

HISTORIC STRUCTURE REPORT
1874 CAVALRY BARRACKS
ARCHITECTURAL DATA
FORT LARAMIE NATIONAL HISTORIC SITE
WYOMING

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DENVER, COLORADO

June 1975

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I. ADMINISTRATIVE DATA

A. Name and Number of Structure

1874 Cavalry Barracks Building, HB-5. The barracks building is classified as of Second Order of Significance.

B. Statement of Proposed Use of Structure

The first and second floors of the south barracks will be restored to the 1876 period. The interiors will be restored in conformance with the interpretive prospectus dated 5/19/72 and will contain company quarters furnishings typical of the ca. 1876 period.

The north barracks will undergo only stabilization work. The interior will remain as it appears today, showing the changes that have taken place from the time of its original occupancy by the Army to the present. The north barracks will be used for park purposes as determined by the park personnel.

C. Provision for Operating Structure

The structure will be operated by the National Park Service in accordance with the master plan dated 8/30/66 and the interpretive prospectus dated 5/19/72 as those documents are or may be amended.

D. Estimated Cost of Proposed Construction Activity

<u>Item No.</u>	<u>Item</u>	<u>Total Amount</u>
1	Mobilization	\$ 2,068
2	Demolition	14,097
3	Site Drainage	9,000
4	Excavation and Fill	5,199
5	Footing, Waterproofing, and Plate	13,910
6	Concrete Floor	17,770
7	Miscellaneous Masonry & Chimney work	1,500

8	Carpentry Work	41,566
9	Plaster and Lath	23,490
10	Painting	6,400
11	Structural Crack Repair	2,000
12	Mechanical	20,000
13	Electrical Lighting Fire Alarm	11,000
	Force Account	5,000
		<hr/>
	TOTAL	173,000
	(Project Planning @15%, Plans and Specifications)	25,950
	(Construction Supervision @15%)	<u>25,950</u>
		\$224,900

II. ARCHITECTURAL DATA

A. Introduction

This section of the historic structure report presents the findings of physical investigations and recommendations for the correction of existing deficiencies, for the restoration of the south barracks to the 1876 period, and for the stabilization of the north barracks. Historical data cited was obtained from the historical data section of the historic structure report written by John D. McDermott and James Sheire in 1970.

The veranda, restored to the 1883 period, will be retained. This was originally intended to be completed at the same time as the rest of the barracks building, but a lack of funds delayed its completion until 1883. It was designed by the Army as an integral part of the barracks building.

The 1874 barracks, erected at this large army fort during the later Indian campaigns, is a superior example of this type of structure. The building is also a prime example of the lime grout concrete architecture that was prevalent at U.S. Army posts in the 1874 period. It proved to be a very functional building and, except for minor modifications, remained unchanged throughout the army period.

Because this building was an essential one at an army post that, due to its strategic location, played an important role in the history of the American West, it is worthy of restoration.

B. Historical Significance of Fort Laramie

Fort Laramie played an important part in protecting the pioneer migrations westward along the Oregon, Mormon, and California trails. By 1860 this travel was oriented more toward Colorado, Montana, and Utah, and the opening of the transcontinental railroad also reduced Far West migrations by wagon trail.

General Sherman's policies for suppressing the Indians were in full force after 1869, so that troops passing through Fort Laramie were actively involved in the Indian campaigns of 1876. These men participated in numerous Indian engagements and helped in the final transfer of the Indians to their respective reservations. They performed their tasks well, though they often went hungry, marched great distances, and were sometimes outnumbered in battle. After the final subjugation of the Indians, the post was heading for abandonment in the late 1880s. During the spring of 1890 the post was vacated and sold by parcels to the highest bidders.

C. Construction and Occupancy of the 1874 Cavalry Barracks,
1874-1973

The ruinous and overcrowded condition of the existing accommodations at Fort Laramie had created a housing crisis by the time Company K, 2nd Cavalry, arrived in May 1872. The 1874 barracks had to be built for their use. The design of the building was adapted from plans issued by Quartermaster General Meigs, which were based on the recommendations of the board revising Army Regulations in 1872.

The building was started in 1873 and finished in 1874. The veranda, two stories high along the eastern side of the building, was not built until 1883. The Army occupied the barracks until 1890, when it was abandoned and offered for sale.

Joe Wilde and his wife obtained the building, converting it to commercial uses--as a hotel, restaurant, and general store--and finally utilizing it as a home from 1890 to 1917. This building had other tenants from 1917 to 1938 when it was owned by Clarke and Jessica Auld and used as a summer home and as housing for tenant farmers in the area. In 1937 Jessica Auld deeded the property to the State of Wyoming.

That same year the State of Wyoming donated Fort Laramie National Historic Site, of which the 1874 barracks was a part, to the Government. The fort was administered by the National Park Service, which occupied the barracks as a headquarters and partial living area. Changes and repairs were made to adapt the building to these uses.

In 1953-54, Supt. David Hieb restored the veranda, which was in a dilapidated condition. He also replaced as accurately as possible missing window sash and reglazed and repaired sash as needed. Doors were repaired, as were the exterior walls of lime grout concrete. The restored veranda was painted a blue grey, and the windows and doors a supposed Venetian red (sometimes called Quartermaster red).

The building is no longer used as a headquarters or living area. It contains various exhibits and needed much repair work and restoration as of December 1973.

D. General Description

The plans issued by the Quartermaster General were followed in the arrangement of the first and second floors of the south barracks, and reversed in the arrangement of the north barracks. Instead of two separate buildings, the barracks were combined into one structure 272 feet 2 inches

long, 26 feet 1 inch wide, and two stories high. The two-story veranda running the full length of the east side was added in 1883.

On the ground floor of each barracks was a kitchen, a cook's room, and a storage room. The mess hall was entered from the stair entry. A day room was opposite the mess hall off the stair entry. Off the day room was the washroom, saddlery (library), arms room, sergeants room, and orderly room. The stairs to the second floor terminated in the middle of the large open squad room. Opposite the stairway were two doors opening to the veranda. (See sheet 1 of drawings #375/28000.)

Lime concrete, 20 inches thick, was used for the first-floor exterior walls. Lime concrete 17-1/2 inches thick was used on the second-floor exterior walls. Floor joists extended into the lime concrete walls on both the first and second floors and were covered with T & G pine floors. Trussed rafters, @ 16 inches o.c., supported the roof and left the two squad rooms upstairs totally unencumbered and open to each of the masonry walls enclosing them. The ceilings were lathed and plastered on both floors. The interior partitions on the first floor were wood stud, lathed and plastered. The roofs of the barracks and veranda were shingled. Windows and doors existed in all exterior walls. Most of the doors, which were glazed, paneled, and surrounded with wood trim, were afforded protection by the veranda. The windows were double hung sash, with the lower sash operative and the upper sash fixed. Heating was by iron stoves, the flues of which ran into brick, and in some cases lime concrete, chimneys. The exterior walls were painted a cream color. The veranda was blue grey; possibly the windows were the same. The colors of the windows and exterior doors will be studied further as the restoration work proceeds.

Civilian use has modified the building interiors extensively. The veranda and windows were restored to the historic period during 1953-54. The interior has vestiges of the historic army partitions and rooms, which show up despite later civilian alterations. The kitchen, mess hall, and rooms off the mess hall have been less altered on the ground floor of the north barracks. The ground floor of the south barracks has been altered and broken up into rooms, destroying the identity of the mess hall in particular. Upstairs the squad room in the south barracks remains fairly intact except for a civilian-installed bar at one end and the stairwell that was floored over allowing a large dancing space. The upstairs of the north barracks squad room, which once served as a hotel, has been broken up into small rooms. The hallway serving these rooms connected to the adjacent bar and dance hall. (See sheet 2 of drawings.)

The 1874 Cavalry Barracks is the largest remaining building at Fort Laramie National Historic Site. It is located in the northeast part of the fort area, about 600 feet from the parade grounds, on a gradual rise about 20 feet above the Laramie River. The cavalry stables to the north disappeared long ago. The commissary warehouse is about 300 feet or more across the grassy rise and is now the National Park Service headquarters. (See sheet 1 of drawings, map of Fort Laramie.)

E. Present Conditions

1. Exterior

a) Foundations

The foundations extend 30 to 36 inches below existing grade, which is close to the historic grade. Very few cracks extend down to the foundations, and none relate to foundation conditions. Fortunately, in this very dry country the ground freezes in winter only from 12 to 18 inches. The average rainfall is about 12 inches a year. Considering all this, the foundation depth appears to be adequate.

b) Walls (See sheet 6 of drawings)

The walls are constructed of lime grout concrete, 10 parts of sand and gravel to 1 part unslaked lime. The walls are 20 inches thick at the first floor and 17-1/2 inches thick at the second floor. These walls were poured 8 inches at a time during a 24-hour period and progressed at this rate until the wall reached its designated height. The doors and windows at those levels were blocked out during the pouring. This blocking formed the foundation for the door and window jambs and trim. Later the walls received two coats of lime plaster and were marked off and scored to resemble stone masonry. As of December 1973 the walls show cracks--some serious--especially on the north and south walls.

(1) North Wall

There are five large cracks on this wall. The largest starts at a peak of the gable and runs to within 1 foot of the ground. Another occurs at the top of the upper right window. Another crack that should be mentioned starts at the first-floor door head and extends to the cornice.

(2) South Wall

This is also a gable end wall and contains five large cracks. One, extending the full height of the flue, requires repair. Most of these cracks are old ones.

(3) West Wall

This 270-foot-long wall has over 29 cracks along its length. However, only two are of a serious nature. They are located adjacent to each of the end walls and will require extensive repairs to prevent further deterioration.

(4) East Wall

The east wall shows no cracks. It was repaired in 1953-54 when the two-story veranda was restored. There are areas of serious spalling at the base of this wall just above the porch floor on the first-floor level. These deteriorations measure 3 inches in depth, 6 inches in height, and are 1 foot in length in most of the areas where they occur. Repairing these cavities would be considered a minor job, but it is a necessary one.

c) Veranda

The present veranda is a restoration of the 1883 veranda. As previously mentioned, it was restored by Supt. David Hieb. It is in good condition. Some floorboards are warped, but they show no decay. Posts, railings, and beams are painted a blue grey and are in good condition. The concrete footing at the edge of the porch is exposed to view.

d) Roof

The roof on both the barracks and the veranda was restored in 1973. The wooden cornices are in fair condition. The restored roof has been framed for the reconstruction of the one missing historic chimney.

e) Doors and Windows (See sheet 6 of drawings, details of historic doors and windows)

Only two exterior doors are historic. All exterior trim--jambs, sills, and heads--is in good condition. The nonhistoric doors are makeshift adaptations. The windows are in good condition, although a few require repair. A large number are replacements, made during the 1953-54 restoration.

f) Chimneys

Existing chimneys are in good condition, because they were worked on during 1973 when two brick chimneys were restored. At this time the end gable and wall lime concrete chimneys were cleaned and restored. One historic chimney is missing in the south barracks mess room, having been removed during the civilian occupation.

g) Root Cellar

The root cellar built by Joseph Wilde is of concrete construction covered with earth. The earth protrudes 3 feet above grade (for insulation) and piles up against the north gable wall. The earth sides away from the building are supported by low log walls.

h) Paint

Cornices, eaves, and the window and door trim are painted Venetian red, while the veranda is painted blue grey. The plaster is basically white. The paint is in fair shape. The floors and the shingles are left to weather. They are in good condition.

2. Interior

a) Floors

(1) First Floor, North and South Barracks

For the most part, the first floors of the north and south barracks are rotten. Two areas in the first floor of the south barracks were opened up and examined and found to be in a state of advanced decay. Some areas have been refloored, but all joists and beams supporting both the old and new floors are totally decayed. Because the joists rest on the very damp earth with practically no ventilation, the plates supporting the joists at the center are decayed. Some of these were replaced during early Park Service administration.

(2) Second Floor, South Barracks

Almost this whole area has been converted to a dance floor. A bar forms an 8-foot strip across the north end of this former squad room. An oak floor, 1 inch thick on sleepers, was laid over the old existing wood pine floor. Examination of the old army floor underneath reveals a worn surface but a floor in fairly good condition. The original flooring is made up of boards 1-3/8 inches thick by 5 inches wide T & G. The stairs serving this area have been removed and the stairwell floored over.

(3) Second Floor, North Barracks

This north squad room was divided up into rooms, with partitions laid on top of the original floor. The floors show wear but are substantial and in fair condition. The stairs serving this area still remain but now have partitions on three sides at the second floor, whereas formerly they had a solid wood railing on three sides, measuring approximately 40 inches high, that made the stairway open at the squad room.

b) Walls

(1) First Floor, Masonry Walls

There are serious cracks in both the north and south end walls that penetrate through the walls. There is spalling at the floor line of the north wall caused by the 3-foot earth cover over the root cellar. These areas are shown on sheet 3 of the drawings, which indicates the first- and second-floor plans. (Also see sheet 2, north and south elevations, which shows some of the large cracks that penetrate through the walls.) The masonry walls have two coats of lime cement plaster on the interior.

(2) Second Floor, Masonry Walls

Some cracks penetrate the south walls, and there are two particularly bad ones in the west wall about 4 feet and 8 feet respectively from the south wall junction. All other walls show some cracks, but they do not appear as serious as these.

(3) First Floor, South Barracks: Stud Lath and Plaster Partitions

In the south barracks there are still some old army partitions and a number of civilian ones. Most of them are in a battered condition and are resting on rotted floors supported by decayed joists.

(4) First Floor, North Barracks: Stud Lath and Plaster Partitions

These are largely army partitions with some later civilian ones within the army rooms. These stud partitions are of wood lath and plaster, and some are papered over the plaster. All stud partitions rest on rotted floors resting on decayed joists.

(5) Second Floor, South Barracks: Wood Stud, Lath and Plaster Partitions

There is a bar at the north end of the south barracks, the walls of which have wood planking. The rest of the area is the old army squad room--an open area with no partitions.

(6) Second Floor, North Barracks: Wood Stud, Lath and Plaster Partitions

The large, open, north squad room was broken up into separate areas. The studs are in good shape. The plaster, covered with faded wallpaper, has fallen off the laths in some places as it has on all partitions throughout the building. The open stairwell has been partitioned on the second floor. These rooms are all post-historic period.

c) Ceilings

(1) First Floors, North and South Barracks

The ceilings in the north barracks, some of which have been papered, are in poor condition, with laths occasionally showing through the broken plaster.

The ceilings in the south barracks are also in poor condition, with laths visible through the broken plaster. Ceiling marks show where beams, historic partitions, or new civilian partitions have been removed or constructed.

(2) Second Floors, North and South Barracks

Ceilings in the second-floor rooms of the north barracks are in better shape. Old faded paper from the post-historic period remains on some of the ceilings over the lath and plaster and on some walls.

The ceiling on the second floor of the south barracks is wooden. The army trusses were altered and a new wooden ceiling was placed on the scissors trussed rafters by the civilian proprietor who used the south squad room as a dance hall. This is definitely a nonhistoric ceiling and these are altered historic roof rafter trusses. (See existing scissors trussed rafter B on sheet 4 of drawings, which shows the wooden ceilings and truss.)

d) Stairs

(1) North Barracks

These stairs still exist, as previously mentioned, and are in good condition. The open well above has been partitioned. The stairs entered into the middle of the north squad room. There are 17 risers in a straight run from a vestibule that serves the day room, mess hall, and veranda.

(2) South Barracks

As previously mentioned, the stairs up to the south squad room were removed. The well was floored over and the entire squad room became a dance hall, with a bar at the north end. Some lower partitions and the vestibule still exist. The stair carriages still show their markings on the lower stair partitions. (See sheet 3 of drawings, second-floor plan, for location of former stairs; also see sheet 3, first-floor plan, for lower stair partitions.)

e) Trim

(1) North and South Barracks

The trim on the old army partitions is authentic. The trim on the civilian partitions is often not historic, though sometimes army trim obtained from other portions of the building was used. The trim around the doors is authentic where existing partitions are historic. All interior trim around the windows is historic and most of it is repairable. All trim on exterior doors is authentic and most of it is also restorable.

Baseboards are authentic in the existing army partitions. Some baseboards in the later civilian partitions are the same as the old army ones. Most of them are restorable, some are missing.

f) Doors

(1) North and South Barracks

Many different types of doors are in use. Some of them are old army doors, and others appear to have come out of a grab bag. Hinges to the doors vary in style: some are army, others are just miscellaneous sorts. Most doors, covered by many layers of paint, are repairable. Hardware for the most part is not original, although it is on some interior doors. (See sheet 6 of drawings, representations of original interior army doors.)

g) Paint

(1) North and South Barracks

Where surfaces are painted, there are many coats, which are peeled, alligatored, cracked, and faded. Little paint is left on the interior. It appears that the original walls were an off-white with matching ceilings. A blue-grey color often shows up on early layers of the trim, doors, and windows. Paint was probably lead and oil. Wallpaper was not applied by the Army. Evidence shows that the Army painted doors and trim, windows and trim, baseboards, cupboards, and all exposed wood except the floors, which were and still are unpainted. The plaster walls and ceilings were eventually whitewashed.

h) Existing Heating

(1) North and South Barracks

Heating during the army occupation was by wood or coal stoves in the squad rooms, day rooms, mess hall, and noncom rooms. The stoves were served by metal flues that were connected to masonry chimneys. Later civilians added chimneys alongside the end chimneys at the north

and south walls, and a fireplace was added on the first floor of the north barracks in the area of the former mess hall. A heating system was installed when this building served as the headquarters for Fort Laramie National Historic Site. After the headquarters was moved, the installed heating system was eliminated.

i) Lighting

(1) North and South Barracks

Original lighting was by candles, oil, or lard lamps. When this building was put to civilian use, about 1916 or earlier, electric lights were installed. When the Park Service took over, more light and electric outlets were installed, which are all in poor condition.

j) Plumbing

(1) North and South Barracks

There probably was not any plumbing in the army days, with outside latrines serving this purpose. Further research might reveal some historic plumbing in the washrooms. Toilets and wash basins were probably installed by the civilians that followed after the Army left. There are vestiges of fixtures that were vented and attached to floors and walls. Pipes have been removed as have the fixtures. Unless further research determines otherwise, it will be assumed that in the army washrooms water was stored in barrels and utilized in wooden tubs and tin wash basins.

F. Proposed Restoration

1. General

a) Exterior

Exterior work will comprise a full restoration to the 1876 period and will retain the 1883 veranda.

b) Interior

The interior of the south barracks will be restored to the 1876 period. The interior of the north barracks will be stabilized in its present condition for interpretive or other uses by the park.

2. Exterior

a) Foundations (See sheet 5 of drawings, sections X-X, Y-Y)

In the few instances that serious cracks occur down to the bottom of the foundations, the foundation at this point should be bared. A proper method of repairing the bad cracks will have to be found by Denver Service Center engineers. Drain tile should be installed on the west wall against the building. Tile should be placed on the drip line in order to drain rain water directly away from the building. A rock-filled trench should cover the drain tile.

b) Walls

The very deep and long cracks that occur on the south end wall and on the north end wall and the cracks on the west wall that are very close to both the north and south gable walls should be repaired as soon as possible.

A method will have to be devised to tie together the walls at the corners of, and along the length of, the north and south gable walls. Studies may devise a diaphragm that could be placed at the first-floor ceiling line and at the second-floor ceiling line at each gable wall end extending 10 or more feet back as required. The gable walls and corners would be fastened to these diaphragms. Detailed studies will be necessary to determine the method of tying in the walls. The engineers at the Denver Service Center will be consulted on this entire problem.

The minor cracks can be filled with lime concrete grout and covered with scored plaster to conform to the existing pattern on the exterior walls.

c) Veranda

The veranda, which is in good condition, has been restored according to the 1883 plans. A check by Service Center engineers will be made to determine the maximum allowable live load that can be permitted on the upper floor of the veranda. The concrete foundations will have to be hidden. The veranda will also be checked by Service Center engineers for susceptibility to wind uplift.

d) Roof

The roof appears to be in good condition. It will require at the most the usual maintenance for shingle roofs.

e) Doors and Trim (See sheet 6 of drawings)

The trim, head, jamb, and sills are for the most part in fair condition. As previously mentioned, only two doors are original. These will be the model for all the exterior doors that will be replaced or removed to new locations as shown on the drawings. There will be 15 new exterior doors replacing the adapted and later nonarmy doors on both the north and south barracks. These doors are 1-3/8 inches thick, about 2 feet 10 inches wide, and about 6 feet 7 inches high. They have two lower wooden panels that are raised and four glass panes above. The hardware on these will be 1864 patented locks, two authentic examples of which are in use in the building. The hinges will be selected from the building, because there are historic army hinges still in use on some existing doors. Two of these hinges and two of these locks are shown on sheet 7 of the drawings.

f) Windows (See sheet 6 of drawings)

Many windows were replaced, repaired, and rebuilt during Superintendent Hieb's restoration work of 1955-56. Nearly all windows are in as good condition as can be expected and only a few at the most will need major attention. A few sills are decayed and should be repaired or replaced. The trim is in good condition. The glass does not appear to be historic, but because there are other more urgent problems to be solved now, the glass will have to be checked out more thoroughly at a later time to determine whether it is a close copy of the historic glass originally used.

g) Chimneys

Chimneys built during the civilian occupation will be removed from the south barracks. One new chimney, which will be a reconstruction of the later army brick chimney, will be built up from below the second floor through the roof. It will serve the south barracks mess room and the south barracks squad room. It was removed during civilian occupancy, but marks on the dance hall above and on the partitions below show its location (see sheets 4 and 7 of drawings). This chimney was of brick and flues entered it at the first- and second-floor ceilings.

h) Vents

The Army installed vents in the barracks at the request of the medical officer. Two restored ones will be brought through the ceiling of the south barracks (see second-floor plan for location). They will pass through the attic area and out to the roof.

i) Painting

According to Superintendent Hieb, the windows, doors, and their trim were painted Venetian red. A determination should be made of the color used during the army occupancy on the existing exterior surfaces of the windows, doors, and trim that still contain all of the applied coats of paint from the historic period up to the present time. A specialist from the Service Center will undertake this analysis. When the historic colors are determined, they will be identified on the Munsell color chart. The door, window, and respective trim colors will then be used in restoration and maintenance. The color of the cornices will be determined in the same way.

The veranda is all new and is painted blue grey, which appears correct. The roof is unpainted and weathering, and the floors are also unpainted. The floors should receive two coats of a preservative that will not change the natural appearance of the wood. Paint used on the veranda should be lead and oil if obtainable. Otherwise, oil (alkyd) paint will suffice.

j) Removal of Root Cellar

The concrete-walled root cellar at the northwest end wall will be completely removed, and the area opened after demolition will be filled with the same type soil that is adjacent to the former root cellar. This root cellar serves no useful purpose, could harbor rattlesnakes, and is definitely of the post-historic period.

3. Interior

a) Floors

(1) First Floor, South Barracks (See sheet 4 of drawings, details of floors and partitions)

The floors of the south barracks should be taken up. Both the floors and floor joists should be completely removed and the partitions that are to remain should be jacked up with steel jacks that will remain in place. An adequate underfloor investigation will be programmed before any footings or slabs are poured on all first floors of the north and south barracks.

The area under the stud partition plates should be depressed so that the thickening of the slab under it will aid in the bearing of the stud walls. Before the slab is poured the necessary reinforcing and mesh should be applied. A plastic waterproof membrane should be placed over the whole graded area before the slab, of 4-inch concrete with wire

mesh embedded in it, is poured. After the concrete slab is cured, two-by-two wood sleepers treated with a preservative should be laid on 16-inch centers at right angles to the east and west walls. The sleepers will be carried on concrete pads for ventilation purposes. The partitions should first be installed or repaired and then the 1-3/8 inch by 5-inch (these are the historic dimensions) T & G floors laid and given two coats of hydrozo or of another approved preservative. All portions of wood beams that extend into lime concrete walls should be removed and the resulting cavities filled with lime concrete. Any new flooring should match the existing historic floors.

(2) First Floor, North Barracks (See sheet 4 of drawings)

It is strongly recommended that the same procedure used in the south barracks be carried out in the north barracks. The center partitions in all cases support the second-floor joists at the center of the second floor, and if they sag down, as they probably will, the second floor will also sag at the center. Therefore it is imperative that this corrective work be done by repairing all cross and lateral partitions and giving them substantial bearing on concrete slabs or footings.

(3) Second Floor, South Barracks (See sheet 5 of drawings, section Y-Y)

The existing hardwood floor in the dance hall should be removed, and the exposed army pine floor should be repaired where required. Two coats of hydrozo or of an approved preservative should be applied over the floor. The floor joists on the second floor are in good condition.

(4) Second Floor, North Barracks

The floors should be cleaned and then treated with hydrozo or an approved preservative. The floor joists are in good condition.

b) Stud Walls

(1) First Floor, South Barracks (See sheet 4 of drawings, details and first-floor plans)

The interior walls that are original army stud partitions should be retained. The nonarmy stud walls should be removed, and the missing army walls should be replaced. All plaster should be removed from the existing partitions, and all existing laths should be renailed on the stud walls that remain. Mesh should be installed over these and over the new wood stud and lath partitions. Partitions should be given two coats of plaster.

(2) Second Floor, South Barracks

The stud partitions and counters in the barroom on the second floor should be removed, creating an open squad room devoid of any wood stud walls.

(3) First Floor, North Barracks

Some of the partitions should be repaired structurally. Other than cleaning, no other repairs, such as plastering, papering, etc., should be made at this time.

(4) Second Floor, North Barracks

No work should be undertaken here unless it involves correcting structural defects and general cleaning.

c) Ceilings

(1) First Floor, South Barracks

Ceilings should be cleaned of the existing plaster, laths renailed, and mesh applied. Two coats of plaster applied with a wood trowel finish, should then be added.

(2) Second Floor, South Barracks (See sheet 4 of drawings)

The wooden ceiling and the existing scissors trussed rafters should be removed and the original trussed rafters of the army period restored. Lath mesh and plaster should be applied to the bottom of the trussed rafters centered @ 16 inches o.c.

(3) First Floor, North Barracks

At this time the loose laths should be fastened and the ceilings cleaned. Some patching should be done on the plaster ceilings, but no entire replastering of the ceilings should be attempted.

(4) Second Floor, North Barracks

At this time the same type of work performed on the first-floor ceilings should be done on the second-floor ones.

d) Stairs

(1) South Barracks (See sheet 5 of drawings, sections A-A, X-X)

A new wooden stairway from the first floor to the squad room should be built. Marks of the old stairway runners in the first-floor partitions surrounding the old stairway area can be seen. The north

barracks stairs can serve as a model with the risers slotted one inch below the tread for an air return plenum on the south barracks stairs. (This assumes that a hot air heating system will be used.) A 3-foot-high well should surround the stairs at the squad room level on three sides.

(2) North Barracks

Except for cleaning, these stairs should remain as they are. Partitions were placed around the old well, which is still visible.

e) Trim

(1) First Floor, South Barracks

The baseboards will be reset where they were removed for jacking up the old remaining partitions. After the floors have the concrete slab, wooden sleepers, and wood floor installed, the new baseboards for the new partitions should match the old army ones.

(a) Windows

This trim is in good shape, but should be repaired where required.

(b) Exterior Doors

This trim is also in good condition and should be repaired only where required.

(c) Interior Doors

New trim matching that on the army doors will be required on the new restored partitions.

(2) Second Floor, South Barracks

Most baseboard, door, and window trim is in fair condition. Repairs should be made only where required.

(3) First Floor, North Barracks

Most of the window and door trim is in fair condition; no repairs should be made at this time except for cleaning. Baseboards should be reset where they have been removed for jacking up lower partitions. New wood sleepers and a wood floor will be installed over the present floor where slabs have been poured.

(4) Second Floor, North Barracks

Except for cleaning, no repairs or replacements should be made.

f) Doors

(1) First Floor, South Barracks (See sheet 6 of drawings, typical interior door)

All interior doors that do not match the original army doors, which are 1-3/8 inches thick with four wooden panels, should be replaced with doors that do.

(2) Second Floor, South Barracks

Only one interior door exists, leading to the north barracks squad room from the south barracks squad room. This should be repaired as required. There are two exterior doors that open out to the veranda, and these should be replaced. (See sheet 6 of drawings, exterior doors.)

(3) First Floor, North Barracks

These doors should be cleaned and repaired as required. None of them should be replaced.

(4) Second Floor, North Barracks

These doors should be cleaned and repaired as required. None of them should be replaced.

g) Paint

(1) First Floor, South Barracks

During its occupancy, the Army whitewashed plaster walls as a sanitary and aesthetic measure. The present walls should be whitewashed an off-white and the ceilings white. The floors should be cleaned and given two coats of hydrozo. The window, door, and trim colors will be selected by the Service Center color expert. Trim includes baseboards, window splays, sills, heads, jambs, and a door head.

(2) Second Floor, South Barracks

As on the first floor, the trim, doors, and windows will be painted the historic color. Walls should be whitewashed an off-white, and the ceilings should be white. The floors should be cleaned, given two coats of hydrozo, and left unpainted. Paint should be lead and oil, if obtainable; otherwise oil alkyd will do. The whitewash formula will be furnished by the Historic Preservation Team, Denver Service Center.

4. Recommendations for Emergency Funds

Stabilization of the central partitions on the first floors of both the north and south barracks needs to be undertaken (see sheet 4 of drawings, footing details of partitions and columns).

This work will involve removing all the wood flooring and joists on the first floor of the north and south barracks. The first-floor central partitions and central posts (supporting the second-floor joists) will then have their floor plates jacked up to their proper levels. Repairs to studs and plates should be made where required. Earth beneath will be excavated and graded to conform to the footings and slabs. A plastic membrane will then be placed on the graded earth, the steel reinforcing positioned, and the footings under the central partitions and columns poured. The next step will be to pour the footings for the permanent lateral partitions following the same method used for the central or longitudinal partitions. The jacks supporting the stud plates will be left in the pour in both the central and lateral partitions. The slabs will be finally poured prior to the plastic membrane being placed over the ground, and the mesh will be positioned as shown on the drawings. The floors could be laid down at a later time. Two-by-two wood sleepers treated for dry rot should be placed on concrete pads for ventilation purposes. Wood flooring matching the original in size and type would then be nailed to the sleepers. The floors would then be treated with two coats of hydrozo or another protective sealer. The grade of the concrete floor will be set so that the wood floor will be at the same grade as the historic wood floor.

Cost Estimate for Emergency Fund

Excavating, removing earth and fill	\$ 5,000
Footings, waterproofing and plates	14,000
Concrete floor	10,000
Structural crack repair Both ends at gable fronts	6,000
Ducts in concrete and conduits in concrete	<u>5,000</u>
TOTAL	\$40,000

5. Heating

Several heating systems can be used: one is an electric heating system with baseboard units; another utilizes unit heaters. The baseboard unit would be the least intrusive. The electric system can easily heat the barracks to 50° Fahrenheit. The system would be economical to install, but its operational cost, even at special rates, would be high.

Another system would be a hot air type, which would require a heating room with a stack. It would need underground ducts for the supply and return registers on the first floor and supply ducts in the attic for the supply registers on the second floor.

Another version of the hot air system would involve a closed hot water boiler that would heat coils over which hot air would be blown and would distribute the hot air and return it through the same duct system as for the furnace system. It also would require a heater room and stack. This system would be more costly to install but would be cheaper to operate. The source of fuel could be gas or oil. No underground heating room would be contemplated, because its construction would disturb the foundations and walls. Note that the electric heating system requires no heating room or stack. The hot water boiler/hot air system will be proposed for now. The final heating system used will have to be determined at a later time when all factors involved can be given the proper consideration. The decision will involve DSC engineers, the Historic Preservation Team, the Rocky Mountain Region, and the superintendent of Fort Laramie.

a) South Barracks (See sheet 4 of drawings, first-floor plan)

A heating system should be installed to maintain a minimum temperature of 50° Fahrenheit in the south barracks. It will have sufficient capacity to heat the north barracks to the same temperature if it is decided to heat it in the future.

b) North Barracks

If a warm air heating system is selected, the heating room will be located on the first floor of the north barracks just back of the dividing wall between the north and south barracks. An existing doorway will provide access from the west elevation. An existing interior door will give access from an existing entry room off the veranda from the east elevation. The system will be a hot air system with warm air registers in the ceiling of the second floor and warm air registers in the first floor at the walls. The return air will collect at the return plenum of the stairs and will be conducted by a return duct in the

center of the first floor back to the heating room. The system will be a hot water boiler with air blown over hot water coils. The fuel will be oil, although by converting the burners, gas can be used. Water used in the boiler will be distilled pure water mixed with ethylene glycol. This mixture will not need to be replaced. Only minor amounts of water will occasionally be added. No deposits will settle in the boiler tubes.

If the above heating system is selected, a new brick chimney will be built at the center back of the lime concrete dividing wall to receive the hot water boiler flue. In the attic there will be a flue that will enter the historic chimney adjacent to it. The chimney will be in the heating room located in the adjacent north barracks. (See sheet 5 of drawings, section A-A.)

6. Plumbing

a) North Barracks

Plumbing here will be kept to a minimum. Water will have to be brought into the heater room. A janitor slop sink will be installed in the heater room requiring a water and soil line.

b) South Barracks

No plumbing is anticipated anywhere except for the heater room in the north barracks adjacent to the south barracks. (This does not mean historic plumbing. If archeology turns up a plumbing system in the washroom it will be simulated but will not be a part of the plumbing system.)

7. Lighting

a) South Barracks

All existing electric lighting will be removed. No electric lighting fixtures are contemplated throughout the first and second floors of the south barracks. If the barracks have occasional night visitation, temporary lighting using extension cords connected to baseboard outlets can be used.

Baseboard outlets throughout will be held to a minimum. They are to be installed mainly for housekeeping purposes.

b) North Barracks

Existing electric lighting should be checked out under the latest regulations. If it does not comply, all lighting should be removed; if in compliance, it will not be removed until such time as a special use

is decided upon for portions or all of the north barracks. Adequate convenience outlets should be installed in the baseboards. They will be held to a minimum and, as in the south barracks, will be used for housekeeping purposes.

8. Fire Detection System

The fire detection system shall be a Class A, noncoded, normally open, zoned system with supervised detector and alarm circuits. This system will be specified by a Service Center specialist who will consult the superintendent of Fort Laramie.

9. Intrusion Detection System

An intrusion detection system will be installed at all doors and windows on the exterior. A specialist from the Service Center will specify the system to be used after consultation with the superintendent at Fort Laramie.

10. Lighting Protection System

The lighting protection system now in use will be retained but will be checked over by a Service Center specialist.

ILLUSTRATIONS

Illustration 1.

Southeast elevation, showing veranda and foreground.
A very impressive view of the 1874 barracks. This
picture shows the complete east elevation of the
building and its situation.



Illustration 2.

Southeast corner view of the 1874 barracks, providing a closer look at the building. This picture should give a more detailed picture of the veranda side or east elevation of the building.



Illustration 3.

Southwest corner of the 1874 barracks, showing cracks at gable window area. Both end gables will require special care to prevent any eventual separation of gable walls at both ends from end walls.



Illustration 4.

Northeast corner of the 1874 barracks. Close-up showing earth cellar adjacent to the north end of building. Also shows some cracks and patching at window areas. The earth cellar log retaining wall and wood shack to cellar will be removed.



Illustration 5.

Close-up of north gable view of the 1874 barracks,
showing cracks at windows and gable.



Illustration 6.

Close-up of window, west side, near south end of building. Photo shows cracks at southwest corner towards the gable end and at window. These cracks have been patched over at various times, but some still open up occasionally.



Illustration 7.

Close-up of original army door on veranda, east elevation. (Screen door is not original.) This will be the type used when restoring all exterior doors. Screens will not be used on any doors in the barracks.

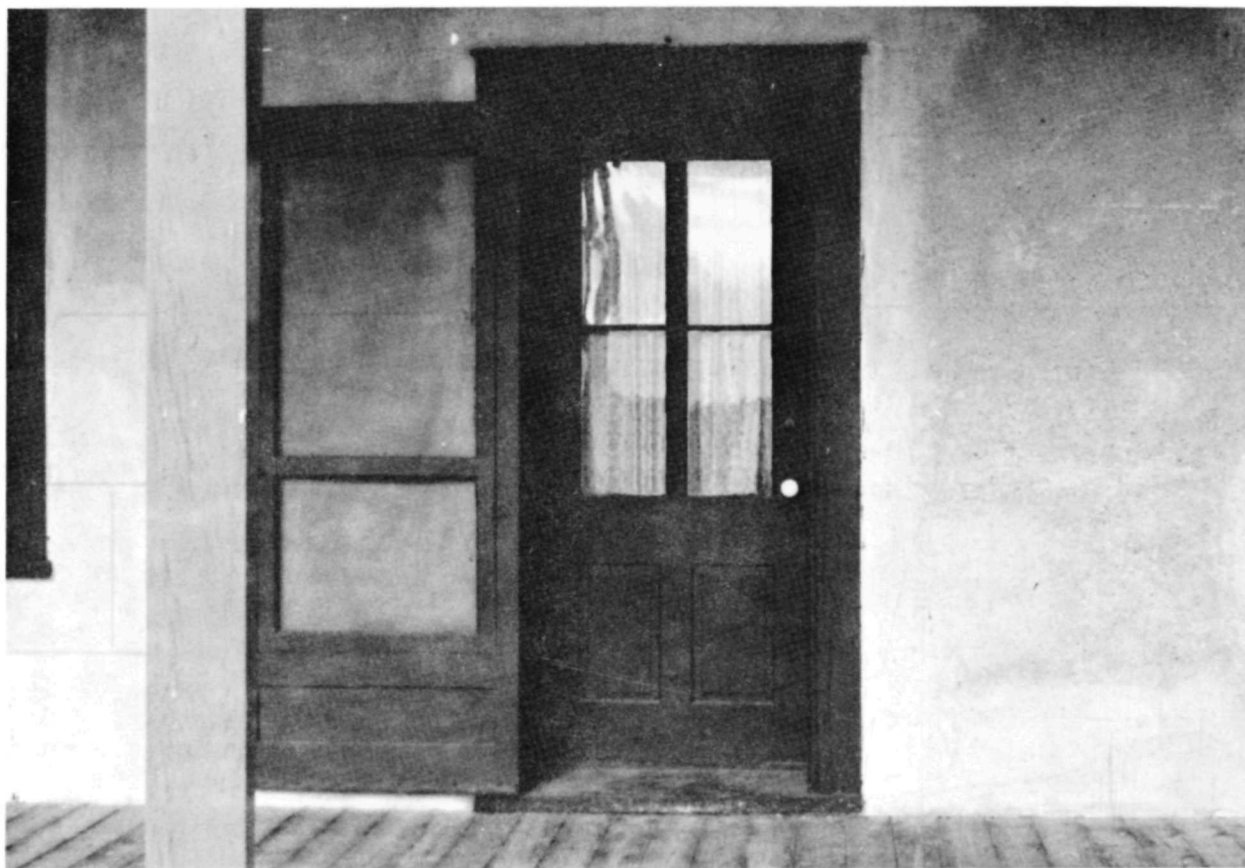


Illustration 8.

Close-up of lower-story, typical, army window.
This is an original army window and trim.
Picture shows part of wood flooring and wood
column of the veranda.

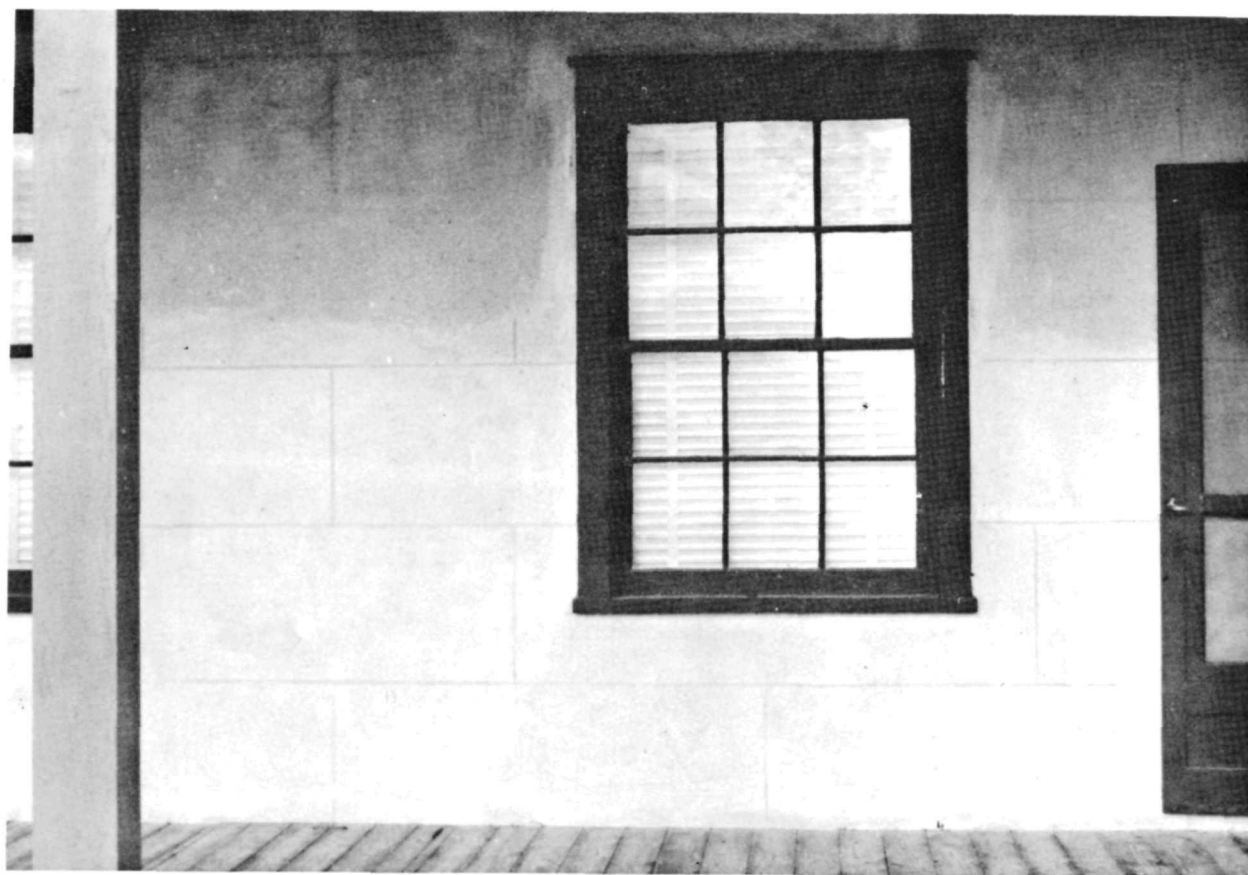


Illustration 9.

Close-up of window and door, west side.
Shows spalling below window near ground and
also at side of door.



Illustration 10.

Close-up of windows, west elevation. Shows spalling near ground. Some plaster has been patched, while some has fallen off near the ground and spalling has developed.

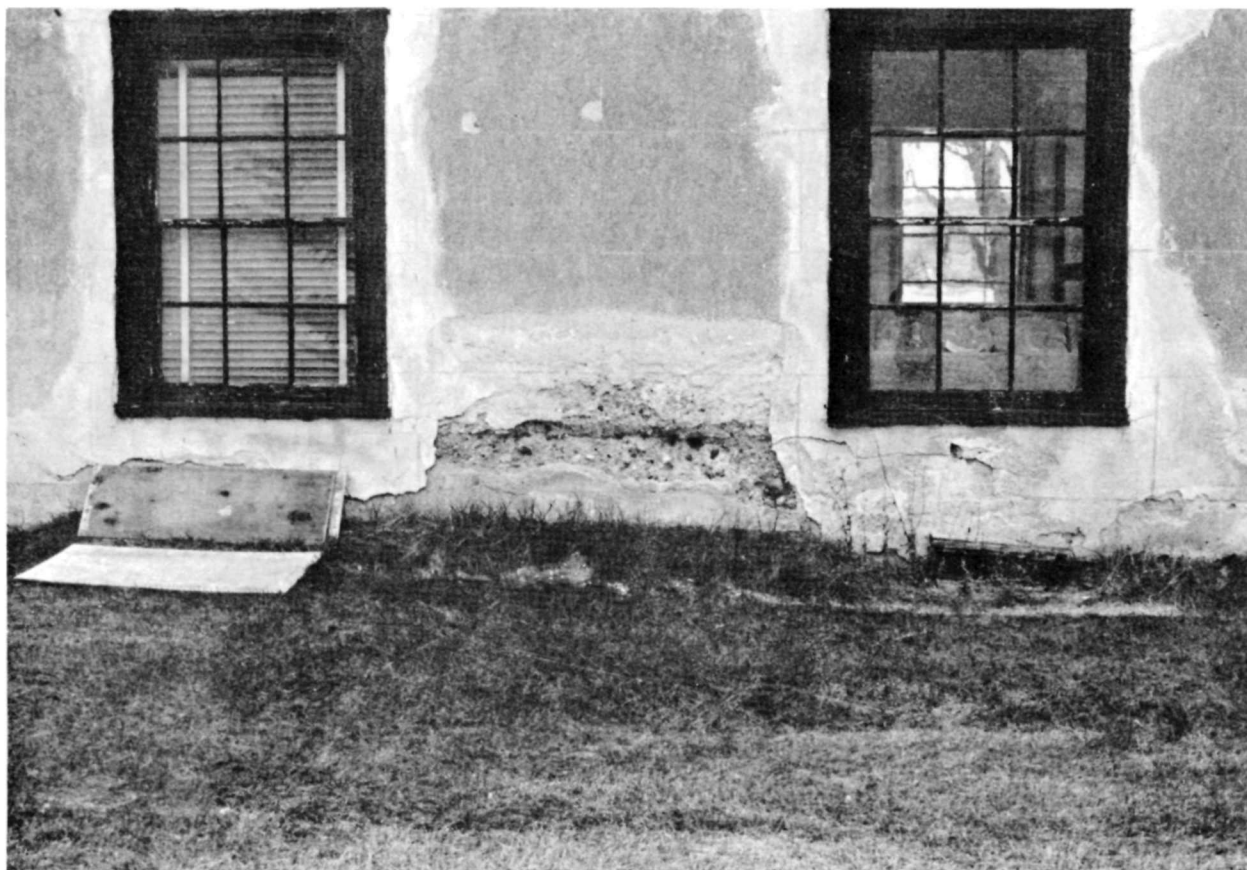


Illustration 11.

Interior of kitchen, north barracks. Note condition of interior plaster and flooring (decayed on bottom side). Shows old army door trim and kitchen chimney. The south kitchen is in similar condition. Note how plaster has come off the laths on the ceilings and on the stud walls.



Illustration 12.

Interior of former south squad room, upstairs,
(dance hall and bar of the Joe Wilde era). Shows
change in ceiling from scissors trussed rafters
to the historic trussed rafters.

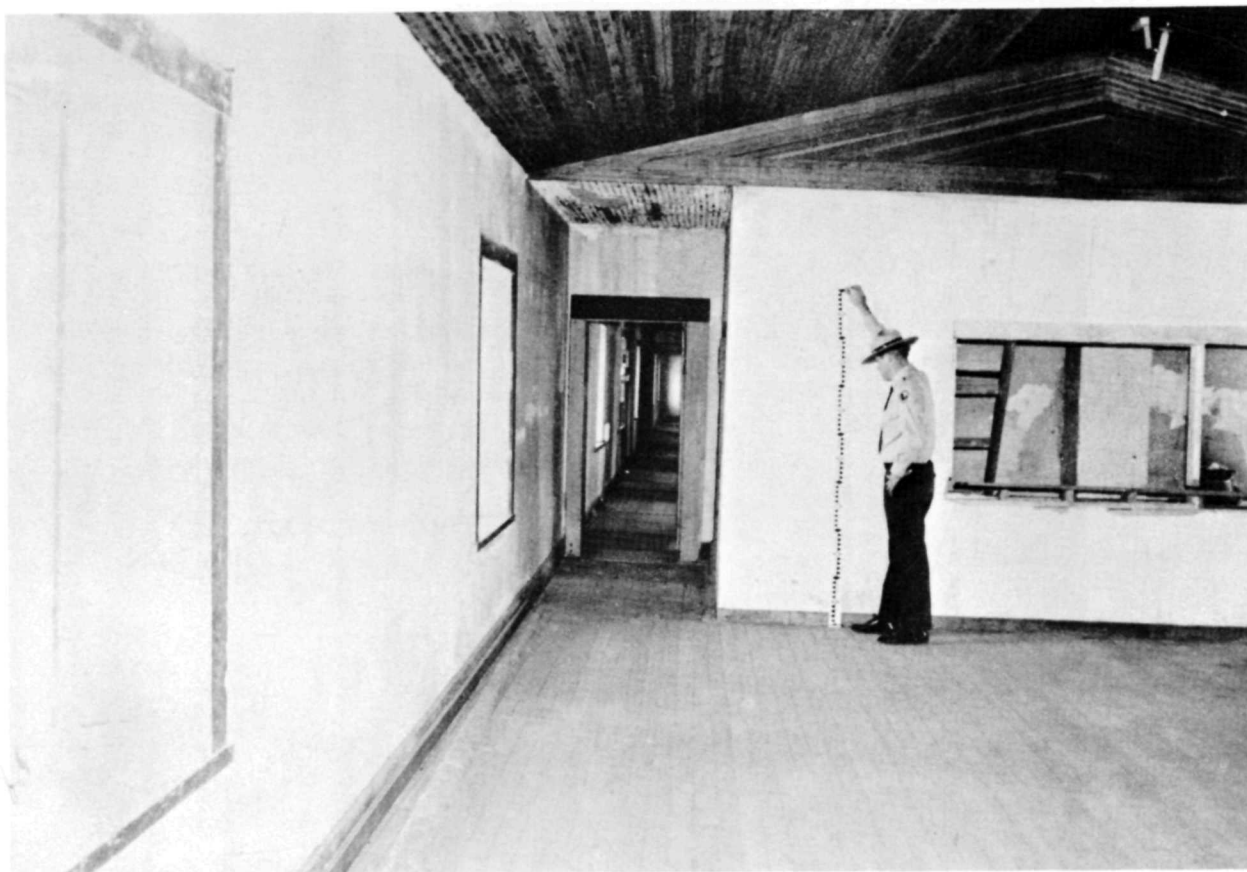


Illustration 13.

Shows ceiling joists running through the top of the lime concrete wall in the north squad room attic. This photo demonstrates how rafters at ceilings and floor joists went right through lime concrete wall in both north and south barracks.

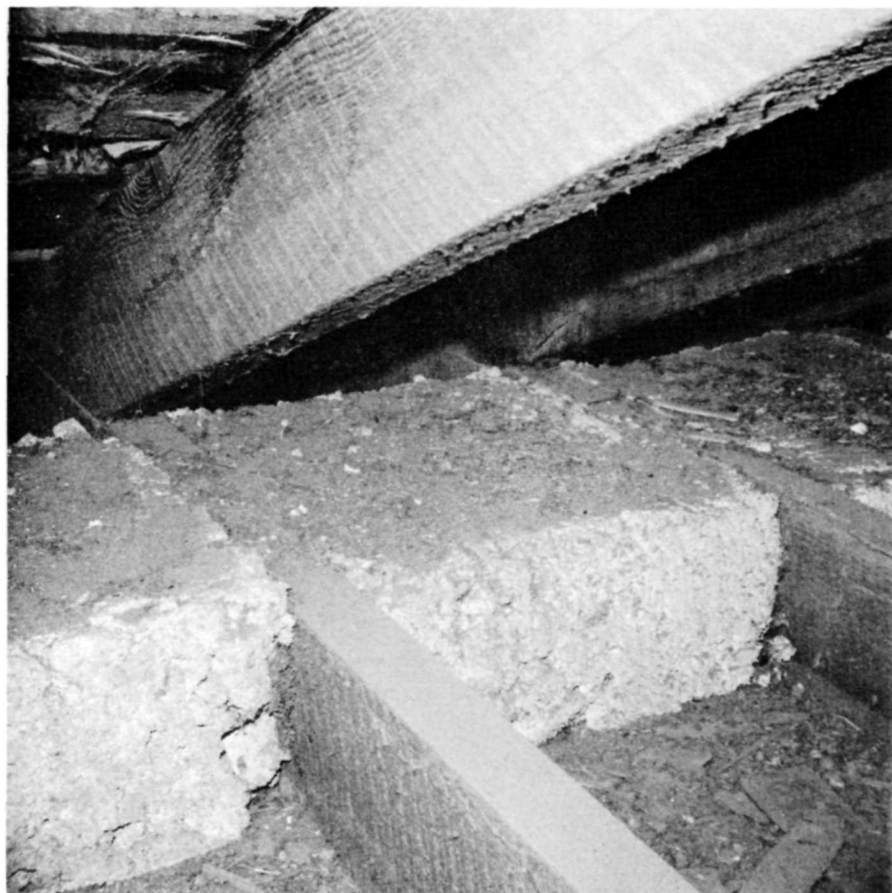


Illustration 14.

Interior of Joe Wilde's dance hall (south squad room, second floor), looking west. Ceiling follows bottom chords of the scissors trussed rafters. Ceiling will be removed and trussed rafters connected to the historic rafters.

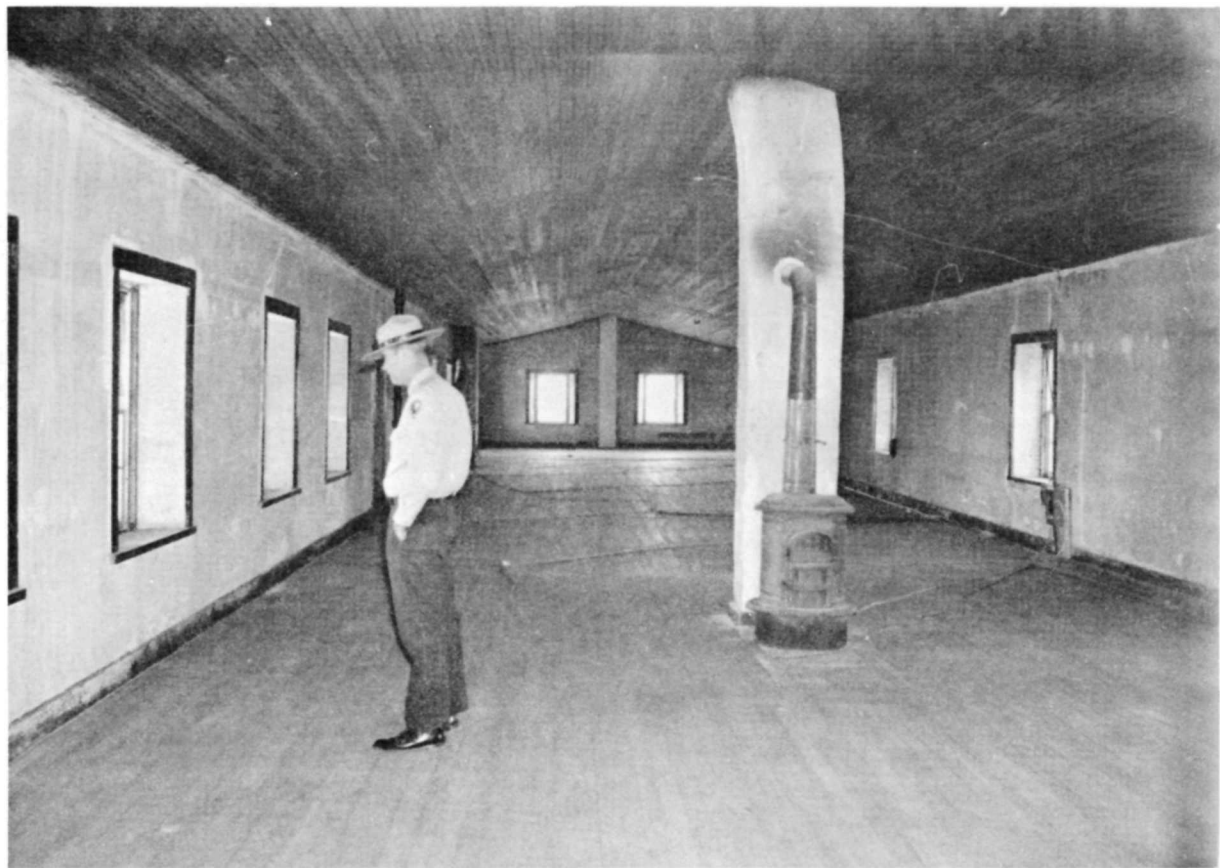


Illustration 15.

Trussed rafters, attic of north squad room. This is the way the scissors trusses of the south barracks will be restored.

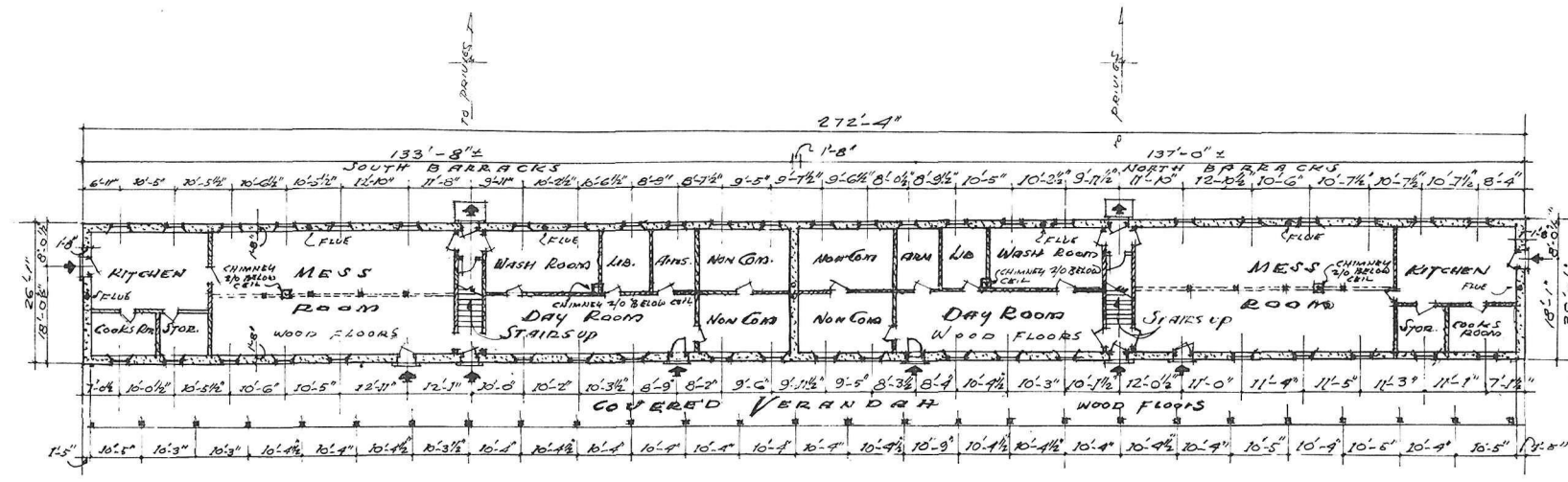


DRAWINGS

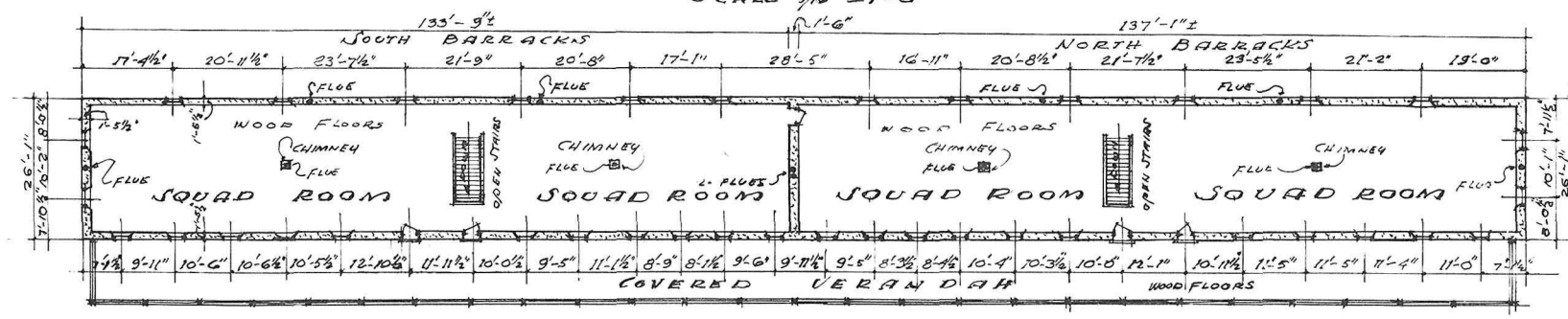
(375/28,000)

Sheet 1 of 7.

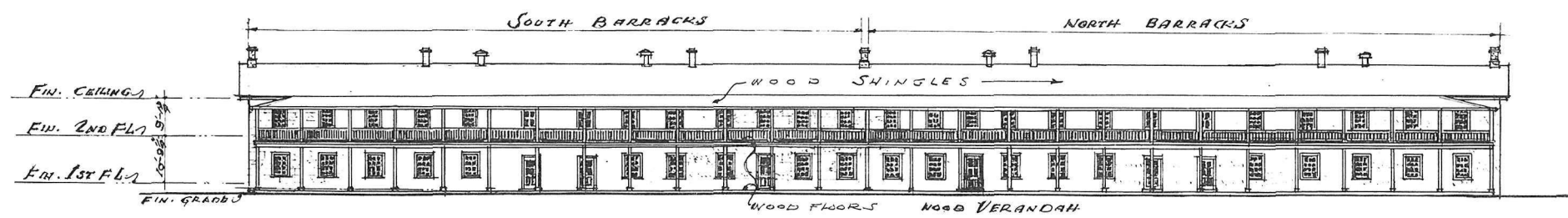
Floor plans and elevations, 1874
cavalry barracks as finally completed by U.S. Army in 1883.



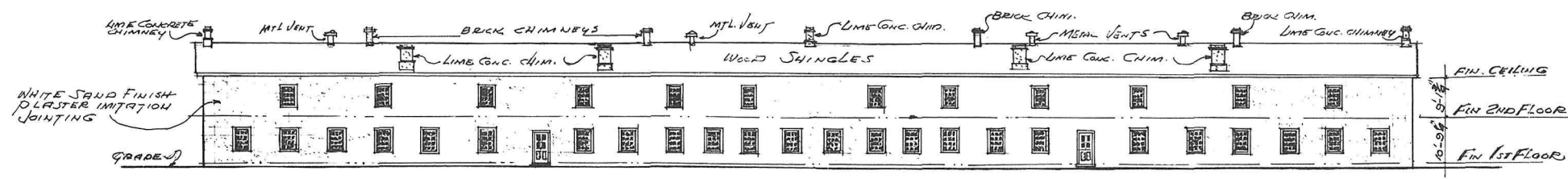
• FIRST FLOOR PLAN •
SCALE 1/16" = 1'-0"



• SECOND FLOOR PLAN •
SCALE 1/16" = 1'-0"



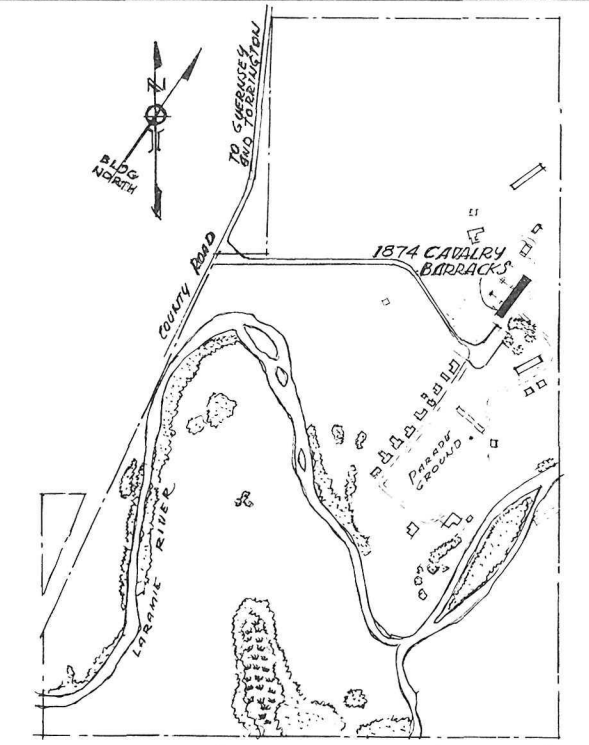
• EAST SOUTH-EAST (FRONT) ELEVATION •
SCALE 1/16" = 1'-0"



• WEST NORTH-WEST (REAR) ELEVATION •
SCALE 1/16" = 1'-0"
GRAPHIC SCALE

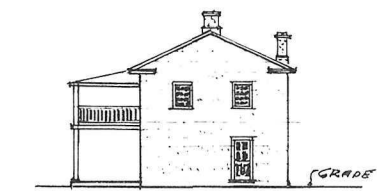
ALL FIRST STORY WINDOW SASH 32 LBS 12X 14GLASS
ALL SECOND STORY WINDOW SASH 12 LBS 10X12 GLASS
ALL WINDOWS EQUIPPED WITH SHUTTER HARDWARE

• 1874 CAVALRY BARRACKS AS FINALLY COMPLETED BY U.S. ARMY IN 1883 •
BLDG. HB-5

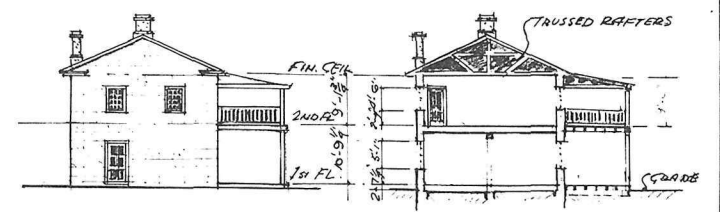


MAP OF FORT LARAMIE NATIONAL HISTORIC SITE

NOTE: BARRACKS PROPER FINISHED IN 1874
COVERED VERANDA FINISHED IN 1883



• NORTH EAST (END) ELEV. •



• SOUTH WEST (END) ELEV. •
• CROSS SECTION •
SCALE

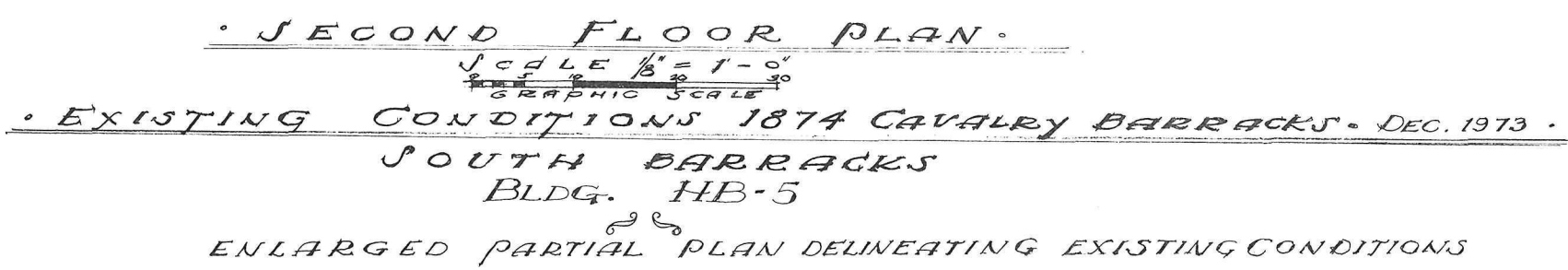
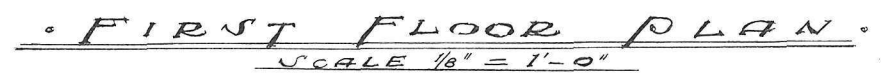
RECOMMENDED _____ DATE _____		CONCURRED _____ DATE _____		APPROVED _____ DATE _____	
UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE HISTORIC PRESERVATION TEAM DENVER SERVICE CENTER OFFICE HISTORIC STRUCTURES REPORT MILITARY COMPLEX FORT LARAMIE NATIONAL HISTORIC SITE NAME OF PARK					
REGION ROCKY MOUNTAIN		PCP NO.		SHEET 1 OF 7	
DRAWING NO. 375		DATE DEC - 73		28,000	

Sheet 2 of 7.

Floor plans and elevations, 1874
cavalry barracks, existing con-
ditions, Dec. 1973.

Sheet 3 of 7.

First- and second-floor plans,
existing conditions, south
barracks, Dec. 1973.



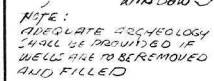
REGION	ROCKY MTN
PCP NO.	
SHEET	3 OF 7
DRAWING NO.	375
	28,000
DATE	DEC 73

BASIC DATA *EXISTING CONDITIONS AS OF DECEMBER 1973*

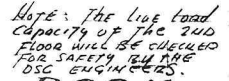
Sheet 4 of 7.

First- and second-floor plans,
proposed restoration, 1874 cavalry
barracks.

2000 GAL
FUEL ON FILE



SCALE $\frac{1}{8}" = 1'-0"$



SCALE $\frac{1}{8}'' = 1'-0''$

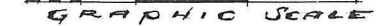


Diagram illustrating a cross-section of a roof assembly with various layers and structural elements. The diagram includes the following handwritten annotations:

- FOR ALL EXIST. PARTITIONS THAT ARE TO REMAIN**
- CUT OFF BOTTOM OF WOOD STUDS TO ACCOMMODATE A TREATED WOOD PLATE SUPPORT PLATE NUTS & METAL JACKS. LEAVE 1" MIN. IN CONC. DECK**
- 1" x 1 1/2" W/O FLOOR T & G**
- 2 x 2 W/O STEELERS @ 16" OC TREATED**
- BOTTOM TO BE UNDISTURBED**
- FOR ALL EXIST. PARTITIONS TO REMAIN**
- WOOD LATH TO REMAIN**
- CLEAR AN EXIST. PLATE**
- PLACE MESH OVER LATH. REMAIN LATH AND REPLASTER**
- ARMY NO. 4**
- FIN. FL. LINE**
- JOINTS FOR CONCRETE PHOS**
- 4" CONC. SLAB**
- OR ROCK FILL**
- WATERPROOF ELASTIC MEMBRANE**
- JACKS SET ON CONC. BLOCK**

FIG. DET. FOR ALL LATERAL PART 1ST FL

FTG. FOR 6x6 EXPOSED COLS.

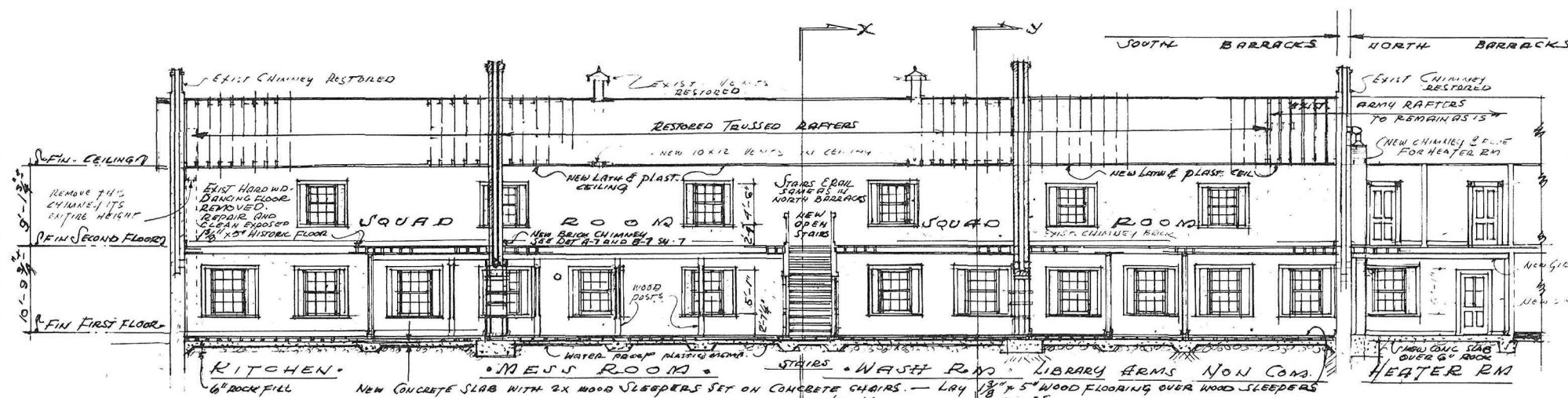


DATE DEC 73

<p>UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE <i>HISTORIC PRESERVATION TEAM</i> <i>DENVER SERVICE CENTER</i> PREPARED BY OFFICE</p>	
<p><i>HISTORIC STRUCTURES REPORT</i> TITLE OF DRAWING <i>MILITARY COMPLEX</i> LOCATION WITHIN PARK <i>FORT LARAMIE NATIONAL HISTORIC SITE</i></p>	

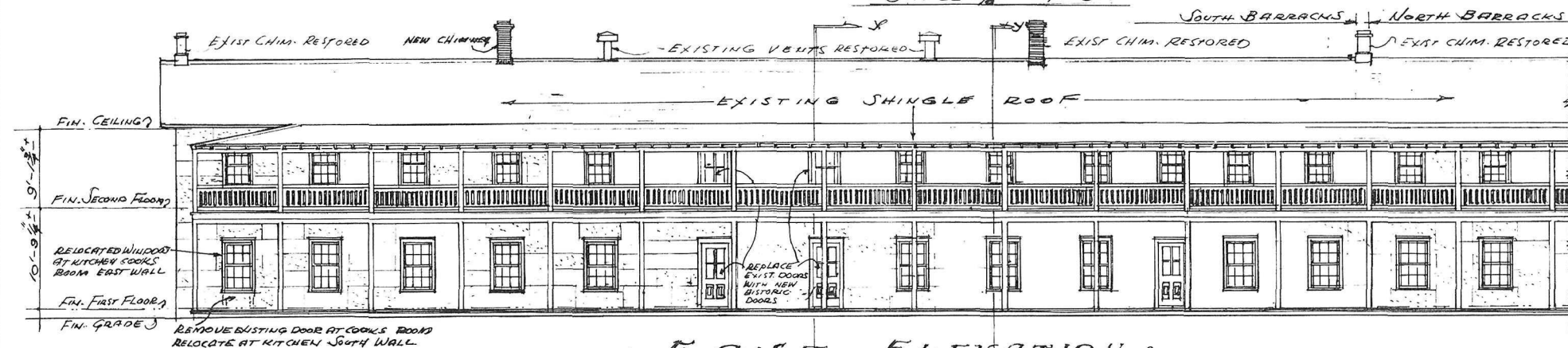
Sheet 5 of 7.

Sections and elevations, proposed restoration, 1874 south barracks portion.



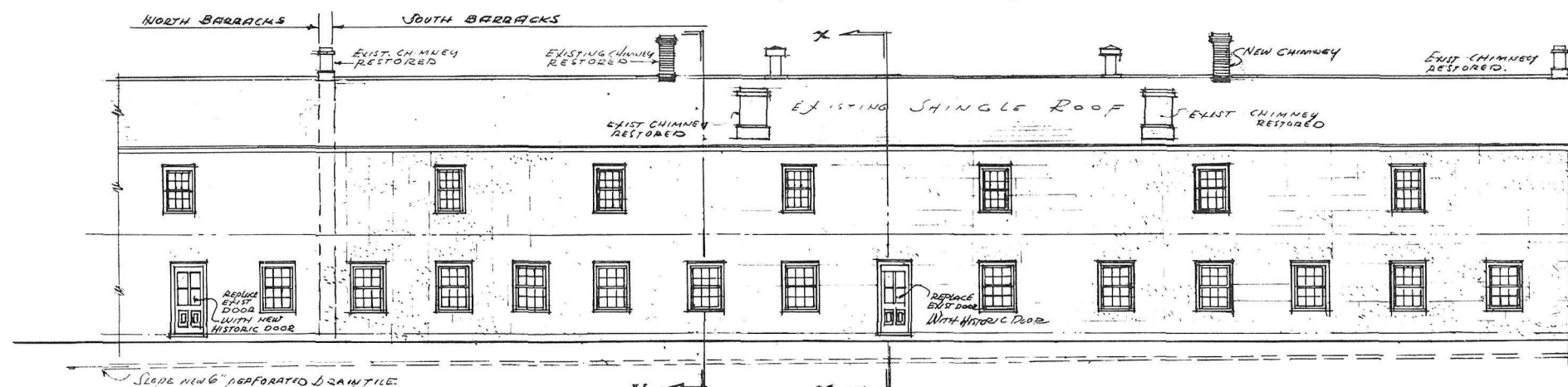
LONGITUDINAL SECTION A-A

SCALE 1/8" = 1'-0"



EAST ELEVATION

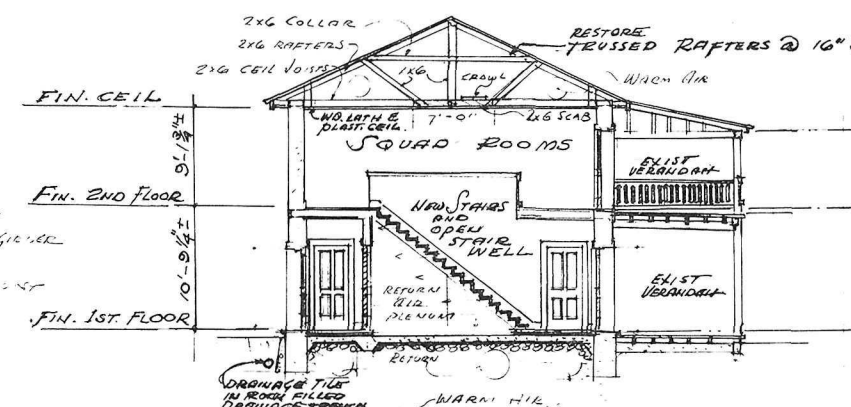
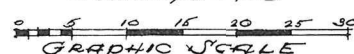
SCALE 1/8" = 1'-0"



WEST ELEVATION

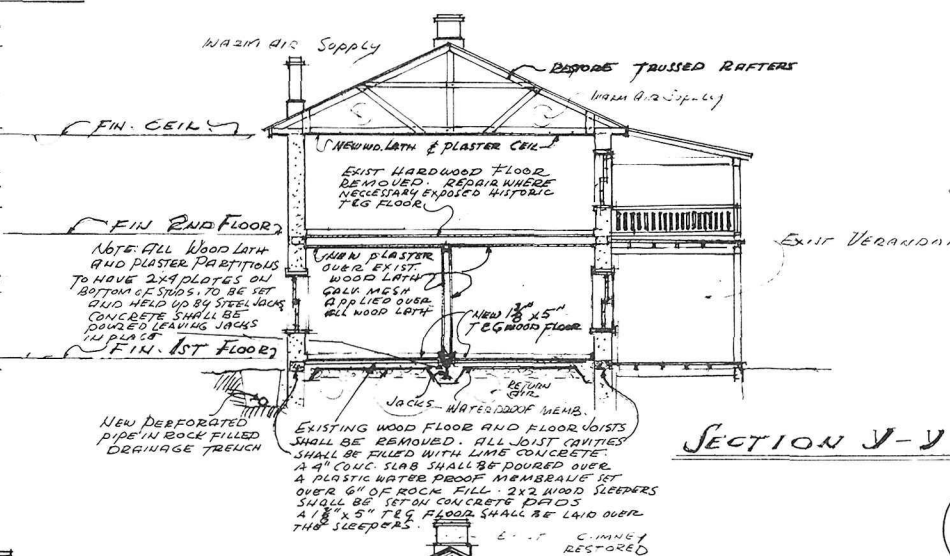
BLDG. HB-5

SCALE: 1/8" = 1'-0"

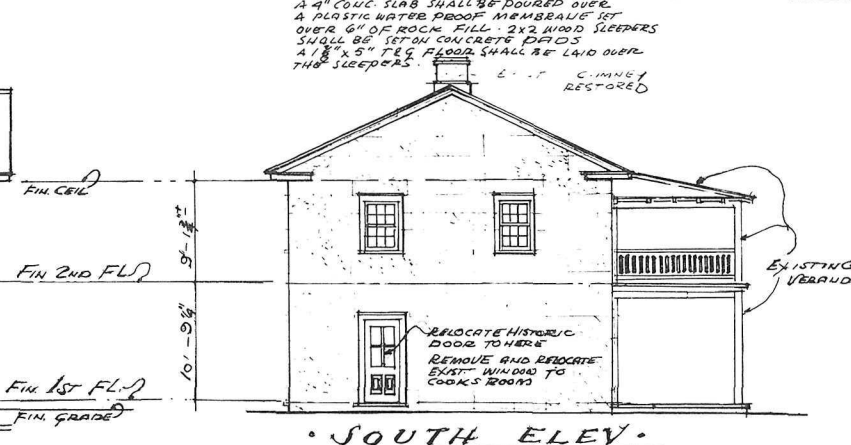


LATERAL SECTION X-X

SCALE 1/8" = 1'-0"



SECTION Y-Y



SOUTH ELEV.

SCALE

PROPOSED RESTORATION
OF THE 1874
SOUTH BARRACKS PORTION

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
HISTORIC PRESERVATION TEAM
DENVER SERVICE CENTER
HISTORIC STRUCTURES REPORT
MILITARY COMPLEX
FORT LARAMIE NATIONAL HISTORIC SITE

ORIENTATION

PREPARED
DESIGNED
U.S. ARMY
DRAWN
F.S. GERVIS
CHECKED

ARCH.
ELEC.
MECH.
STRUCT.
REVISED
DATE INITIAL

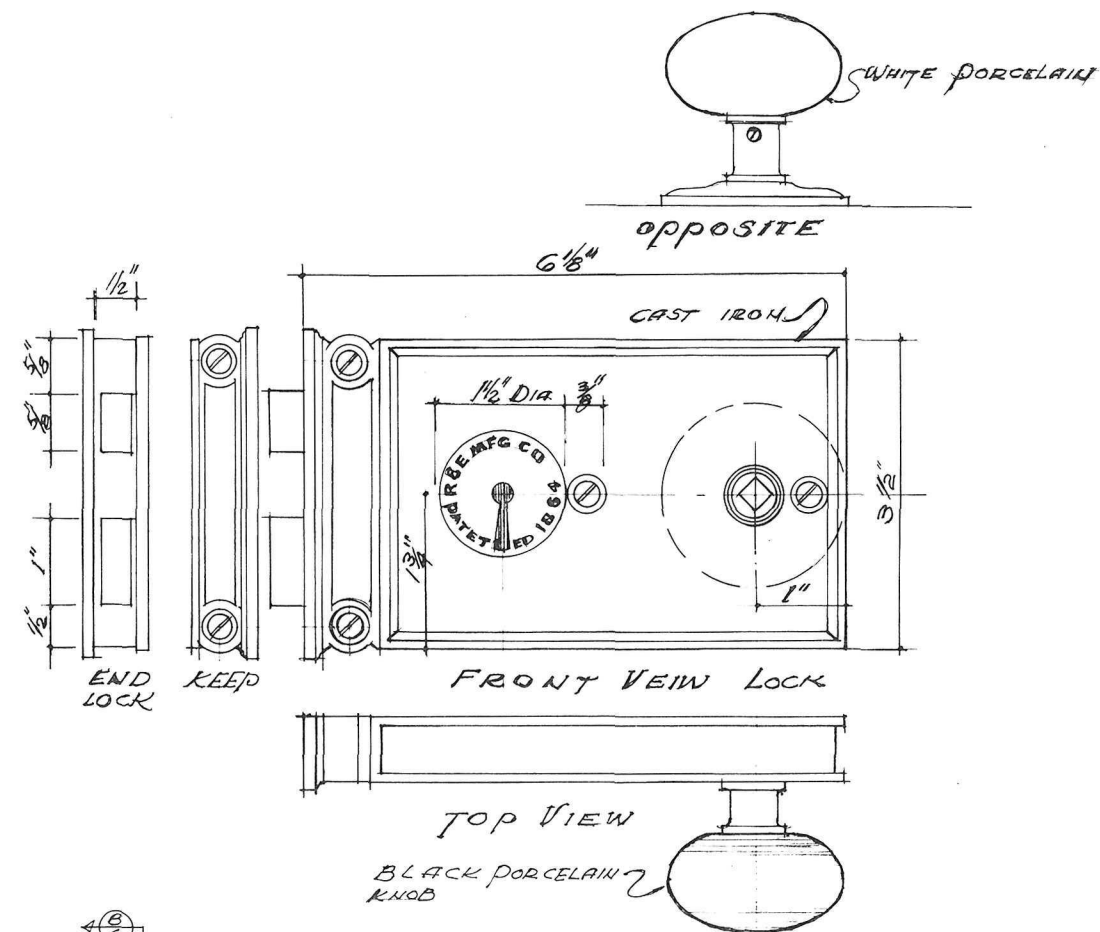
REGION
ROCKY Mtn
PCP NO.
SHEETS OF 7
DRAWING NO.
375
28,000
DATE DEC - 73

Sheet 6 of 7.

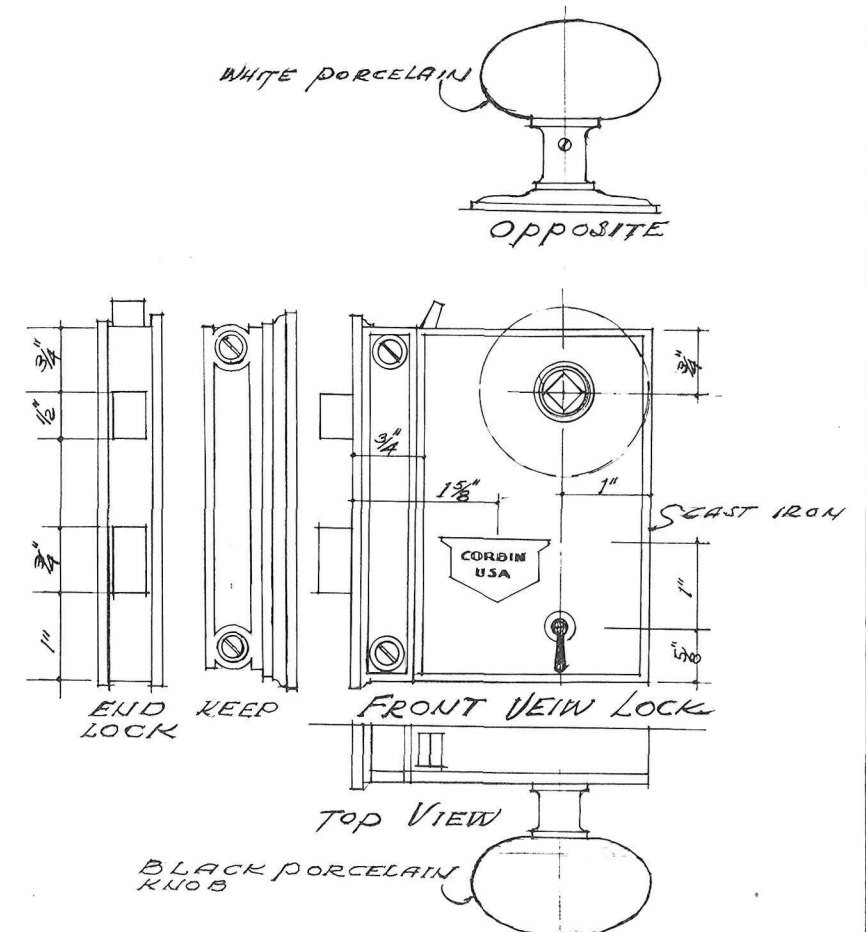
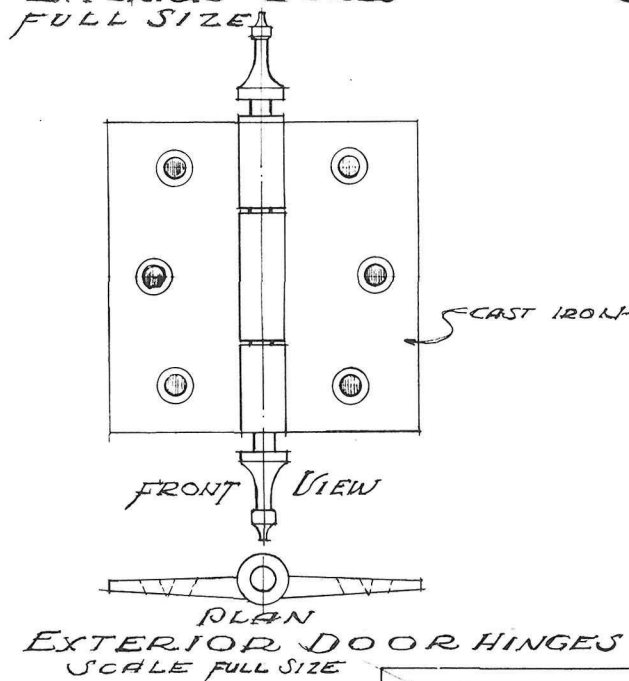
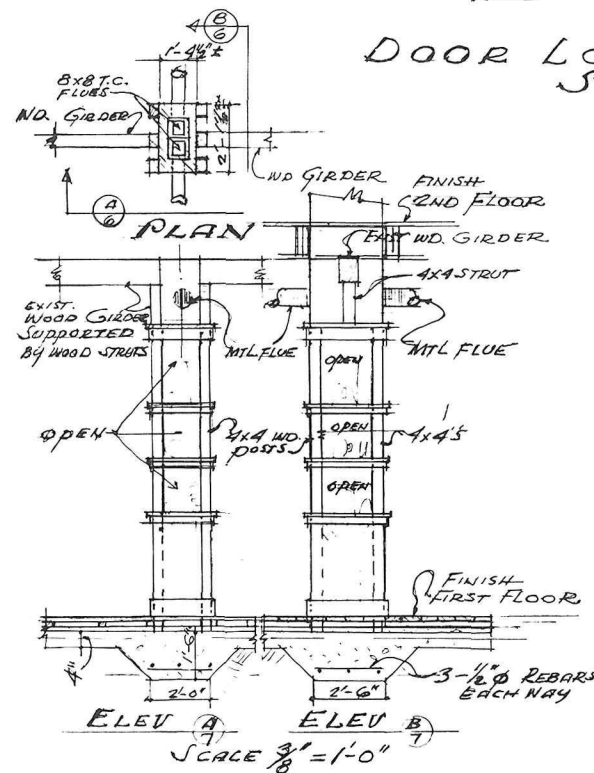
Window and door details, 1874
cavalry barracks, as constructed
by U.S. Army.

Sheet 7 of 7.

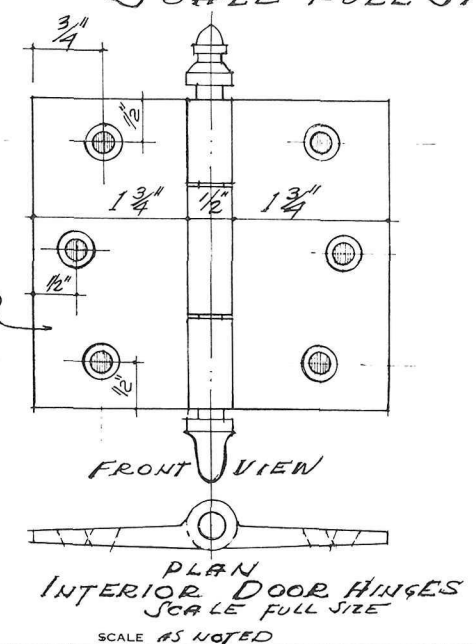
Army hardware and miscellaneous
details.



DOOR LOCKS EXTERIOR DOORS
SCALE FULL SIZE



DOOR LOCKS INTERIOR DOORS
SCALE FULL SIZE



NEW CHIMNEY IN MESSEHALL
SOUTH BARRACKS (TO BE RESTORED)
• ARMY HARDWARE AND MISCELLANEOUS DETAILS •

BASIC DATA

RECOMMENDED	DATE	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE HISTORIC PRESERVATION TEAM DENVER SERVICE CENTER HISTORIC STRUCTURES REPORT MILITARY COMPLEX FORT LARAMIE NATIONAL HISTORIC SITE	REGION ROCKY MOUNTAIN PCP NO. SHEET 7 OF 7 DRAWING NO. 375 DATE 28.000
CONCURRED	DATE		
APPROVED	DATE		

