

historic structure report
architectural data section
building hb-21

december 1981

FORT DAVIS



NATIONAL HISTORIC SITE/TEXAS

HISTORIC STRUCTURE REPORT
ARCHITECTURAL DATA SECTION
BUILDING HB-21
INTERIOR RESTORATION OF 1ST SERGEANT'S QUARTERS ROOM
AND NORTH SQUAD ROOM
FORT DAVIS NATIONAL HISTORIC SITE
FORT DAVIS, TEXAS

Prepared by
Frank S. Gerner

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DENVER SERVICE CENTER

CONTENTS

ADMINISTRATIVE DATA

ARCHITECTURAL DATA

- General Description
- Interior Conditions
 - 1st Sergeant's Quarters Room
 - North Squad Room

PROPOSED INTERIOR RESTORATION

PROPOSED FUTURE RESTORATION

- Alternatives To Future Recommendations
- Summary of Effect
- Recommendations for Further Study

APPENDIXES

- A: Cost Estimate
- B: Paint Analysis
- C: Ceiling Construction

BIBLIOGRAPHY

ILLUSTRATIONS

1. Top section of east wall, north squad room
2. Interior of east wall, north squad room
3. Interior west wall, north squad room
4. Interior south wall, north squad room
5. Upper portion of west wall window, north squad room
6. Lower portion of west wall window, north squad room
- 7,8. Two views looking up at existing vents, north squad room
9. Stone foundation with adobe wall, north squad room
10. Fireplace
11. Inside door lock, north and south squad rooms
12. Outside appearance of same lock
13. Door lock found at HB-26
14. Door hinges in south wall doors facing inward

ADMINISTRATIVE DATA

HB-21, the enlisted men's barracks building, at Fort Davis, Texas, was significant during the periods of the Indian campaigns (1869-91). The National Park Service has classified this structure as being of the first order of significance.

It is proposed that the interiors of the 1st sergeant's quarters room (orderly room) and the north squad room of HB-21 be restored to the 1880s period. These interiors will be restored in conformance with the "Interpretive Prospectus" approved in 1963 and revised in 1967 by superintendent Franklin G. Smith and historian Benjamin Levy. The National Park Service will manage the restoration in accordance with the 1967 document.

The National Park Service restored the exterior of HB-21, except the mess hall wing, between 1965 and 1968. The stone foundations of the mess hall were excavated and exposed during this restoration. The interiors of the south squad room, storeroom, bath and wash room, barber shop, and tailor shop have not been restored. For the present, these rooms will be used for NPS purposes as determined by park personnel.

ARCHITECTURAL DATA

HB-21 was erected at Fort Davis, Texas, during the Indian campaigns and is a superior example of the type of structure used in the Southwest. It was built largely of native materials (adobe, wood, and stone). The walls were constructed of 2-foot-thick adobe, and the roof and protective porches were made of wood. Both the walls and columns were supported on red volcanic tuff stone foundations.

This building functioned as quarters for soldiers from 1869 to 1891. It served well as a barracks, especially when modifications were made (wood floors, bathing facilities, stoves, and ventilators).

The troops stationed at Fort Davis protected the Southwest frontier from the depredations of Apaches and Comanches, cattle rustlers, and highwaymen. Troops also kept the lines of communication from San Antonio to El Paso open for travelers, mail, and commerce. The San Antonio to El Paso route served as a major road taken by those who headed for New Mexico, Arizona, and California. When the Texas frontier stabilized, the need for protection decreased. In June 1891, the army withdrew from Fort Davis.

After the army abandoned Fort Davis, it was returned to the civilian owner who then occupied HB-21. The building had lost its kitchen, or mess hall wing, by 1924. The two squad rooms were still intact in 1940. Because this building was occupied, it was spared much of the vandalism and destruction that empty buildings receive.

The property was sold to the National Park Service on December 28, 1962, by the heirs of D.A. Simmons. At this time, HB-21 was in an advanced state of deterioration. From 1965 to 1968, it was restored on the exterior with a new roof, chimneys, porches, and adobe wall veneer. The mess hall wing foundations were excavated but not restored. Because of the role this building played in the history of Fort Davis, the 1st sergeant's quarters room and the north squad room are worthy of interior restoration in order to depict the life of the soldier, in particular the black soldier, at home in his barracks.

GENERAL DESCRIPTION

The need to protect the Southwest frontier led to the establishment of Fort Davis in 1854. However, the fort was abandoned at the onset of the Civil War in 1861. After that war, attention again returned to the Texas frontier and the need to protect travelers who were exposed to hostile Comanche and Apache raiders on the road from El Paso to San Antonio. As a result, Lt. Col. Wesley Merritt was ordered to reoccupy Fort Davis. When he arrived in 1867, Merritt found the original buildings unfit for occupancy. Rather than repair these structures, he decided to construct a new post below and east of the old site. Soon, 200 civilians (carpenters, masons, and laborers) arrived to construct the new post,

but in 1869, with half the post completed, their work was ordered to cease; work resumed later and continued sporadically until 1885, when Fort Davis assumed its present form.

HB-21 was one of the buildings built between 1867 and 1869. Although the barracks had only a dirt floor, this building was designed for a company of men and contained two squad rooms, each measuring 23 feet by 83 feet and having 12-foot ceilings. A mess hall was located at a right angle to the connecting corridor that separated the two squad rooms (see drawing, sheet 2). The mess hall contained a dining room, kitchen, cook's room, and storage area. The total size of this wing was 23 feet by 80 feet.

A barber shop and storeroom formed part of the north squad room complex. In the 1880s, a washroom and bathroom were added to this wing. Later a 1st sergeant's quarters room was fashioned at the north end of the north squad room, and a tailor shop and storage area were located in the south squad room complex.

All the walls in the squad rooms were made of adobe on stone foundations. Trussed rafters at 2 feet on center supported the roof. Ventilators were installed to air the squad rooms in the 1880s (army medic orders). The dirt floors were replaced by wood floors between 1873 and 1875.

Entrance to each squad room was through a door in the north and south walls. The doors had four panels and were 3 feet 4 inches by 8 feet. A transom above the doors measured 3 feet 4 inches by 1 foot 6 inches.

Three large double-hung windows were placed in the west wall. Each had 12 panes of glass and measured 3 feet 4 inches by 7 feet 8 inches. The lower sashes rose upward while the top sashes were stationary. Two windows were in the east wall with the fireplace centered between them. All squad room windows were the same size.

Canvas, fastened to the trussed rafters, covered the ceiling and turned upward into the ventilating shafts. The adobe walls on the interior of the squad rooms were plastered with a lime plaster. A hook strip, measuring 1 inch by 6 inches, encircled the squad room about 7 feet above the floor. In addition, a baseboard of the same dimension was fixed to those walls.

The 1st sergeant's quarters room was fashioned in the north squad room by installing a 12-inch adobe wall with a smaller door in the center that was 3 feet by 7 feet. Two windows on each side of the north entrance door were cut for light. These windows were the same size and type as those in the squad room. The 1st sergeant's quarters room removed 12 feet 6 inches plus the wall thickness from the length of the north squad room.

After the army abandoned Fort Davis, it slowly began to deteriorate. Without civilian occupation, it would have decayed at a more rapid pace. By the time the National Park Service acquired Fort Davis, HB-21 was in a ruined condition. Only the walls and fireplaces of the squad rooms and

their storerooms, barber shop, and tailor shop were standing; however, even these rooms were in poor condition. The roofs and porches were gone, with just a few rafters sagging halfway down the walls. Only the bath and washroom wing, added in the 1880s, had its roof intact. The mess hall wing was a mound of earth, and all doors and sashes (except for the bath and washroom) were gone.

Restoration on the exterior of the building began in 1965, and by 1968 the present exterior work was completed. The exterior walls were veneered with 4 inches of stabilized cement adobe. New windows and doors with their exterior frames and sashes were installed. A new roof was constructed over a surrounding concrete bond beam on the adobe walls together with the new surrounding porches. Ventilators in the roof were reconstructed. The mess hall wing was excavated and revealed excellent stone foundations. Currently, the exterior is in good condition and will not require any additional work except normal maintenance.

INTERIOR CONDITIONS

1st Sergeant's Quarters Room

The north, east, and west walls of the 1st sergeant's quarters room are eroded (see drawing, sheets 3, 4, and 5). Three horizontal rows of 4-inch adobe blocks form a supporting base for the concrete bond beam that extends approximately 4 inches from the face of the eroded interior walls. The south wall is badly eroded at the door opening, especially at the head.

There is a dirt floor below the top of the stone foundation that at one time held plates which received the floor joists.

There is an open ceiling of trussed rafters at 2 feet on center, which was part of the 1965-68 roof restoration.

Plumbing never existed in the 1st sergeant's quarters room.

There are no interior window splays, heads, sills, or trim now because these items were omitted in the 1965-68 restoration. However, these items will be installed for two windows on the north wall when interior restoration occurs.

The opening in the north wall has an exterior frame, and a door was installed in the 1965-68 restoration, but it has no interior trim. The south wall opening has no door, trim, or frame now. These items will be installed when interior restoration occurs.

At present, there are no baseboards or hook strips in the 1st sergeant's quarters room. Occasional marks show where they were located on the walls.

North Squad Room

The north wall between the 1st sergeant's quarters room and the north squad room has pockmarks on the side facing the squad room.

There is a concrete bond beam at the top of the east adobe wall about 6 inches in depth with two rebars supported by three horizontal rows of adobe blocks (see illustration 1). The bond beam extends 4 inches or more from the eroded interior adobe wall. The two openings found here are windows. The north window has been blocked up to 12 inches thick with adobe. A badly eroded fireplace is located near the center of the wall. There is a dirt floor, no interior trim, and an open ceiling (see illustration 2).

The same type of bond beam, placed in the same manner as exists on the east wall, is also located on the west wall. Three windows are on the west wall. This wall shows erosion with pockmarks, bits of plaster, and marks showing the location of the former hook strip and baseboard (see illustration 3).

The south wall also has a bond beam that is supported by three horizontal rows of adobe block flush with the bond beam. A door in the center of the wall opens to the exterior cross corridor (see illustration 4). The wall has erosion, pockmarks, and vestiges of plaster. It too shows hook strip and baseboard marks.

Only a dirt floor currently remains in the north squad room, but vents in the stone foundation show that wood floors once existed.

All windows were installed during 1965-68 with sashes, exterior jambs, heads, and sills. No interior splays, jambs, heads, sill, or trim were installed at that time (see illustrations 5 and 6).

Two doors with transoms and four panels were installed. These measure 3 feet 6 inches by 8 feet (see drawing, sheet 4). The doors have exterior heads, jambs, and sills. The transoms are fixed and measure 3 feet 4 inches by 1 foot 6 inches. Interior trim is lacking on both the doors and transoms; however, trim will be installed when future interior restoration occurs.

The ceiling of the north squad room is bare, except for the 2-foot-on-center trussed rafters, which were installed during the 1965-68 restoration.

Ventilators were installed through the roof rafters to the roof during the 1965-68 exterior restoration (see illustrations 7 and 8).

There is no lighting system at present. Candles and oil lamps provided the original means to light the barracks.

Plumbing never existed in the north squad room.

The walls show a "Mexican" red or pink paint. Conjecturally, civilians used this color after they obtained Fort Davis. The window sashes and

doors are now an off-white color on both the exterior and interior. On May 13, 1978, Doug Ashely, historical architect, Denver Service Center, collected eight paint samples from the barracks. These samples were analyzed on May 31, 1978, by David Arbogast, historical architect, Denver Service Center (see appendix B). The results are as follows:

SAMPLE 1 - The first sample was removed from the south end of the east wall in the north squad room (room 103). Its top layer was a pinkish tan, similar to Munsell 5 YR 6/5. Beneath it were at least twelve layers of whitewash to the adobe surface. Except for two middle layers that were off-white (Munsell 10 YR 9/2), the whitewash was white (Munsell N 9.5/). The historical finish of the walls of the room was probably whitewash matching Munsell N 9.5/.

SAMPLE 2 - This sample was removed from the east wall of the 1st sergeant's quarters (room 104). It contained four layers of whitewash (Munsell N 9.5/) above the adobe wall surface. Although it is quite possible that this sample is incomplete in its layering, it is evident that the earliest historical finish for the walls of room 104 was whitewash matching Munsell N 9.5/.

SAMPLE 3 - The sample was taken from the west wall of the barber shop (room 105). Like sample 1, its top layer was pinkish tan matching Munsell 5 YR 6/5. Between this layer and the adobe surface, there are at least five layers of whitewash matching Munsell N 9.5/2. This whitewash was probably the historical finish for the walls of this room.

SAMPLE 4 - Sample 4 was removed from the west end of the south wall in the south bathroom (room 109). Its top layer was an off-white (Munsell N 9.5/), representing the probable historical finish of the walls.

SAMPLE 5 - This sample came from the west foundation of the storeroom (room 106). Its top layer was similar to that found on samples 1 and 3 (Munsell 5 YR 6/5). Beneath it could be seen at least twenty-four layers of whitewash (Munsell N 9.5/), which appears to have been the historical finish of the foundations of the room.

SAMPLE 6 - Sample 6 was taken from the west wall of the storeroom (room 106). Above the white-skimmed coat of lime plaster covering the adobe wall surface could be seen only one layer of whitewash (Munsell N 9.5/), which was probably the historical finish of the walls.

SAMPLE 7 - This sample was removed from the north wall of the washroom (room 107). Its top surface is formed by a thick off-white (Munsell 10 YR 8/2) layer similar to that seen in sample 4. Between this layer and the adobe wall surface could be seen at least eighteen layers of whitewash (Munsell N 9.5/), which is probably the historical finish of the walls.

SAMPLE 8 - The final sample was obtained from the ceiling of the washroom (room 107). The sample was found in the joints of the historic wood ceiling of the room and, as such, presented difficulties in analysis. Its top layer was an aqua blue whitewash (Munsell 7.5 BG 7/2) below which was an indeterminate number of layers of whitewash (Munsell N 9.5/) that tentatively can be considered the historical finish of the ceiling.

The existing hard red stone foundations are 2 feet 6 inches wide and are in excellent shape (see illustration 9). Some repair on the inside could be made in a few places where a top stone is missing.



Illustration 1. Top section of east wall, north squad room

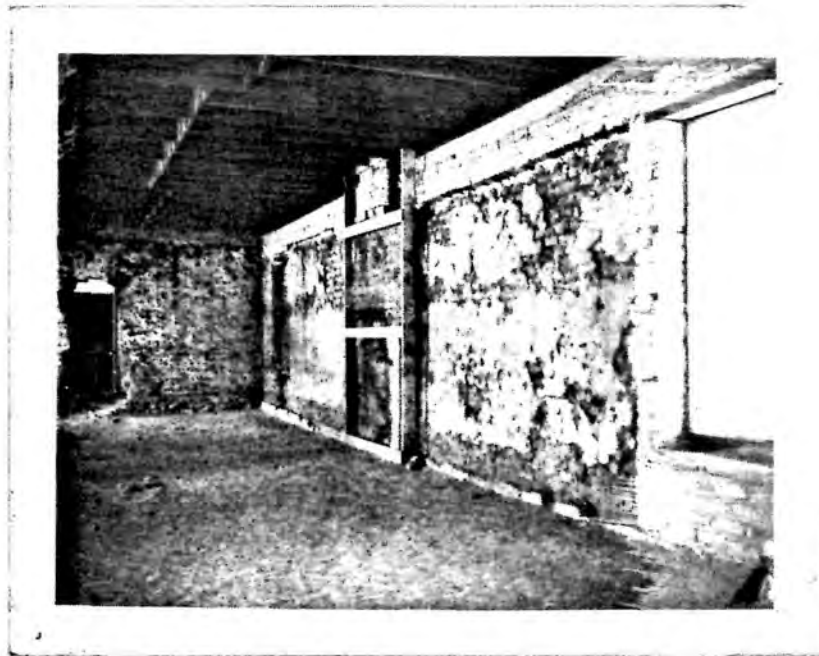


Illustration 2. Interior of east wall, north squad room



Illustration 3. Interior west wall, north squad room



Illustration 4. Interior south wall, north squad room

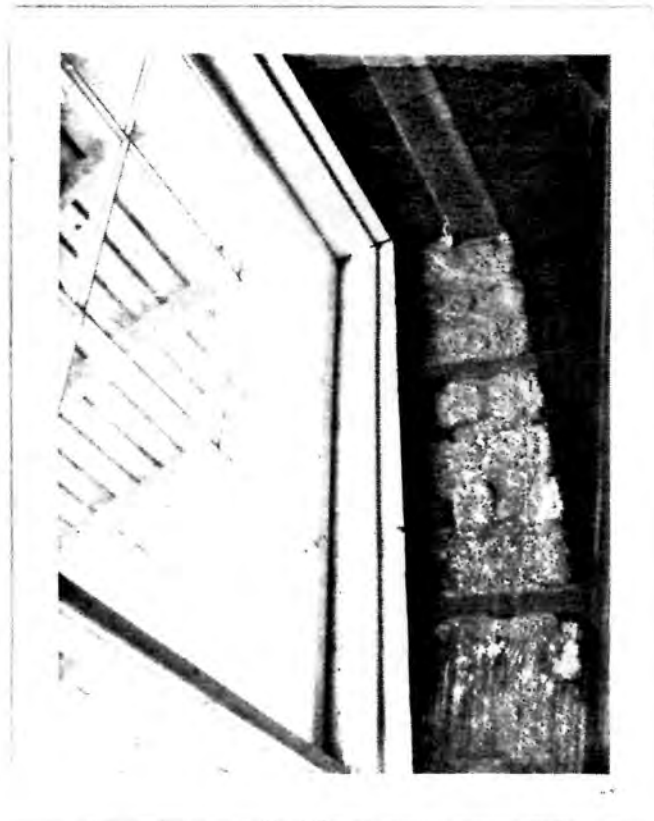
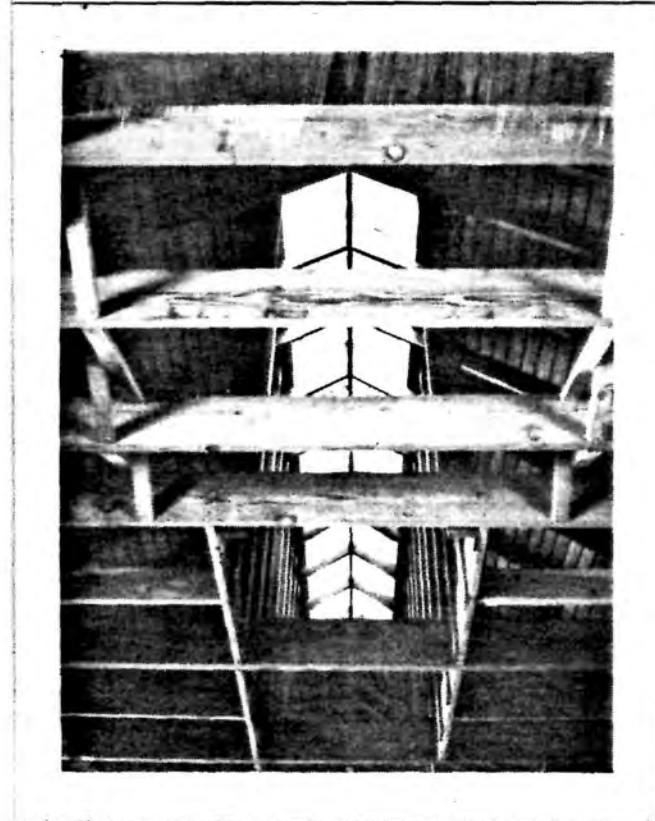
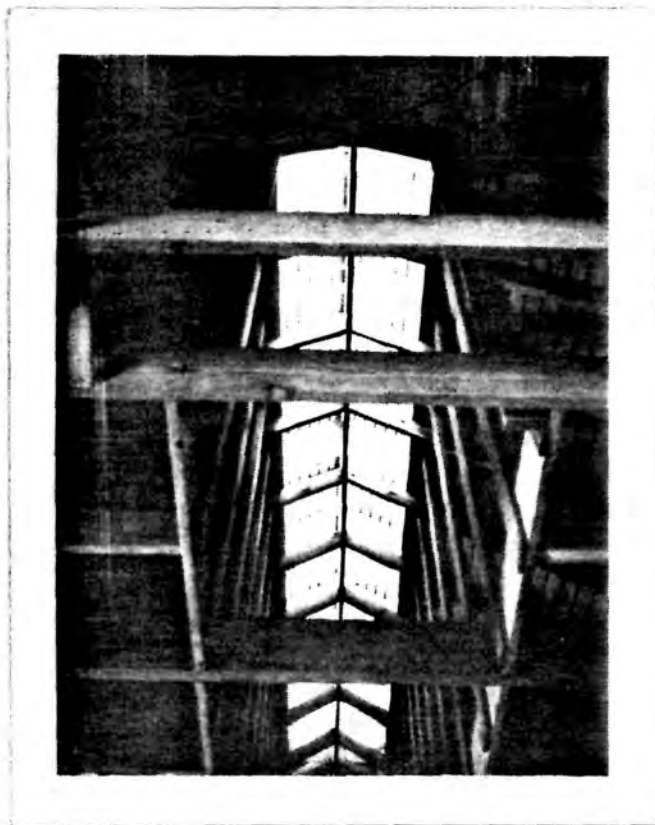


Illustration 5. Upper portion of west wall window, north squad room



Illustration 6. Lower portion of west wall window, north squad room



Illustrations 7, 8. Two views looking up at existing vents, north squad room



Illustration 9. Stone foundation with adobe wall, north squad room

PROPOSED INTERIOR RESTORATION

The interior of the 1st sergeant's quarters room and the north squad room will be restored to the 1880s period. The wood floors were installed by that time.

All interior walls except the wall between the 1st sergeant's quarters room and the north squad room will have a 4-inch adobe veneer of the same materials as the existing historical adobe walls. The veneer will be made to bond and tie into the existing adobe. Voids between the veneer and the wall will be filled with adobe mortar. Metal masonry clips and 16-penny galvanized nails will be used to help provide bond. Some of the veneer will extend at intervals deeply into the adobe wall to increase bonding.

The 4-inch adobe veneer is in this particular case justifiable. The veneer will work flush with the existing bond beam above, which is permanent and necessary to the structure's stability, and it will also be flush with the top of the stone foundation below. If the present wall were to be repaired only on the interior, it would be 4 inches back of the 12-inch-thick bond beam that cannot be removed and this would be a horrible situation--the three rows of adobe blocks at just below the bond beam are flush with the bond beam. Below the third horizontal row, the existing wall is 4 inches back down to the stone foundations (see illustrations 3 and 4).

The wall between the north squad room and 1st sergeant's quarters room will be repaired with adobe and adobe mortar. A new wood lintel will be installed over the existing doorway and adobe filled in above the lintel, filling the gap that exists at the head of the opening. The sides of the opening will be repaired and wood nailers installed to hold the jambs for the new door in this wall.

Lime plaster similar to the historic plaster will be used with a reinforced mesh fastened securely to the adobe veneer with clips set in joints or wood bricks. The plaster will be hand troweled and finished with wood floats. No screeding or rodding will be permitted. All walls except the wall between the north squad room and the 1st sergeant's quarters room will be plastered. The one unplastered wall will be whitewashed after the wall is repaired, and the door frame and trim will be installed.

See appendix C for a discussion of the ceilings.

A new concrete slab, 4 inches thick, reinforced with 6 by 6 and 10 by 10 mesh will be poured over a 4-inch gravel bed. The slab will be on top of 2 inches of sand over which a vapor barrier will be placed. On top of the concrete slab will be two 3½-inch by 6-inch concrete sleepers above which wood sleepers at 16 inches on center will be placed and fastened at 24-inch centers. All sleepers will be pressure treated with pentachlorophenol preservative. Nailed to the wood sleepers will be a floor 1 inch by random width of clear Douglas fir, or southern yellow pine, edge grain.

In the 1880s, wood floors replaced the earlier dirt floors. However, the wood floors were too close to the earth and had insufficient ventilation so they eventually rotted away. The finished floor line is very close to the earth, and if entirely constructed of wood (joists, sills, etc.), it would receive insufficient ventilation and would deteriorate rapidly again. Using a 4-inch concrete reinforced slab protected on the underside with a plastic membrane on a 2-inch sand cushion overfill will prevent moisture from coming up through the slab. The spaced concrete sleepers under the wood sleepers will provide ventilation and preserve the wood floor constructed over the wood sleepers.

All of the windows were installed with sashes and exterior frames (heads, jambs, and sills) in the 1965-68 NPS restoration period. Nailing strips were set in the adobe walls and spaced for the interior splays that were not installed. New work will consist of interior splays, heads, sills, and top, side, and bottom trim for all four windows in the north squad room and the two windows in the 1st sergeant's quarters room (see drawing, sheets 3, 4, and 5). A new window frame, trim, sash, and shutters will be installed at the filled-in window of the north squad room facing storeroom 106.

During the 1965-68 restoration, exterior frames (heads, jambs, and thresholds) and transom sashes, heads, and jambs were installed on the entrance door from the north corridor into the 1st sergeant's quarters and the entrance door from the cross corridor into the north squad room (see drawing, sheets 3, 4, and 5).

The interior cover trim on the top, sides, and transom bar were not installed and will have to be done after the walls are veneered. The trim will be set prior to plastering. New head jambs and doors will be installed at the entrance from the 1st sergeant's quarters room into the north squad room, which currently has only an eroded opening (see drawing, sheet 5). This door will have no transom. The work on this opening will be done after the wall has been repaired, the lintel installed, and the wood nailers set in the sides for fastening the door frame.

The fireplace has been reconstructed only on the exterior (see drawing, sheet 4). A concrete bond beam supports the brick work above the roof. Below this bond beam on the interior, the fireplace has been left in a deteriorated condition (see illustration 10). The external wall is somewhat stabilized by a veneer of soil cement fastened to the existing adobe wall. The part of this exterior wall facing the interior fireplace will need considerable repairs. The front wall, fireplace opening, sides, and hearth will have to be reconstructed. New stone work to match existing adobe, steel damper, and two stove floor thimbles (7 inches in diameter) will be installed as shown by historic drawings. It will be difficult to do this work because the existing area above the concrete bond beam, as well as the bond beam itself, will have to be shored, or supported, while the area beneath is removed and reconstructed.

Two brick hearths will be constructed in the north squad room as a platform for the stoves and as a place to store the fuel (see drawing, sheet 3). They will be approximately 2 feet 8 inches by 6 feet 8 inches in size. The brick will be on edge and have mortar joints.

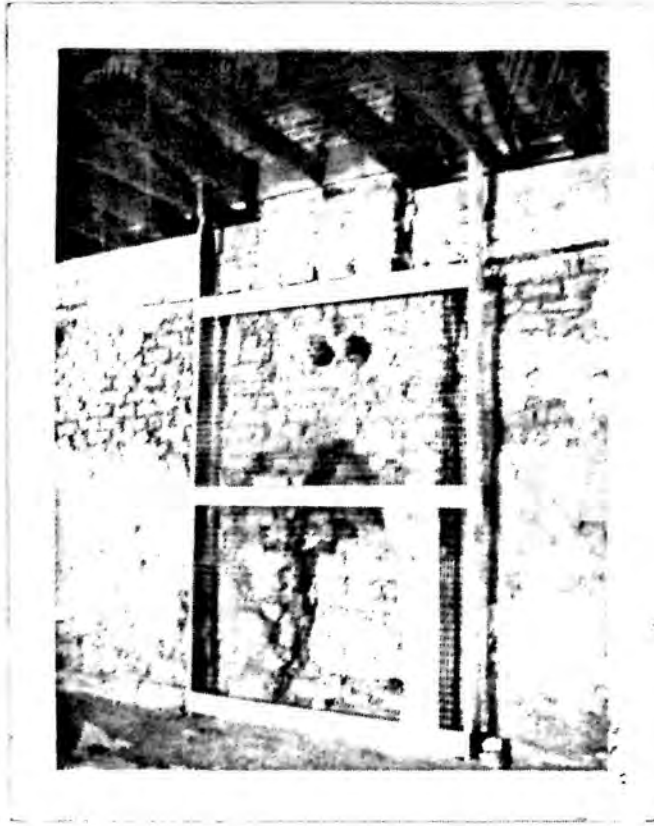


Illustration 10. Fireplace

New baseboards (1 inch by 6 inches) will be installed around the perimeter of the north squad room and 1st sergeant's quarters room. A hook strip will be installed on all walls in the north squad room, but only on the east and west walls of the 1st sergeant's quarters room. A new window with all trim splays and a sill will be installed at the boarded-up window in the east wall of the north squad room (see drawing, sheet 3). A ceiling moulding will be installed in both rooms at the junction of the canvas ceiling and plaster walls.

From 1963 to 1964, Lewis Koue, Thomas Crellin, and Peter Kay, historical architects employed by the Western Office of Design and Construction, San Francisco, made a number of trips to Fort Davis. At that time, they measured HB-20 and HB-21, as well as other buildings. HB-20 was more intact than HB-21 because it had doors, windows, interior trim, cornices, roof, and ventilators. All these items were measured and the measurements applied to HB-21, which was exactly like HB-20 except for a washroom and bathroom addition. When HB-20 was adaptively restored, all windows, doors, cornices, trim, and details were removed and stored by Pablo Bencomo, chief of maintenance, Fort Davis National Historic Site. HB-20 subsequently became the visitor center, and HB-21 was restored on the exterior.

Frank S. Gerner, historical architect, Denver Service Center, came to Fort Davis in 1974 and saw the new windows, doors, trim, ventilators, and cornices. He compared these new items with the old worn and removed ones. Lewis Koue had done an excellent job in HB-20 in that windows, doors, and details followed faithfully the original. The same comparison was done for the interior trim for doors, windows, baseboards, and hook strips for HB-21, and modifications were made only to suit existing conditions.

The fireplace measured in HB-20 by Lewis Koue gave an idea of what the more disintegrated fireplace in HB-21 was like and made it possible to put in the missing parts in the proposed restoration.

Based on the previously discussed paint analysis, it can be assumed with relative certainty that the historic foundation, wall, and ceiling finish used in the building was whitewash matching Munsell N 9.5/, and this whitewash will be used in the proposed restoration.

The woodwork (windows, doors, baseboards, and hook strips) will be painted with an oil paint. The color of the woodwork, based on the investigation of HB-20, will be reddish brown matching Munsell 10 R/4/8. Floors will be oiled and left to darken.

The exterior doors historically had ordinance 4 Mortise locks; the interior doors had ordinance rim locks (see illustrations 11 and 12). These locks were made of cast iron, but substituted steel facsimiles would be acceptable. These locks were often lacquered black as seen in HB-26 (see illustration 13). The porcelain knobs could be either white or black. The original hinges were made of cast iron with three screw holes in each leaf. The hinges measured 2 inches by 3 $\frac{1}{4}$ inches, with a tapered thickness (see illustration 14).

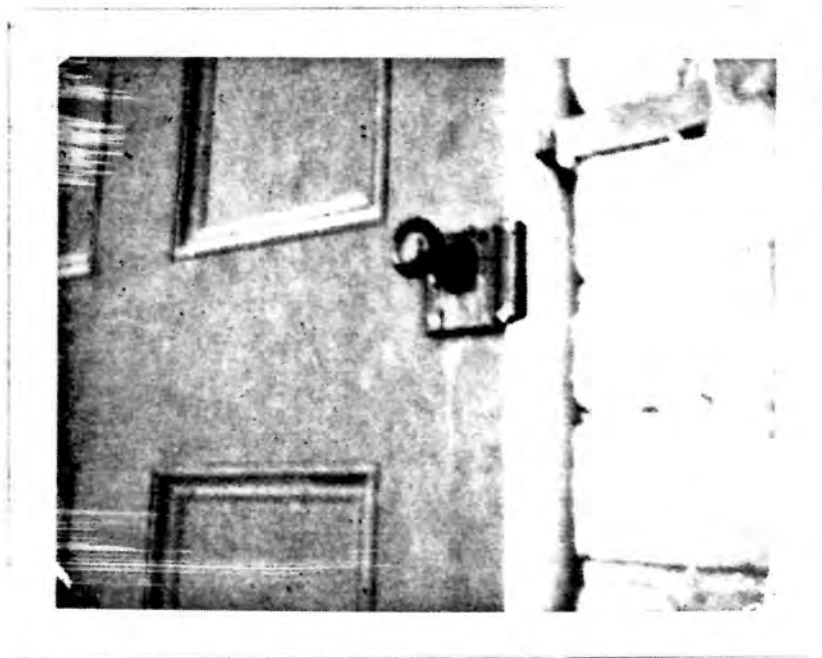


Illustration 11. Inside door lock, north and south squad rooms

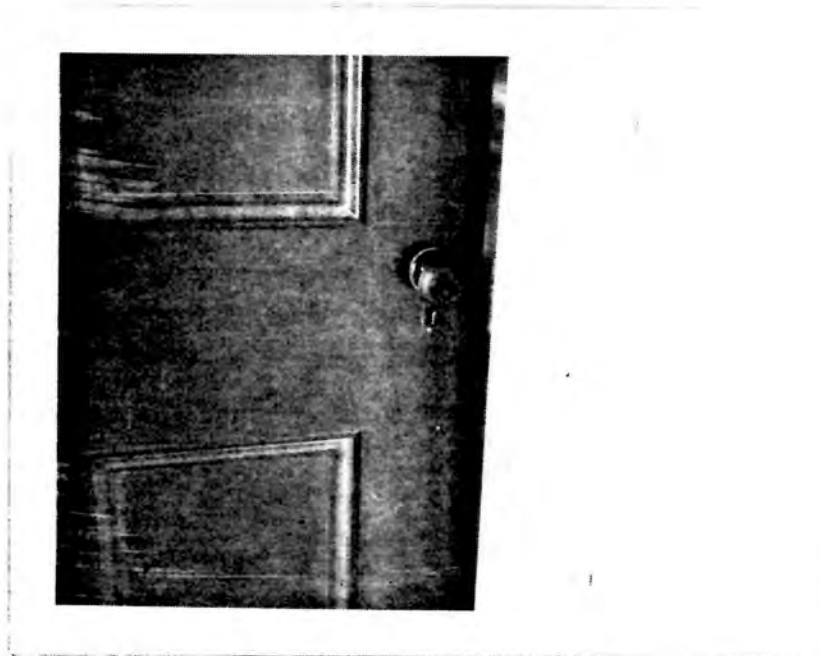


Illustration 12. Outside appearance of same lock

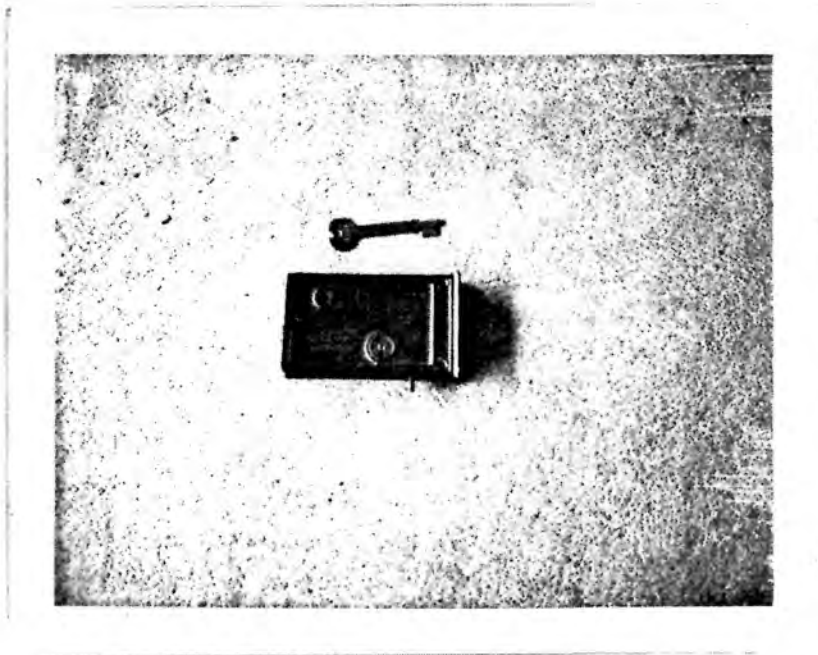


Illustration 13. Door lock found at HB-26

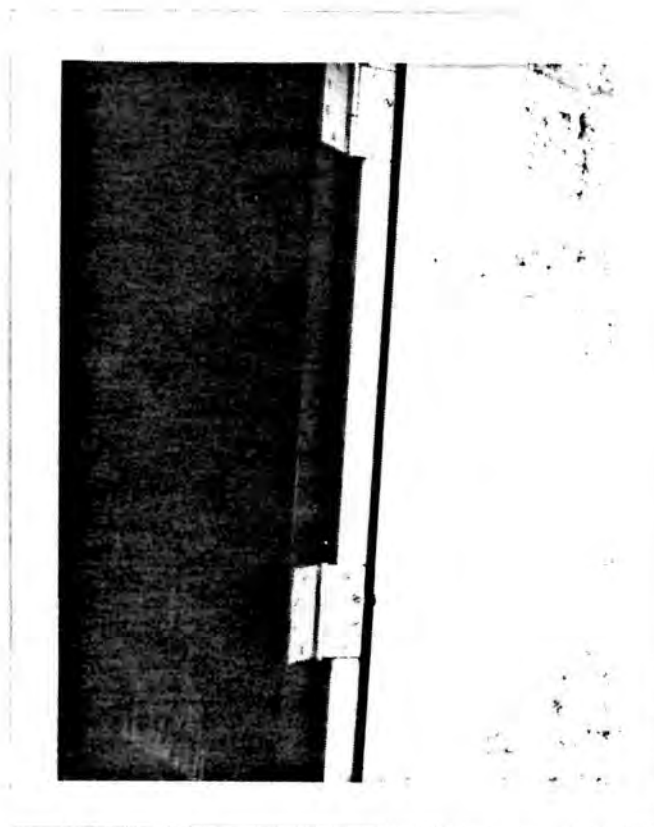


Illustration 14. Door hinges in south wall doors facing inward

The two interior doors are provided with rim locks and hinges. The new door to the 1st sergeant's quarters room from the north squad room will have a similar type of rim lock, but 1½ pair of hinges will be sufficient for this door. The high exterior doors usually had two pair of hinges.

Heating (50°F) will be by electric heating strips placed on the baseboards.

Electric outlets concealed in the baseboards or floors will be provided for housekeeping and any other needs (special night lighting or lighting displays) the furnishing plan might require.

The fire detection system and the intrusion detection system will be extensions of the systems now in operation.

An NPS specialist will check out the present lightning protection system and will make recommendations for the entire Fort Davis site.

Ventilators were observed leaking onto the floor. The cause of this situation is either faulty flashing or rain passing through the louvers. This problem will have to be checked with great care, and a solution found to prevent leaking or condensation.

PROPOSED FUTURE RESTORATION

The barber shop, storeroom, washroom, and bathroom should be part of the proposed future restoration in order to complete the north squad room complex. These rooms should be restored on the interior and be furnished, with the possible exception of furnishings for the wash and bath rooms.

In the future, when additional money becomes available, it would be desirable to rebuild and furnish the mess hall wing complex of HB-21 to show the dining room, kitchen, cook's room, and storage room. Restoration and furnishing would enhance the story of all the soldiers at Fort Davis by providing a glimpse of the manner in which food was stored, prepared, served, and consumed. Since the soldiers spent their morning, noon, and evening in the mess hall, these breaks from the daily routine probably were a pleasant phase of their army life. This wing, if restored, would give a complete setup of the barracks. No soldier could survive without a mess hall in or near his barracks while on duty at the post!

The south squad room is a problem. It is unlikely that money should be spent to furnish two squad rooms, but the south squad room should have a floor, window, door, trim, and wall plaster. The National Park Service will determine the best use of this squad room. Perhaps, an exhibit showing mounted calvary models of officers and men, flags, cannons, saddles, and other artifacts that may be donated in the future could be shown in the south squad room. The storeroom could be a work room, and the tailor shop used for an exhibit. Cooperation with the superintendent and park historian of Fort Davis would be needed to determine the best use of this complex. It would be ideal for visitors to be able to walk through the south squad room and view exhibits while enroute to the north squad room.

ALTERNATIVES TO FUTURE RECOMMENDATIONS

Alternatives to future recommendations are as follows:

The interior of the storeroom behind the east wall of the north squad room might not be restored; however, the interior of the storeroom behind the east wall of the south squad room could be restored.

The interior of the south squad room, floors, walls, fireplace, and interior trim could be restored and used for NPS purposes.

The mess hall wing might not be restored, and the existing foundations could be left as they are.

The interior of the washroom and the two bathrooms could be restored but not finished; these rooms could be used for NPS purposes.

The interiors of the barber shop and tailor shop could be restored.

If these interior restorations are carried out, they should match the extent of work performed during the 1965-68 exterior restoration. This would be the most economical solution and would complete the existing work on the inside without adding anything to the exterior.

It should be mentioned here that the storeroom (room 110) behind the east wall of the south squad room (room 101) has never been restored on the exterior. If it is desirable to complete the authenticity of this exterior restoration, this room should be considered for restoration in the future.

SUMMARY OF EFFECT

In accordance with section 106 of the National Historic Preservation Act of 1966 and pursuant to the Advisory Council regulations for the protection and enhancement of the cultural environment, the National Park Service has applied the criteria for effect and adverse effect.

The effect of interior restoration for HB-21 will not be adverse to the existing resource's integrity. The proposed interior restoration of two rooms will not diminish the remaining historic fabric and, in fact, will be a continuation of earlier restoration efforts. The projected work of reproducing and installing missing interior components will enhance the resource and contribute to its preservation. This proposed partial restoration will not preclude preservation efforts that may be determined appropriate in the future.

RECOMMENDATIONS FOR FURTHER STUDY

It is recommended that further study of the mess hall wing complex be done. A further study of the bathing facilities, bathrooms (108 and 109), and washroom (107) is needed even if these facilities are not installed. The barber shop (105), storeroom (106), and tailor shop (102) could be included. Storeroom 110 should be considered for restoration. All these studies could be combined in one historic structure report and historic furnishing study report.

APPENDIXES

A: Cost Estimate

B: Paint Analysis

C: Ceiling Construction

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

PACKAGE ESTIMATING DETAIL

REGION Southwest	PARK Fort Davis National Historic Site
PACKAGE NUMBER 103	PACKAGE TITLE Interior Restoration of the 1st sergeant's quarters and the North Squad Room (HB-21).

(If more space is needed, use plain paper and attach)

ITEM	QUANTITY	COST
1. Adobe veneer	LS	34,666
2. Chimney and fireplace construction of the interior.	LS	4,710
3. Earth fill, sand cushion Visqueen, concrete slab, and concrete sleeper	LS	24,790
4. Millwork, carpentry	LS	17,653
5. Lath and Plaster	LS	12,050
6. Wood floors	LS	15,669
7. Painting	LS	7,706
8. Electric outlets	LS	3,140
9. Fire and intrusion detection systems	LS	7,850
10. Force acct	LS	7,850
Total		136,084
Project planning at 15% (plans and specifications)		20,412
Contract supervision at 15%		20,412
		176,908

SUMMARY OF CONSTRUCTION ESTIMATES		CLASS OF ESTIMATE		
		A <input type="checkbox"/> Working Drawings	B <input checked="" type="checkbox"/> Preliminary Plans	C <input checked="" type="checkbox"/> Similar Facilities
Proj. Type		Totals from Above		
		B & U	R & T	
52	Museum Exhibits		XXXXX	
55	Wayside Exhibits		XXXXX	
62	Audio-Visual		XXXXX	
89	Ruins Stabilization		XXXXX	
91	Construction			
92	Utility Contracts		XXXXX	
ESTIMATES APPROVED (Signature)		(title)	(date)	

POST PROFESSIONAL SERVICES ESTIMATES AND SCHEDULING ON BACK OF FORM

APPENDIX B
PAINT ANALYSIS

PAINT ANALYSIS

Region: Southwest	Park: Fort Davis
Structure: BARRACKS	Structure #: 21
Sample #: 1	Location of Sample: E. Wall, Rm. 103 N. Squad Room, S. END
Date Taken: May 13, 1978	
By: Doug Ashley	
Date Examined: May 31, 1978	Substrate: PLASTER-ADOBE
By: D.H. Arbogast	Top Color: Tan

Historic Date	Layer Description (color, varnish dirt, etc.)	Munsell #	Characteristics
	Tan	5 YR. 6/5	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	10YR 9/2	
	Whitewash	10YR 9/2	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash (Skim Coat ?)	N 9.5/	
	Brown Plaster/Adobe	5YR 5/2	

Further Observation, Documentation, Comment or Sketches:

Probably whitewashed yearly during the historic period

Matched under north light

PAINT ANALYSIS

Region: Southwest

Park: Fort Davis

Structure: BARRACKS

Structure #: 21

Sample #: 2

Location of Sample: E. Wall, Room 104

Date Taken: May 13, 1978

First Sergeants Quarters

By: Doug Ashley

Date Examined: May 31, 1978

Substrate: PLASTER - ADOBE

By: D.H. Arbogast

Top Color: White N 9.5/

Historic Date	Layer Description (color, varnish dirt, etc.)	Munsell #	Characteristics
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Brown Plaster-Adobe	5YR 5/2	

Further Observation, Documentation, Comment or Sketches:

PAINT ANALYSIS

Region: Southwest

Park: Fort Davis

Structure: Barracks

Structure #: 21

Sample #: 3

Location of Sample: W. Wall, Room 105

Date Taken: May 13, 1978

Barber Shop

By: Doug Ashley

Date Examined: May 31, 1978

Substrate: Plaster - Adobe

By: D.H. Arbogast

Top Color: Tan

Historic Date	Layer Description (color, varnish dirt, etc.)	Munsell #	Characteristics
	Tan	5YR 6/5	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Plaster Skim Coat	N 9.5/	
	Plaster Brown Coat - Adobe	5YR 5/2	

Further Observation, Documentation, Comment or Sketches:

PAIN T ANALYSIS

Region: Southwest	Park: Fort Davis
Structure: Barracks	Structure #: 21
Sample #: 4	Location of Sample: W. End of S. Wall, Room 109, S. Bathroom
Date Taken: May 13, 1978	
By: Doug Ashley	Substrate: Plaster - Adobe
Date Examined: May 31, 1978	
By: D.H. Arbogast	Top Color: Off-White

Historic Date	Layer (color, varnish Description dirt, etc.)	Munsell #	Characteristics
	Off-White-plaster, thick, loose	10YR 8/2	crumbly
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Skim Coat - white	N 9.5/	
	Brown Plaster -Adobe	5 YR 5/2	

Further Observation, Documentation, Comment or Sketches:

PAINT ANALYSIS

Region: Southwest		Park: Fort Davis	
Structure: Barracks		Structure #: 21	
Sample #: 5		Location of Sample: W. Foundation,	
Date Taken: May 13, 1978		Room 106, Storeroom	
By: Doug Ashley			
Date Examined: May 31, 1978		Substrate: Stone	
By: D.H. Arbogast		Top Color: Tan	
Historic Date	Layer Description (color, varnish dirt, etc.)	Munsell #	Characteristics
	Tan	5YR 6/5	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	

Further Observation, Documentation, Comment or Sketches:

at least 24 layers of whitewash

PAINT ANALYSIS

Region: SOUTHWEST	Park: FORT DAVIS
Structure: BARRACKS	Structure #: 21
Sample #: 6	Location of Sample: W. Wall, Room 106, Storeroom
Date Taken: May 13, 1978	
By: Doug Ashley	
Date Examined: May 31, 1978	Substrate: Plaster-Adobe
By: D.H. Arbogast	Top Color: White

Historic Date	Layer (color, varnish Description dirt, etc.)	Munsell #	Characteristics
	white	N9.5/	
	White Skim Coat	N9.5/	Lime plaster
	Brown Plaster-Adobe	5YR 5/2	

Further Observation, Documentation, Comment or Sketches:

difficult sample-very small

PAINT ANALYSIS

Region: SOUTHWEST	Park: FORT DAVIS
Structure: Barracks	Structure #: 21
Sample #: 7	Location of Sample: N.Wall, Room 107, Washroom
Date Taken: May 13, 1978	
By: Doug Ashley	Substrate: Plaster-Adobe
Date Examined: May 31, 1978	
By: D.H. Arbogast	Top Color: Off-white

Historic Date	Layer (color, varnish Description dirt, etc.)	Munsell #	Characteristics
	off-white-like sample #4	10YR 8/2	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	Whitewash	N 9.5/	
	White-Skim Coat	N 9.5/	lime
	Brown Plaster-Adobe	5 YR 5/2	

Further Observation, Documentation, Comment or Sketches:

at least 18 whitewash layers

PAINT ANALYSIS

Region: SOUTHWEST

Park: FORT DAVIS

Structure: Barracks

Structure #: 21

Sample #: 8

Location of Sample: Ceiling, Room 107,

Date Taken: May 13, 1978

Washroom

By: Doug Ashley

Date Examined: May 31, 1978

Substrate: WOOD

By: D.H. Arbogast

Top Color: Blue Green

Historic Date	Layer Description (color, varnish dirt, etc.)	Munsell #	Characteristics
	Blue-Green	7.5BG 7/2	
	White Wash	N 9.5/	

Further Observation, Documentation, Comment or Sketches:

inderminate layers of whitewash

APPENDIX C CEILING CONSTRUCTION

With reference to a memorandum of July 14, 1978, from the Southwest regional director, Southwest Regional Office, this Historic Structure Report for HB-21 was reviewed and found acceptable with one exception. There was a question about the historical authenticity of the canvas ceiling.

In November 1979, the issue still was not resolved, and David L. Ates was assigned the task of reconciling the concern by examining available but limited documentary data. The summary of documentary data is as follows:

Available data includes inspection reports of 1889-90, which state that there was "no ceiling" and "the barracks are long, low buildings without ceilings, gradually going to decay." The 1890 floor plan states that there was "no ceiling in whole building."

During restoration work on the roof in 1963-64, a physical investigation of the original ceiling joists disclosed remnants of aged canvas.

A comprehensive analysis of available data has been conducted to try to synthesize the above documentary data. Without additional findings from documentary sources, one might conclude that the remnants of canvas found belong to a period of occupancy/usage after the selected historical period (1880-85). No archival comparative, or analytical data has been found to support such a contention--only the possibility. Nevertheless, the documentary historical data is marginal inasmuch as it is pertinent to the ceiling appearance after the selected historical period. In other words, the historical data has not been adequately proven as evidence associated with the 1880-85 period and, therefore, should not be used to decipher the historical appearance.

As a result of the analysis, however, the following remarks are offered as possible reasons why a canvas ceiling could have existed:

Historically, canvas applied as ceilings had the disadvantage of being a dust collector on the attic side. The dust tended to quickly discolor and rot the canvas when combined with condensation. Because the inspection report of 1889-90 states that "the barracks gradually going to decay," it is indicative that any possible canvas of 1880-85 may have rotted by the end of the decade.

Assistant surgeon Daniel Weisel's comments on the barracks (HB-20 and 21) in 1870: "in addition a large ventilator in the ceiling" (USDI, NPS 1962).

Climatic temperatures frequently dropped below freezing, which might have prompted the surgeon general or post commander to permit a ceiling of some kind for heat conservation.

Comparative data with other structures of the fort and prototypes of the region and period indicate that if any ceiling existed, the material was either wood, lath and plaster, or canvas.

Because of monetary difficulties incurred at the fort, canvas was the least expensive and the probable choice of the above materials.

The army probably had more canvas available for usage in the structure as than did later occupants.

HB-21 was probably used for other activities, such as a town dance hall, storage, or temporary shelter by the subsequent owner(s) or transients; newcomers were mainly interested in building their own adobes, which may have enticed them not to use canvas.

The size of the squad room provided enough space for several families. If one lived there, the space probably had to be sectionalized or covered with a complete ceiling in order to be practical. Otherwise, architects would probably have found a hodgepodge of materials as remnants if several families occupied the squad room at once.

The aged remnants of a chickery found by the architects indicates use of the squad room for other than human occupancy.

The inspection report of 1889-90 states "the barracks...going to decay," indicating that HB-21 was probably not occupied after 1910, the maximum expected life span of a usable building without treatment.

The fact that the interior wall plaster and whitewash on the gable ends of HB-21 stopped at the level of the ceiling joists indicates that a canvas ceiling was possibly used.

It is important that all care be taken to maintain the historical authenticity of the early 1880s. The analytic process has not been conclusive, but all available data of the inspection reports indicates that a canvas ceiling probably existed between 1880-85. Nevertheless, it is reasonable to believe that neither source of documentary data is satisfactory, and the canvas ceiling as recommended in the body of this report is not justified.

RECOMMENDATION

Due to the lack of sufficient data after the assessment and measures to minimize conjecture, the practiced philosophy involves eliminating any reproduction and doing nothing to the ceiling other than preserving the existing condition. Accordingly, the restoration of HB-21 "without a canvas ceiling" is recommended and preservation of the ceiling as exists should be given first consideration.

FURTHER ALTERNATIVES

In the future, if the existence of a canvas ceiling during 1880-85 is adequately substantiated, the following alternative ceiling treatments are possible.

Reconstruction

A fire retardant treated canvas could serve as the finished ceiling. It should be nailed at 24-inch spacing (same spacing as ceiling joists), turned up at the vent, and nailed to the sides of the vent well. As an alternative to the positioning of canvas, to wood lath as shown on the drawings (see sheets 3 and 4), it is recommended that the canvas be installed directly to the bottom of ceiling joists. In this manner, the canvas will appear as the historical ceiling did without the needed wood lath.

New Construction

In furtherance of the foregoing condition for reconstruction, the installation of plywood will eliminate the disadvantage of the canvas being a dust collector on the attic side. Plywood panels installed on the top of ceiling joists in lieu of the bottom (see same drawings as above) will form a protective base over the canvas. It should be nailed at the same spacing (2 feet) as the ceiling joists. No plywood should cover the bottom or sides of the vent well.

Inadequate reasons exist for a climatic control system. If heating is required, the extension of the existing heating system is recommended without humidifying provisions to control atmosphere for preservation of furnishings. Humidification has potential detrimental effects to the structure whereas it may be beneficiary to furnishing. The structure has original fabric, which costs much more to replace whereas furnishing reproductions may be easily replaced. Artifacts may be independently accommodated in cases, or cabinets, if humidification is needed.

The resolution to use insulation should be decided concurrently with the possible need for climatic control, or heating/energy conservation. If any climatic control system is employed, it is suggested that the use of 6 inches of fiberglass insulation be installed on top of the plywood paneling instead of between ceiling joists (see drawings, sheets 3 and 4). Of course, the plywood installation should comply with the 2-foot spacing of the vent well as siding to attach insulation.

No matter how well conceived and executed, the preservation as well as future restoration of the ceiling, will be an artificial modern interpretation of the past rather than an authentic survival from it. Accordingly, the original appearance and fabric is retained wherever practicable, and each treatment should be reversible to the extent possible.

COST ESTIMATE

The preservation of the opened ceiling joists is recommended in order to make optimum use resources and funds while contributing effectively to interpretation and management. Therefore, the cost estimate has been updated to reflect the elimination of the canvas and plywood ceiling, as well as the increase in total cost due to escalation incurred from February 1975. Estimates are valid through October 1982.

BIBLIOGRAPHY

CARLISLE, PA.

n.d. U.S. Army Military History Research Collection (Drawings and Text)

UNITED STATES DEPARTMENT OF THE INTERIOR, NATIONAL PARK SERVICE

- 1960 "Fort Davis, an Area Investigation Report," by Robert M. Utley. On file at National Park Service Region Three, Santa Fe, New Mexico.
- 1962 "Historic Structure Report on Fort Davis," by Robert M. Utley and Charles Pope. On file at Fort Davis National Historic Site.
- 1965 "Interpretive Prospectus for Fort Davis National Historic Site," by Franklin G. Smith and Benjamin Levy. On file at Fort Davis National Historic Site.
- 1969 "Historic Structure Report: HB-21, Enlisted Men's Barracks," by Tom Crellin. On file at Fort Davis National Historic Site.
- 1970 "Historic Structure Report of Fort Laramie: 1874 Calvary Barracks," by Don Rickey and James W. Sheire. On file at Fort Davis National Historic Site.
- 1972 "Furnishing Study, Enlisted Men's Barracks Building HB-21, Fort Davis, Texas," by James W. Sheire. On file at Fort Davis National Historic Site.
- 1972 "Furnishings Plan Barracks Fort Laramie," by John D. McDermott and James W. Sheire. On file at Fort Davis National Historic Site.
- 1976 "Historic Furnishing Study: HB-21," by A. Berle Clemensen. On file at Fort Davis National Historic Site.

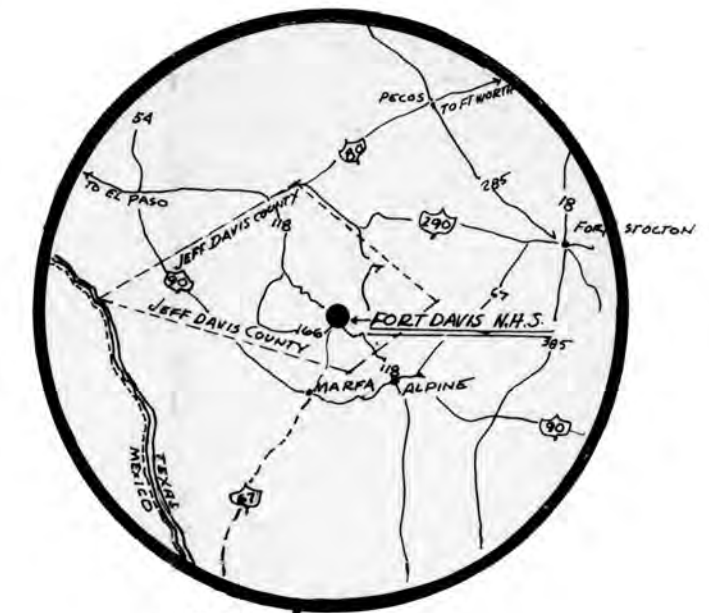
HISTORIC STRUCTURES REPORT

FOR INTERIOR RESTORATION OF
THE NORTH SQUAD ROOM AND ORDERLY ROOM

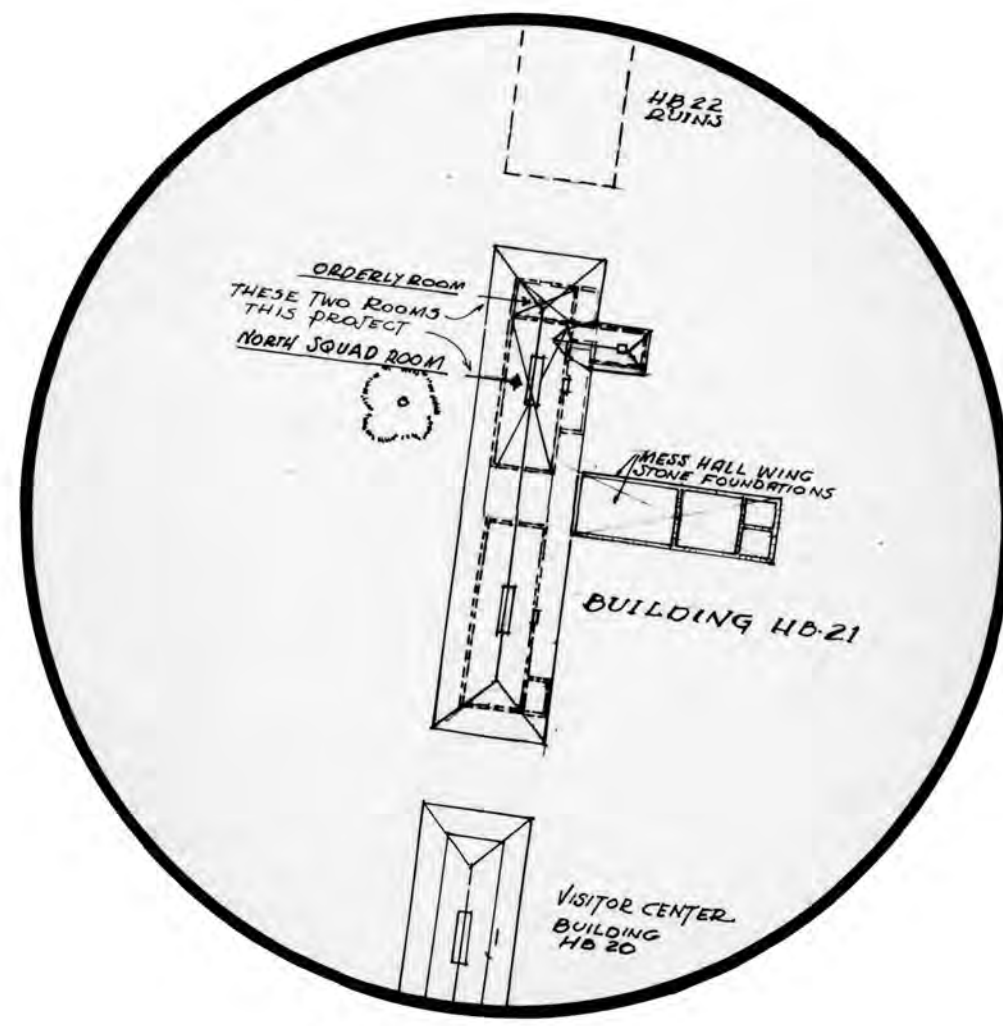
BUILDING HB-21

FORT DAVIS N.H.S.

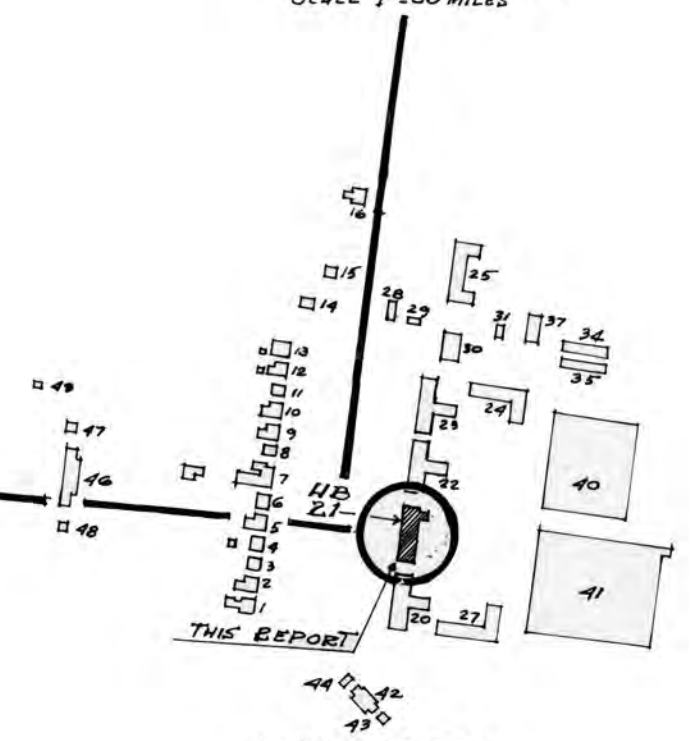
FORT DAVIS TEXAS



VICINITY MAP
JEFF DAVIS COUNTY TEXAS
SCALE 1" = 30 MILES



SITE PLAN
SCALE: 1" = 40'-0"

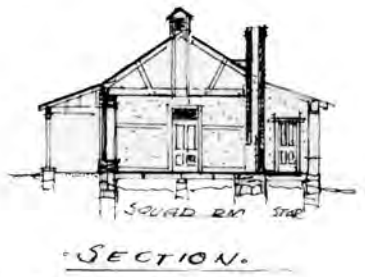
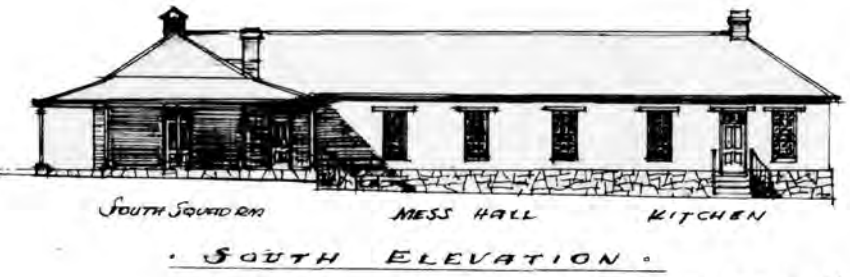
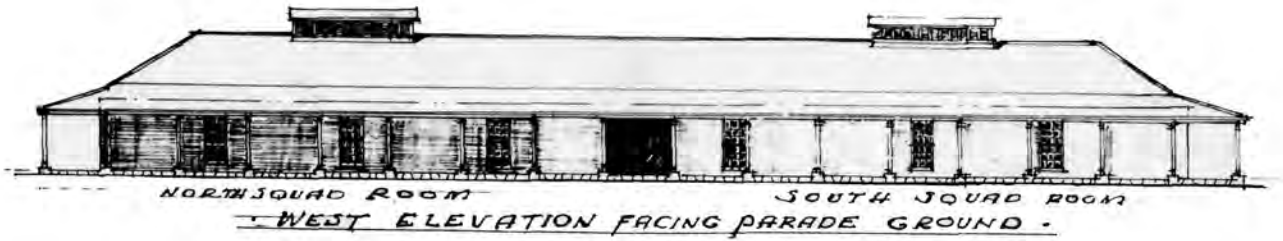
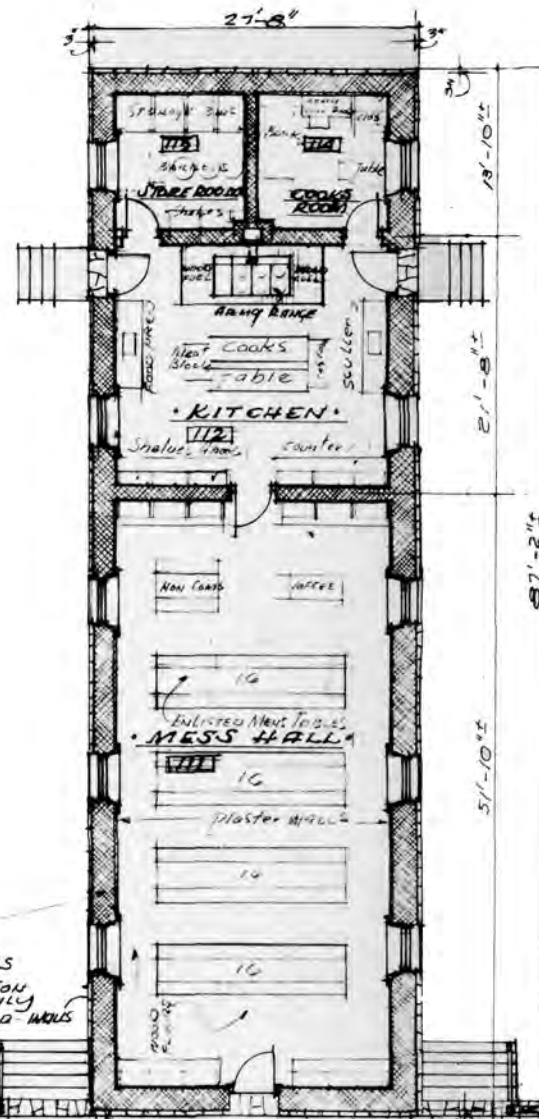
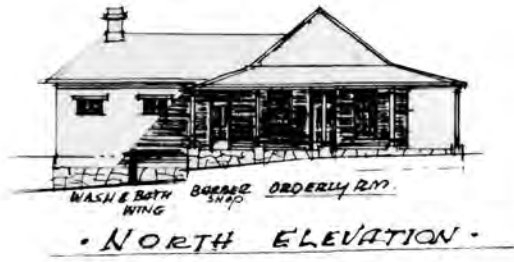


KEY PLAN
NOT TO SCALE

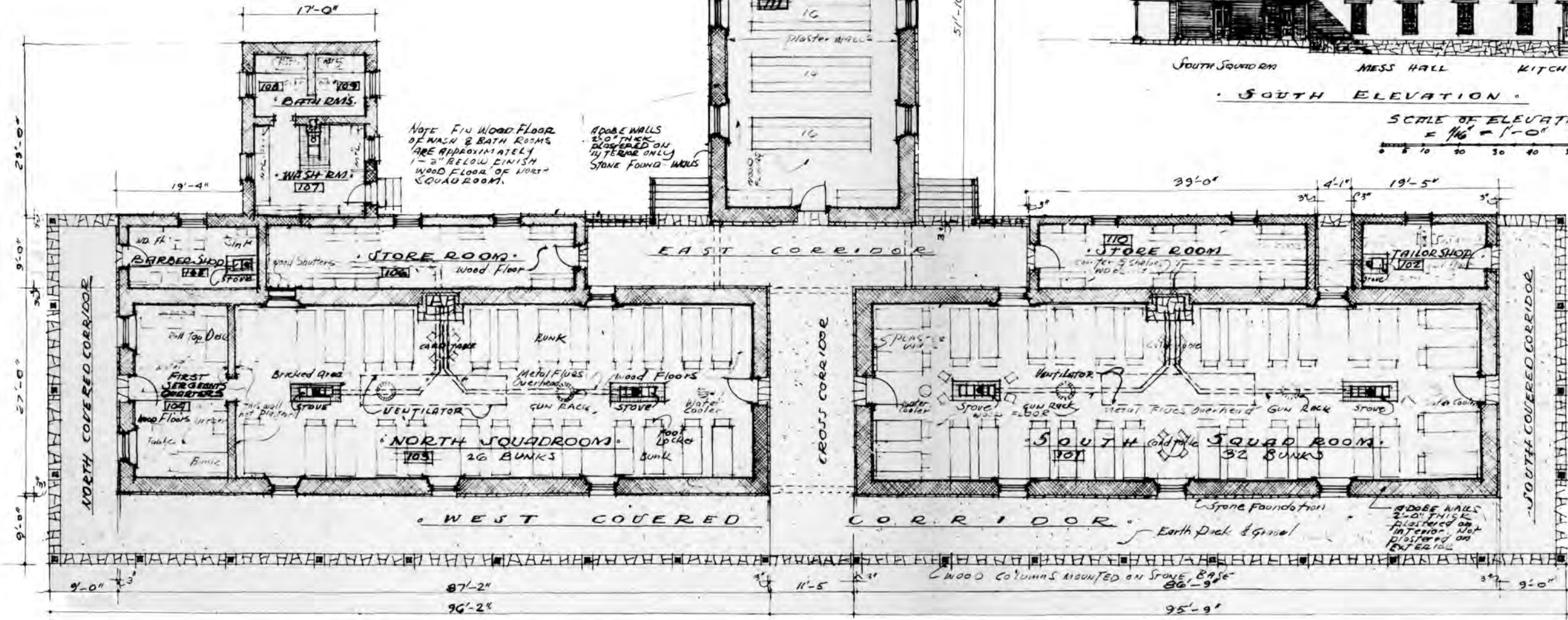


BASIC DATA

U. S. DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE DENVER SERVICE CENTER 625 PARFET STREET DENVER, COLORADO, 80225	PREPARED U.S. ARMY DESIGNED F.S. GERNER DRAWN	TITLE OF DRAWING HISTORIC STRUCTURES REPORT BUILDING HB-21 INTERIOR RESTORATION ORDERLY & NORTH SQUAD RMS LOCATION WITHIN PARK AT MILITARY COMPLEX ADJACENT TO VISITOR CENTER NAME OF PARK FORT DAVIS NATIONAL HISTORIC SITE SOUTHWEST JEFF DAVIS TEXAS	DRAWING NO. 418 28,001 PCP:PKG 703 SHEET 1 OF 5
	CHECKED FEB-77 DATE	REGION COUNTY STATE	



SCALE OF ELEVATIONS & SECTIONS
= 1/16" = 1'-0"

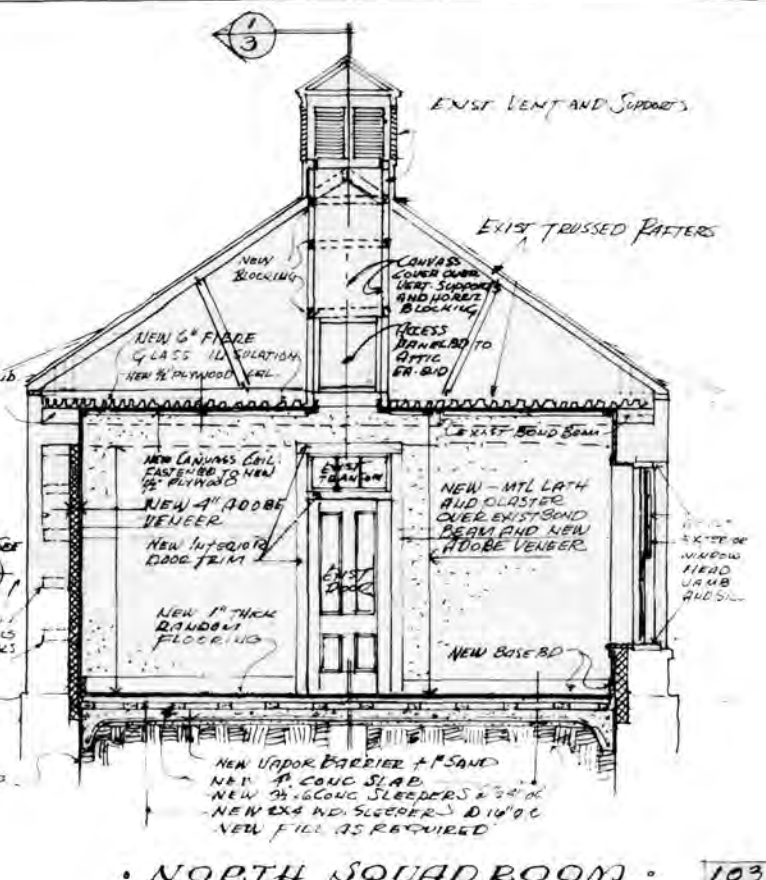
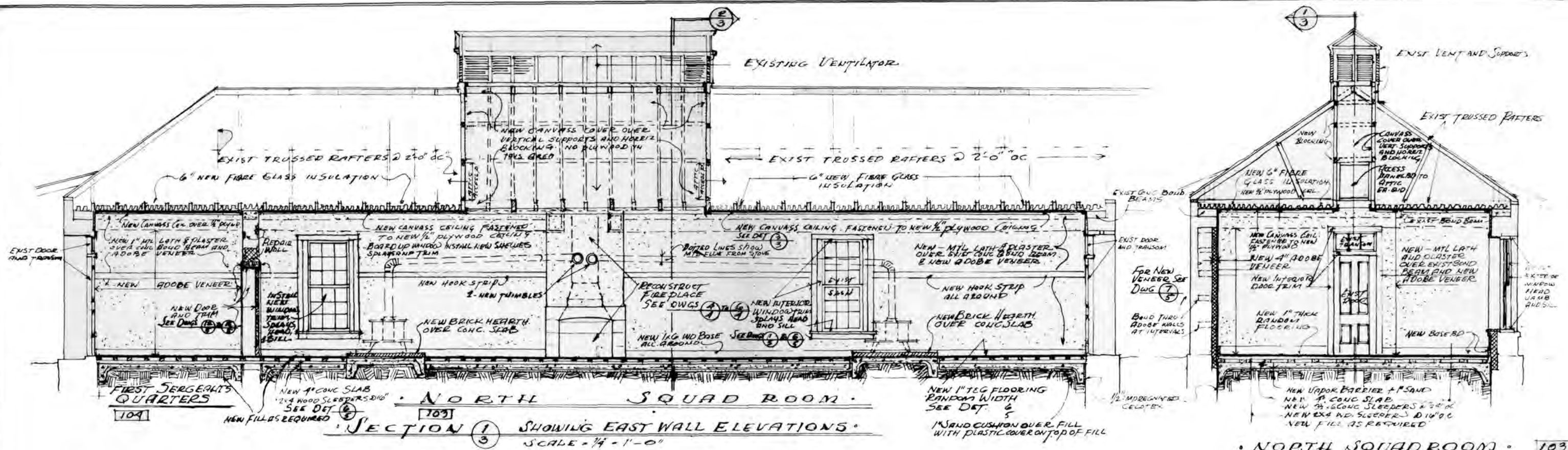


PLAN OF ENLISTED MENS BARRACKS BLDG. H.B. 21 AS FINALLY COMPLETED IN 1888 AT FT DAVIS TEXAS.

NOTE: THIS IS THE DATE WHEN THE WASH RM AND BATH RMs WERE IN EXISTENCE.

SCALE OF PLAN = 1/8" = 1'-0"

PREPARED U.S. ARMY	DRAWING NO. 418
DESIGNED F.S. GERNER	28001
DRAWN	PRG. NO. 103
CHECKED FEB-77	SHEET 2
DATE	OF 5



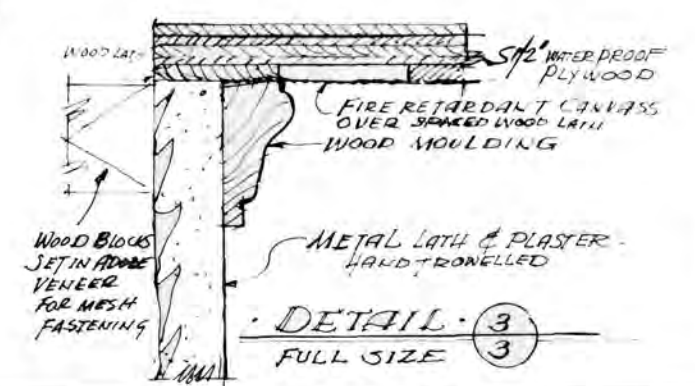
NORTH SQUAD ROOM
 2 SOUTH WALL
 SCALE = 1/4" = 1'-0"

LEGEND FOR SHEETS 3, 4, 25

- NEW ADOBE - PLAN SECTIONS
- EXISTING ADOBE PLAN SECTIONS
- NEW STONE WORK PLAN SECTIONS
- NEW BRICK WORK SECTIONS
- NEW INSULATION SECTIONS
- NEW WOOD WORK PLAN SECTIONS
- NEW CONCRETE SECTIONS
- EXISTING WORK - LABELED OR UNLABELED

EXIST. NORTH COVERED CORRIDOR

EXIST. CROSS CORRIDOR



WOOD BLOCKS SET IN ADOBE VENEER FOR MESH FASTENING

WOOD LATH

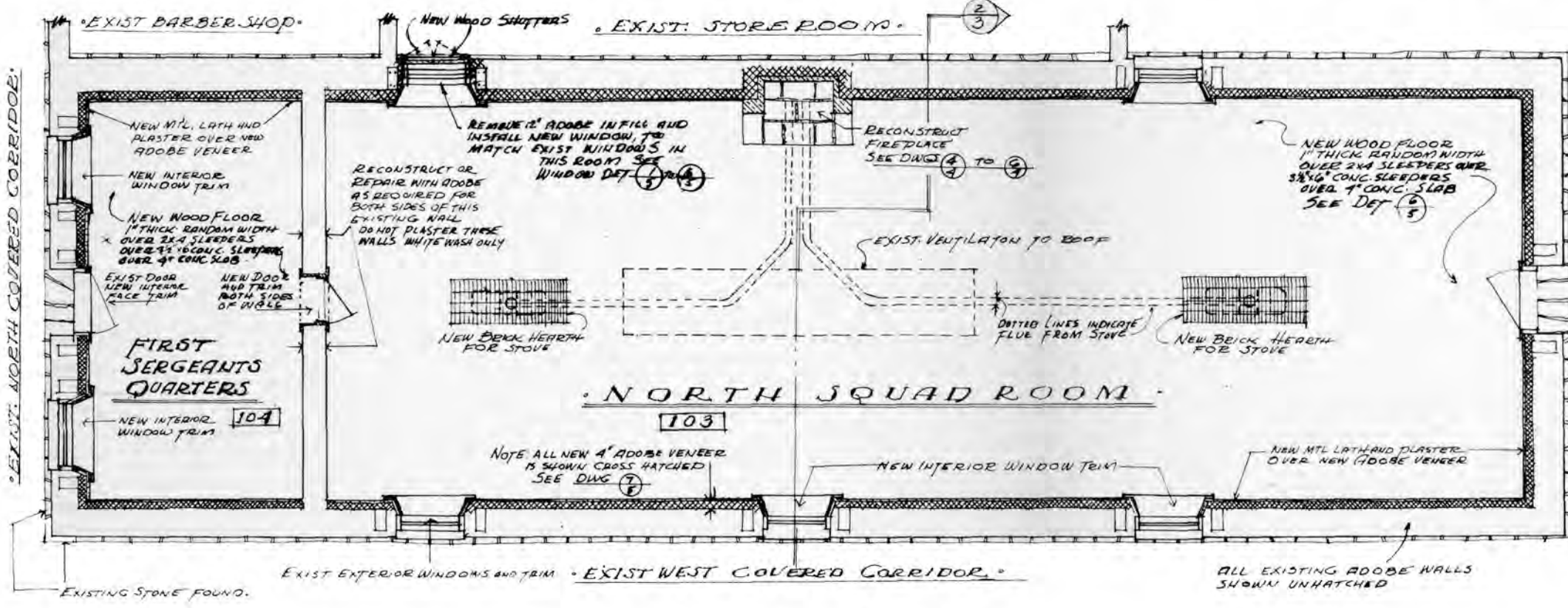
5/8" WATER PROOF PLYWOOD

FIRE RETARDANT CANVAS OVER SPACED WOOD LATH WOOD Moulding

METAL LATH & PLASTER - HAND-TROWELLED

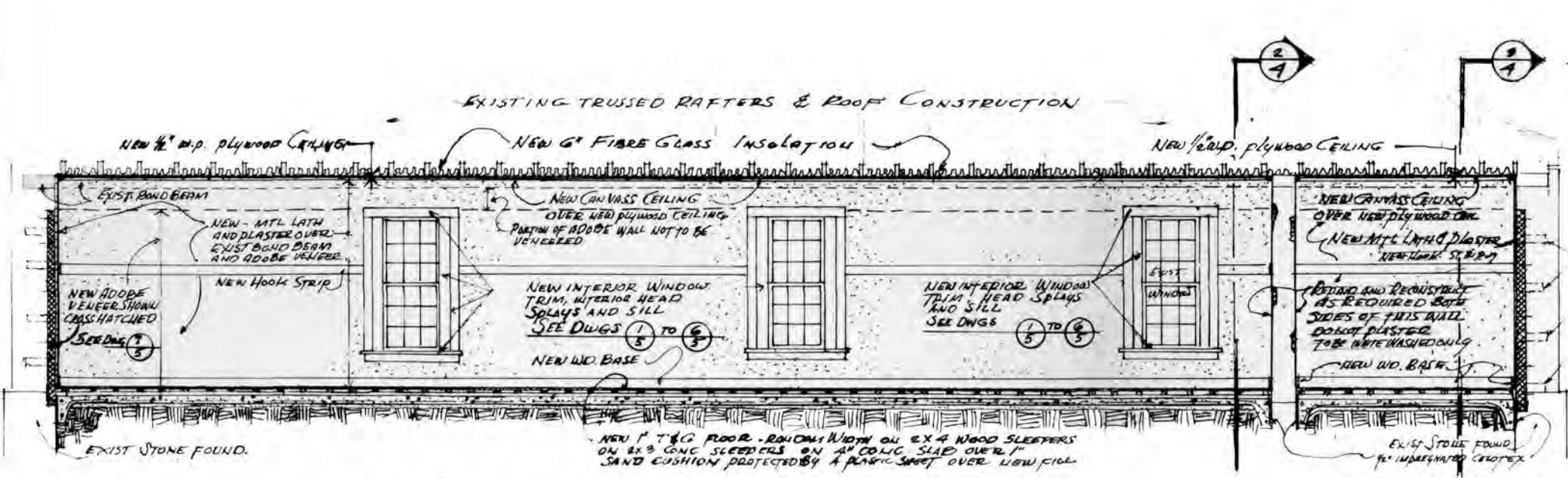
DETAIL 3

FULL SIZE 3



FIRST FLOOR PLAN
 NORTH SQUAD ROOM BLDG HB-21
 SCALE 1/4" = 1'-0"

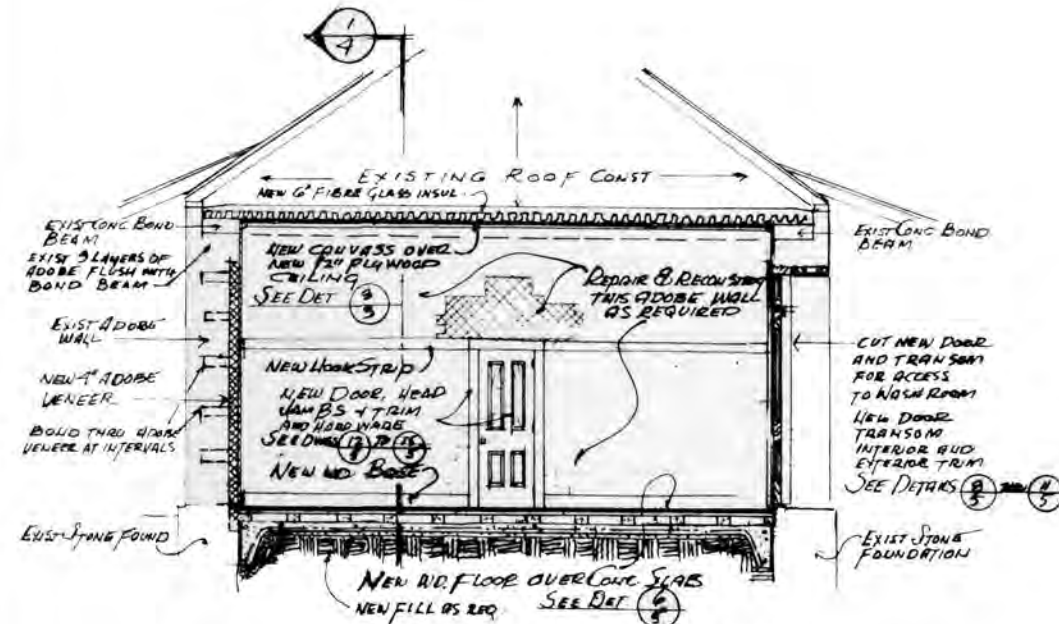
PREPARED US ARMY	DRAWING NO. 418
DESIGNED F.S. GERNER	28001
DRAWN	PKG. NO. 109
CHECKED	SHEET 3
DATE	OF 5



NORTH SQUAD ROOM
103

FIRST SERGEANTS QUARTERS
104

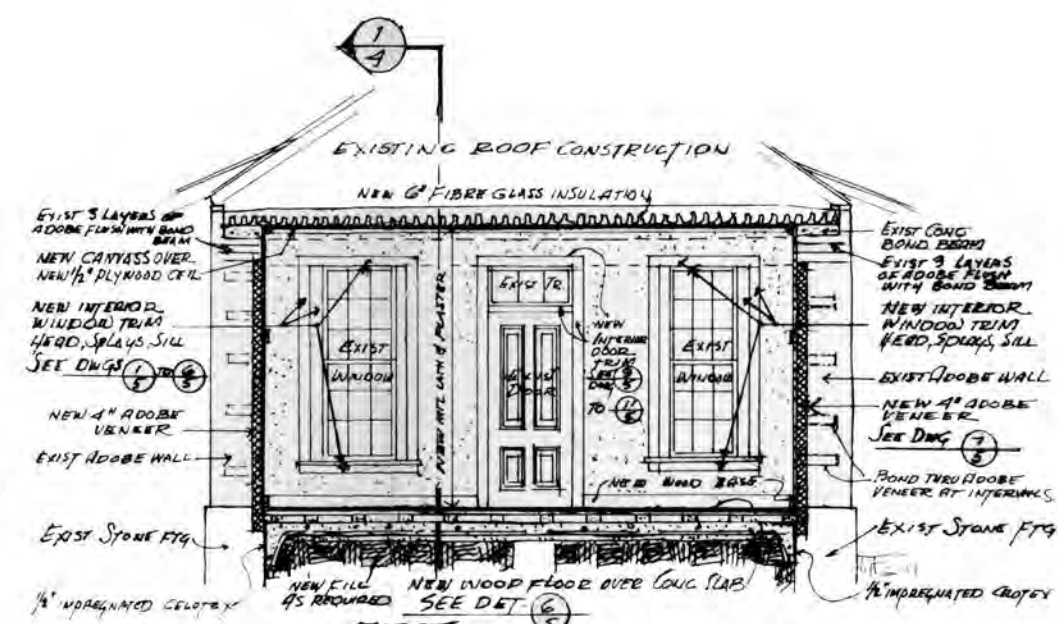
SECTION — SHOWING WEST WALL ELEVATIONS.
SCALE: 1/4" = 1'-0"



NORTH SQUAD RM. 103

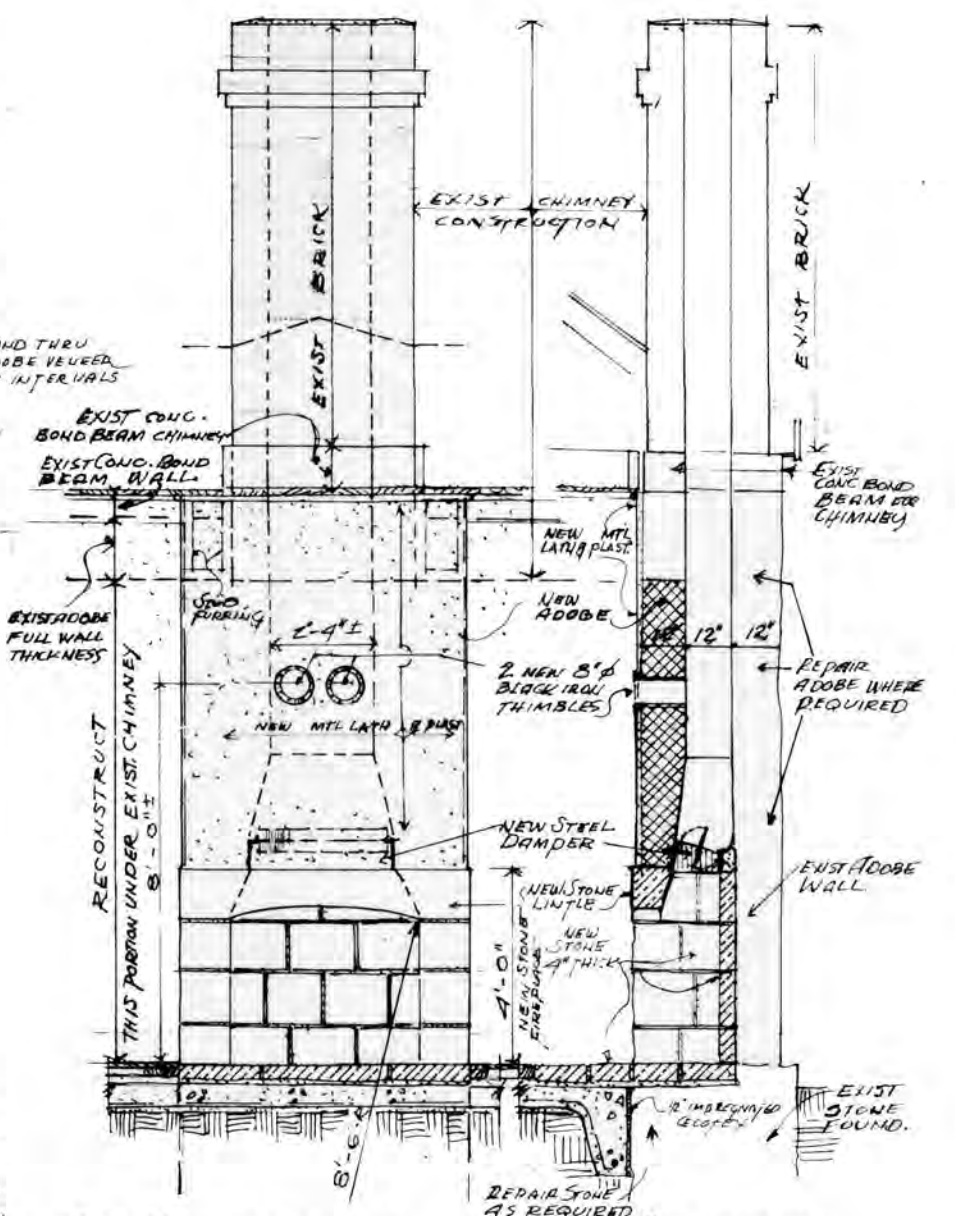
SECTION NORTH WALL ELEVATION.
SCALE: 1/4" = 1'-0"

NOTE: SOUTH WALL ELEVATION OF ORDERLY ROOM SIMILAR
NO HOOK STRIP ON SOUTH WALL
BATH WALLS NOT PLASTERED
WHITE WASHED ONLY.



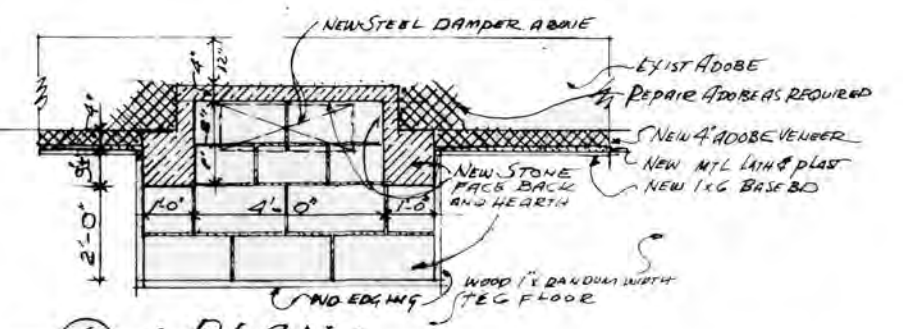
FIRST SERGEANTS QUARTERS (NORTH SQUAD RM) 104

SECTION NORTH WALL ELEVATION.
SCALE: 1/4" = 1'-0"



ELEVATION.

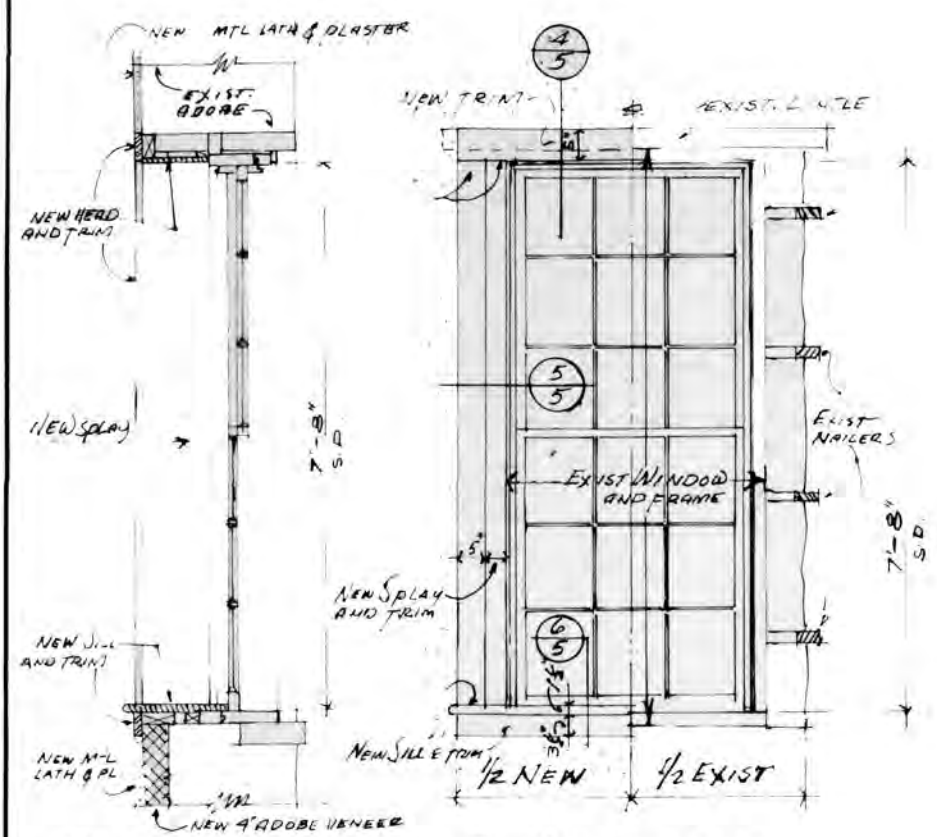
SECTION.



PLAN.

FIRE PLACE DWGS FOR NORTH SQUAD RM.
SCALE: 1/2" = 1'-0"

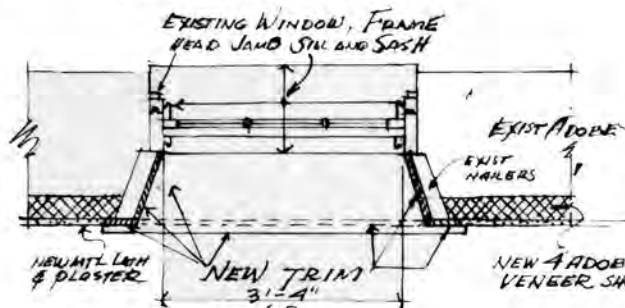
PREPARED US ARMY	DRAWING NO. 41B
DESIGNED F.S. GERBER	28001
DRAWN	PRG NO. 103
CHECKED FEB-77	SHEET 4
DATE	OF 5



1 WINDOW SECT.
5

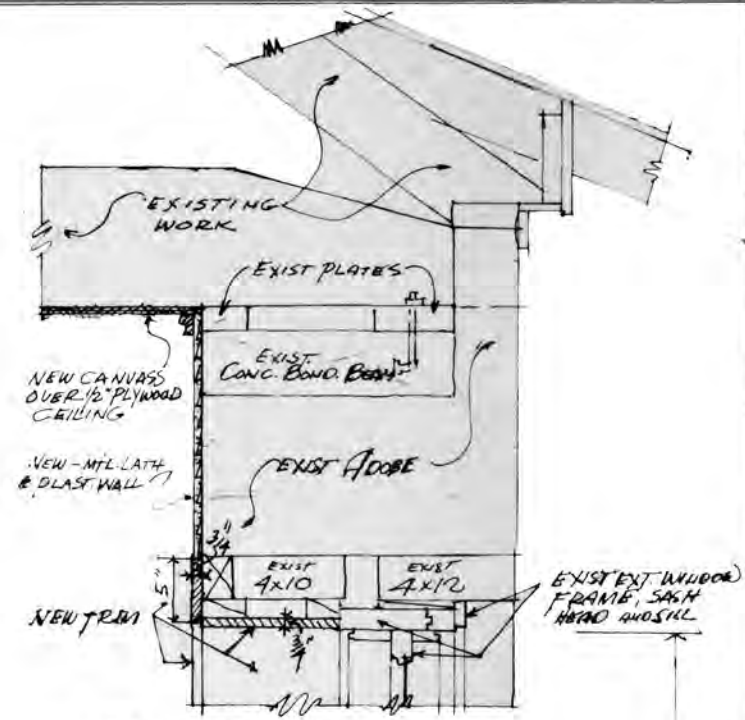
2 WINDOW ELEV.
5
INTERIOR ELEV.

18 SHUTTERS FOR NEW D.4 WINDOW
5 FACING STORE ROOM 106
NOTE ALL NEW FRAME TRIM, SPLAYS
HEAD AND SILL FOR THIS WINDOW

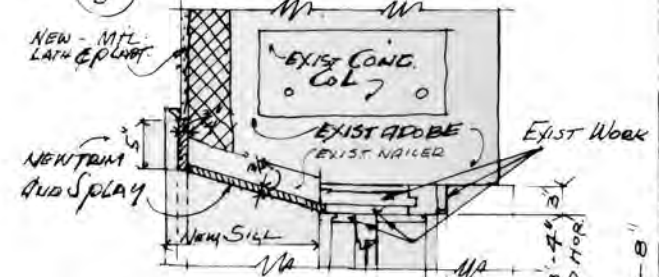


3 PLAN.
5

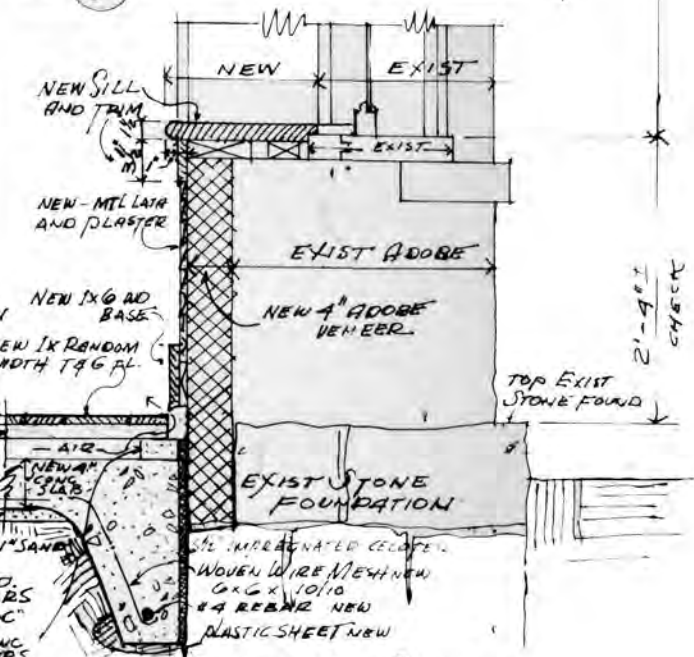
• DETAILS SHOWING EXISTING AND NEW WORK.
• ON WINDOWS BARBACKS BUILDING - HB-21.
• SCALE $\frac{3}{4}'' = 1'-0''$.



4 DETAIL HEAD.
5

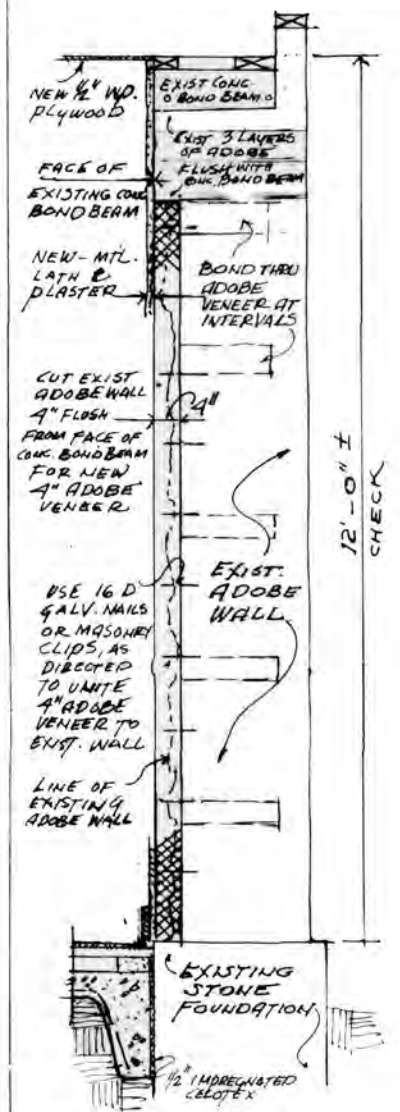


5 DETAIL JAMB.
5



6 DETAIL SILL.
5

• DETAILS WINDOW WALL.
• SCALE $\frac{1}{2}'' = 1'-0''$.



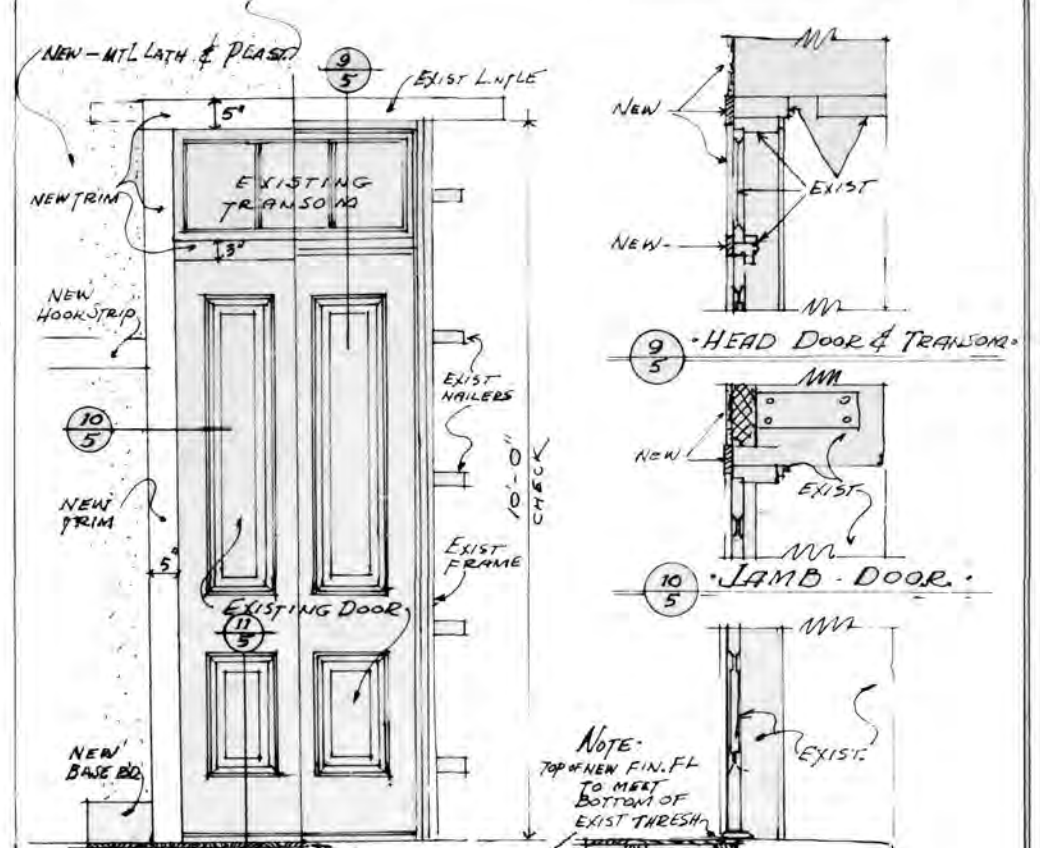
7 WALL SECTION
5

SHOWING METHOD OF CONSTRUCTING NEW INTERIOR 4\"/>

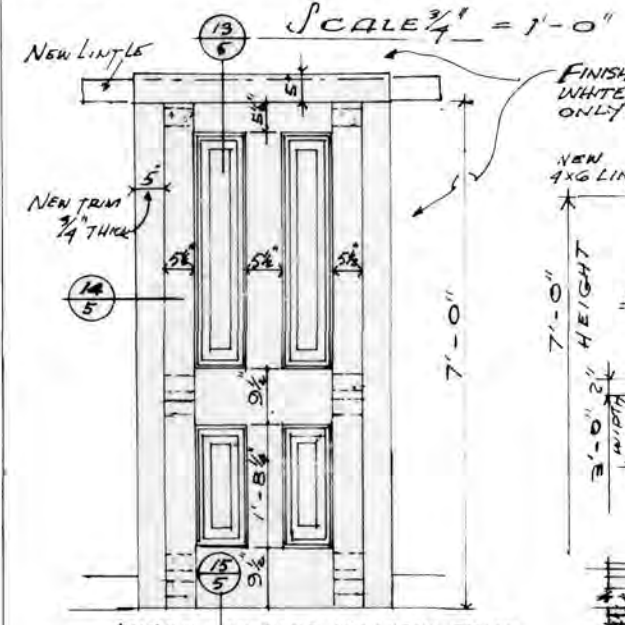
SCALE = $\frac{3}{4}'' = 1'-0''$

16 Wood Base
5

17 Hook Strip
5

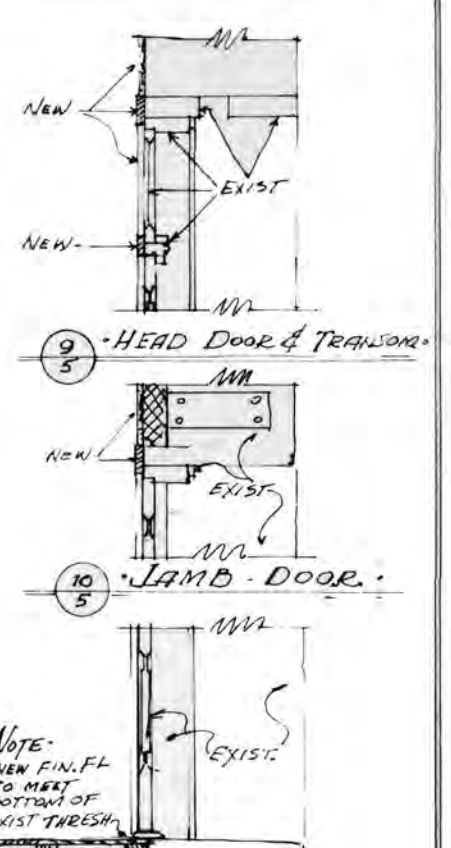


8 ELEV OF EXT. DOORS.
5



12 ELEV OF NEW DOOR.
5
ENTIRE NEW DOOR, FRAME AND TRIM
BETWEEN ORDERLY RM & NORTH SQUAD RM

SCALE = $\frac{3}{4}'' = 1'-0''$



9 HEAD DOOR & TRANSOM.
5

10 JAMB - DOOR.
5

11 SILL.
5

13 HEAD
5

14 JAMB
5

15 SILL
5

NOTE: TOP OF NEW FIN. FL TO MEET BOTTOM OF EXIST THRESH.

1/2 IMPREGATED SCOTEX

PREPARED U.S. ARMY DESIGNED L.S. GENEER	DRAWING NO 418 28001
DRAWN 103	SHEET 5
CHECKED FEB-77 DATE	OF 5

As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

Publication services were provided by the graphics staff of the Denver Service Center. NPS 1823

