

PUBLIC CAMP MANUAL

1935

United States Department of Agriculture
Forest Service
Region Five

TABLE OF CONTENTS

Cover

Introduction

Selection and Posting of Camps

Camp Ground Planning

Survey and Plan

Nature and Order of Improvements:

I. Cleaning and Fireproofing the Area
Planting

II. Roads and Parking Spurs
Use of Obstacles
General Construction of Roads
House Trailers

III. Water Development

IV. Toilet Facilities
Angeles Metal Toilet Stool
Urinals
Pit Toilets
Chemical Toilets
Flush Toilets

V. Garbage Disposal
Garbage Collection
Garbage Pits
Garbage Dumps
Incinerators

VI. Stove and Barbecue Pits
Klamath Stove
Barbecue Pits

VII. Tables and Cupboards

VIII. Signs

IX. Fences

X. Miscellaneous Improvements

Bathers' Dressing Room

Bath House

Bridges

Community Fireplaces

Drinking Fountains

Playgrounds

Swimming Pools

Trail Shelters

Winter Sports Facilities

Painting

Branding

Numbering

Inventory of Camp Improvements

Maintenance of Camps

Inspection of Camps

INTRODUCTION

MANUAL OF IMPROVEMENTS FOR PUBLIC CAMPS

In the two years that have elapsed since this Manual was last revised, the development of the National Forests for recreational purposes has become one of the major activities of the Forest Service. Outdoor recreation has enjoyed greatly increased popularity. The need of more adequate camping facilities has been impressed upon us by increased use of the public camps.

In order to fulfill more completely our responsibilities to the public and to make our public camps more usable and enjoyable, yet at the same time protect the inherent values involved, this Manual has been prepared.

This revision supersedes all previous issues, which should be destroyed immediately. From time to time as supplemental pages for the Manual are issued, they should be inserted herein, upon receipt.

The new Manual by no means covers the entire field, but it does contain the best and most up-to-date thought of R-5. It has been possible to establish standards of construction for many items relating to camp ground improvement. Field men will be required to follow these standards, unless it can be shown that it is not feasible to do so. In that event, the approval of the Regional Forester will be necessary before improvements of other than standard type may be constructed.

It has not been deemed advisable to set up standards for certain items, mainly those which will not receive widespread use. However, the Regional office will be glad to assist in developing plans and specifications for special items of equipment.

It is expected that federal funds will be more nearly adequate to the needs than heretofore. Every effort should be made to expedite the work as funds become available.

Every possible advantage should be taken to employ labor during slack periods in preparing material for construction in the field. Frequently CCC labor, fire guards and others can be used to advantage without cost to special camp ground funds.

Much confusion of records will be avoided if camp names are not changed. Do not change names of public camps without good reasons, and notify the Regional office at once should this occur.

All Supervisors, District Rangers, and specialists having anything to do with the planning and developing of public camps should be provided with copies of Dr. Meinecke's "Camp Ground Policy" and "Camp Planning and Camp Reconstruction" bulletins.

Picnic Areas

In certain localities, it will be necessary to develop areas solely as picnic grounds. In other instances, part of a camp should be set aside for exclusive use of picnickers.

The improvements described in this Manual should be used on picnic grounds, with certain modifications. For example, more stoves will be needed; the table cupboards should be dispensed with; a greater concentration of people will necessitate increased toilet facilities. Automobiles should be concentrated in central parking areas.

De Luxe Camps

No effort has been made herein to depict or describe the more expensive type of improvements that may be found desirable at an occasional camp, where, by reason of heavy use or long season, we would be justified in providing facilities more nearly approaching those in city parks. Where a case of this kind exists, the Regional office will be glad to cooperate in the preparation of the necessary special plans.



SELECTION AND POSTING OF CAMPS

Before improvement work is undertaken on any area, the site should be selected, named and entered on the Forest Camp Ground Improvement Record sheets and on the Forest Recreation map, and this information sent to the Regional Forester so that the records in Lands may be kept up to date.

Where patented land lines are unknown, these lines should be determined and posted, to avoid construction of improvements on private land.

If there is any possibility that an area may be covered by mineral locations, the land should be selected and posted as a Public Service Site and the boundaries plainly marked. In every case, there should be a sign or signs informing the public that the land has been set aside for public use.

The Solicitor of the Department has ruled that public camps, upon which improvements have been constructed with funds appropriated by Congress for Sanitation and Fire Prevention, are withdrawn automatically by such improvement and use from location under the mining laws. Full publicity should be given this ruling wherever necessary.

Should there be any mineral locations on selected and improved camps on your Forest which are interfering with the use of the camps, submit a complete report, giving the name of the locator, the name of location, date of filing, and any other pertinent facts, in order that injunction proceedings may be instituted if necessary.

CAMP GROUND PLANNING

In planning the development of a public camp, it is first necessary to determine the road system that should be installed. The individual camp sites may then be selected, and the location of tables and stoves may be planned. Toilets, water systems, garbage cans and pits, and any other improvements desired, may then be so placed as to serve the individual sites to the highest possible degree.

The primary purpose in the planning of a camp is its development in such a way as to provide for the maximum recreational use of the area with a minimum of damage to the vegetation. The major element of damage results from the automobile, and therefore it is necessary to control in some manner the line of travel of the cars to and from the individual camp sites. To accomplish this, we must provide means to confine the cars to the service roads and parking spurs, at the same time furnishing protection to the "Key" trees. (See E. P. Meinecke's Bulletin "Camp Planning and Camp Reconstruction")

Methods of accomplishing this will vary with local conditions. Rocks, logs, ditches, or other more artificial barriers may be employed, but all of them detract to a certain extent from the appearance of the camp. Promiscuous use of rocks in some camps is especially reprehensible. Obstacles should never be used except where they are absolutely necessary to confine the automobile to the roads or spurs. Even then, their use should be kept to an absolute minimum. The man "on the job" must exercise judgment in determining the amount and type of obstacle material to use. Native local materials should be used whenever possible. Rocks are entirely out of place on some camps, especially on a dense timbered flat where obstacles (if any) should be preferably of logs, with only an occasional rock. In other words, the camp planner should regard obstacles as detrimental, and avoid them whenever possible. As a general rule, we should regard rock obstacles in any quantity as the least desirable type and use them only where other types are not available or even less suitable. In many cases it will be highly desirable to resort to the planting of trees and shrubs where they may serve as obstacle material later on.

In every case where it is possible to do so, camp improvements should be well back from main highways. Where, due to topography, camping must be close to a highway, it should be screened as much as possible by leaving the natural cover that already exists along the edge of the road, and by the planting of additional trees and shrubs.

While a knowledge of landscape engineering is of value in camp planning, it should be kept in mind that there is no substitute for good, practical "common sense", and our

problem is largely a practical one. Individuals react differently to the conveniences and services furnished them by the government. Most people are appreciative, some are critical, and a few are abusive and destructive. Unfortunately, the latter type must be used as a standard in the planning of public camp developments.



Improper Type of Obstacle
A ditch or a fence would be preferable.

SURVEY AND PLAN

A definite plan must be prepared and the location of improvements must be staked on the ground, before development work is started on any camp ground. A preliminary map should be made on tracing paper. A final map on tracing cloth shall be made when construction is completed. This will serve as a permanent record. The maps should show the location of all improvements, designated by the proper symbols. Cost figures of improvement work must be kept wherever possible.

On all important camp projects, the Regional Office will, upon request, assist in the preparation of plans, and whenever special buildings or other improvements not contained in this Manual are found necessary in the development of a camp, the Regional Office will be glad to assist in drawing plans.

In making the plan for development of a camp, be sure to consider the suggestions in Dr. Meinecke's camp ground bulletins. The plan must be approved by the Forest Supervisor and the Regional Forester before work may be undertaken. The adjoining plate gives an example of how camp ground maps and plans should be prepared.

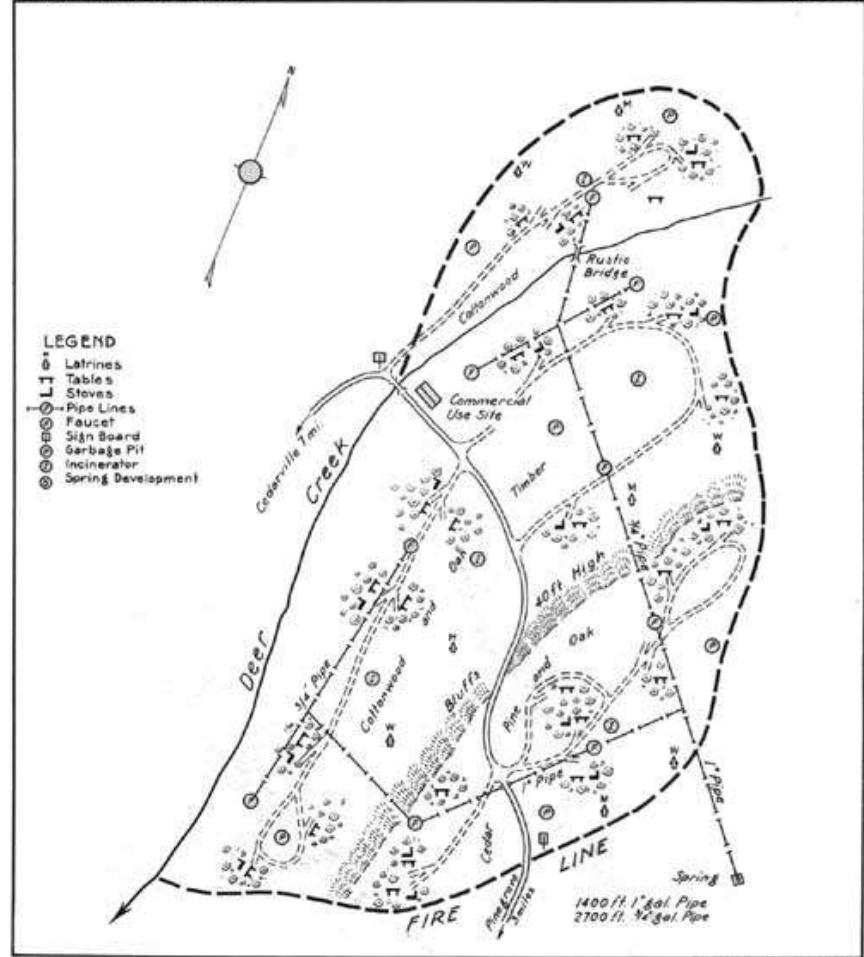
Final maps should be made Atlas size (18" x 21") on tracing cloth, following the general lines of Special Use maps. Whenever possible, a scale should be used which will permit the map to be made on a single sheet. A scale of one inch to 100 feet, 200 feet or 300 feet, will ordinarily be satisfactory.

The following symbols will be used on all camp ground maps and plans. Show everything possible in graphic form.

U. S. DEPARTMENT OF AGRICULTURE
 FOREST SERVICE
 PACIFIC NATIONAL FOREST
 DEER CREEK RECREATION AREA
DEER CREEK PUBLIC CAMP
 S.W. 1/4 Sec. 38 T. 8 N. R. 18 W. M. D. M.
 CALIFORNIA

SURVEY AND PLAN BY JOHN BUCK, 2-7-33.

MAP SCALE 1¹/2 INCHES
 SCALE 1¹/2,500



LEGEND

- Latrines
- Tables
- Stoves
- Pipe Lines
- Faucet
- Sign Board
- Garbage Pit
- Incinerator
- Spring Development

1400 ft. 1" gal. Pipe
2700 ft. 1/2 gal. Pipe

Barbecue Pit	☒	Pipe Line	— — — —
Bridge	⤒	Pipe Line Faucet	— (F) —
Bulletin Board	㊥	Register Box	
Fence	* * *	Road	==
Fire Line	— — —	Road, Proposed	— — — —
Garbage Can	○	Septic Tank	[ST]
Garbage Incinerator	○	Spring Development	[S]
Garbage Pit	○	Stoves and Fireplaces	[H]
Latrine, Pit	⌂	Tables and Benches	TT
Latrine, Flush	⌂ F	Tank	(T)
Latrine, Chemical	⌂ C	Well	[W]

NATURE AND ORDER OF IMPROVEMENTS

As a general rule, improvements should be undertaken in the following order of importance:

1. Clearing and fireproofing grounds.
2. Roads and parking spaces.
3. Water development.
4. Toilet facilities.
5. Garbage disposal facilities.
6. Stoves and barbecue pits.
7. Tables and cupboards.
8. Signs and bulletin boards.
9. Fences.
10. Miscellaneous improvements.

All essential sanitation and fire prevention improvements (items 1 to 5) should be provided before any camp is opened to use by the public.

USE OF WOOD SUBSTITUTES:

In the construction of camp improvements, wood substitutes should not be used where wood can be used to equal, or slightly less than equal, advantage.

1. CLEARING AND FIREPROOFING THE AREA

After a definite plan for the improvement of the camp has been made, reduction of the fire hazard should be the next step taken.

Cleaning up should consist of clearing grounds of the larger inflammable material and undesirable brush. Never clear camp grounds of pine needles and small litter by

surface burning, as the charred material and ash left by the fire spoil the ground for camping. A good layer of needles should be left undisturbed, while the larger material should be piled and burned. Cover should not be removed to mineral soil. The humus and duff on the forest floor are invaluable in protecting the feeding root hairs, in preserving soil moisture and in preventing packing of the soil about the trees. The deterioration of many camp grounds can be traced directly to over-zealous cleaning up. A four-tined fork is far preferable to a rake for piling and removing camp ground litter.

In clearing the area of undergrowth, extreme care should be exercised. Remove any such material as constitutes a real fire hazard, or such as interferes with proper development of the area. As much undergrowth as possible should be left to serve as screening material, to provide a degree of privacy for the individual camp sites, to shield the toilets, etc. Development plans should be so prepared as to preserve as many trees as possible, even at the sacrifice of an occasional potential camp site. Pruning of trees should be avoided, except where absolutely necessary, and when done should be accomplished with a saw rather than an axe. Remove the stubs to the shoulder, to prevent decay which might eventually destroy the tree and to facilitate rapid healing of the scar. In general, the smaller trees should be left in clumps or groups, rather than as individuals.

All coniferous trees cut down and all insect-infested trees felled should be burned or the bark peeled and burned to prevent spread of infection. The remainder should be used in construction of barriers, seats, etc., or left for firewood.

On a number of camps where the timber is mainly aspen and lodgepole pine, many of the trees have been killed by open fires built close to the trees. The proper location of stoves and community fireplaces will tend to eliminate this problem. Campers also damage some locations by digging for angle worms. This should not be allowed in any public camp.

When the camp is surrounded by an area of high fire hazard, a fire line should be constructed to surround it completely. The width of the fire line will vary with local conditions, which are best known by the local staff. A cleared fire line serves the additional purpose of providing a safe place in which to burn refuse from the cleaning operations.

In all regions of high fire hazard, and at camps where it is desired to confine the campers within certain restricted areas, the limits of the area should be definitely marked with Campground Limit signs.



Camp Improvement by Planting

The Planting of trees and shrubs pays dividends in a few years, by providing shade and making an area attractive.

Planting.

On camps where shade is lacking, trees and shrubs should be planted in order to improve camping conditions. To date, little planting has been done. Hereafter, it should be a regular part of camp improvement, development and maintenance. In making planting plans, consider the following points:

1. On all camps where planting is undertaken, native trees and shrubs must be used. By "Native" is meant those local species which do well under conditions similar to those of the planting site.
2. Plants should never be moved from one set of conditions to sites which embody a more difficult condition. For example, it is sometimes possible to transplant from higher elevations to sites much lower, but plants moved from valleys to higher sites, where conditions are much more severe, seldom survive.
3. Nursery stock may be used in camp planting, when available. These plants are usually balled or potted and can therefore be moved with relatively little shock to their root systems. However, these plants are grown under relatively favorable conditions and their survival may be more questionable than where local trees and shrubs are transplanted.

4. When local plants are being transplanted, great care must be exercised in the operation. As a protection to the roots, plants should be balled or wrapped in burlap before being moved.
5. Certain hardwood trees and some shrubs may be transplanted "bare root" in the winter, after the leaves are dropped. The list varies with the locality.
6. Transplants must be protected against rodents, animals, and people, and should be watered throughout the dry season until they become established.
7. In spite of our best efforts, many of the plants set out will die, necessitating replanting to fill the gaps.
8. Should it be desired to transform an area devoid of trees to a grove suitable for camping, it would be advisable to plant trees fairly thickly, without much thought as to future development of the area. When the trees have reached a size which warrants it, the camp plan may be made. In the meantime, some of the trees will have died. By waiting a few years, it will be possible to fit the plan to the actual conditions, as to road layouts, camp sites, etc. This is preferable to planning in advance, which calls for planting in certain spots, because with this latter method replanting must be resorted to in order to effect the vegetative cover as planned.
9. Do not plant trees in rows. Try, rather, to secure a natural grouping.

Planting on camp grounds is in the experimental stage. We are justified in trying various methods, species, seasons of planting, and types of protection.

Mr. C. J. Kraebel, of the California Forest Experiment Station, has prepared lists of plants suitable for planting in various sections of the state, and should be consulted in connection with any extensive program of camp planting.

For additional information regarding planting, refer to:

Farmers' Bulletin #1591 - Transplanting Trees and Shrubs, by F. L. Mulford.

American Tree Association - Tree Planting Book.

Tuomey & Korstian - Seeding and planting in the Practice of Forestry, Chapter 18.



A Deteriorated Public Camp
Unrestricted travel has destroyed all shrubbery and reproduction in the camping area.

II. ROADS AND PARKING SPURS

Unregulated travel by automobiles constitutes the greatest source of damage to campgrounds. For that reason the planning of a road system should follow closely upon clearing and fireproofing. In laying out camp roads, special attention should be given to the suggestions in Dr. Meinecke's bulletins.

In order to protect the vegetation, it is absolutely necessary to control the automobile traffic. Indiscriminate driving about our camps has resulted in scarring, breaking off, knocking down and otherwise injuring shrubbery, young trees, and ground cover generally. It has become of primary importance that automobiles be restricted to roads and parking spaces. Many methods of achieving this result have been suggested, ranging from the mere grading and surfacing of roads and parking spaces to the use of iron posts set in concrete and having chains hung between them. Some of the methods suggested will be discussed briefly.

Use of Obstacles

Rocks: On the surface, it would appear that traffic could best be controlled by means of large rocks, so placed as to keep vehicles within the desired routes of travel. This

method, however, is far from simple in its application. The general tendency is to use rock for rock's sake, which results in a purely artificial appearance. Rocks, to be effective, must be large enough to be almost immovable, which requires the use of equipment in placing them. They do not fit in areas such as timbered flats, where there are few native rocks on the surface, whereas they do appear more natural in rocky canyon bottoms.

Ditches: In some places, ditches along the road will serve to restrict promiscuous motor traffic. However, sloughing from the sides may gradually fill the ditches, so that frequent maintenance may be necessary. The ditches, too, if made sufficiently obvious to the motorist, are apt to look unnatural.

Posts: Some of our camps will be obviously artificial as a result of intense development necessitated by heavy use. In such cases it may be desirable to install posts, where required, as barriers. Since posts have an artificial appearance, it is only in rare instances that such a method of control would be justified.

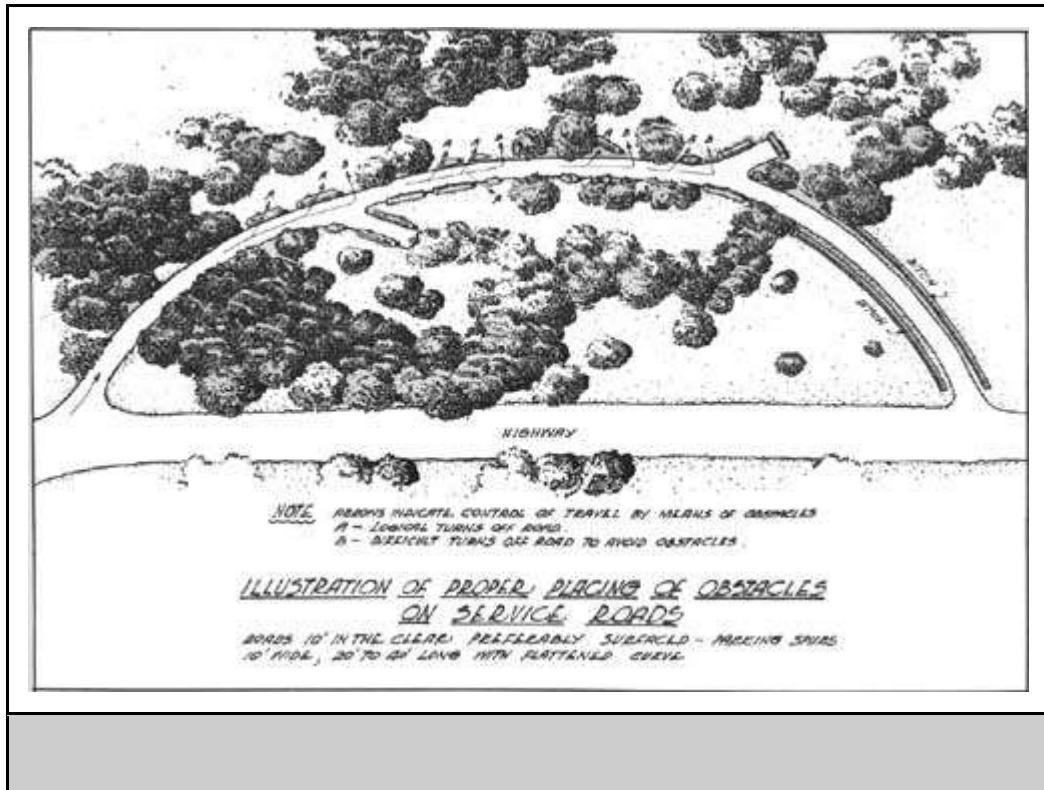
Fences: While there are occasions when the construction of fences is necessary, they are as a rule more objectionable than posts, from the aesthetic standpoint.

Large Logs: In timbered areas, large logs may be used with success. They will undoubtedly stop cars, and help preserve the natural conditions. They are, however, difficult to move into place, and may eventually be chopped and hacked in such a way as to spoil their appearance.

Low Barriers: Wherever timber is available, a very attractive yet unobtrusive barrier may be constructed by setting posts two feet in the ground, leaving one foot exposed. To these posts, rails of 6-8 inches diameter may be bolted or fastened on with strap iron. Such barriers should not be continuous, but should be placed only where it is necessary to provide protection to the vegetation. Shrubs could be planted behind the barriers, and would eventually screen the entire railing. In addition, some natural seeding and growth may be expected in the protected zone below and just behind the barrier. This type of obstruction is recommended for all timber-type camps, where the material is available.

Grading and Surfacing: This is by far the simplest method of traffic control. It differs from all other methods in that no obstacles are constructed, the entire plan being based on simplicity. Merely grade the roads and parking spaces, and surface with some material which will contrast with the surrounding ground area, such as light gravel. The travel routes will then be sufficiently well-defined to the general public. This scheme may not work in the majority of cases. At any rate, it has the advantage of later modification to one of the other methods without sacrifice of work already done.

In any case, full advantage should be taken of trees, brush, rocks in place, or other natural barriers, an attempt being made to fit the roads to local conditions in such a way as to require the least possible amount of obstacle construction.



General Construction of Roads

One-way roads will be constructed in most camps. These should be 10-feet wide, clear of all obstructions. The parking spurs should also be 10-feet wide and 20-feet long on the short side. It may be advisable to construct an occasional spur of greater length, say 40-feet, to allow for cars with trailer attached. Dr. Meinecke dwells on this subject in detail in his bulletins, which should be consulted.

Traffic routes and parking areas should be oiled in heavily-used camps, where dust becomes a problem during the summer.

House Trailers

During recent years, a de luxe type of auto trailer has been developed, which is literally a house on wheels. Some of these trailers are 30-feet long, painted in gaudy colors, and are self-contained units. The people who travel with these trailers are not campers. They carry their own stoves, water supply, toilet facilities, and lighting

systems. The trailer has built-in bunks and table, so no tent or camp table are required. In fact, they are prepared to atop wherever night overtakes them.

These trailers should not be allowed on Forest Service camps, which have been designed and developed for bonafide campers and picnickers.

Since the travellers with this equipment have no need for most of the camping facilities provided by the Forest Service, they should be directed to park and set up housekeeping at especially selected spots where they will not conflict with the administration and use of the areas devoted to bonafide camping. Sections set aside for use by house trailers should be provided with toilet facilities, garbage collection, and water.

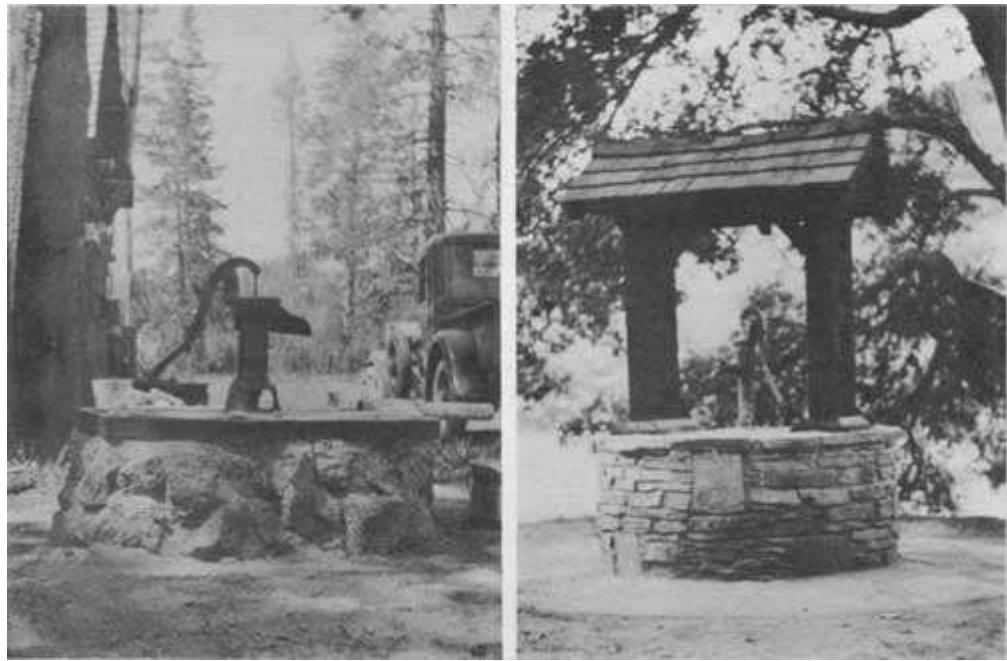
III. WATER DEVELOPMENT

An adequate supply of pure water is a necessity in all camps. Supplies should be developed and the water piped throughout the area, with hydrants spotted in such a manner as to have water within 150 feet of each individual camp site. The dipping of water from streams should not be tolerated, once a water system is installed.

Where springs are used as a source of supply, some method of development which fits local conditions should be followed. The essentials in all developments are the delivery of sufficient water, or all the water available, protection against pollution, and protection against rodents and vermin. In most cases it will be advisable to store water from springs in a tank, to build up a supply for peak use. Pipe lines, hydrants, unions, etc., should be shown on the camp map. Spring faucets should be used in places where the supply is limited, except where sand or grit is carried in the water.

In all camps where water is piped from streams or springs a sand box or settling tank should be installed at the source of supply, to keep sand out of the pipes.

Where wells are dug, they should be curbed from the bottom to a point at least one foot above the ground level. Galvanized iron, corrugated culvert pipe of 30-36 inches diameter, perforated for the bottom six or eight feet, is excellent well curbing. Above ground, it should be sheathed with a concrete, masonry or redwood curb. The well should be fitted with a redwood cover over which a sheathing of tin or smooth galvanized iron is placed. This should be the minimum development for a well.



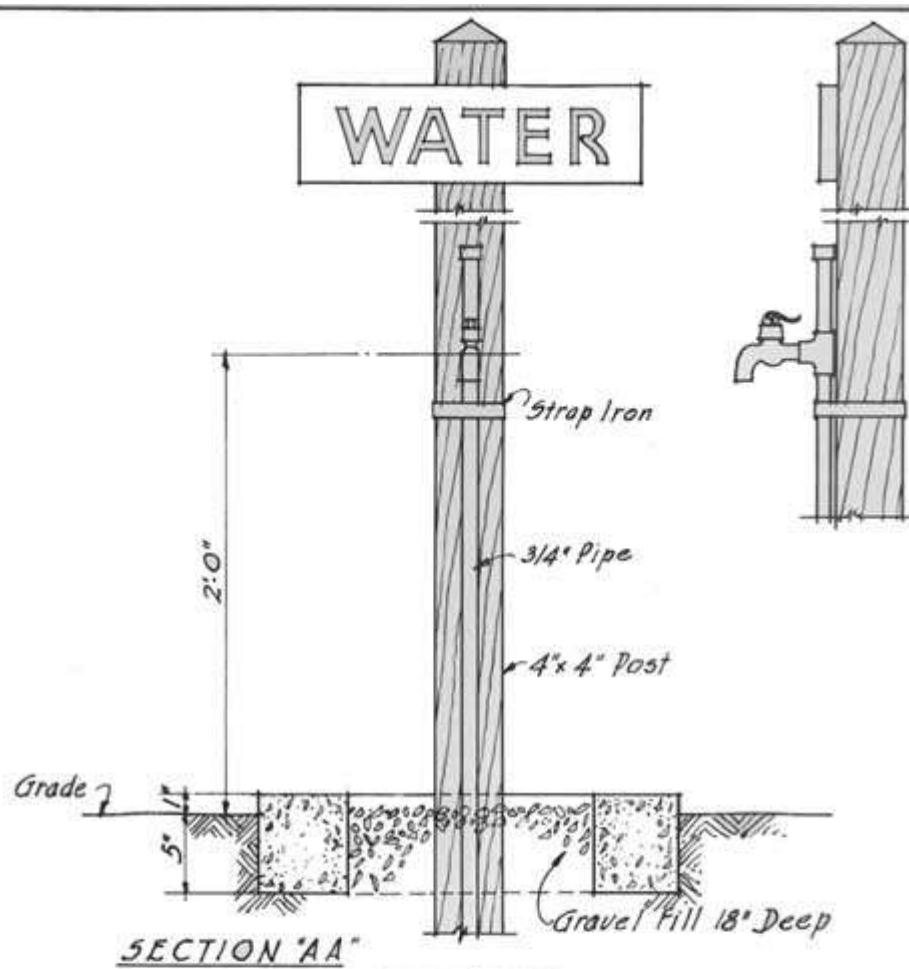
Types of Well Curbing

The well-house shown on the right presents a much better appearance and is to be preferred to the simple cover and pump.

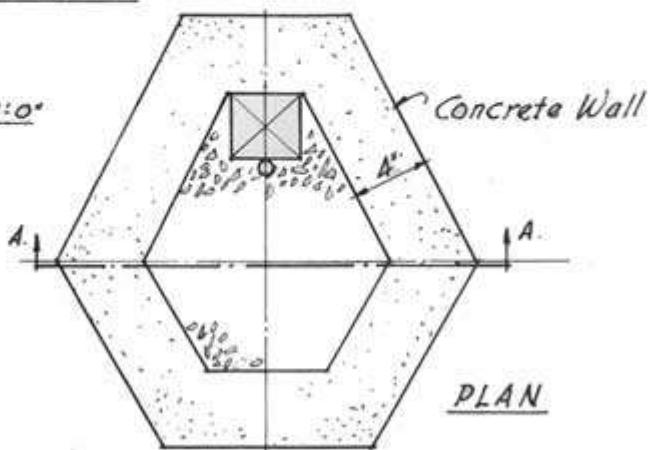
In most cases it will be found desirable to construct a well house of pleasing design above the well curbing. A type of structure which harmonizes with its surroundings and is of simple construction should be the objective in such a project.

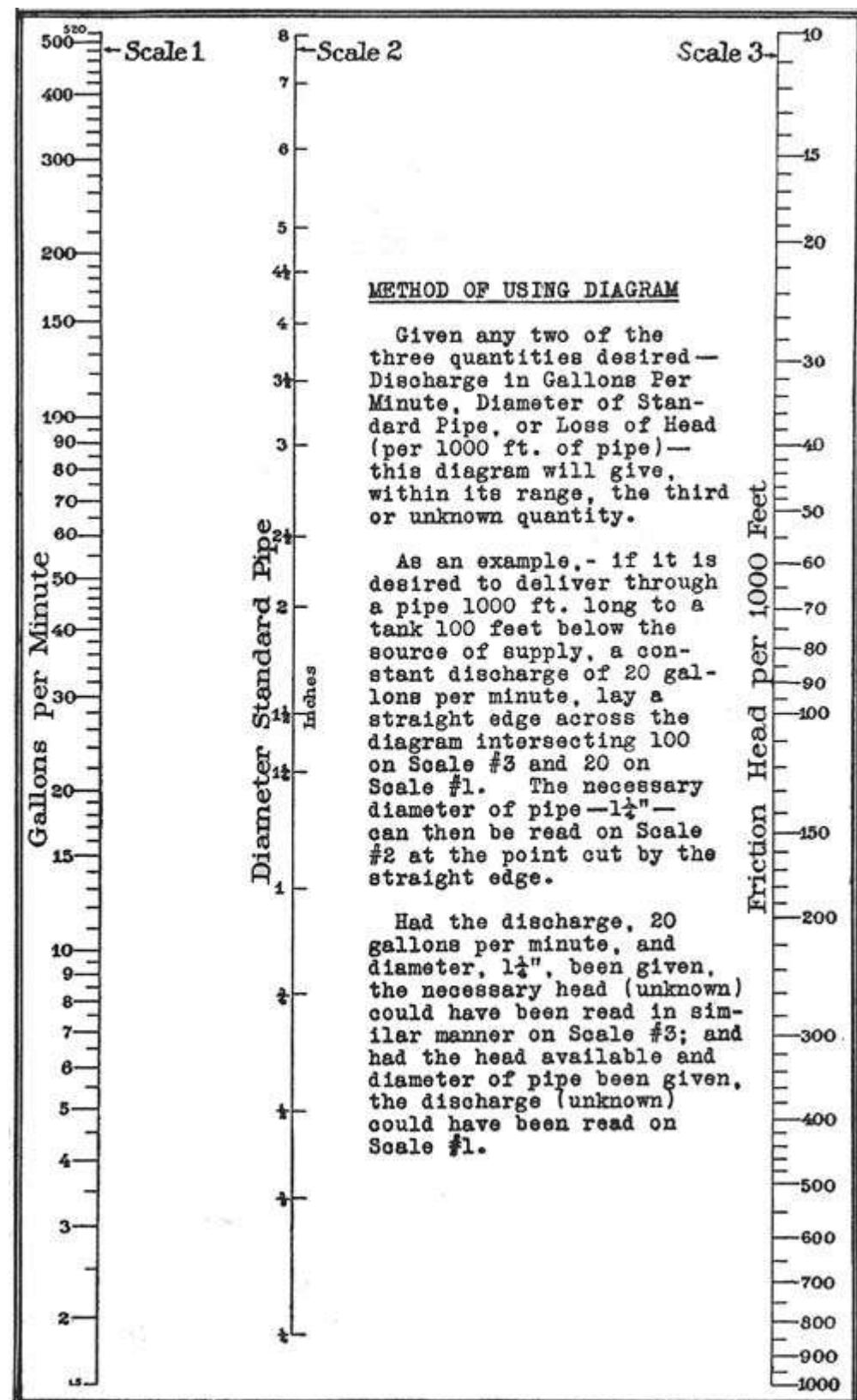
In order to eliminate mud holes around faucets, a hydrant curb similar to that illustrated on the following page is recommended.

The utmost care should be taken in locating all camp improvements so as to prevent the pollution of the water supply.



SCALE 1"-1:0"





IV. TOILET FACILITIES

Proper sanitation is a matter of great importance in all camp development. Following the planning of roads and water systems, the location of toilet facilities should be planned carefully, in view of the danger of pollution of water supplies. This is well set forth by the California Department of Public Health, as follows:

"The principles of good mountain sanitation are simple. Burn or bury all refuse, and use care not to contaminate streams.

"Of all waste materials, the most offensive and most potentially dangerous are intestinal discharges. The direct discharge of such material into any mountain stream is obviously a cause for immediate danger to persons below who may drink from that stream. And direct discharge does not only mean passage immediately from the intestines to the stream. A rainfall results in general washing off of the land, and accumulations of fecal matter on stream banks or in dry water courses may be expected to reach the stream sooner or later. Do not be deceived by the common statement that a rapidly flowing stream purifies itself within some special number of feet. The life and virulence of a disease germ are measured in days not distance. The faster the stream flows, the longer will be the journey of contamination."

In California, almost without exception, final disposal of camp wastes must be made either into the soil through pits or cesspools, or by sub-surface irrigation. Legislation prohibits the discharge of untreated sewage onto the surface of the ground or into streams.

Toilets must be erected before any area is opened to the public for camping or picnicking. Various types of toilets may be used, the selection being dictated by local conditions,

Certain fundamental rules may be laid down as to location of toilets, as -

(1) Toilet facilities should be located in accessible places, so arranged throughout the camp that no camper will have to travel more than 400 feet to a toilet.

(2) A pair of single toilets should be erected for each 8 - 10 camp units, larger toilets used in proportion. In order to accomplish this, a general scheme of location of camp sites must be planned in advance, to assure proper distribution of the toilet facilities.

(3) Pit toilets should never be located above a spring or within 200 feet of any stream.

(4) Wherever possible, locate toilet buildings in such a way as to utilize natural shrubbery as a screen. Planting should be resorted to in developing more adequate screening. When single and double toilets are erected, separate buildings should be provided for men and women.

(5) Urinals should be provided wherever they can be justified on the basis of use.

The designs of double and multiple toilets shown in this Manual shall be standard hereafter. No more galvanized iron toilets will be constructed.

All toilets of whatever type should receive frequent attention throughout the camping season. The buildings should be cleaned and swept out, and in the case of pit toilets the vaults should be treated with some good liquid disinfectant. It will be necessary also to wash the outside of the bowls occasionally, using soap and water.

Toilet paper containers, designed to hold the square folded sheets, should be installed in toilet buildings in all camps that have an appreciable amount of use.

Angeles Metal Toilet Stool

The Angeles metal toilet stool has been accepted as standard, and should be installed in all pit and chemical toilet buildings. Except in isolated hunters' camps, buildings which are equipped with wooden box-type seats should be remodeled immediately for installation of the metal stool, or replaced by new buildings as necessity demands. Specifications of this stool follow:

BODY OF STOOL: 15 inches high with perpendicular front and sloping back made of 20 gauge iron, with lock joint down the back. Body dimensions are 20 inches from front to back and 16-1/2 inches across at the bottom, with the front and the back ends curved with the same radius as the top, which is 16-1/2 inches diameter and circular.

FLANGE AND PROJECTION: Flange is made of 16 gauge iron, 1 inch wide and is integral with a 3-inch projection designed to fit through the floor. The 3-inch extension is at right angles to the floor flange, not sloping in the back as above the floor line. Six, three-sixteenth inch holes, centers 1/4 inch from the outer edge of the

flange and an equal distance apart, offer a means of fastening the stool to the floor. The flange and projection are securely fastened to the body of the stool.



Angeles Metal Toilet Stool

TOP OF STOOL: 16-1/2 inches in diameter and circular with 1/2-inch flange to fit snugly over the body of the stool, and riveted thereto. Made of 16 gauge iron with a smoothly cut opening conforming with dimension given under "Seat".

SEAT: Consists of two crescent-shaped pieces of 1-inch birch, the outer edges being a segment of a 14-inch circle. The blocks are 3 inches wide at the widest point. Each is

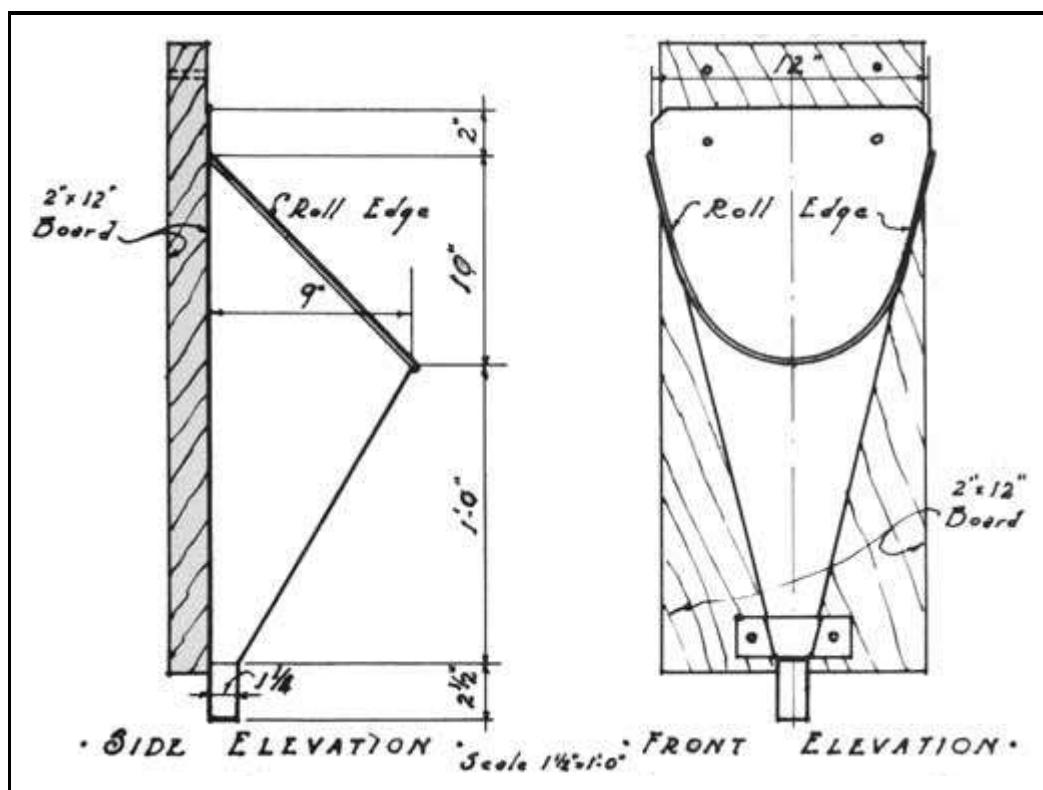
attached to the top by means of three screws inserted from underneath. The blocks are so placed as to leave openings of 4-inches front and back, and 8-1/4 inches at the widest point. They are comfortably shaped and finished with three coats of clear varnish.

METAL COVER: 20-gauge iron, 14-1/2 inches diameter inside and 1 inch deep with curved sides. Has a flat flange or bead at bottom, 1/4 inch in width, entirely around the cover. It is fitted with a substantial brass hinge, 5 inches wide, which is attached by brass posts and nuts 1/4 inch in diameter.

PAINT: If galvanized iron is used, treat it with vinegar and paint with black enamel inside and grey enamel outside. If made of black iron, it should be given a priming coat of red lead, followed by two coats of good metal paint.

Urinals

Urinals should be installed in camp toilets wherever such installation can be justified on the basis of use. A regular commercial-type urinal should be used in connection with flush toilets. The simple urinal shown below is recommended for use with chemical or pit toilets.



Inyo Urinal

Made of 18-gauge enameling stock. Finished inside and out with one ground coat and two finish coats of white enamel, the final coat being acid-resistant.

Pit Toilets

Pit toilets will prove satisfactory in the majority of forest camps, where there is little danger of stream pollution. They should be located in accordance with the general rules already discussed, particular care being taken to keep them away from water courses and springs. Vaults should be at least six feet in depth and where there is danger of cave-ins they should be walled or timbered. The larger the vault, the longer will the pit be usable, and frequent moving of toilets is not desirable. The vault must be kept dark and rodent-proof. A redwood-sill foundation for the building should be provided to prevent sloughing of material into the vault and resultant holes through which squirrels and rats might gain access to the pit. A strip of 1-inch mesh wire, a foot or so in width, should be nailed to the redwood sill all the way around, and dirt filled in around it. This will discourage small animals burrowing through to the pit.

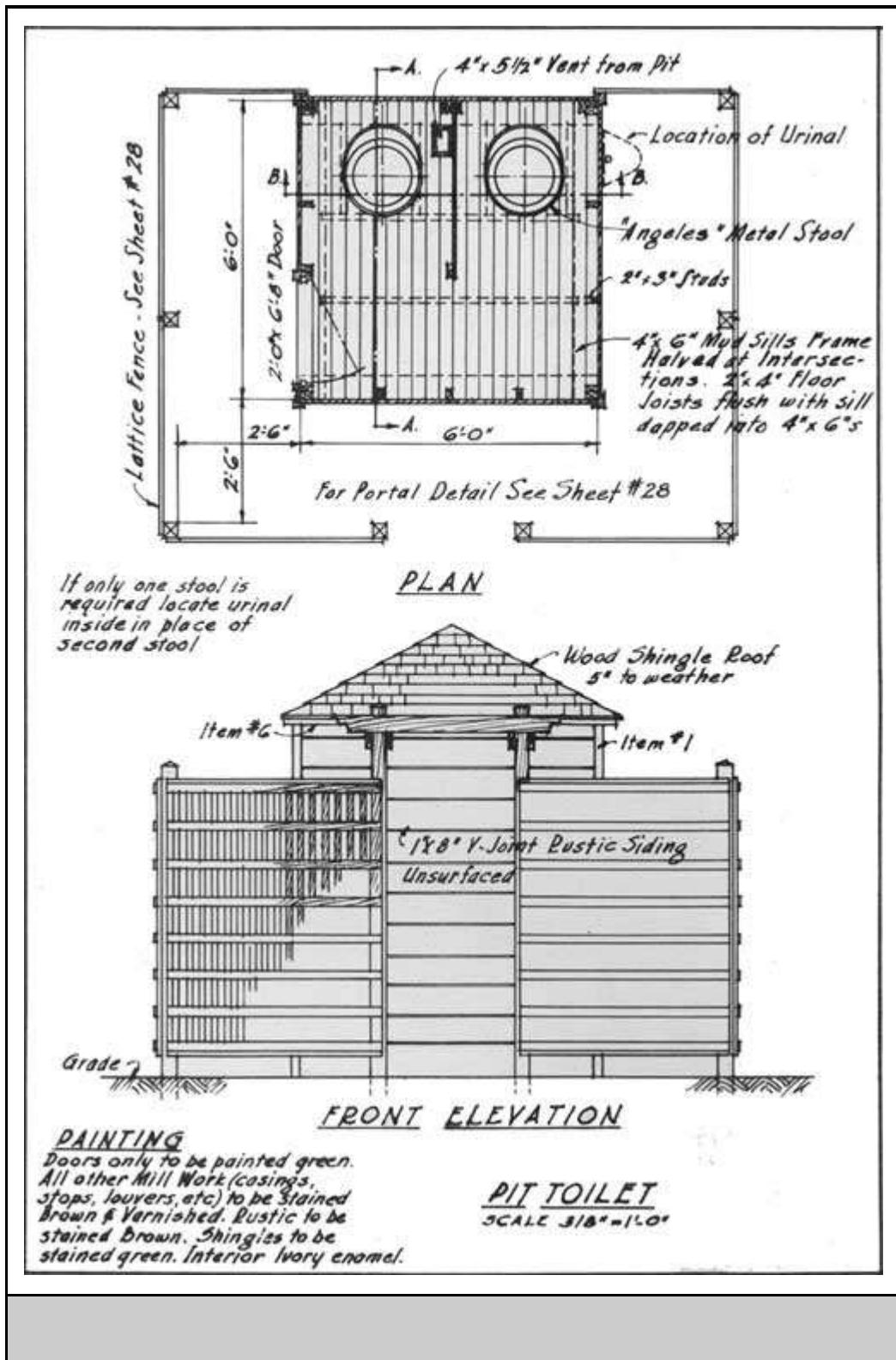
The designs shown on pages 26 to 28 shall be used in constructing pit toilets.

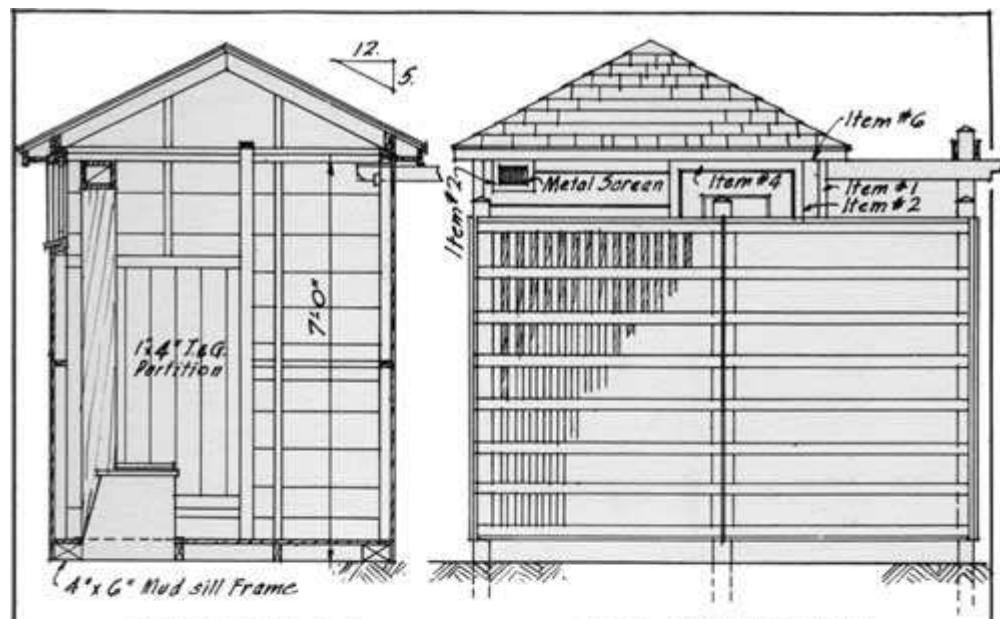
MATERIAL LIST FOR PIT TOILET

Mudsills	4x6	Redwood or Red Cedar #1 Heart Common	4 pcs. 6-0
Joists	2x4	same	4 pcs. 6-0
Stool Header	2x4	same	1 pcs. 6-0
Floor	1x4	"C" Grade Flat Grain Douglas Fir T&G Flooring	23 pcs. 6-0
Studs & Trimmers	2x3	#1 Common Douglas Fir S1S1E	12 pcs. 14-0
Plates	2x3	#1 Common Douglas Fir S1S1E	8 pcs. 6-0
Hip Rafters	2x4	#1 Common Douglas Fir S1S1E	4 pcs. 6-0
Jack Rafters	2x4	#1 Common Douglas Fir S1S1E	4 pcs. 6-0
Bridging & Blocking	2x3	#1 Common Douglas Fir S1S1E	8 pcs. 6-0
Roof Sheathing	1x6 or 1x8	#2 Douglas Fir or #3 Ponderosa Pine Common Shiplap	100 B.M.
Lattice Posts	4x4	#1 Heart Common Redwood or Red Cedar S4S	8 pcs. 10-0
Outlookers	2x4	same	3 pcs. 18-0
Outlookers	2x4	same	2 pcs. 8-0
Cap	2x4	same	1 pcs. 10-0

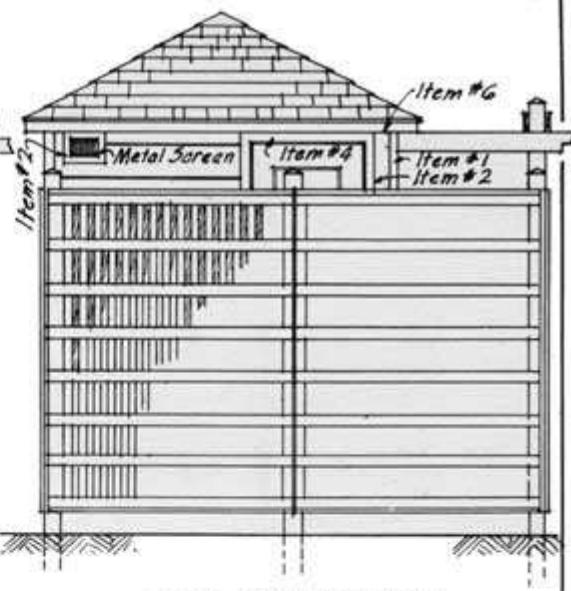
Rustic	1x8	V-jointed Clear All Heart Unsurfaced Redwood or Red Rough side out	(32 pcs. (6 pcs.)	6-0 8-0
Corner Beads	Item 1	Clear All Heart Redwood or Red Cedar to detail	4 pcs.	8-0
Screen Sill	Item 5	Clear All Heart Redwood or Red Cedar to detail	1 pcs.	6-0
Cornice Facia	Item 6	Clear All Heart Redwood or Red Cedar S4S	4 pcs.	8-0
Cornice Soffit	3/4"x6-1/2" net	same	4 pcs.	8-0
Casings	Item 2	Clear All Heart Redwood or Red Cedar to detail	1 pcs. 1 pcs.	14-0 10-0
Screen Sills	Item 8	All Heart Clear Redwood or Red Cedar to detail	1 pc.	6-0
Stops	1x2	same S4S	4 pcs.	10-0
Partition	1x4	"C" Grade Douglas Fir or Ponderosa Pine V-jointed partition stock	6 pcs.	8-0
Partition Frames	2x3	#1 Common Douglas Fir S1S1E	1 pcs.	8-0
Quarter Round	3/4"	Douglas Fir or Ponderosa Pine	4 pcs.	8-0
Vent Duct	1x6	Clear All Heart Redwood or Red Cedar S4S	(2 pcs. (2 pcs.	14-0 12-0
Lattice	1x3	same	(8 pcs. (24 pcs.	6-0 10-0
Lattice	1/2"x2"	same	92 pcs.	6-0
Lattice Frame	2x4	same	(2 pcs. (6 pcs.	6-0 10-0
	2x3	same	12 pcs.	6-0
	2x2	same	4 pcs.	6-0
Shingles		Clear 100% edge grain Redwood or Western Red Cedar 16" 5/2 butts 1 square 4 bundles		
Screens		2 screens to detail, approx. 2'-4" x 1'-3" x 7/8", cut into 3 lights. Screened with 16-mesh copper or bronze wire cloth.		
Door		1 2-0 x 6-8 x 1-3/8 stock, 5 solid raised panels.		
<u>Hardware</u>				
Nails		5 lbs. 16d common 10 lbs. 8d common 5 lbs. 8d common galvanized 10 lbs. 6d smooth box zinc coated		
Bolts		8 1/4"x8" carriage bolts with nuts and washers.		
Lattice		76 1/4"x7" carriage bolts with nuts and washers.		
Hinges		1 pair 3-1/2x3-1/2 wrought steel loose pin butts galvanized, with screws.		
Lock		1 mortise lock set complete with knobs, key plates and strike.		

1 14" spring door closer, equal to Chicago #283.
Screen
2 sq. ft. bronze or copper 16 mesh wire cloth.





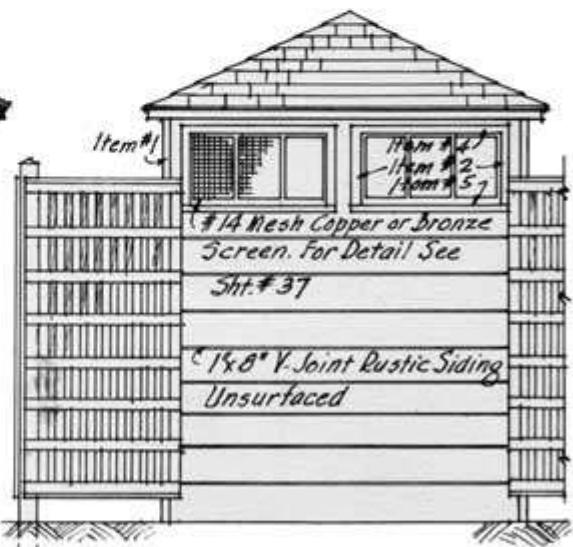
SECTION A-A



SIDE ELEVATION

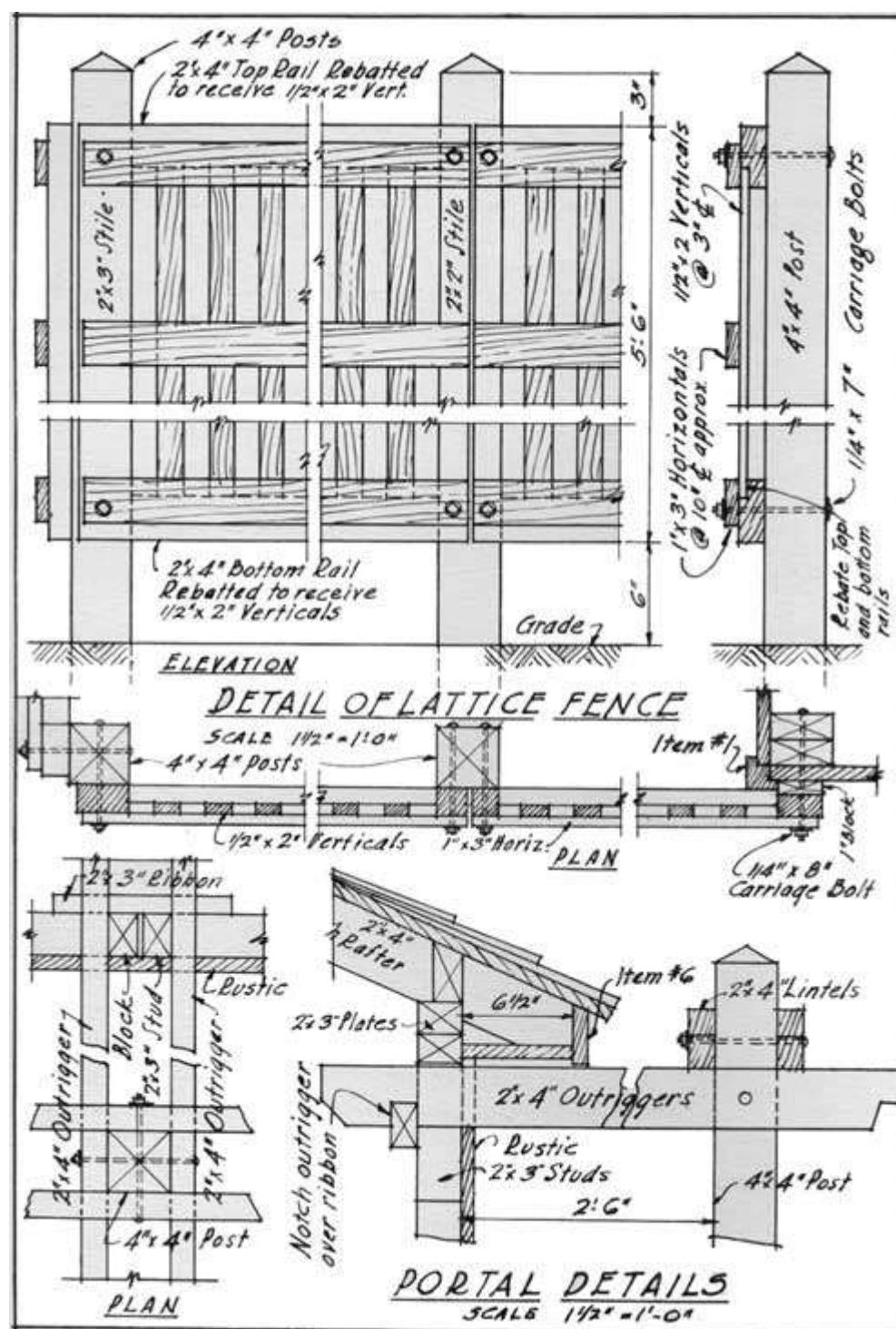


SECTION B-B



REAR ELEVATION

PIT TOILET
SCALE 3/8" = 1'0"



Chemical Toilets

Chemical toilets should be installed only at public camps where there is acute danger of contamination of streams or other water supplies and where flush toilets cannot be used.

The theory underlying the chemical toilet is that certain alkalies, such as sodium hydroxide, will break down sewage to a liquid or sludge form, kill the bacteria, and reduce its potential health menace. One of their most disagreeable features is that such a chemical reaction produces odors which, if not actually offensive, are at least disagreeable. It is necessary to agitate the contents of the vaults or tanks frequently, to assure proper mixing of the sewage and the chemical.

Sodium hydroxide, the standard charging material used in chemical toilets, is a powerful reagent. It has strong caustic properties and will burn clothing or skin. When it is dissolved in water, a great deal of heat is generated. In charging chemical toilets, the danger of caustic burns must be borne in mind.

One or two pounds of sodium hydroxide should be dissolved in a pail of water (preferably a wooden bucket, because of the heat generated), and the solution poured into the tank. The operation is repeated until the entire charge has been dissolved. The chemical vaults shown on the following pages will require a charge of 50 pounds of chemical. Add water to about 250 gallons total.

The Angeles metal stool is to be used in all chemical toilets built hereafter, and designs shown in this Manual shall be adhered to in the construction of the buildings. Wherever permissible and practical, gravity outlets for removing wastes should be provided. Where this is not feasible, provision must be made for pumping the waste into a truck and removing it. Tanks should be emptied when the liquid rises to a point about 2 feet below the floor of the toilet.

Flush Toilets

As more adequate supplies of water are developed, more flush toilet systems are being installed in our forest camps. The flush systems are the safest and cleanest type of toilet. They do present difficulties, however. In the first place, a considerable quantity of water is used in day-to-day operation of a flush toilet at a public camp. Therefore, this type is not recommended for sites of limited water supply. They should not be installed where there is not proper drainage from the septic tank.

In all flush toilet installations, it is necessary to provide some means of treatment and disposal of the sewage. This is accomplished ordinarily by a septic tank installation,

together with a leaching or filtering bed for disposal of the effluent from the tank. A septic tank is merely an airtight chamber into which wastes are run and held for a period, during which time bacteria operate to reduce the solids and render the solutions less harmful. The reaction is a natural one, no chemicals being required either to start it or to carry it on. Most septic tanks have two or more chambers, in which the material is acted upon to different degrees. The effluent from the tank is ordinarily clear and water-like, but is potentially very dangerous. It is found that the septic tank treatment does not kill such organisms as the typhoid germ. The effluent should never be run into streams, but should be carried through leaching systems, to percolate through the soil and be purified.

In the event that flush toilet systems be desired, detailed information regarding septic tanks may be secured from the Regional Office.

Flush toilets should be installed in buildings as shown in the Manual. It is recommended that frostproof bowls be used in camp flush toilet systems.

MATERIAL LIST FOR CHEMICAL OR FLUSH TOILET

Concrete Aggregate - 4 cu. yds. concrete mix

Cement 15 sacks

Concrete pit is not included.

Form lumber is not included.

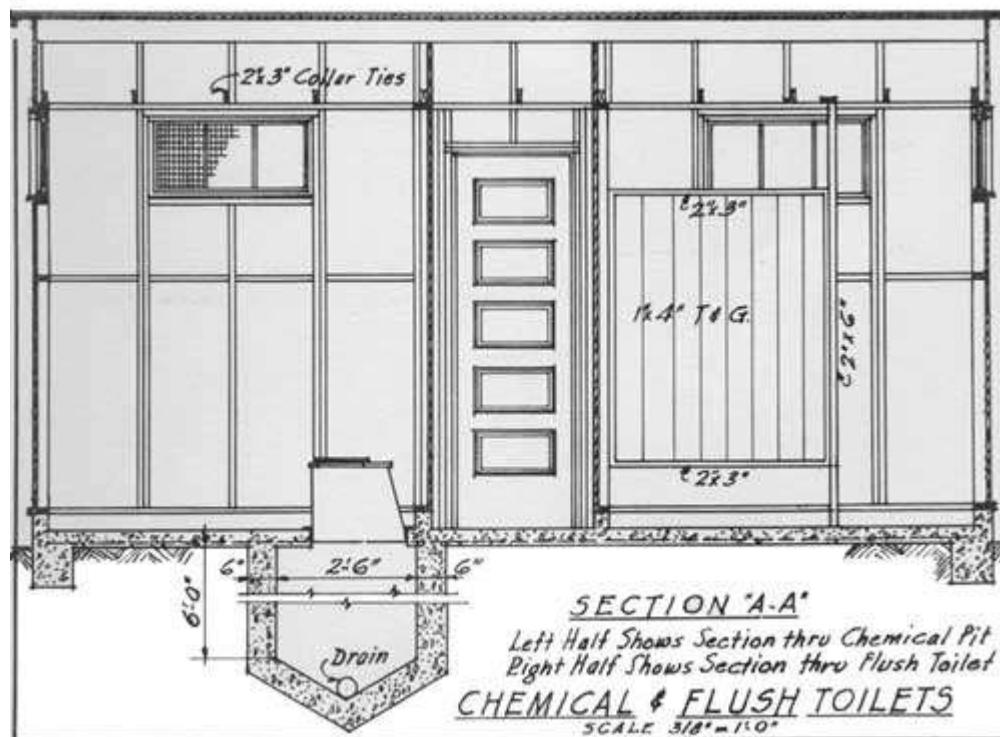
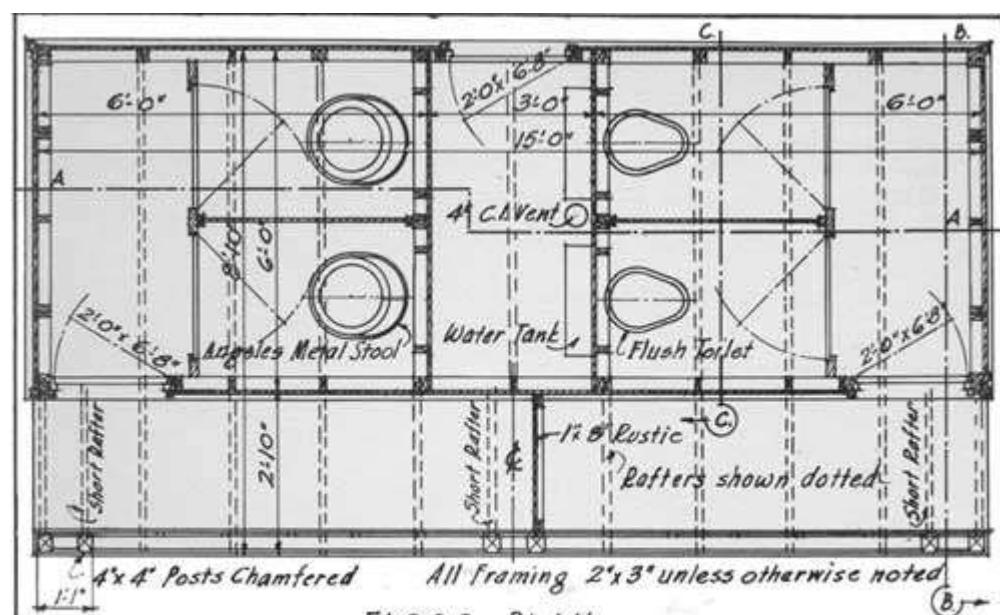
Framing Lumber

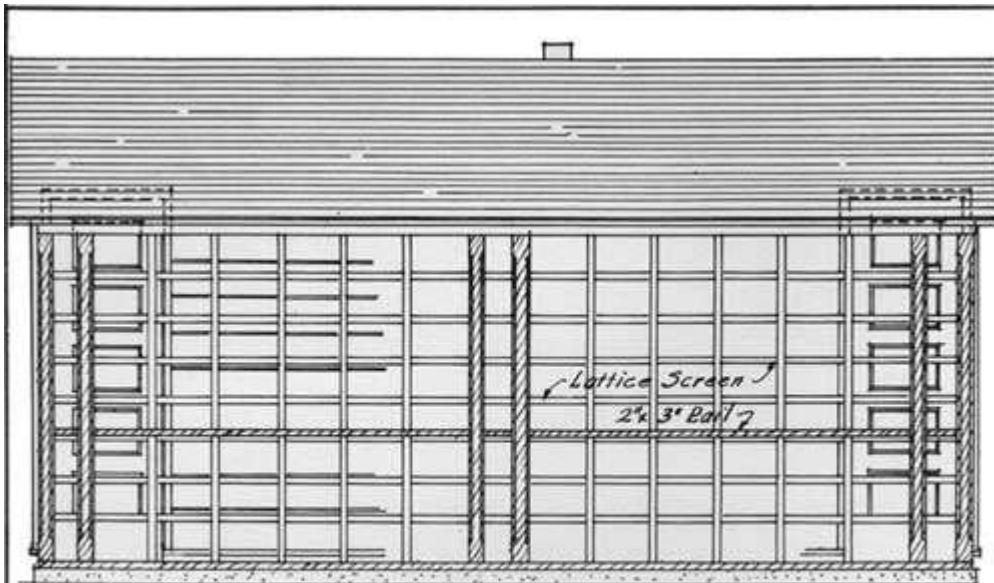
Mudsills	2x3	Redwood or Red Cedar #1 Heart Common	(2 pcs. 16-0 (2 pcs. 14-0
	2x4	same	1 pcs. 18-0
Studs and Cripples	2x3	#1 Common Douglas Fir S1S1E	34 pcs. 14-0
Trimmers	2x3	same	2 pcs. 14-0
Plates	2x3	same	(2 pcs. 18-0 (2 pcs. 12-0
Collar Ties	2x3	same	(9 pcs. 6-0
	2x3	same	(2 pcs. 8-0
Eave Blocking	2x4	same	3 pcs. 18-0
Rafters	2x4	same	12 pcs. 12-0
Ridge Pole	1x6	same	1 pcs. 18-0
Stud Blocking	2x3	same	5 pcs. 14-0
Roof Sheathing	1x6	#2 Douglas Fir or #3 Ponderosa Pine Common Shiplap	240 B.M.

Porch Posts	4x4	#1 Heart Common Redwood or Red Cedar S4S	6 pcs.	6-0
Porch Girder	2x4	#1 Common Douglas Fir S1S1E	(2 pcs.	18-0
			(2 pcs.	6-0
Porch Rail	2x3	#1 Heart Common Redwood or Red Cedar S4S	1 pcs.	18-0
Lattice	1x2	same	(8 pcs.	14-0
			(9 pcs.	18-0
Rustic	1x8	V-jointed, clear all heart, unsurfaced "V"ed Redwood or Red Cedar Rustic, rough side out	24 pcs.	8-0
			14 pcs.	14-0
			28 pcs.	6-0
Corner Beads	Item #1	Clear All Heart Redwood or Red Cedar, milled to detail	4 pcs.	8-0
Casings	Item #2	same	4 pcs.	14-0
Watertable	Item #3	same	(2 pcs.	14-0
			(1 pcs.	16-0
Head Casing and Girder Trim	Item #4	same	(3 pcs.	8-0
			(1 pcs.	18-0
Window Sills	Item #5	same	1 pcs.	14-0
Eave Trim	Item #6	same	2 pcs.	18-0
Girder Soffit	1x3	same S4S	(1 pcs.	18-0
			(1 pcs.	6-0
Rake Trim	1x3	Clear All Heart Redwood or Red Cedar	2 pcs.	12-0
Door Frames	1x3	Clear Douglas Fir S4S	3 pcs.	16-0
Door Stops	3/4x1-1/4" net	same	3 pcs.	16-0
Screen Stops	1x1	Clear All Heart Redwood or Red Cedar S4S	8 pcs.	6-0
Shutter Stock	1-1/4x8-1/4" net	same S1S1E	4 pcs.	6-0
Doors	3 doors 2-0 x 6-8 x 1 3/8" stock.	5 solid raised panels.		
Toilet Doors	4 doors 2'-2"x4'-8"x1-3/8"	single panel.		
Screens	4 screens 3'-0"x1'-6"x7/8" - 3 lights as per detail.	Screened with 16-mesh copper or bronze wire cloth.		
Partition Stock	1x4	C Grade Douglas Fir or Ponderosa Pine, V-jointed, T.&G. Ceiling	(14 pcs.	10-0
			(28 pcs.	12-0
Partition Rails	2x3	#1 Common Douglas Fir S4S	(2 pcs.	8-0
			(2 pcs.	10-0
Partition Posts	2x6	same	6 pcs.	7-0
Quarter Round	3/4"	Douglas Fir or Ponderosa Pine	8 pcs.	10-0
Shingles	Clear 100% edge grain Redwood or Red Cedar	16" 5/2 butts 2-1/2 squares 10 bundles		

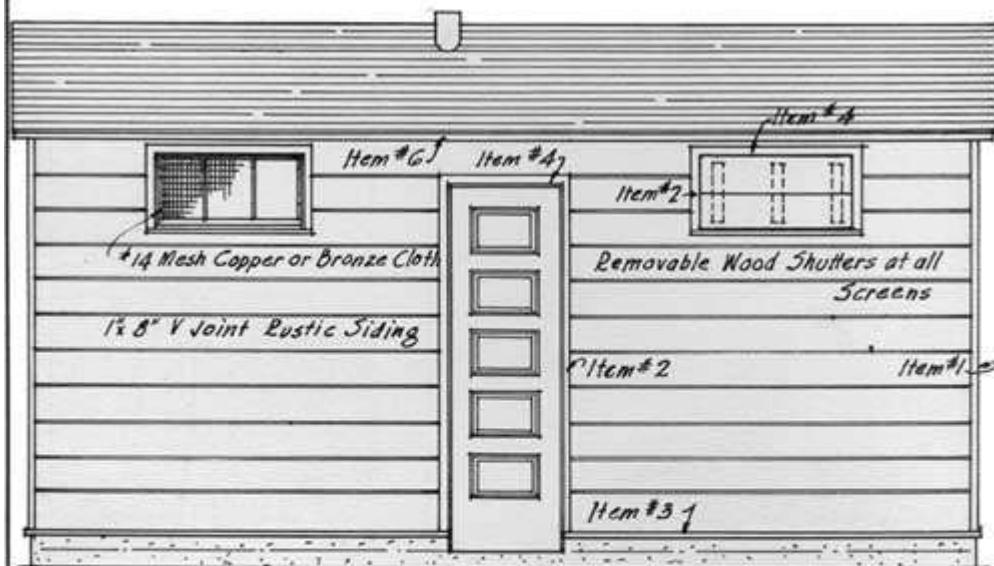
Hardware

Bolts	24 1/2"x6" machine bolts with nuts and cut washers.
Mudsill	
Nails	10 lbs. 16d common 15 lbs. 8d common 10 lbs. 8d common galvanized 10 lbs. 3d shingle galvanized 5 lbs. 6d common 5 lbs. 6d finish
Hinges	3 pair 3-1/2"x3-1/2" wrought steel loose pin galvanized butts 4 pair 3"x3" wrought steel loose pin butts 4 mortise door bolts, 1-3/4", equal to Russell-Irwin #13. 3 mortise lock sets, equal to Sargent Lock 5234, complete with knobs, trim, etc. 3 14" spring door closers, equal to Chicago #283. 4 coat and hat hooks.
Mesh	180 sq. ft. #14 gauge galvanized welded reinforcing mesh, wires spaced 4" on centers in each direction.
Paint	2 gals. ivory enamel 3 gals. grey green creosote shingle stain 5 gals. light weatherbeaten brown creosote stain 1 qt. green sash paint 2 qts. varnish 2 qts. turpentine





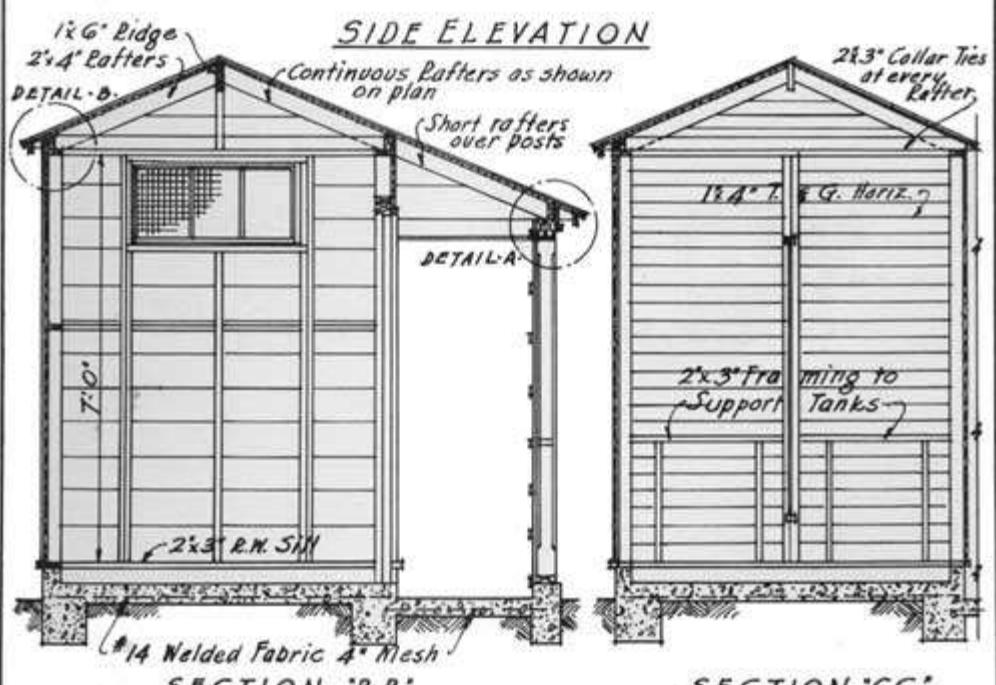
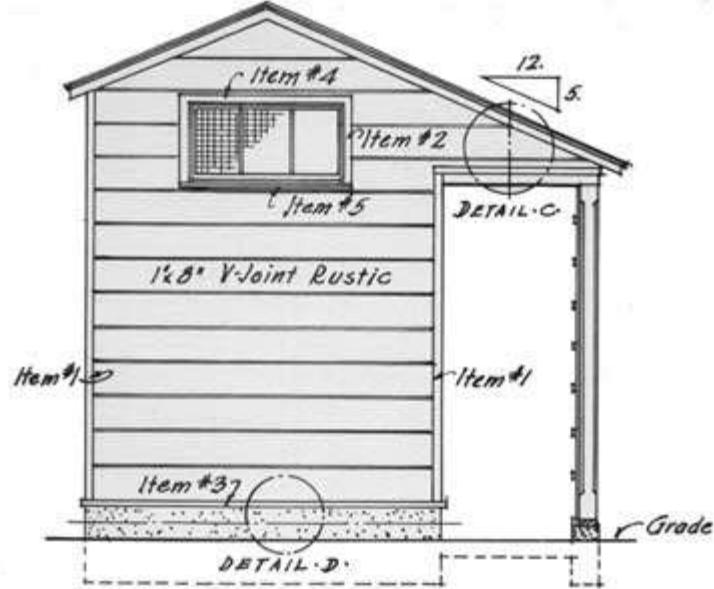
FRONT ELEVATION

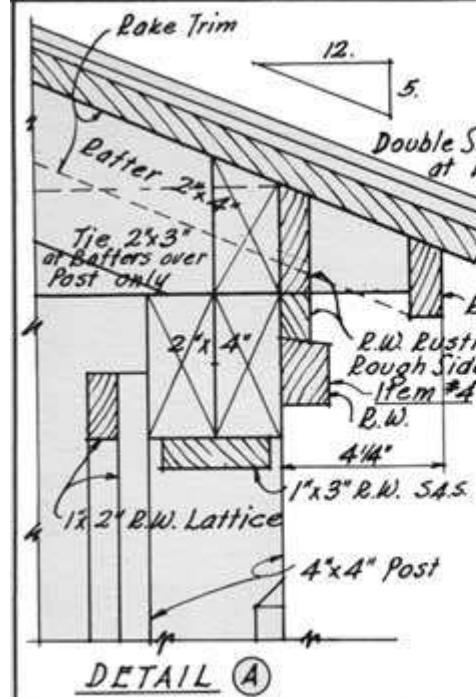


REAR ELEVATION

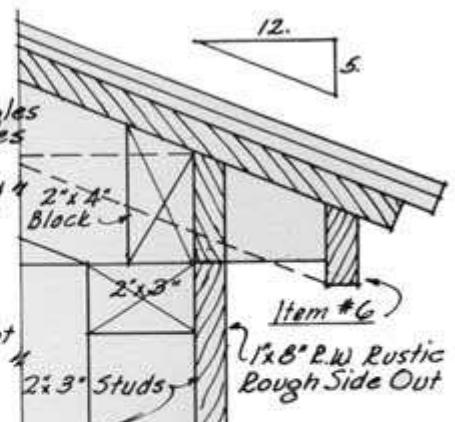
CHEMICAL & FLUSH TOILETS

SCALE 3/8" = 1'-0"

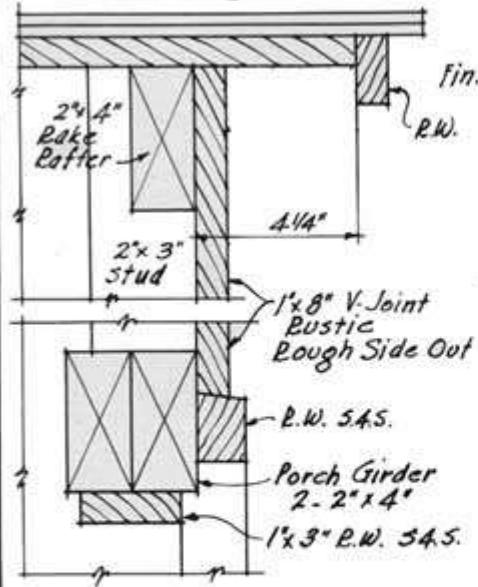




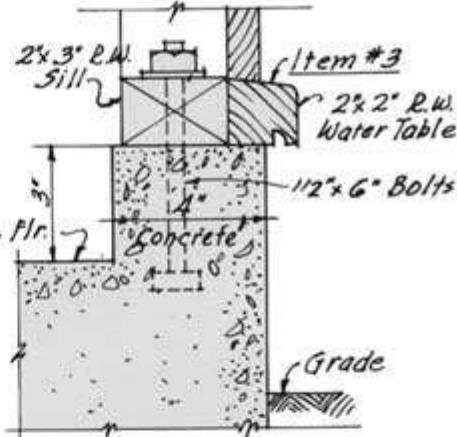
DETAIL A



DETAIL B similar to A except as noted



DETAIL C



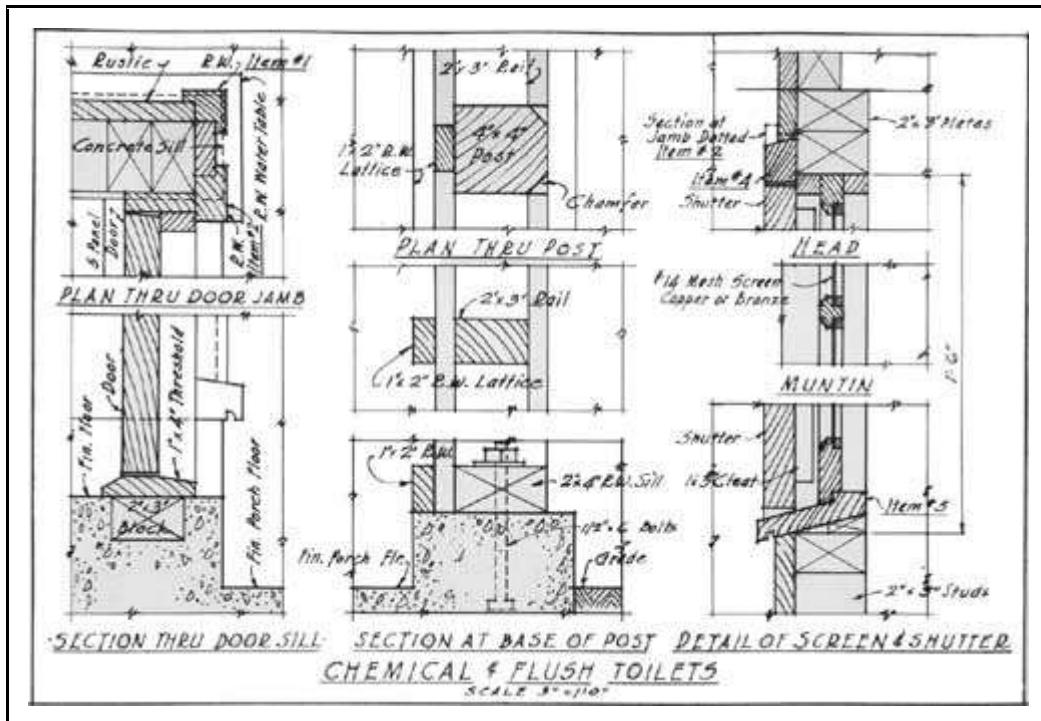
DETAIL D

PAINTING

Doors only to be painted Green
All other Mill Work (casings,
louvers etc.) to be stained Brown
& varnished. Rustic to be stained
Brown. Shingles to be stained
Green. Interior - Ivory enamel.

CHEMICAL & FLUSH TOILETS

SCALE. 3" = 1:0"



V. GARBAGE DISPOSAL

The scattering of refuse about camps is very objectionable. It is unsightly, produces odors, and serves as an excellent breeding place for flies. Some satisfactory method of disposal of garbage must be adopted for every camp developed in this Region. The method will vary with local conditions and needs, but must do away with the unsightly and unsanitary mess which results from scattered refuse. Garbage pits, a collection service, or incinerators may be used as conditions dictate.

Garbage Collection

A garbage collection system should be planned for all camps where collection is practicable. Only where collection is impracticable should garbage pits be installed in a camp.

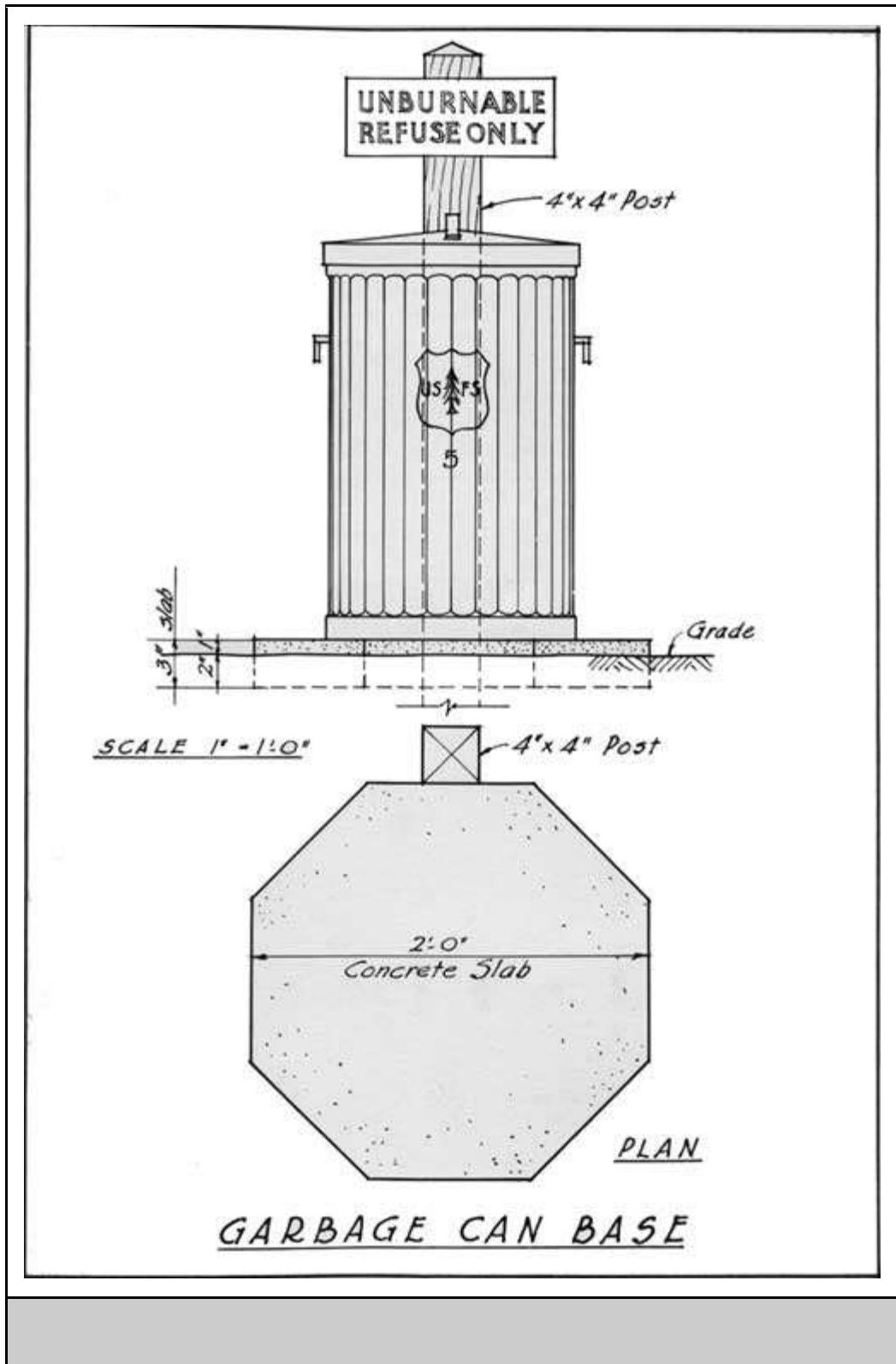
Standard galvanized iron cans of about 25-gallon capacity have proved most satisfactory as garbage receptacles. They should be distributed throughout the camps, so as to provide easy access from the camp units, but close enough to the roads to facilitate collection. Garbage cans should be placed on stone or concrete bases, as shown in the accompanying sketch, and every can should be painted and stencilled with the Forest Service shield.

Wherever a garbage collection system is installed, some provision must be made for disposal of the refuse. Ordinarily this may be accomplished by means of dumps or pits.

Garbage Pits

Garbage pits furnish the most satisfactory depository for camp refuse. Where a pit is used in connection with a collection service, it should be removed from the camp, preferably on a side road. Wherever possible, it should be of sufficient size to care for the area tributary to it for a period of several seasons. The pit should be walled or timbered to prevent caving, and should be fitted with a redwood top sufficiently strong to hold up under the weight of persons or animals.

Where garbage pits are installed in a camp in lieu of a collection service, they should be located with the same care as are the toilets, bearing in mind that they must be accessible to all adjacent camps. These pits should be about 5 feet in diameter or 5 feet square, 6 feet to 10 feet deep, and should be fitted with redwood covers, made as nearly fly-tight as is possible.



Garbage Dumps

Where large garbage dumps are required, great care should be exercised in selecting locations. They should be off main routes of travel, out of sight, and so located that odors from the dump will not be carried to camps or other recreation areas. Dumping should be confined to just as small an area as possible.

Garbage dumps should be kept burning all the time, or burned over annually. Burning can be facilitated by spraying stove oil or waste motor oil over the garbage occasionally. Garbage cans, pits, and dumps should be sprayed frequently with some good liquid disinfectant, of which there are several commercial brands.

Incinerators

It is doubtful whether incinerators for trash or garbage should be installed in Forest camps. Campers should be instructed to burn papers and other dry refuse in the camp stoves. Other refuse should be collected and removed to the garbage pit or dump. A trash incinerator usually becomes a depository for garbage and refuse, thereby destroying completely its intended function.

In rare cases, it may be necessary to construct incinerators for garbage. Incinerators of this sort should be located far enough away from camp sites to keep the smoke and odors from becoming objectionable to campers. The Regional Office will furnish plans of garbage incinerators upon request.



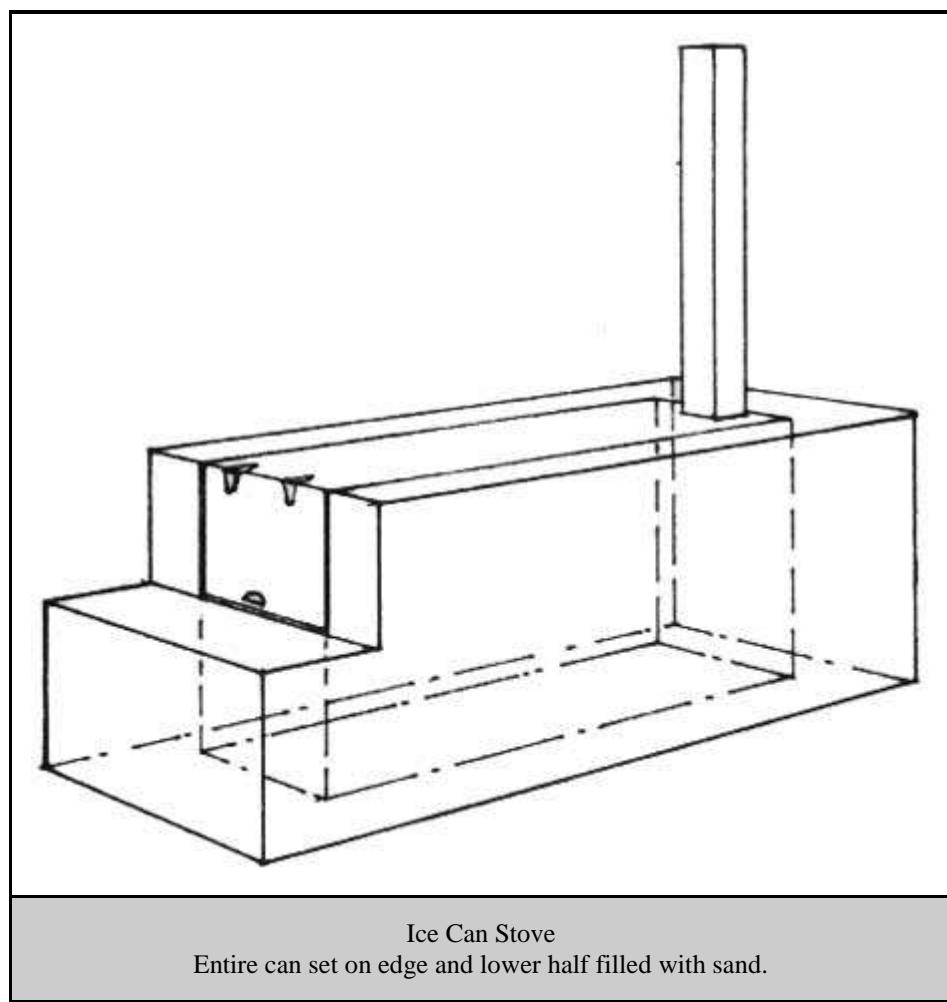
Trash Incinerator

Rock work should have some design, rather than an appearance of rows of cobblestones. The well-house shown on page 1-6 illustrates interesting and attractive rock construction.

VII. STOVES AND BARBECUE PITS

It has been determined that 25-75 per cent of our campers carry gasoline stoves. For this reason, the Lassen type table has been re-designed to care for such equipment, and it is no longer necessary to construct stoves for every unit in a public camp. The proportion of stoves constructed, as compared with the total number of camp sites, must be determined by local conditions.

This policy will require good public relations efforts in order to gain its acceptance by the public. Rangers, guards and others who interview campers should request that those who have their own stoves use campsites on which no wood stoves have been provided, leaving the wood stoves for those who do not have their own equipment. Available funds for camp ground improvement work may thus be spread out and the available supply of fuel conserved.



The ice-can stove has been proved unsuited for the more largely used camp. No more stoves of this type should be constructed except in isolated hunter camps. Existing concrete bases built for receiving ice cans should be maintained, and available ice cans stored, for use as the present ice cans wear out and need to be replaced.

Klamath Stove

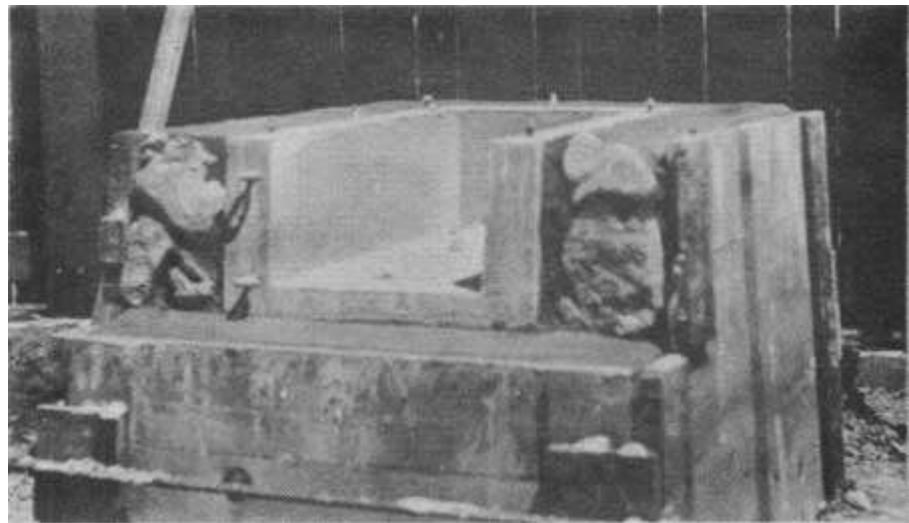
The new Klamath type stove, which is shown on pages 45 and 46, has several advantages. The fire-box is of concrete, precast, and is removable and replaceable. The tops and doors are flat pieces. They can be stored readily in a small space, or can be distributed much more easily than can ice-cans. The cooking surface is well-proportioned. The stove is of a convenient height.

This stove has not yet been subjected to the test of time, although the concrete fire box has stood up under a rather strenuous heat test.



Klamath Stove

The approved design differs slightly from this photograph.



Klamath Stove Under Construction

An inside form slightly larger than the fire box should be used, the fire box inserted after the forms are removed.

Base: This may be constructed of masonry or concrete, as desired. However, good rockmen are scarce and a trim concrete stove base presents a much better appearance than does a poor job of stone work. Knockdown forms may be used, made either of wood or metal. The rock effect may be produced by filling the space between the rocks and the form with dry sand. The space allowed for installation of the fire box should be slightly larger than the fire box itself.



Poor Rock Work
Concrete would be less objectionable

Fire Box: The fire box is the most important item of construction. It is made of a 3 to 1 concrete mix, reinforced with 1-inch, 18-gauge chicken wire. Clean sand must be used and the fire box thoroughly seasoned before being installed.

Top and Door: The top and door are made of cast iron. It may be that a boiler plate door should be used because of danger of breakage with cast iron. The cast iron top will be slow in heating. Boiler plate might be used here also. However, the steel top is apt to buckle or warp, and the cast iron top is preferable under most conditions.

Cost:

Cost estimates are as follows:

Cast iron top and door - -	\$3.00 to \$5.00
Concrete fire box - - - -	2.00
Base	2.00
Labor	<u>3.00</u>
A total of	\$10.00 to \$12.00 per stove.



Rock Chimney

This feature might be adapted to the Klamath stove, but would necessitate changes in fire box and top.

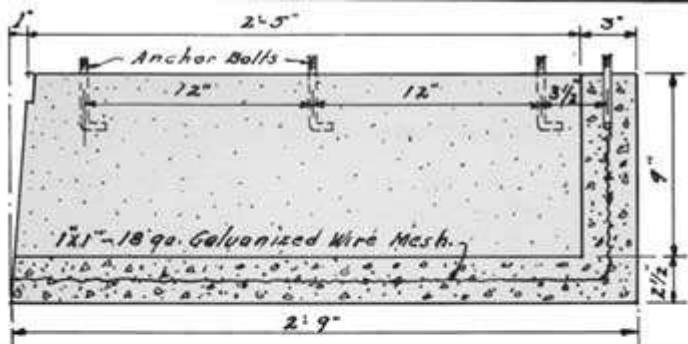
Barbecue Pits

There is an occasional demand for barbecue pits on picnic grounds. Should facilities of this sort be desired, the Regional Office will furnish designs of types which might be suitable.

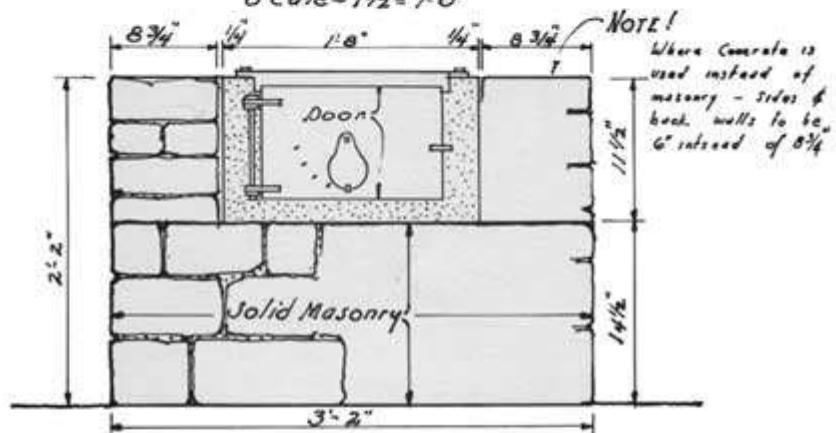


Barbecue Pit

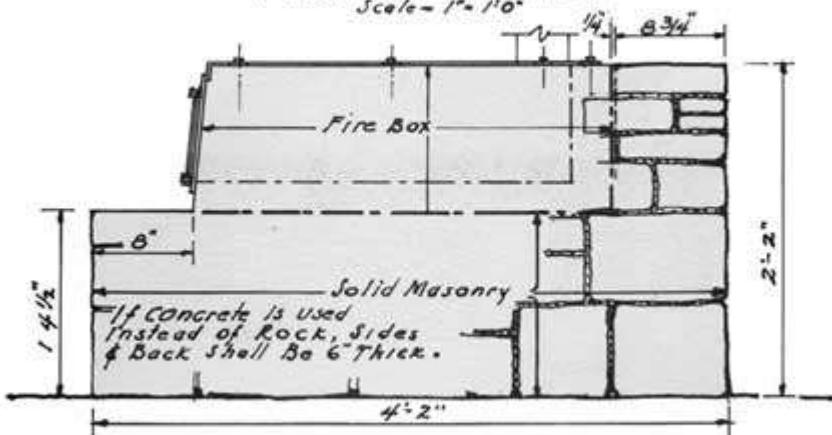
Rock should not be laid in rows, but entire structure should have some character, as indicated in upper photograph.



- LONGITUDINAL SECTION OF FIREBOX -
Scale - $1\frac{1}{2}'' = 1'0''$

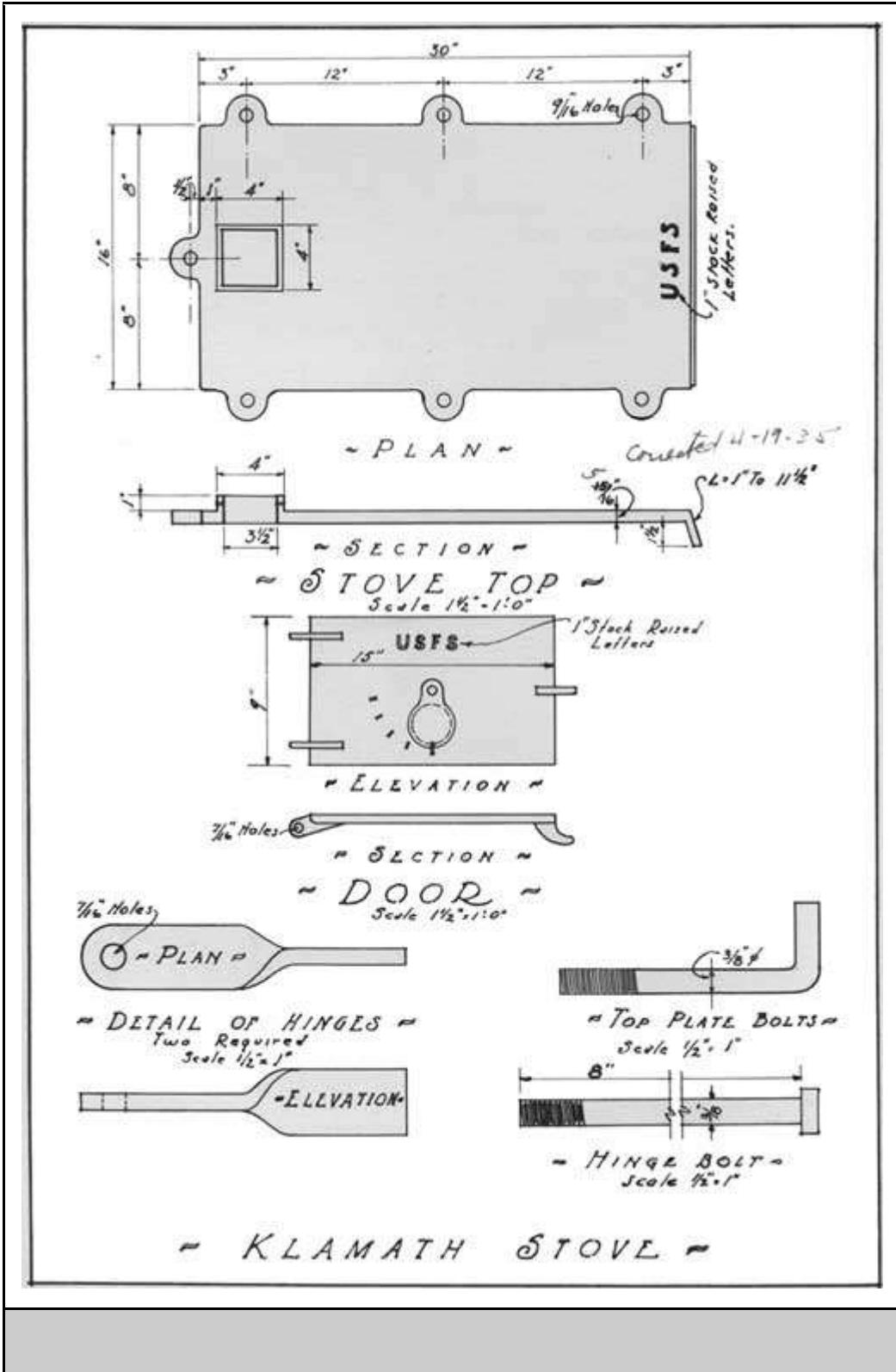


- FRONT ELEVATION -
Scale - $1'' = 1'0''$



- SIDE ELEVATION -
Scale - $1\frac{1}{2}'' = 1'0''$

- Klamath Stove -



VII. TABLES AND CUPBOARDS

The Lassen type camp table has proved generally satisfactory, and with certain modifications is shown in this Manual as the accepted type for this Region.

The table length has been increased, to allow for attachment of cupboards, as shown on page 49. These cupboards may be built separately, of 1" x 4" T and G, on a 1" x 2" frame, and bolted or screwed to the table proper. It is sometimes desirable to construct longer tables for the use of large picnic parties. This same design may be expanded to any desired length for such purpose. It might be advisable to set the legs eight feet apart on the longer tables, bracing the seat boards with 2" x 4" boards set on edge. In building long tables, it will be well to stagger the joints to the top boards, to increase the strength of the table.



Concrete Table

Concrete tables have been used extensively in the camps of the Southern California Forests, where wooden facilities are often broken and used for fuel. Information regarding the construction of concrete tables may be obtained from the Regional Forester.

MATERIAL LIST FOR TABLE AND CUPBOARD

Table -

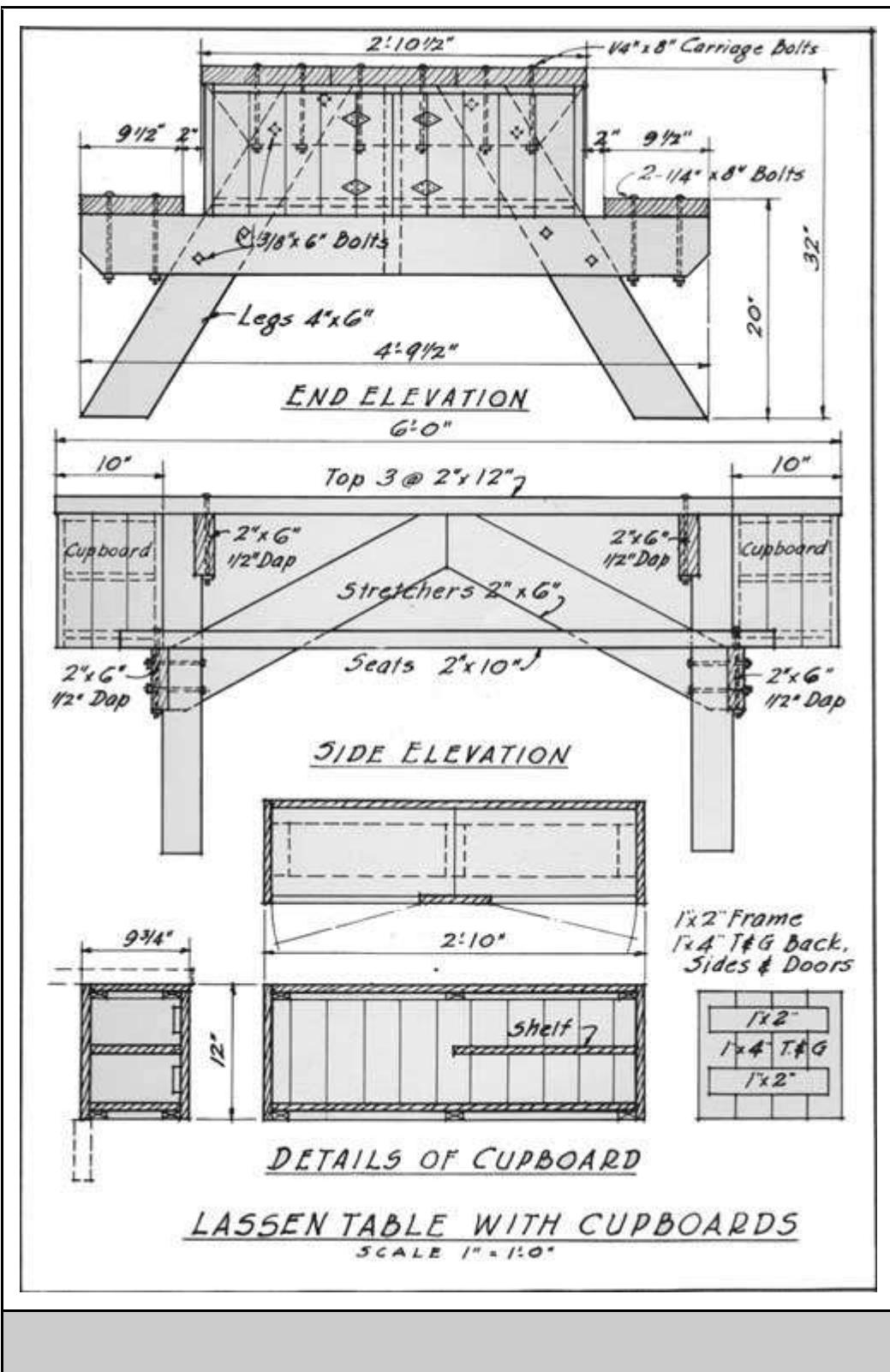
Legs	4x6 #1 Common Douglas Fir S4S	1 pc. 14-0
Top	2x12 #1 Common Douglas Fir S4S	3 pcs. 6-0
Cross Ties	2x6 #1 Common Douglas Fir S4S	1 pcs. 6-0

Seat Cleats	2x6 #1 Common Douglas Fir S4S	1 pcs.	10-0
Stretchers	2x6 #1 Common Douglas Fir S4S	1 pcs.	6-0
Seats	2x10 #1 Common Douglas Fir S4S	1 pcs.	10-0
Bolts	20 1/4" x 8" carriage bolts and washers		
	16 3/8" x 5-1/2" carriage bolts and washers		
Nails	8 nails 20d common		
	10 nails 12d common		

Cupboard -

Frame	1x2 #1 Common Douglas Fir S1S1E	8 pcs.	6-0
Sides	1x4 "C" Grade V-jointed Ceiling Douglas Fir	12 pcs.	10-0
Hinges	4 pairs galvanized butterfly hinges with screws		
	4 3" hasps, galvanized.		
Nails	2 lb. 6d finish		

Note! If the same grade of Ponderosa Pine or Redwood is available at the same price, they may be substituted.

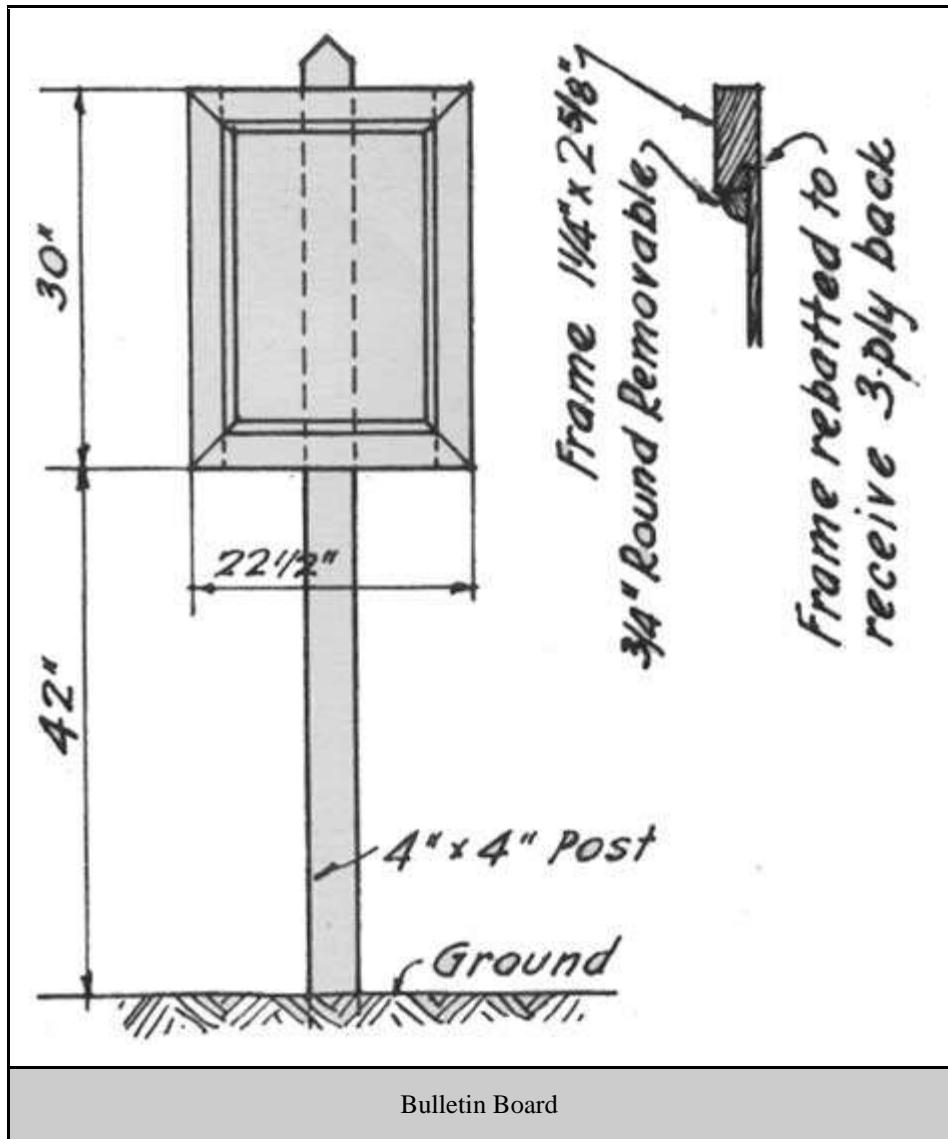


VIII. SIGNS

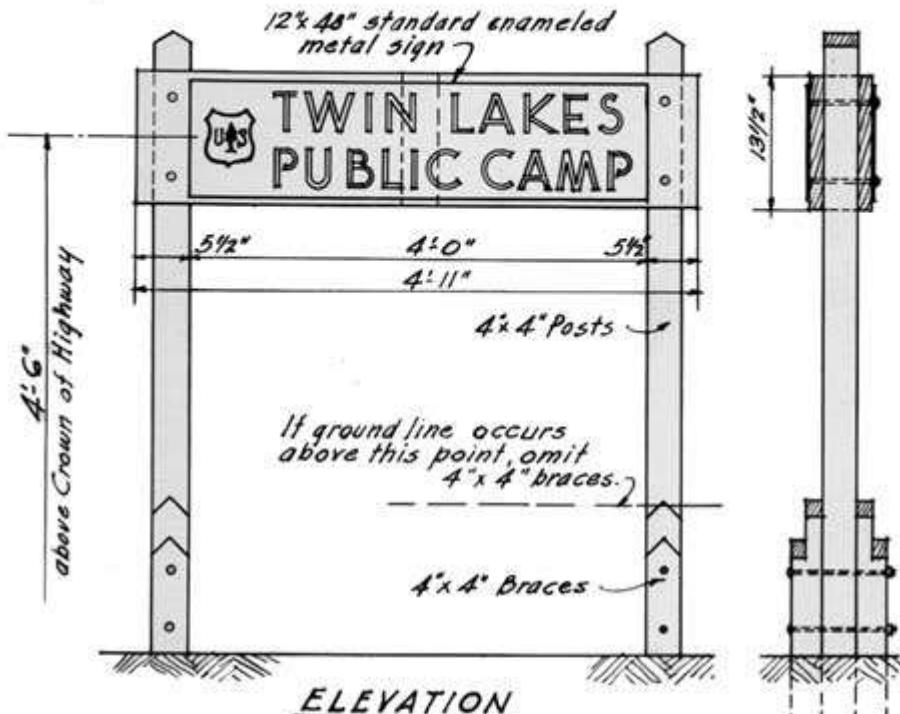
The proper choice and placing of signs in public camps will do much toward improving the area from a camper's viewpoint. In the past, there has been a tendency to "over-sign" our camps. This should be guarded against. A few signs appropriately worded and strategically placed, will much better serve our purpose. No signs shall be placed on trees.

Bulletin Boards: Every improved public camp shall have one or more well-located bulletin boards, on which the "Camp Ground Rules" sign shall be placed. This sign covers all the subjects mentioned on the 7" x 14" yellow and black signs and looks much better than does a collection of these signs tacked on a large board. (See sketch below).

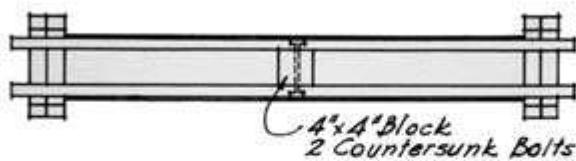
Camp Ground Limits: The yellow and black camp ground limit signs shall be posted on the boundaries of all camps where use is restricted to the improved area. This applies particularly to areas of high fire hazard. Limit signs should be so located that from any particular sign, the signs on either side may be seen. These signs should be posted on 4" x 4" redwood posts and should be 5' above the ground.



Entrance or portal signs: All camps should have entrance signs on the highway. These shall be of the standard metal enamel type, giving the name of the camp. Hereafter, they should be mounted as shown in the adjoining sketch.



ELEVATION



PLAN

ENTRANCE SIGN

SCALE 3/4" = 1'-0"

Garbage, Water, Toilet. etc.: The Regional standard signs shall be used in marking locations of garbage cans or pits, water hydrants or wells, and toilets. In the case of

garbage cans and hydrants, signs should be placed as indicated in discussion of those items. It will be necessary in many cases to post small direction signs to guide visitors to these improvements, in which event the signs shall be low, not more than two feet above the ground.

Public Service Site: Where there is likelihood of mining locations being made on a camp ground, the area shall be posted with Public Service signs marking the boundaries of the area desired for camp development.

Road: One-way roads shall be marked with arrows or with "one-way" and arrow signs. These shall be placed on low posts, not more than two feet above the ground.

Special: Where special signs are required and they are made locally, standard colors should be used and the signs made to conform as closely as possible to the Forest Service standards for special signs.

Toilet Signs: One of the standard printed "toilet" signs shall be placed inside each toilet building, whether of the pit, chemical, or flush type.

Tree Identification: In certain camps it may be desirable to identify individual trees by fixing small, inconspicuous tags or signs, bearing the name of the particular species represented. This has proven quite popular wherever it has been done, and the practice should be extended.

All camp ground signs shall be replaced whenever they become weather-worn or mutilated.

Quantity purchase of camp ground signs will be made annually by the Regional Forester. While as a general rule these signs will be of wood, metal enamel signs of similar size may be purchased for posting on latrines and other structures that are of a permanent nature.

IX. FENCES

It may be necessary to erect fences around certain camps, to keep cattle out or to prevent campers from straying onto private lands. As a rule, fences are not necessary along roads. Well-placed obstacles or ditches will better serve the purpose of restricting cars to the selected entrance to the camp.

Fences may be of any reasonable type, providing they are substantially built. Several approved fence designs have been furnished the Forests in connection with the building construction program.



A type of fence which might be used around camps in timbered areas.

X. MISCELLANEOUS IMPROVEMENTS.

The improvements which have been discussed on the foregoing pages are considered as the fundamental and necessary facilities to be installed in all public camps. In certain cases, as in the "De Luxe" camps, it may be desirable to construct "extras". Inasmuch as developments of the latter type will be the exception rather than the rule, they are not discussed in detail, nor are designs and plans included in this Manual, except in the case of bath houses and dressing rooms, for which plans are incorporated. A few suggested "extras" are discussed briefly.

Bathers' Dressing Rooms: It will frequently be desirable to erect bathers' dressing rooms on the shores of lakes, or at other places where swimming facilities are available. The 4-room building shown in this Manual is designed as a change room for public use.

MATERIAL LIST FOR BATHERS' DRESSING ROOMS

Concrete Aggregate	3 cu. yds. concrete mix
Cement	12 sacks
Reinforcing Mesh	100 sq. ft. #14 gauge galvanized welded wire mesh, wires spaced 4" in each direction.

Form Lumber not included.

Framing Lumber

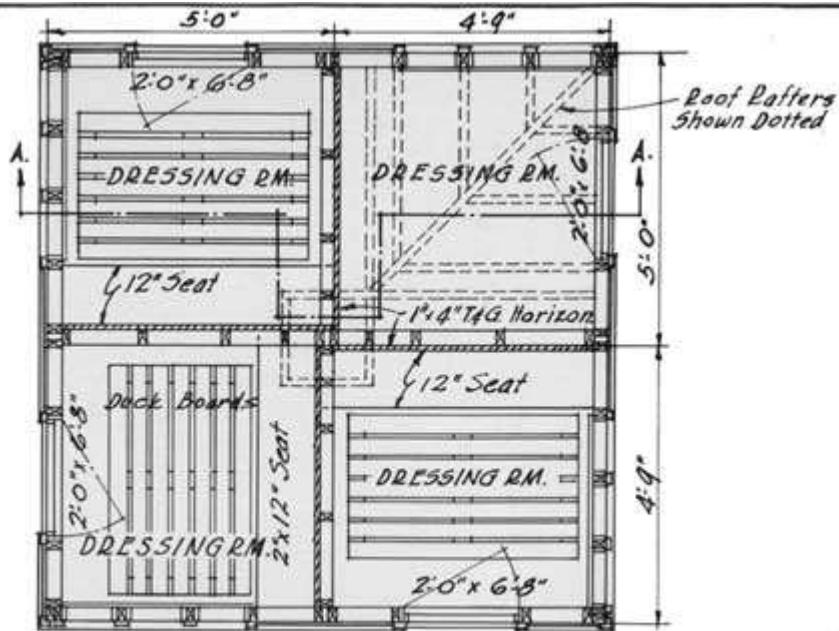
Mudsills	2x4	#1 Heart Common Redwood	(2 pcs.	10- 0
Studs	2x4	#1 Common Douglas Fir	(4 pcs.	8-0
Plates	2x4	#1 Common Douglas Fir S1S1E	32 pcs.	14- 0
Stud Blocking	2x4	#1 Common Douglas Fir S1S1E	12 pcs.	10- 0
Eave Blocking	2x4	#1 Common Douglas Fir S1S1E	5 pcs.	10- 0
Hip Rafters	2x4	#1 Common Douglas Fir S1S1E	4 pcs.	10- 0
Jack Rafters	2x4	#1 Common Douglas Fir S1S1E	4 pcs.	10- 0
Louver Collar	2x6	#1 Common Douglas Fir S1S1E	28 pcs.	6-0
Louver Collar	2x2	#1 Common Douglas Fir S1S1E	1 pcs.	8-0
Louver Posts	2x2	#1 Common Douglas Fir S1S1E	1 pcs.	8-0
Roof Sheathing	1x6	#2 Douglas Fir or #3 Ponderosa Pine Common Shiplap -	1 pcs.	6-0
Partition Sheathing	1x4	"C" Grade Douglas Fir or Ponderosa Pine T&G Ceiling	200 B. M.	10- 0
Shingles		Clear 100% edge grain 16" 5/2 butts Redwood or Western Red Cedar	10 bundles	
Rustic	1x8	V-jointed Clear All Heart Redwood or Red Cedar Unsurfaced Rustic, Rough Side Out	42 pcs.	8-0
Seats	2x12	Select Common Douglas Fir S4S	2 pcs.	10- 0

Seat Cleats	2x3	Select Common Douglas Fir S4S	4 pcs.	8-0
Duck Boards	1x4	Select Common Douglas Fir S4S	28 pcs.	4-0
			12 pcs.	3-0
Corner Beads	Item 1	Clear All Heart Redwood or Red Cedar milled to detail	4 pcs.	8-0
Door & Vent Casing	Item 2	same	(8 pcs. (1 pcs.	8-0- 10- 0
Louver Corner	Item 7	same	1 pr.	8-0
Watertable	Item 3	same	4 pcs.	10- 0
Vent Sills	Item 8	same	2 pcs.	8-0
Cornice Facia	Item 6	same	(4 pcs. (1 pcs.	12- 0 10- 0
Vent Slats	1x3	same S4S	6 pcs.	8-0
Vent Frame	1x4	same S4S	9 pcs.	6-0
Mullion Facing	1x3	same S4S	2 pcs.	8-0
Louver Slats	1x3	same S4S	4 pcs.	8-0
Louver Frame	1x3	same S4S	2 pcs.	8-0
Louver Sill	1-1/4x5-1/2 net	same S4S	1 pcs.	8-0
Louver Cornice Soffit	1x3	same S4S	1 pcs.	10- 0
	1x2	same S4S	1 pcs.	10- 0
Main Cornice Soffit	1-1/4x1-5/8 net	same S4S	4 pcs.	12- 0
	1x6	same S4S	4 pcs.	12- 0

Door Frames	1x4	(8 pcs.	8-0
	Select Common Douglas Fir S1S1E	(1 0 pcs.	10-0
Door Stops	1x3	(8 pcs.	8-0
	Clear All Heart Redwood or Red Cedar S4S	(1 0 pcs.	10-0
Doors	4	2-0 x 6-8 x 1 3/8 Stock, 5 solid raised panels with drip, as detailed	

Hardware

Nails	10 lbs. 16d common 15 lbs. 8d common 10 lbs. 8d common galvanized 15 lbs. 3d common shingle galvanized 5 lbs. 6d common finish 5 lbs. 8d common finish 2 lbs. 6d common common galvanized
Screen	30 sq. ft. 16 Mesh Copper or Bronze Wire Cloth.
Bolts - Mudsill	28 1/2"x6" machine bolts with nuts and cut washers.
Hinges	4 prs. 3-1/2"x3-1/2" galvanized butts with screws.
Locks	4 mortise lock sets equal to Sargent Lock 5234, Knob 1232 and key plate #13. 4 spring door closers, 14", equal to Chicago #283.
Pipe	8 ft. 3/4" galvanized wrought steel pipe.
Paints Roof	3 gals. grey green creosote stain.
Paints Walls	4 gals. light weatherbeaten brown creosote stain.
Interior Walls	2 gals. ivory enamel
Exterior Trim	2 qts. varnish
Doors	1 qt. green sash paint 2 qts. turpentine



FLOOR PLAN

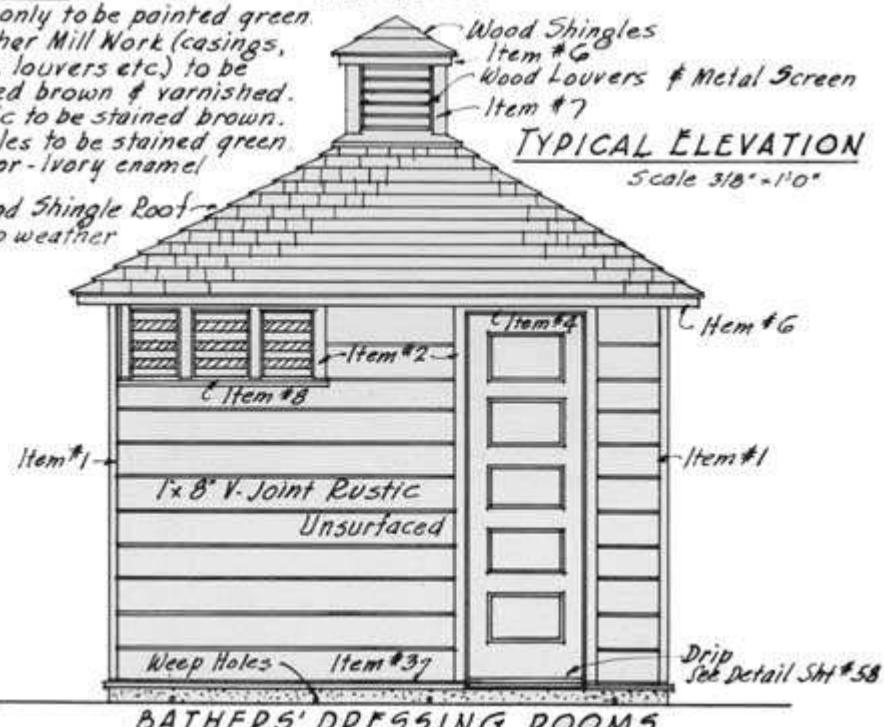
Scale 3/8" = 1'0"

PAINTING
Doors only to be painted green.
All other Mill Work (casings,
stops, louvers etc) to be
stained brown & varnished.
Rustic to be stained brown.
Shingles to be stained green.
Interior - Ivory enamel

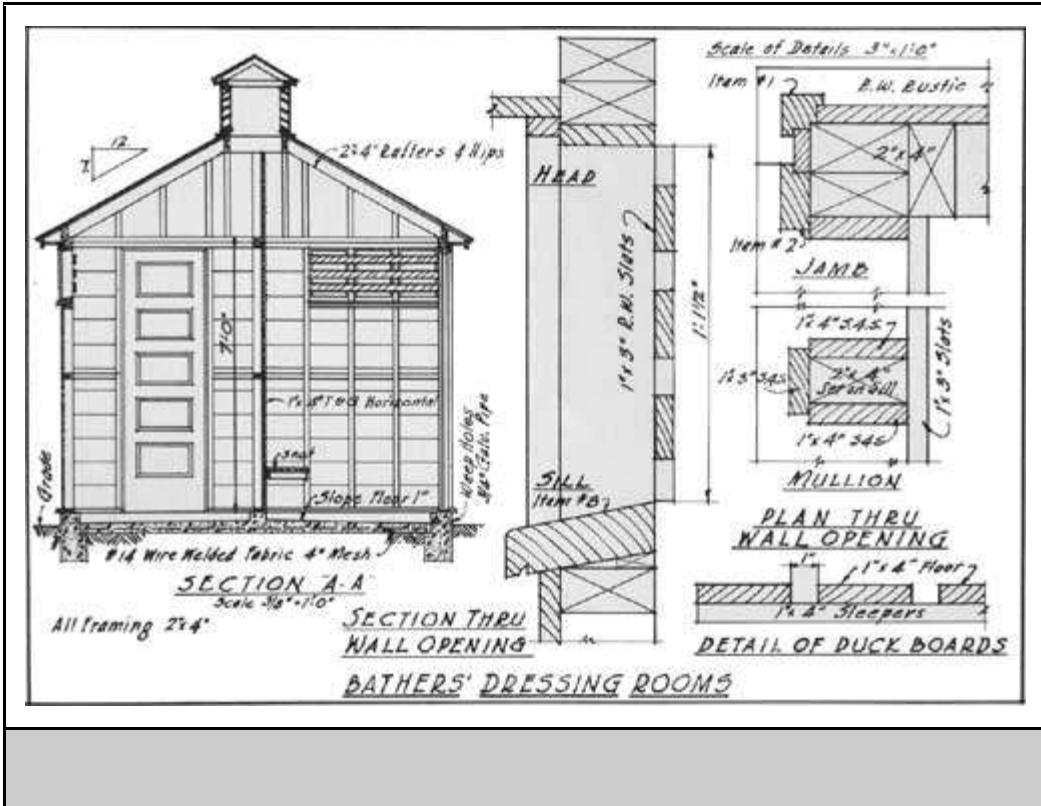
Wood Shingles
Item #6
Wood Louvers & Metal Screen
Item #7

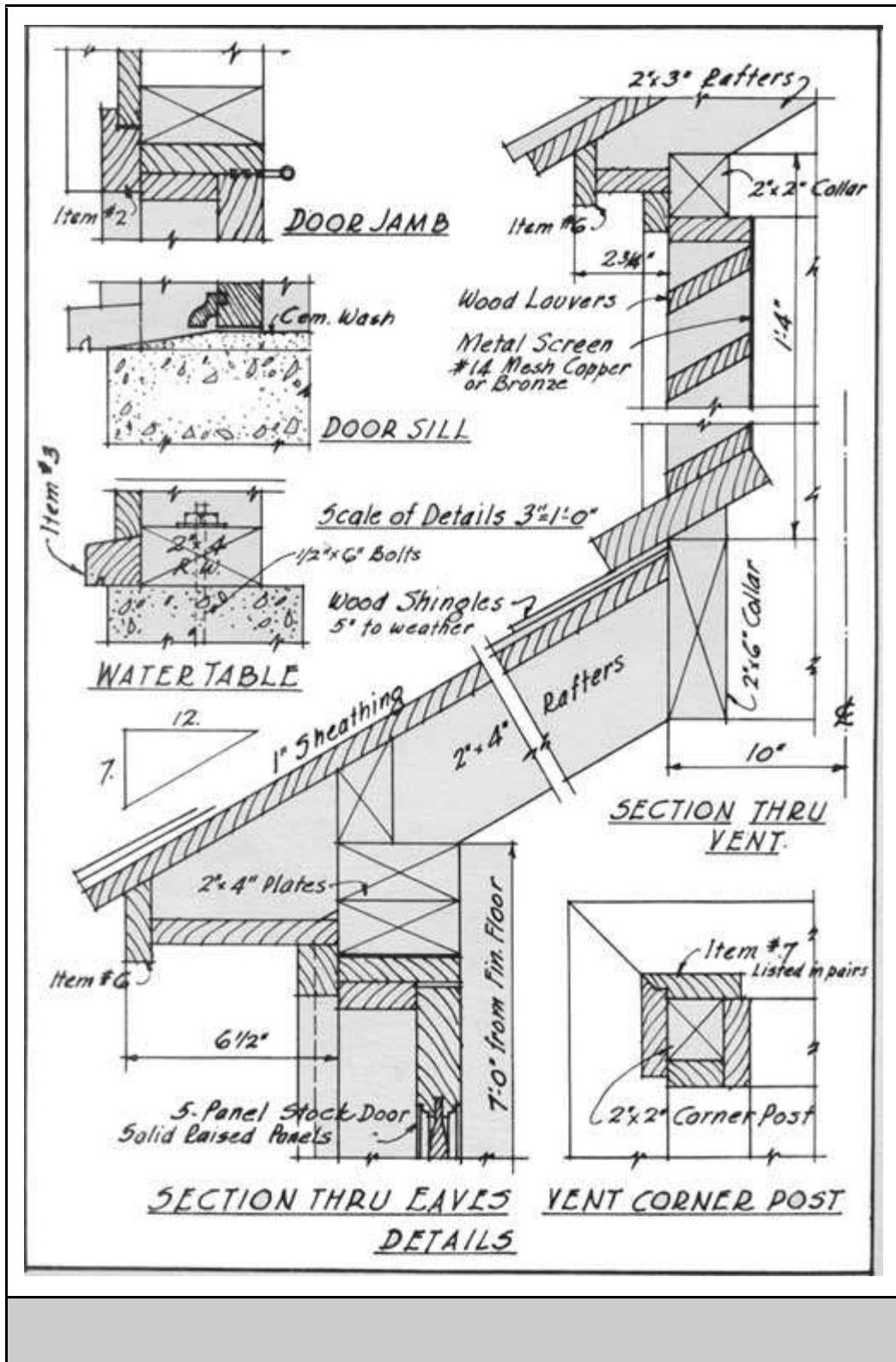
TYPICAL ELEVATION

Scale 3/8" = 1'0"



BATHERS' DRESSING ROOMS





Bath Houses: As more adequate water systems are installed in camps, it may be desirable to construct bath houses, particularly on those areas which receive heavy

use. The shower building shown in this Manual is intended for such use. This building may be used by both men and women, where a single structure will be adequate. Should more facilities be required, men and women should be cared for in separate buildings.

It may be possible to heat water for showers by running separate lines from the supply tank, leaving the pipe exposed to the sun. Pipe lines constructed in this manner should be planned so as to allow for drainage during the winter months.

MATERIAL LIST FOR BATH HOUSE

Form lumber is not included.

Concrete Aggregate	2 cu. yds. concrete mix			
Cement	8 sacks			
Reinforcing Mesh	70 sq. ft. #14 gauge galvanized welded wire mesh, wires spaced 4" in each direction.			
Mudsills	2x4	Redwood or Red Cedar #1 Heart Common	(3 pcs.	8-0
			(3 pcs.	6-0
Studs & Trimmers	2x4	#1 Common Douglas Fir S1S1E	20 pcs.	14-0
Plates	2x4	same	10 pcs.	8-0
Hip Rafters	2x4	same	4 pcs.	8-0
Jack Rafters	2x4	same	(2 pcs.	10-0
			(2 pcs.	12-0
Blocking & Bridging	2x4	same	6 pcs.	12-0
Roof Sheathing	1x6 or 1x8	#2 Douglas Fir or #3 Ponderosa Pine Common Shiplap	170 B.M.	
Shingles		Clear 100% edge grain Redwood or Red Cedar 16" 5/2 butts 1-3/4 squares	7 bundles	
Partition Sheathing	1x4	"C" Grade Douglas Fir Ceiling V-jointed	(32 pcs.	14-0
			(18 pcs.	8-0
			(38 pcs.	10-0
Rustic	1x8	V-jointed Redwood or Red Cedar, kiln dried, unsurfaced rustic	(24 pcs.	8-0
			(24 pcs.	6-0
Corner Beads	Item 1	Clear All Heart Redwood or Red Cedar to detail	4 pcs.	8-0
Casings	Item 2	same	(3 pcs.	14-0
			(4 pcs.	8-0
Watertable	Item 3	same	2 pcs.	16-0
Cornice Facia	Item 6	same	4 pcs.	10-0

Vent Sills	Item 8	same	1 pcs.	8-0
Note! If the same grade of Ponderosa Pine or Redwood is available at the same price they may be substituted.				
Cornice Soffit	1x6	Clear All Heart Redwood or Red Cedar S4S	4 pcs.	10-0
	1-1/4"x1-5/8"	same	4 pcs.	10-0
Vent Slats	1x3	same	3 pcs.	8-0
Duck Boards	1x3	#1 Common Douglas Fir S1S1E Clear	19 pcs.	6-0
Duck Stops	1x2	Clear All Heart Redwood or Red Cedar	(2 pcs.	14-0
			(2 pcs.	6-0
Vent Frame	1x4	same S4S	4 pcs.	8-0
	1x3	same S4S	1 pcs.	4-0
Seats	2x12	#1 Common Douglas Fir S4S	1 pcs.	10-0
Lattice Posts	4x4	#1 Heart Common Redwood or Red Cedar S4S	6 pcs.	8-0
Lattice	1x3	Clear All Heart Redwood or Red Cedar S4S	(14 pcs.	10-0
	1/2"x2"	same	70 pcs.	6-0
Lattice Frame	2x4	same to detail	(8 pcs.	6-0
			(4 pcs.	10-0
Doors	2 doors	2 doors 2'0" x 6'-8" stock 5 solid raised panels 1-3/8" thick.		

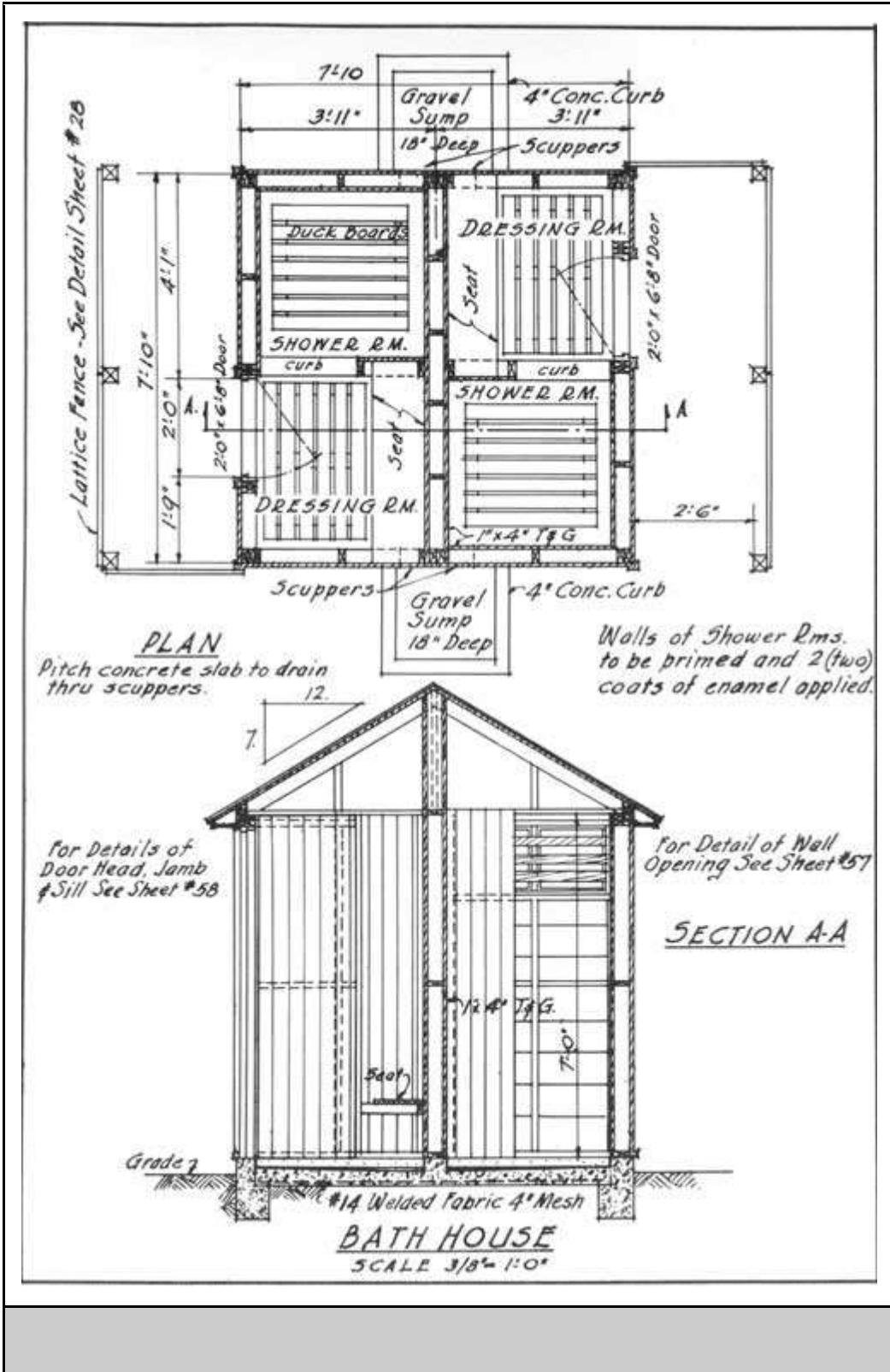
Hardware

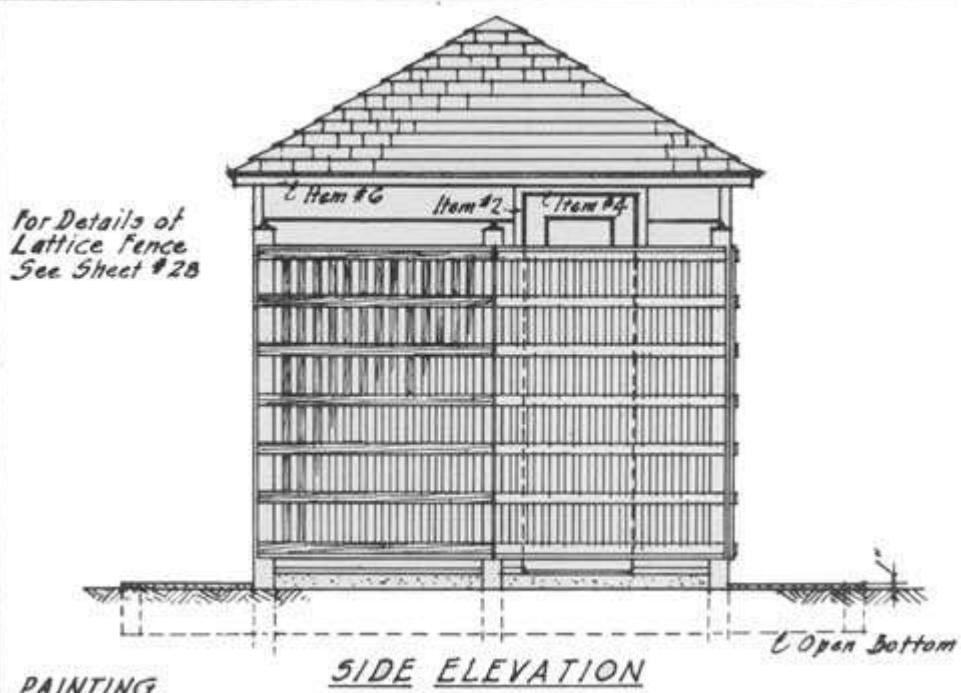
Bolts Mudsill	28-1/2"x6" machine bolts with nuts and cut washers.
Hinges	2 pr. 3-1/2"x3-1/2" galvanized wrought steel butts with screws.
Locks	2 mortise lock sets, equal to Sargent Lock #5234, Knob #1232 and Key Plate #13.
	2 spring door closers, 14", equal to Chicago #283.
Paint Roof	2 gals. grey green creosote stain.
Exterior Walls	3 gals. light weatherbeaten brown creosote stain.
Interior Walls	2 gals. ivory enamel.
Exterior Trim	2 qts. varnish
Doors	1 qt. green sash paint
	2 qts. turpentine

Plumbing.

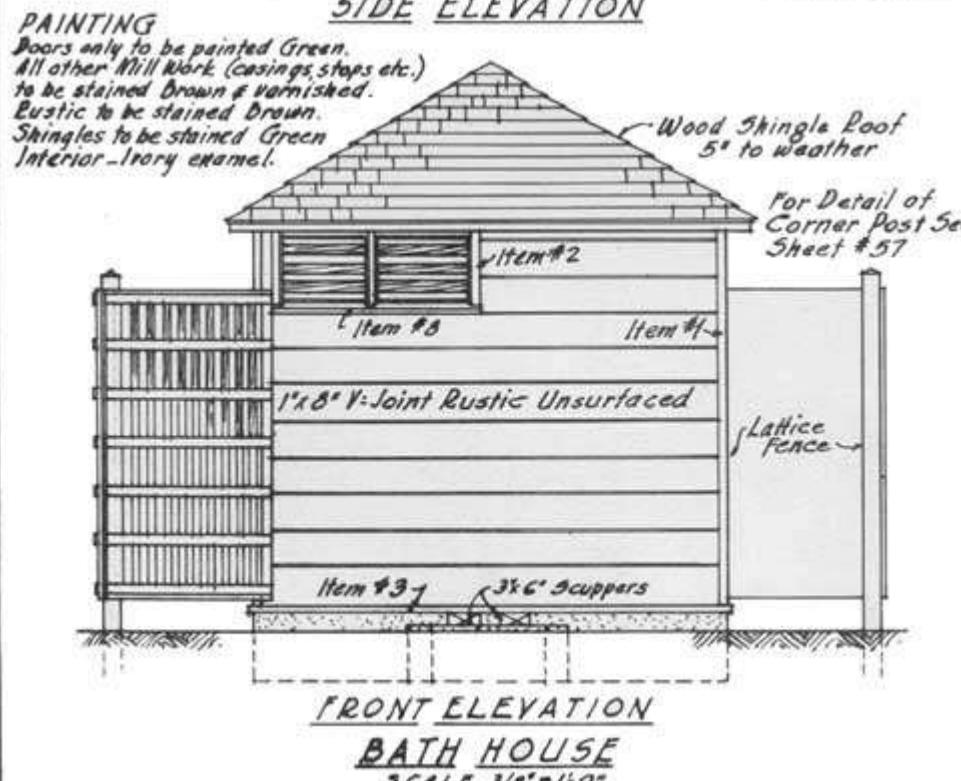
2 Shower heads equal to Standard #K274 self cleansing head, with ball joint and 1/2" self closing valve with chain and pull as shown in Standard Cut #K270.

1/2" Nat. tube galv. water pipe	2 pcs. 8-0
	2 pcs. 4-0
1/2" Galv. Tees	
1/2" 90° Galv. Ells.	
1/2" Globe valve	
1/2" Ground Union.	





SIDE ELEVATION



FRONT ELEVATION

BATH HOUSE

SCALE 3/8" = 1'-0"

Bridges: Where bridges are necessary, they should be rustic in character, as far as the conditions and available materials will permit. Monumental stone structures should

not be built. Where foot bridges are required, they should be as simple as conditions warrant. The Regional Forester will cooperate in designing bridges where they may be necessary.

Community Fireplaces: On large camps, particularly at high elevations and in timbered areas, a definite place for community camp fires is preferable to a number of small open fires. Where community camp fireplaces are provided, individual open fires should not be allowed.

Community fireplaces should be roughly round, from four to eight feet in diameter, according to the number of people to be served, and about a foot deep. The sides should be curbed with rock set in concrete. This curb should extend not more than six inches above the ground level, to prevent the coals and ashes from escaping from the fireplace. The bottom may be paved with stone to facilitate removal of ashes.

Log seats may be provided about the fireplace, as topography dictates, or rustic seats may be built, using planks fastened to supports of wood, stone or concrete. On large camps, several community fireplaces may be necessary.

Drinking fountains: It is only rarely that drinking fountains will be required in public camps. In most cases, the regular hydrants will serve the purpose. However, should drinking fountains be desired, they should be of the simplest possible design, made of local rock. The Regional Office will furnish suggested designs upon request.

Playgrounds: In large camps, it will be worth while to set aside open areas for use as playgrounds. Ordinarily, no development of the play areas is needed.



Play Area
Open space is reserved as a playground.

Swimming pools: Should swimming pools be desired, they must be constructed in accordance with the regulations of the State Board of Health. The Regional Forester should approve the plans before construction is undertaken.

Trail Shelters: Trail shelters are not contemplated as an immediately necessary type of improvement. None should be constructed without prior approval of the Regional office.

Winter Sports Facilities: On areas which are adapted to development for winter sports, such facilities as toboggan slides, skii runs, shelters, etc., may be provided. The Regional Forester will be glad to cooperate in the preparation of plans for the construction of winter sports facilities.



PAINTING

Green and brown remain the standard colors for use on camp improvements.

Paint will be used on surfaced lumber and galvanized iron, while stain is preferred on unsurfaced lumber. The following painting scheme will be followed:

Bulletin Boards: Brown.

Entrance sign posts: White when on the road right-of-way.

Fences: Ordinarily fences will not require paint.

Garbage Cans: Brown, with green covers.

Sign Posts, Garbage-can Posts, etc.: Brown.

Tables and Cupboards: Brown.

Toilets: Brown sides, green roof.

Well Houses: Brown supports, green roof. The supports may be made quite attractive by scorching with a blow torch, in which event they should not be painted.

Other Improvements: Painting schemes for other improvements will follow the general scheme.

Improvements should be painted often enough to keep them presentable. The seat blocks on toilet stools should be varnished each year.

All wood which is to come in contact with the ground, should be treated with a high-penetrating, transparent, coal-tar creosote.

BRANDING

All improvements shall be either painted or stenciled with the Forest Service shield, or branded with the USFS brand. Such removable articles as toilet doors shall be branded.

NUMBERING IMPROVEMENTS

Wherever two or more articles of the same type exist on a camp, they shall be numbered, each item having its own series of numbers. For example, tables might carry numbers 1-10; stoves, 1-5; toilets, 1-4; etc. This will facilitate greatly the inspection and the keeping of records for the individual camps. The camp name might also be used on improvements that could be moved around.

INVENTORY OF CAMP IMPROVEMENTS

Each Forest shall keep an up-to-date inventory of camp ground improvements, as required by the Recreation Section of the Manual. This record will be furnished to the Regional Forester upon request.

The Angeles has developed an inventory sheet which is simple yet efficient. The Regional Forester will furnish samples of this form to those who may be interested.

MAINTENANCE OF CAMPS

Maintenance of developed public camps has become a matter of primary importance. It is useless to construct improvements without making provision for their maintenance. Every improved camp should be put in good condition before the opening of the camping season.

On large camps, caretakers should be employed wherever possible. Failing that, a system of traveling caretakers should be set up so that each developed camp will be properly cared for. It may be advisable to divide the forest into divisions, each division having a man with a dump truck designated as a garbage collector, to work on that job alone. The caretakers or cleanup men could then have more time for general maintenance and for meeting the camping public. Camp caretakers should require campers to keep their camps clean and to leave them clean when moving on.

It will be desirable in many cases to equip a pickup with materials and tools needed for the maintenance job, having one or more of these trucks assigned to divisions as needed. Such a truck should carry all necessary tools, as well as replacement parts for toilets, water systems and other camp improvements. Trucks for this purpose should be outfitted on the individual forests, equipment being designed for the particular local conditions involved.

The importance of adequate maintenance cannot be over emphasized. Much of the trouble in the past has resulted from lack of supervision and maintenance of public camps. It is absolutely essential that in all plans for recreational development the maintenance of improvements be included.

INSPECTION OF CAMPS

Be sure that you are familiar with the Camp Ground inspection standards set forth by the Forester on pages 9 and 10 of the letter of September 27, 1932, attached to the L Recreation circular letter 28-L-2 of October 7, 1932.

Investigation in the field shows that forest officers frequently overlook many little points in inspection and maintenance of public camps. Every field man who does any of this work should refer to the following outline when on the job.

Bulletin Boards: Are they neat? Paint needed; properly located; necessary signs posted? Are signs in good condition?

Chemical Toilets: Is tank charged? Is date of charging noted on card posted in toilet building? Does tank need draining? Are vent pipes properly anchored? Is bowl clean? Is urinal clean? Does seat need varnish? Are instructions for use posted inside building?

Community Camp Fires: Are one or more community fireplaces provided and surface fires prohibited elsewhere in camp?

Direction and Information Signs: Are signs with camp name posted on road? Are sufficient information signs posted on ground? Are they properly located? Should they be replaced, because worn or illegible? Are all signs removed from trees?

Flush Toilets: Is bowl clean? Is water system working properly? Does seat need varnish? Are frost-proof bowls needed?

Garbage Collection: Are containers fly-proof? Can they be upset by dogs or wild animals? Are more containers needed? Is garbage collection system satisfactory? Where a garbage dump is used, is it properly located and properly maintained? Are garbage cans numbered and regularly disinfected?

Garbage Pits: Are pits convenient to camp? Are more pits needed properly to handle camp use? Is cover fly and rodent tight? Does lid shut freely? Is lid self-closing? Does cover need a metal covering? Is a new cover needed? Is disinfectant used in pit?

Grounds: Are camping spots accessible; grounds properly cleaned and fireproofed? Is parking space needed? Should more land be cleared? Is time limit needed for campers? Do grounds need fencing to keep out stock?

Incinerators: Are they properly located; properly screened; burned out frequently and the ashes, etc., removed?

Pit Toilets: Is seat and seat cover fly tight? Is a new pit needed? Does seat need repair or paint? Is disinfectant regularly used in pit? Is urinal clean?

Roads: Is camp easily accessible from main road? Are stub roads needed to open up the grounds or make more camping space accessible? Do any camp roads need surfacing or oiling? Is traffic confined to roads?

Stoves and Fireplaces: Are they properly located; sufficient in number for camp use; safe; permanently installed? Are campers required to use them; properly cleaned out at times?

Tables: Are they in good repair; paint needed; numbered and stenciled or branded; sufficient in number for camp use; properly located; standard in color and design?

Trees: Should any dead snags or trees be removed to reduce hazard to campers? Should any trees be trimmed? Any insect infestation to control? Is planting needed to improve or increase camp area? Any boards and boxes nailed to trees?

Water Supply: Is it sanitary? Is it accessible? If piped to ground, are faucets in good condition? If storage in tank or reservoir, is latter rodent and insect proof? Is supply sufficient for present use? Are direction signs posted? Are spring faucets used?

General: Is this camp regularly inspected and policed? Is it regularly and properly maintained? Is it something that the U. S. Government should be proud of as a place to entertain its visitors?