Cranberry Mtn.	1963
9–Ottawa	Watersmeet	1968
9–Monongahela	Seneca Rocks	1972
10–Tongass-Stikine	Mendenhall Glacier	1961
10–Chugach	Portage Glacier	1986
10–Tongass-Ketchikan	Ketchikan	1994