

HISTORIC STRUCTURE REPORT

for

HAYNES AUTO CAMP PICTURE SHOP Old Faithful Yellowstone National Park



**Department of the Interior
National Park Service
Yellowstone National Park**

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INTRODUCTION AND CURRENT STATUS OF HAYNES AUTO CAMP PICTURE STORE AT OLD FAITHFUL; YELLOWSTONE NATIONAL PARK

This report includes a brief history of Haynes Photo Shop (courtesy of Lee Whittelsey - YNP historian), the historic significance of the property, a condition assessment of all materials, an assessment of which materials are original, and a preservation plan that outlines care of those materials based on their originality and condition.

This report is intended to provide a detailed evaluation of the building, to identify and prioritize the deficiencies that exist for the structure, and to derive a plan to stabilize and preserve the building for future generations and for continued uses.

The structure has experienced a variety of changes over time. The 1927 former retail wing of the floor plan is basically original but has been moved, the dormitory wing was added to the Photo Shop in 1951 and was also moved when the structure was relocated in 1971. The dormitory wing was extensively renovated at the time of the relocation and a circa 1971 connecting link was added to join the two existing wings together in a slightly different configuration (see attached diagram). Nevertheless, nearly all of the exterior materials are original to the building or were replaced in-kind and there are some original interior materials remaining in the former retail wing. The interior of the dormitory wing predominantly reflects 1971 era materials and finishes. Outwardly, the building continues to exhibit the unique "log-out" architectural style representative of an era of development for Yellowstone National Park and it occupies a visible location as an example of a historic design that blends with the Old Faithful natural environment.

The following actions were initiated in the course of reviewing the existing condition of the property:

A. Visual on-site observations were made during several trips to the site during 2005 / 2006. The observations were limited to what could be seen with minimal disturbance to the structure.

B. The facility was photographed during the trips as noted above. Many of those photos are contained within the body of this report.

C. There are no known original drawings or blueprints of the building although Herb Dawson (YNP Historic Architect) has found some drawings of modifications to the building; drawings contained in this report are from field measurements taken during site visits as noted above.

D. All materials were assessed on site in regard to condition. The assessment methods and conclusions are reported on in the Condition Assessment section of this report.

E. Limited structural evaluations were completed during the preparation of this report. It is suspected that there are structural deficiencies associated with the trussed roof of the connecting link. Selected structural "safety checks" were made on typical structural framing members.

F. A building code "overview" is incorporated with this report; specifically to consider code related implications of permitting continued use of the building. Accessibility guidelines were included with the building code evaluation as they apply to the building.

G. Historic architectural and engineering methods and practices were reviewed and evaluated as they pertain to the construction of this building.

H. Mechanical and Electrical evaluations were specifically excluded from this report.

Currently, Haynes Auto Camp Picture Store at Old Faithful is not being utilized and is vacant. The most recent uses were, as inferred above, as a retail store within the primary wing of the structure and as a place of lodging for employees in the dormitory wing.

EXECUTIVE SUMMARY

SUMMARY OF FINDINGS

With few exceptions, this building retains exterior integrity as an example of rustic "log - out" "parkitecture" that was prevalent in western National Parks during the decades following the creation of the parks; and as they were being discovered by an American public that suddenly had mobility from the automobile as well as recreational time as a result of economic prosperity.

The interior of the former Retail wing of the Photo Shop retains 1927 material integrity (predominantly above door height); the Dormitory Wing was significantly renovated in 1971 and interior materials and their application reflect that era. However, the 1971 relocation and renovations have left the facility with an excellent well engineered sub-structure and the use of non-combustible materials from the renovation of the interior result in a building that is relatively compliant with building code criteria as it is applied today. This is a building that can be assigned to new uses with additional limited investment and continue to serve the needs of NPS and the American public within the Old Faithful area.

Haynes Auto Camp Picture Store is a contributing property within the Old Faithful Historic District; assigning a new use for the facility will require that it be treated as a Rehabilitation of an historic property in compliance with the *Secretary Of Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, & Reconstructing Historic Buildings (1995)*.

In addition to the identification and significance of historic materials, this HSR looked in detail at the condition of the building. The evaluation included in-depth building code comparisons, fire ratings, mobility impaired accessibility requirements, materials conservation, and structural adequacy of supporting members. In general, the former Retail Wing was evaluated for future assembly or exhibit use; and the Dormitory Wing was evaluated for continued residential use or office use. Work that would be required to bring this facility "on-line" for these uses was compiled within this report and is summarized below.

Summary of required improvements to rehabilitate the building to full use:

Of primary importance is the structural stabilization of at-risk supporting members. **Strengthening the connections of a select few trusses** at the connecting link between the two wings is mandated (minor). A **seismic report** must be compiled to administratively satisfy the building official when any existing structure is altered. **Strengthening the main porch support beams** could also be done if NPS maintenance desires to eliminate the need to temporarily support this secondary roof during the winter season. Seismic criteria is more severe today than when the structure was renovated in 1971; **selected seismic improvements are recommended for the structure** (see structural section).

Fire protection has been identified as the number 2 priority in the preservation plan at the end of this report. To add perspective to this topic, it must be understood that under the aegis of the IEBC building code the degree of change anticipated for the facility directly affects the extent to which building codes requirements apply. If the building is repaired for existing uses only, then building code requirements are minimally applied to the structure. If the building is altered, then additional building code requirements apply. The analysis within this report assumes that the building will be altered.

Regardless of which occupancy the former retail wing is used for, there is only (1) readily available exterior exit from that wing and that is through the main entrance; however, a second exit goes into the dormitory wing and this may be code safe depending on the complexity of the intervening space to get to the exterior. **A second means of exit from the Retail Wing may be required.** As noted above, the former Retail Wing was evaluated for assembly occupancy (requires the highest level of fire protection) and the Dormitory wing was evaluated for residential occupancy (requires the highest level of fire compartmentalization). An **occupancy separation wall** is required between these two very different types of uses. All building code scenarios reviewed required that the **exit stairs from the Dormitory Wing must be enclosed.** Although it is not a requirement of the building code, a **fire sprinkler system** has been identified as being included in accordance with NPS policy.

Restoration of the exterior has been identified as the number 3 priority. The building envelope is sound but requires maintenance and repair. **Replacement of unsound decorative logwork** will be required and preventative maintenance in the form of **improved site drainage** is required around the South end of the building. **Exterior painting** would visually enhance the building and extend the life of exterior wood materials; and replacement of roofing will need to be done in the future.

Providing for a change in use of the building will trigger the need to meet the accessibility requirements of ADA. At least **one accessible restroom, functional secondary accessible exits along the West wall, and ADA access to all first floor rooms** will be required (ADA Guidelines section 4.1.3 exception (1) and 4.1.7 (3)).

Other detailed recommendations that are minor in nature can be found within the Preservation Plan section of this report. These include some general clean-up and maintenance activities as well as **enhancements** that address what might be desired for the structure as opposed to the minimum that must be done for the building. In addition, it must be noted that a **Hazardous Materials Survey** was not done during the preparation of this report; if Lead Based paints or Asbestos materials are encountered they will have to be surveyed and abated.

The strength of the Haynes Auto Camp Picture Store is (1) the unique architectural style of a building that is representative of an era of development for Yellowstone National Park - a style that will not likely be built again, and (2) it's visible location as an example of creating a design intended to blend with this land of scenic wonder. It is essential that the exterior appearance of this structure be maintained. The form and some of the materials of the interior of the former Retail Space are also significant and incorporating these values into new uses must be done sensitively.

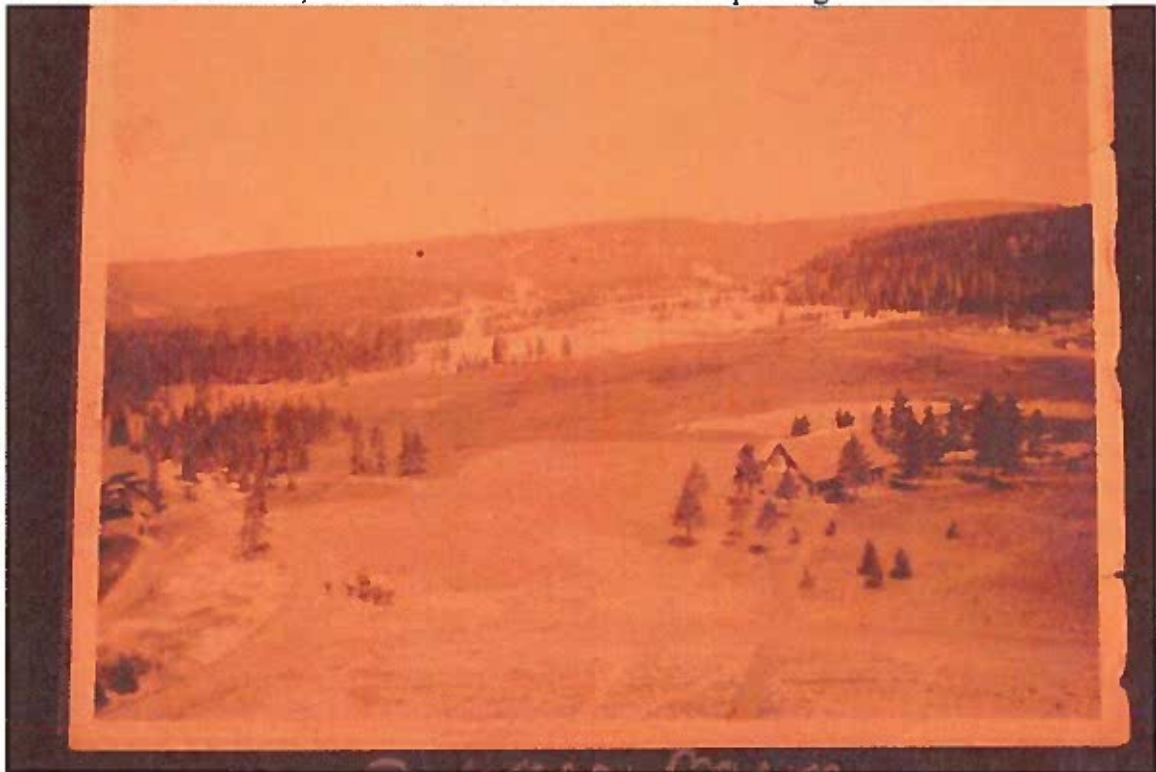
HAYNES PHOTO SHOP-OLD FAITHFUL HISTORIC STRUCTURES REPORT

May 25, 2005

DRAFT

History of Haynes Photo Shop at Old Faithful

Original Haynes Photo Shop was built prior to the construction of the Old Faithful Inn, in 1895 by Jack Haynes. This photo shop was constructed of lodgepole pine logs, and was sited in front of the inn, in what is now the historic front parking lot



1911 photo of original Haynes Studio built in 1895, in its original location, photo taken from top of Old Faithful Inn widows walk. (presumably, no other location would match height) Hamilton Lower Store on left side of photo. (YELL 161636-1-1913)

. This building was disassembled in the mid 1930's after the 1927 photo shop was constructed adjacent to the Old Faithful Lodge. It was reassembled in its current location in approximately 1935, along with a storage warehouse and coal shed adjacent to it.



Photo taken in 1952 (YELL 35259-1952)

The 1927 building was t-shaped, and sited approximately near where the current second prediction clock was constructed in 1972. Photos located of the move, show the building being segmented into three parts. The original 1927 front portion of the building which housed the photo shop proper, and was a story and a half inside with a open ceiling plan, was kept intact. The centrally located dormitory wing was divided into two parts, the rear portion of the building, which we believe was constructed in 1954, was kept, the central portion of the rear wing was demolished.



The faux log-out wood-frame constructed building long known as the “Old Faithful Hamilton (today Delaware North¹) Photo Shop,” located immediately north of the new Old Faithful Snow Lodge, is not in its original location. Originally it was located some 75-100 yards(**located closer than 100 yards, more like fifty?**) southeast of Old Faithful Lodge, having been built by Jack E. Haynes in 1927 as the Old Faithful store for his Haynes Picture Shops, Inc. and then having been moved by the National Park Service in 1971 to its present location. In 2005, the NPS wishes to again move this building, hence the need for this written history.

Having known for some time that he needed an improved store at Old Faithful, park photographer and postcard salesman Jack Ellis Haynes applied to the National Park Service in 1926 for permission to erect his new building. At that time, the Old Faithful Campground was located nearby on the site of the current east parking lot. Known then as

¹. In 2003, Delaware North Park Service took over operation of all of Yellowstone’s Hamilton Stores, ending various agreements between the National Park Service and Hamilton Stores, Inc. that had been in operation since 1915.

the "Basin Auto Camp," it had served campers since the teens and was itself being served by a number of concession businesses located on both sides of a double thoroughfare that ran south from Old Faithful Lodge to the site of today's upper Hamilton (Delaware North) Store. Haynes engaged George A. Larkin to draw the plans for his building. Those plans and eleven other blueprints, elevations, and pencilled drawings that relate to the building are today located in the Haynes Collection, at Renne Library, Montana State University, Bozeman, Montana. A handwritten note on the reverse of Larkin's 1927 blueprint states that Haynes's "BA shop" was "started" (in construction?) May 27, 1927 and "finished" July 12, 1927. Larkin's note at the top of his blueprint stated that the new Haynes "shop" was to be twenty-six feet wide and sixty feet long, and the new building contained living quarters, a retail shop, and a photo-finishing plant.² Haynes later listed its cost as \$11,206.11.³ In 1930, Haynes produced a plat giving the exact location of his new building.⁴ (Larkin was a contractor, not an architect, but built a number of significant and not so significant structures in the park in the 1920's-40's period, including a pump house at the Fishing Bridge Campground, all in a Parkitecture vernacular style)

Haynes's new building was to be remodeled several times, sometimes extensively, and these renovations are documented in the Haynes Collection 1504, Flat File 20 at Montana State University. Plans drawn in 1929 for a twenty-four-foot addition to the building indicate that the addition was not built (at least that year).⁵ But Haynes's enumeration of costs indicates that an addition priced at \$206.58 was constructed in 1932.⁶

Other modifications to the building occurred in 1940, 1942, 1954, and 1955, but details are not completely known. An ink drawing in Flat File 20 mentions the "1940 remodeling of [the] Basin Auto Shop," but no more is known.⁷ In 1942, the park superintendent gave Jack Haynes permission to construct a lattice fence to enclose the jog

². Blueprint by George A. Larkin, "Haynes Picture Shop—Old Faithful Auto Camp—Rear Wing—First Floor[,] Revised as Suggested by T.C. Vint, June 1, 1927," scale ¼"=1 foot, Haynes Collection 1504, Flat File 20, Montana State University Special Collections. Haynes's building file is in Box 59 of this collection, and it states there that these blueprints, elevations, and pencilled drawings have been moved to Flat File 20. See also Horace Albright, "Superintendent's Annual Report for 1927," 1927, p. 24.

³. Jack E. Haynes, "Buildings and Sales Stands Statistics," sheet II, January 1, 1951, in Haynes Collection 1504, box 59, file 48, MSU Special Collections.

⁴. Blueprint by J.E. Haynes, "Department of the Interior, National Park Service, Yellowstone National Park Plat of Land Occupied by Haynes Picture Shops Inc. at Old Faithful Automobile Camp Under Contract Dated Feb. 13, 1926," July 1930. This plat shows the Old Faithful "shop" located at the northeast corner of the "promenade" (double thoroughfare) and 150 feet east of the "Lodge Co. Cafeteria." The description of the site was as follows: "Starting at point no. 1 which is 10.0 ft. N., 10.0 ft. W. of NW corner Haynes Picture Shop; thence S 10 [degrees] 46' W, 90.0 ft. to point no. 2; thence S 79 [degrees] 14' E., 105.0 ft. to point no. 3; thence N 10 [degrees] 46' E., 90 ft. to point no. 4; thence N 79 [degrees] 14' W., 105.0 ft. to point no. 1 at beginning. Area .216 acres."

⁵. A card in Flat File 20 marked "BA Rear Wing" states: "proposed 24' addition not built Feb. 1, 1929." See also George A. Larkin, blueprint showing 24' addition, February 1, 1929, in same file. This blueprint is marked "submitted by J.E. Haynes, recommended by T.C. Vint, approved by Arno Cammerer." It is apparently represents the addition that Haynes says was constructed in 1932.

⁶. Jack E. Haynes, "Buildings and Sales Stands Statistics," sheet II, January 1, 1951, in Haynes Collection 1504, box 59, file 48, MSU Special Collections.

⁷. Ink drawing of building, no author, "1940 Remodeling of BA Basin Auto Shop," 1940, Scale ¼"=1', Haynes Collection 1504, Flat File 20, Montana State University.

between the front of the shop and the end of the rear wing in order to hide, as Jack noted, "our wood pile, coal bin, and clothes line."⁸ Haynes added seven bedrooms and a bathroom to the existing structure in 1954, and in 1955 he installed propane heat at the store.⁹

In 1951, Jack Haynes recorded information about the building on his standard worksheet entitled "Buildings and Sales Stands Statistics." He noted that his store at that time was frame with log trim and a shingled roof. He stated that it was 61,750 cubic feet in size with a first floor space of 3,774 [square] ft. The first floor was 58'x26' with a rear area of 44'x36'. The second floor was 58'x24' with a rear area of 44'x29'. He calculated his total floor space at 6,324 square feet. Haynes stated that the building had (in 1951) been remodeled "two or three times" and that its replacement cost (figured by Fred F. Willson, a Bozeman architect who had apparently been involved in some of the renovations) was \$27,854.72.¹⁰

There is of course long human history associated with this building, but we know only smatterings of it. The author's friend Charles Frank White (hereafter "Charley") of Norman, Oklahoma worked in the building (then known as "Hamilton Photo Shop") at Old Faithful in 1969. It was one of the building's last summers at its original location. Mrs. Ida Smith, then manager of the store, employed Charley White there as a retail sales attendant for Hamilton's.

Charley remembers it as one of the best summers of his life. He and one other male employee ("Joe") were the only two employees living on the first floor. On the second floor lived fifteen college girls who all worked with Charley and "Joe" in the store.

Charley remembers that the building faced west and that through its large north window, he could see Old Faithful Geyser erupting while he stood at his work counter. "I could see little or no change in the building when I saw it in the year 2000," says Charley, "and I was amazed to see that most of the building's furniture was still in the places I remembered."¹¹ (furniture not present in 2004, Delaware North threw away most of the wooden display shelving and other potential artifacts into a large dumpster.)

In 1971, two years after Charley White worked there, workmen moved the Hamilton Photo Shop to its present location immediately west of (the old) Snow Lodge.¹² In 2003, it stands in that spot, but now north of (the new 1997) Old Faithful Snow Lodge.

⁸ J.E. Haynes to Edmund Rogers, June 8, 1942; and Edmund B. Rogers to Jack E. Haynes, June 10, 1942, in Haynes collection 1504, box 59, folder 48, Montana State University.

⁹ Plans: George A. Larkin, "Haynes Inc. Picture Shop Addition Old Faithful Campground Yellowstone Nat'l Park," December 15, 1954; and pencilled plan G[eorge] A L[arkin], "First Floor Plan Haynes Picture Shop, Old Faithful Campground, Yellowstone National Park," January 28, 1955, "drawn for propane installation plan," both in Haynes Collection 1504, Flat File 20, Montana State University.

¹⁰ Jack E. Haynes, "Buildings and Sales Stands Statistics," sheet I, January 1, 1951, in Haynes Collection 1504, box 59, folder 48, Montana State University.

¹¹ Author's telephone conversation with Dr. Charles Frank White of Norman, Oklahoma, September 11, 2003.

¹² NPS Historic Structure Survey Form, "Haynes' Photo Shop/HS-2780," December 7, 1982, p. 1, in National Park Service, "Yellowstone National Park Historic Resource Notebooks," vol. 14, Yellowstone Center for Resources. For a map of the site and surrounding structures in 1979, see NP-Yel 2655-C, in "2780 Old Faithful Photo Shop," Building Files, Yellowstone Center for Resources.

(1971 Photos copied out of the HRC show the building divided into three pieces, two of which were moved. Photos show the front in place, a twenty foot portion of the rear dorm wing, and a larger portion, including the 1950's addition up and being readied for the move.) The building appeared to have been a "C" shaped footprint, judging from the sections that were cut thru the building in the 1971 photos.

The 1982 "Historic Structure Survey Form" gives the following discussion of the building:

The original construction drawings for the building (NP-Yel-82) show a T-shaped building. The front 60'x22' rectangle was to contain the commercial store as well as a dining area and kitchen for employees, while the rear 32'x36' dormitory wing was to contain bedrooms for the staff. As actually constructed at its original location, the store area measured 61'x27' (1647 sq.ft.), and the dormitory wing measured 44'x32'. Another difference between the construction drawing and the manner in which it was actually built is that the dormitory wing was a full two stories in height, rather [than] the 8' high half story wall that was called for in the plans.

A 1955 set of plans (NP-Yel-8100) for an addition to the building called for construction of another 30'x 60' wing, to be oriented perpendicular to and off of the dormitory wing. This would have created a courtyard behind the store, enclosed on three sides. An addition, in one form or another, probably was built, since the length of the existing dormitory wing is greater than the wing as it was shown in 1951 park maintenance records. Hamilton Stores, Inc. personnel indicate that they reduced the length of the building when they moved it in 1971. In addition, the building is no longer "T"-shaped. The dormitory wing is offset to the east of the center of the main component (the part of the building that contains the commercial areas).¹³

The 1982 "Historic Structure Survey Form" also gives an extended (six paragraphs) description of the building, and it gives the following summary of the building's history:

This is the second Haynes store in the Old Faithful area, with the first being built in 1897. In 1927, Haynes began construction of this store using George Larkin as his architect/builder. Larkin approached NPS landscape architect Thomas Vint for his suggestions for the shape of the new store. Vint suggested a two-story portion on the rear of the building for use as bedrooms, with a garage and woodshed underneath. Vint explained to Haynes that the suggestions were given to give the building a more pretentious front [than?] those submitted by Larkin. By August 1927, the log and frame store was started with 2,200 sq. ft. of living space upstairs and 2,832 sq. ft. on the first floor. The main floor also had a photo finishing plant. In 1940, Haynes received permission to paint the exterior of the store with an

¹³. *Ibid.*

antique finish using rottenstone. Haynes found the finish to be a [sic] pleasing and unobtrusive both from a distance and close-up.”¹⁴ (photos found in the Cultural Branch files show the building to be white in mid-1980’s after the move. Building is currently NPS light brown.)

During the period 1986-1988, the building was rehabilitated and expanded (a porch was added in 1972, shortly after the shop was moved to the Snow Lodge location). Elevations and floor plans for these changes, as drawn by Bozeman architects Mattson, Prugh, and Lenon are in the building files at Branch of Cultural Resources, Yellowstone Center for Resources.¹⁵ (Incorrect, there was a plan for the building to be expanded with a very large addition to the west elevation in mid-1980’s by Hamilton Stores, Inc.’s architects, however this expansion was never completed.) Building shows no signs of significant alterations on the interior, which is still primarily celotex homosote board.)

As was pointed out in the summary for this 1988 project, the Haynes/Hamilton Photo Shop is a contributing structure to the National Register historic district at Old Faithful, but it is not an individually significant structure because it has been moved and altered in the recent past.¹⁶

¹. In 2003, Delaware North Park Service took over operation of all of Yellowstone’s Hamilton Stores, ending various agreements between the National Park Service and Hamilton Stores, Inc. that had been in operation since 1915.

¹. Blueprint by George A. Larkin, “Haynes Picture Shop—Old Faithful Auto Camp—Rear Wing—First Floor[,] Revised as Suggested by T.C. Vint, June 1, 1927,” scale ¼”=1 foot, Haynes Collection 1504, Flat File 20, Montana State University Special Collections. Haynes’s building file is in Box 59 of this collection, and it states there that these blueprints, elevations, and pencilled drawings have been moved to Flat File 20. See also Horace Albright, “Superintendent’s Annual Report for 1927,” 1927, p. 24.

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¹⁴. *Ibid.*, citing the following sources: Thomas Vint to George Larkin, 18 March 1927; George Larkin to Thomas Vint, 08 January 1927; National Archives, RG 79, Entry 7, Yellowstone National Park—620.31-630, box 1737; Jack Haynes to Edmund Rogers, 02 September 1940; Sanford Hill to Edmund Rogers, 13 September 1940, YNP Archives, box 079-63A-570, file 3, “Bldgs. Haynes.”

¹⁵. Mattson, Prugh, and Lenon, “Hamilton Stores Yellowstone National Park Old Faithful Photo Shop Remodel and Expansion,” August 11, 1986, in file “2780 Old Faithful Photo Shop,” Building Files, Branch of Cultural Resources, Yellowstone Center for Resources.

¹⁶. [Sonya Capek?], “Summary of O.F. Photo Shop Removal/Addition Project,” January 3, 1988, in file “2780 Old Faithful Photo Shop,” Building Files, Branch of Cultural Resources, Yellowstone Center for Resources.

¹. A card in Flat File 20 marked "BA Rear Wing" states: "proposed 24' addition not built Feb. 1, 1929." See also George A. Larkin, blueprint showing 24' addition, February 1, 1929, in same file. This blueprint is marked "submitted by J.E. Haynes, recommended by T.C. Vint, approved by Arno Cammerer." It is apparently represents the addition that Haynes says was constructed in 1932.

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¹. Ink drawing of building, no author, "1940 Remodeling of BA Basin Auto Shop," 1940, Scale 1/4"=1', Haynes Collection 1504, Flat File 20, Montana State University.

¹. J.E. Haynes to Edmund Rogers, June 8, 1942; and Edmund B. Rogers to Jack E. Haynes, June 10, 1942, in Haynes collection 1504, box 59, folder 48, Montana State University.

¹. Plans: George A. Larkin, "Haynes Inc. Picture Shop Addition Old Faithful Campground Yellowstone Nat'l Park," December 15, 1954; and pencilled plan G[eorge] A L[arkin], "First Floor Plan Haynes Picture Shop, Old Faithful Campground, Yellowstone National Park," January 28, 1955, "drawn for propane installation plan," both in Haynes Collection 1504, Flat File 20, Montana State University.

¹. Jack E. Haynes, "Buildings and Sales Stands Statistics," sheet I, January 1, 1951, in Haynes Collection 1504, box 59, folder 48, Montana State University.

¹. Author's telephone conversation with Dr. Charles Frank White of Norman, Oklahoma, September 11, 2003.

¹. NPS Historic Structure Survey Form, "Haynes' Photo Shop/HS-2780," December 7, 1982, p. 1, in National Park Service, "Yellowstone National Park Historic Resource Notebooks," vol. 14, Yellowstone Center for Resources. For a map of the site and surrounding structures in 1979, see NP-Yel 2655-C, in "2780 Old Faithful Photo Shop," Building Files, Yellowstone Center for Resources.

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¹. Mattson, Prugh, and Lenon, "Hamilton Stores Yellowstone National Park Old Faithful Photo Shop Remodel and Expansion," August 11, 1986, in file "2780 Old Faithful Photo Shop," Building Files, Branch of Cultural Resources, Yellowstone Center for Resources.

¹. [Sonya Capek?], "Summary of O.F. Photo Shop Removal/Addition Project," January 3, 1988, in file "2780 Old Faithful Photo Shop," Building Files, Branch of Cultural Resources, Yellowstone

Structural Evaluation

The Haynes Photo Shop, built in 1927, to replace the 1895 Haynes Photo Shop, appears to be constructed with sawn lumber framing, in standard dimensions for the time, with 2x4 walls spaced 16" to 24", 2x6 roof rafters and floor joists. The exterior is covered with lap-jointed 1x8 siding, and a log framing design applied to the exterior which does not serve as a structural framework. Photos showing the building being moved, shows the sill log completely removed, and the building sitting on cribbing. On-site investigations in the current location, show a concrete footing with the sillplate of the building sitting on the footing, but the "sill log" being completely non-loadbearing on any foundation surface. The interior walls were constructed of 2x4 framing, with dimensional lumber trim, and homosote board. Ceilings are also covered with homosote board. The use of this product which was introduced shortly after the building was constructed was

very popular in Yellowstone National Park for interior wall surfaces, due to ease of installation, in the pre-drywall days of construction.

Winterization

Apparently the building was heated with propane, starting in the 1950's period. Removal of celotex on the exterior walls and installation of fiberglass batt insulation with a vapor barrier would be the most cost effective way of increasing the building's ability to be used in the winter. The same treatment would be required of the open ceiling in the front portion of the building, which follows the roof line. Installation of ceiling fans would help keep heat from radiating out through the roof. Interior perimeter-sealing storm windows would also be recommended.

Electrical System

The electrical system is unknown, but investigations by the historic architect approximately a year ago revealed non-code compliant wiring with lit exit signage on the second floor. Presumably some wiring was replaced in the 1971 move to the current location. However, all power and utilities were severed after negotiations were completed with Business Management and the Poovah family who owned and operated Hamilton Stores for many years.

Plumbing and Restroom Facilities

Currently, the building is set up as a dormitory on the second floor, and does have showers and other amenities that would be suitable for overnight use by park employees, or as office and research space, without extensive remodeling. As a temporary visitor center, the current first floor facilities are not adequate. However, there is space in the existing first floor wing off the rear of the building to accommodate extra restroom space., although it is not likely, without further study, that the square footage for these accommodations would match those of the existing Visitor Center.

However, it could be anticipated that with the improvements in restroom facilities at the Yellowstone Upper and Lower General Stores currently under construction, improvements in restroom facilities at the Old Faithful Lodge and Old Faithful Inn, currently either under construction or being planned for this year, that pressure on these temporary facilities would not be as great as might be otherwise anticipated for the summer season. They would be adequate for winter use as a warming hut, however.

Fire and Life Safety

This building has two exits out of the second floor wing. One of the stairs is original to the 1951 Addition, however, we believe that a second staircase at the end of the wing may have been installed later, this is reasoned by the age and finish of the front staircase, where the rear has risers constructed of plywood, and does not look as professionally

finished as the front one by the entrance off the loading dock. There are no sprinklers, and only minimal fire and smoke detectors. The building would likely have to be sprinkled as part of the proposed use. Depending on use planned for the second floor, current IEBC codes would likely have it rated with an R rating as multiple residency, unchanged from its previous use. A change in use to office space would carry approximately the same rating.

Estimates of Work

The estimate to move the building to the OF Administrative Area was \$80,000. The move close to the building's location might be less, depending on circumstances, including tree removal, obstacles that would inhibit the move, such as electrical lines, curbing, parking lot islands, etc. An investigation of the structural foundation found an extremely well built foundation, with a centered concrete stubwall also serving as a foundation wall directly down the centerline of the 1951 addition. The crawlspace is approximately 4-5 feet high. This foundation is of extremely good quality construction, and would require extensive demolition and backfilling to reclaim this area.

Optional Alternatives for retention of building in Historic District

Alternative #1

Move the entire building to its original location and set up as combination Visitor Center and Bookstore for year-round use. Completely winterize structure, include complete heating system, dry pipe sprinkler system, and public restrooms, upgrade second floor rooms, and bathrooms/showers. New electrical, internet and phone systems would be installed.

Current OFVC Sq. Ft.	6,000	Photo Shop VC	1928 Sq. Ft.	Front	Sect.
Lobby	1,500	Lobby			1,000
Interpretative Ranger Desk	400	Interpretative Ranger Desk			400
Bookstore	500	Bookstore			528
Restroom (interior)	250	Restrooms (installed in wing)			800
Theater	3000				

Costs \$150 @ sq.ft. X 3250 = \$487,500

Alternative #2

Move entire building and set up as warming hut in winter, and scientific lab on ground floor in summer, along with summer use of building for offices and temporary quarters.

Costs \$115 @ sq.ft. X 3250 = \$373,750

Alternative #3

Move front portion of building temporarily for use as a warming hut, on temporary foundation, rear portion of building moved to another location for housing and office use.

Re-join building after VEC is complete in 2008 or not.

Warming Hut

\$65 X 1928 = \$125,320

Quarters/Offices total for both would be \$294,536 not counting second move

\$128 X 1322 = 169,216

Alternative #4

Warming Hut including closure of rear of building



GENERAL VIEW OF THE OLD FAITHFUL AREA - 1911



RETAIL WING IN PROCESS OF BEING MOVED TO A NEW LOCATION - 1971

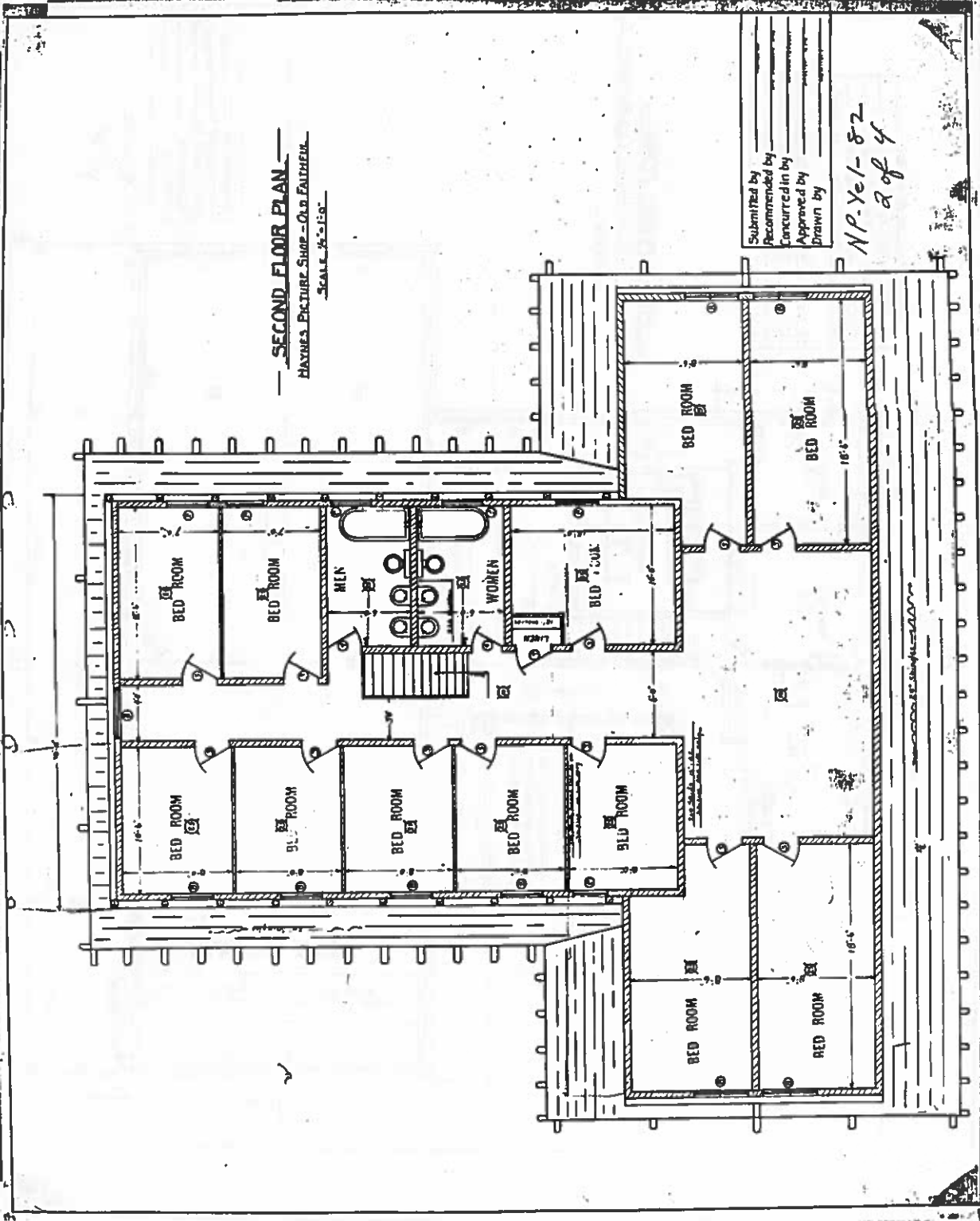


DORMITORY WING IN PROCESS OF BEING MOVED TO A NEW LOCATION - 1971



DORMITORY WING IN PROCESS OF BEING MOVED TO A NEW LOCATION - 1971

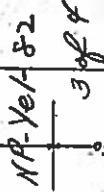
— SECOND FLOOR PLAN —
 HAYNES PICTURE SHOP - OLD FAIRFAX
 SCALE 1/4" = 1'-0"

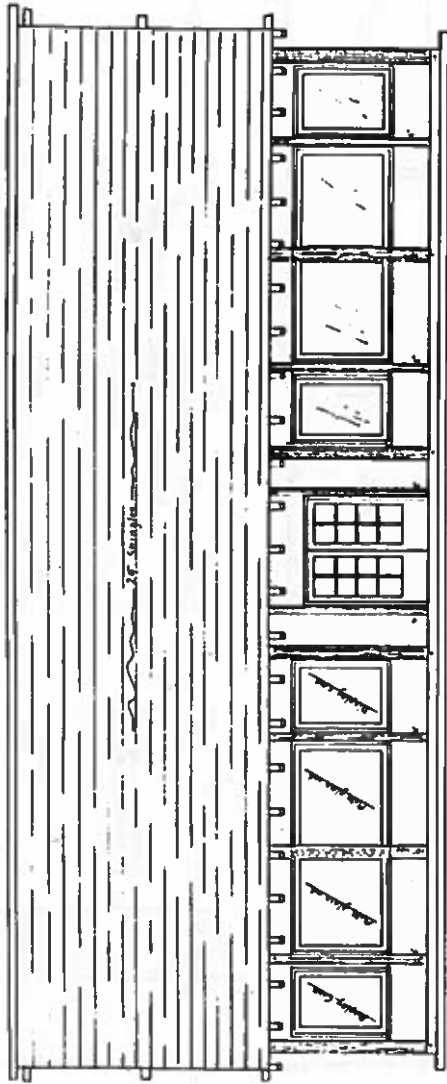


Submitted by _____
 Recommended by _____
 Concurred in by _____
 Approved by _____
 Drawn by _____

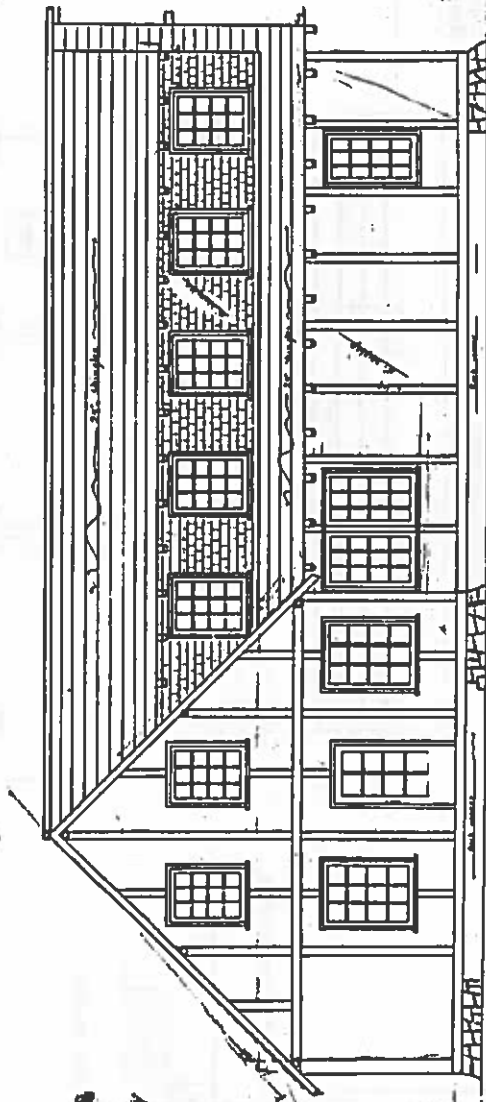
NP-ye1-82
 2 of 4

HAYNES PICTURE SHOP-OLD FAITHFUL
YELLOWSTONE PARK-WYOMING





FRONT ELEVATION



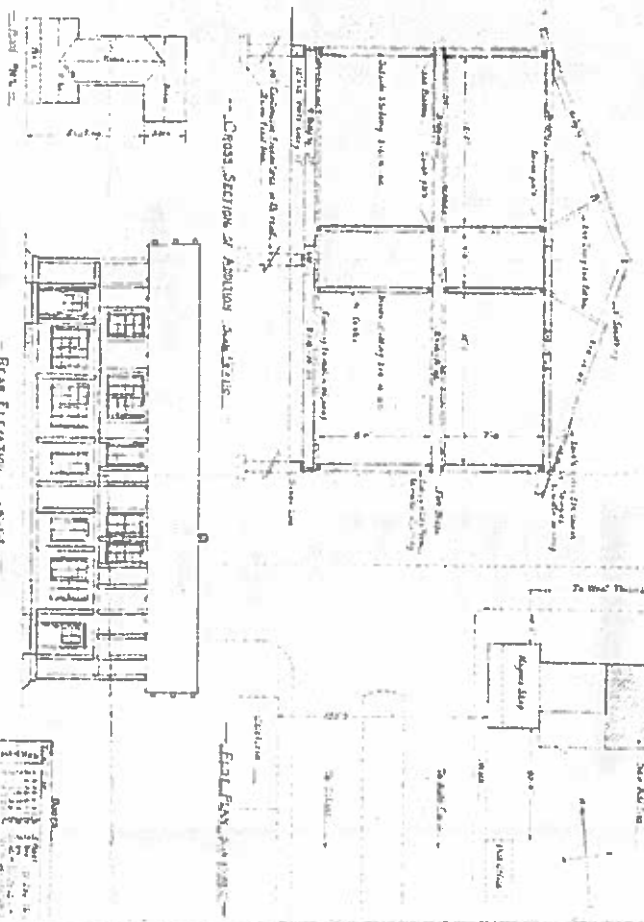
SIDE ELEVATION

NP-101-82
4 of 4

SECTIONAL ELEVATION

SECTIONAL ELEVATION

MINNET PINTIDE CHURCH

[illegible]



101-70040

ARCHAEOLOGICAL CONSIDERATIONS

In addition to presenting the documented history of the Haynes Photo Shop this report is intended to raise the awareness of all cultural values and to create a foundation for continued research into the building, its founders, its site or location, and its history. Although not the primary purpose of an Historic Structures Report, it must be recognized that understanding the occupation of the site over time has the potential to yield additional information that can contribute to the story of this location from both the standpoint of pre-history as well as history. For this reason it is recommended that all ground disturbing activities be observed with sensitivity regarding archaeological values. If buried features are encountered or if artifacts are unearthed that are thought to have the potential to add to the history of the facility or occupation of the site prior to construction of the building we recommend consultation with the Park Historic Architect, Archaeologist, or Historian.

CONDITION ASSESSMENT

Building materials were assessed on site in regard to condition. A rating method and priority system has been used for assessing the condition of materials and is described as follows:

MATERIALS RATING SYSTEM

- 1 - Historic Material - Preserve (in place)
- 2 - Historic Material - Preserve wherever possible; replace with in-kind
- 3 - Historic Material - Preserve wherever possible; replace with compatible
- 4 - Preserve where there is no reason for removal
- 5 - Remove/alter/replace (sensitively)
- 6 - Specified treatment not required

PRIORITY RATING SYSTEM

Critical - Requires immediate action to preserve essential historic features and materials experiencing advanced deterioration or to assure the stability of the building, or to preclude a threat to health or safety.

Serious - Materials or assemblies are approaching an advanced state of degradation, or will soon pose a threat to health or safety.

Minor - Degradation is minimal and preventative maintenance has not been followed; life expectancy of the material is reduced.

METHODOLOGY

- ❖ The horizontal and vertical size of the building was measured with tape measures and hand held devices.
- ❖ Materials on site were compared with the historic development of construction methods and technology as developed by the preservation, architectural, and engineering disciplines.
- ❖ Historic documentation and significance of the structure was reviewed.
- ❖ The structure was photographed in its current condition.
- ❖ Visual observations of defects were made and incorporated into this report.
- ❖ Assemblies that have failed or are approaching failure were recorded photographically.
- ❖ Structural calculations were done for typical supporting members to confirm their adequacy for continued use. The building was evaluated for resistance to earthquake generated forces.
- ❖ Building codes were reviewed to assess safety for occupancy and the general public.
- ❖ Other written material and evaluations for the building were reviewed and incorporated.

CONDITION ASSESSMENT - (CONTINUED)

HISTORIC BUILDING MATERIALS AND ASSEMBLIES

Site and Site Elements: All sides of the structure are surrounded by natural ground surface consisting of on-site gravel and earth intermixed with sparse natural grasses and turf; there is a setback from the street at the North (front) side, narrow turfed areas along the sides to the East and South, and a spacious open area at the West that is occupied by a paved parking area that extends from the building to the adjacent street. A concrete sidewalk accesses the main North entry from the street.

Concrete: The application of concrete is limited to foundation stem walls, footings, slab-on-grade at the front entrance porch, and a concrete stoop serving the SW exit stair. The date of the concrete is attributed to 1971 when the structure was moved to its current location.

CMU: CMU has been used as infill of beam pockets in the foundation walls of the crawl space (only) - all other sub-surface walls are of concrete. These pockets were used to lower moving girders into during the relocation.

Stone: None noted.

Brick: None noted.

Mortar: The mortar is associated with the CMU described above and occurs only in the crawl space. It is attributed to the 1971 date when the structure was moved; the mortar is in excellent condition.

Roofing Material: The photo shop roof is surfaced with wood shingles that are believed to have been installed as part of the 1971 relocation and rehabilitation. The existing roofing (and associated flashings) appear to be in serviceable condition and no action is recommended for this material at this time. Sheathing boards along the edge of the roof exhibit some deterioration and will need replacement at the time that the structure is re-roofed.

Metal Gutters and Accessories: None noted.

Structural Steel: The openings in the South wall of the retail wing that create the alcove for the Exhibit/Display area are framed with structural steel columns and beams that are clad with gypsum drywall coverings. The only other structural steel that was observed occurs in the crawl space beneath the retail wing of the Photo Shop and is in the form of turnbuckles and cables (see photos); these assemblies may have been installed as seismic ties or may have been used for re-alignment of the retail shop walls when the structure was re-positioned over the new foundation.

Cast Iron: None noted.

Sheet Metal and Flashings: Valley flashing between the intersecting roofs of the two primary wings is the only visible exterior flashing. The flashing appears to be in serviceable condition.

Soffit Materials: None

Roof Sheathing: Rough sawn 1 x boards (original).

CONDITION ASSESSMENT - (CONTINUED)

Fascia: A flat wood fascia occurs around the exposed edge of the small SW addition adjacent to the delivery dock; all other portions of the roof are without fascia and exhibit exposed purlins or rafter tails commensurate with this rustic style of architecture.

Brackets: None

Exposed Log: Exposed log ornamentation has been applied to the exterior of the structure to create a rustic appearance for the building and to relate the building to the natural forested areas that occur in this part of America's premier park. The decorative log occurs at the sill line, at the demising line between the two floors of the dormitory wing, at all corners of the structure, as vertical columns spaced along the elevations of the building between windows and openings, and as brace patterns in the upper gable ends of the walls. Exposed logwork is also visible in the form of rafter tails and purlins around the edge of the roof. The rafter tails and purlin ends have been installed primarily for aesthetic effect; although they support the edge of the roof overhang they extend into the attic areas just far enough to engage standard wood framing rafters and beams. All decorative logwork near the base of the building exhibits deterioration from the deep snow that occurs at this location and the logwork in these areas needs to be replaced. The decorative logwork above the snowline appears to be in good condition and should remain.

Wood Siding: Siding around all sides of the structure is lapped flat siding without reveal (shiplap siding). It is in fair condition but does require maintenance in the form of some re-nailing and new coating.

Exterior wood trim and casings: All exterior wood trim & casing is flat stock with butted joints; it is in fair condition.

Shutters: All lower level openings have removable wood shutters (protection from snow) and the shutters are currently in place. The shutters are serviceable; however, it is recommended that they be re-habilitated to be of similar appearance throughout since numerous styles are currently exhibited and the resulting view of the structure is inconsistent.

Windows and Glazing::

Dormitory Windows: The windows and glass in the dormitory wing are believed to be original to the date of construction (1951). Wood 4/4 double hung windows occur throughout the dormitory wing; they have been altered for a few openings serving lower level store rooms but could easily be rehabilitated to original appearance. They are glazed with single pane glazing and storm windows are recommended if the facility is to be used for off season or shoulder season purposes. Historic photos showing original glazing configurations confirm the location, size, and configuration of these openings.

Retail Wing Windows: Wood fixed glass divided lite transom windows occur above the large expanse retail show windows and main entry door; they are original to the building. Larger glass show windows occur around the exposed walls of the retail wing and also are believed to be original.

North (main) entry doors into retail wing: This entrance is centered along the North wall and it is accessed by a pair of full-light wood doors in good condition - the date of these doors is not known; however there is no reason to replace them. Hardware should be upgraded to comply with ADA requirements and an intermediate rail should be introduced to comply with glazing regulations.

SW Delivery door & SW Exit door: Wood doors attributed to the 1971 rehabilitation.

CONDITION ASSESSMENT - (CONTINUED)

Wood Framing: Wood framing materials can be seen in the crawl spaces and within the attic areas. All visible framing is in extremely good condition. Refer to the structural sections of this report for detailed descriptions of minor repairs that are recommended for the framing elements.

Flooring:

Retail wing - Flooring in the retail portion of the structure is resilient tile; it requires replacement and should be investigated for asbestos prior to removal.

Dormitory wing - Flooring throughout both levels of the dormitory wing is matched hardwood; it is in very good condition on the first floor level and poor condition on the upper level. The first floor delivery corridor, office area, kitchen, dayroom, and bathrooms (both floors) have had resilient flooring installed above the wood. All flooring on the first floor level is still serviceable. All wood flooring on the upper level requires repair and restoration.

As an observation the overall appeal of the facility could be improved by replacing the rubber base within lower level areas with wood base and co-ordinating warmer colors into the interior.

Ceilings :

Retail Wing - The ceiling is painted celotex (homasote) with painted wood battens covering joints in the sales area; and the ceiling in the exhibit/display area is non-combustible GPDW.

Dormitory Wing first floor - All ceilings are non-combustible GPDW.

Dormitory Wing second floor - All ceilings are non-combustible GPDW.

Interior Walls:

Retail Wing - All walls are painted celotex with painted wood battens covering joints in the sales area; and the walls in the exhibit/display area are non-combustible GPDW. Lower walls within the sales area have slatwall (grooved wood panels to attach sales shelving to) applied over the celotex.

Dormitory Wing first floor - All walls are non-combustible GPDW. Bathrooms have a wainscot of Marlite (plastic surfaced masonite) applied over the GPDW. FRP (fiber reinforced plastic) surfacing has been applied over the GPDW as a backsplash at the floor sink in the utility room.

Dormitory Wing second floor - All walls are non-combustible GPDW. Bathrooms have a wainscot of Marlite (plastic surfaced masonite) applied over the GPDW.

Wallpaper: There were no historic patterns of wallpaper observed in the building.

Interior Doors: Interior doors within the Dormitory wing are flush mahogany veneer doors; subject to further examination they are believed to be fire-rated doors at corridor openings. Upper floor doors have spring loaded hinges. To comply with regulations for new construction they would have to be smoke gasketed and be self closing. There are no interior doors within the retail wing. Door sizes for ADA accessible spaces and side-set for ADA doors both require revision for a few selected doors.

Millwork: All casing, base, and trims throughout are circa 1971 WP series pine moldings. It is recommended that the facility ultimately receive new period millwork that is sensitive to the architecture, location, and time period of the Photo Shop. This is judged to be a long term goal - it is not necessary to revise woodwork immediately.

Cabinetry: Lower Level kitchen cabinets -circa 1971. Cabinetry is well constructed and serviceable; if the Kitchen continues to be used this cabinetry could remain. As a footnote the Kitchen use would have to be further investigated because of the code implications associated with commercial versus occasional use and related fire issues.

CONDITION ASSESSMENT - (CONTINUED)

Stairs (interior): Both stairways must remain for exiting purposes. The South stairway can remain in its current configuration; however, it is recommended that the center stair be re-configured as noted elsewhere in this report.

Hardware: As noted elsewhere, exterior and exit door hardware should be replaced, first floor ADA accessible doors require new hardware, and all corridor doors require smoke seals and closers.

Exterior Painting: It is recommended that all exterior elements be repainted as part of a re-sealing and painting project. A color analysis was not done as a part of this study; however, the analysis could be done in the future. It was noted that the historic photos show lighter colored exterior walls than currently exist.

Mechanical: In-depth evaluation of mechanical systems was beyond the scope of work outlined for this project; however, it is not unreasonable to assume that major heating appliances have reached the end of their useful life and that more energy efficient appliances could be introduced into the facility. Improvements to energy efficiency could also affect how equipment is sized and utilized (see energy section of this report). All plumbing observed appears to have been brought up to 1971 standards and is in good condition. Water supply lines are soldered copper and waste lines are primarily cast iron.

Electrical: In-depth evaluation of electrical systems was beyond the scope of work outlined for this project; however it was noted that the entire dormitory wing was wired utilizing conduit, conductors were properly sized, and it is believed that grounding may have been accomplished by using the conduit for ground rather than a separate conductor; grounding needs to be further investigated as it relates to electrical codes. Panels may require upgrading and circuits are not properly identified. Less is known about the electrical system within the retail space.

CONDITION ASSESSMENT - (CONTINUED) MATERIALS INVENTORY

CAT	LOCATION	ELEMENT	DESCRIPTION	QTY	RTG	COND	PRIORITY
SITE							
Site		Site Landscaping	Natural Gravel along N. side of structure				Maintain; enhance
Site		Site Landscaping	Gravel w/ scattered grass & ground cover - South, East & West sides of building.	4	4	Fair	Minor
Site		Trees	Evergreens @ SW corner & along E. wall.				Maintain
Site		Site Grading	Adequate drainage to NE. N, & NW; potential for negative drainage around south end of dormitory wing and along portions of the East wall.	5	5	Mixed	Critical
Site		Site - Paths and walks	Conc walk to (N.) entry- ADA compliant				Maintain
Site		Site - Paths and walks	Paving along West side	1	1	Good	Minor
Site		Storage structures	Prefab wd units @ SW corner of structure	2	...	Fair	...
Site		Fences	Wd board fence along SW corner of bldg.	5	5	Fair	Minor
Site		Curbing	Partially Buried Logs	4	4	Poor	-
SUB-STRUCTURE							
Structure		Foundation 1- Main Building	Reinf Conc stem wall w/ seismic ties	1	1	Excellent	Minor
Structure		Foundation 2- Dorm Wing	Reinf Conc stem wall w/ seismic ties	1	1	Excellent	Minor
ROOF ASSEMBLY							
Main Building							
Roof		Roof ridge - main bldg only	Wood shingles (Boston lap)	3	3	Poor	Minor/Serious
Roof		Roof surfacing	Wood Shingles (sawn)	3	3	Poor	Minor/Serious
Roof		Air inflit. barrier	Unknown				
Roof		Roof sheathing	Spaced S4S boards	1	1	Good	Minor
Roof		Insulation - See Ceiling					
Roof		Flashing	Galvanized (porch & penetrations only)	3	3	Fair	Minor
Roof		Roof edging	None				
Roof Str		Rafters	2x6 S4S @ 16" O. C.	1	1	Excellent	Minor
Roof Str		Diagonal web/braces	2x4 or 1x8 shiplap	1	1	Excellent	Minor
Roof Str		Clg Joist/Bottom Chord	2x6 S4S @ 16" O. C.	1	1	Excellent	Minor
Outlookers		Decorative Log	Peeled Log rafter tails & purlin ends	1	1	Excellent	Minor

ROOF ASSEMBLY (CONTINUED)

Connecting Link

Roof	Roof ridge - main bldg only	Wood shingles (Boston lap)	3	Poor	Serious	Replace in near future
Roof	Roof surfacing	Wood Shingles (sawn)	3	Poor	Serious	Replace in near future
Roof	Air Infillt. barrier	Unknown				
Roof	Roof sheathing	Spaced S4S boards	1	Excellent	Minor	
Roof	Insulation - See Ceiling					
Roof	Flashing	Galvanized (porch & penetrations only)	3	Fair	Minor	Replace when roof
Roof	Roof edgeing	None				
Roof Str	Trusses-top chord	2x6 S4S @ 16" O. C.	1	Fair/Poor	Serious	Trusses need addn
Roof Str	Diagonal web	2x4 S4S	1, 5		Serious	gussets & nailing.
Roof Str	Bottom Chord	2x6 S4S @ 16" O. C.	1			
Outlookers	Decorative Log	Peeled Log rafter tails & purlin ends	1	Excellent	Minor	
Dormitory Wing						
Roof	Roof ridge - main bldg only	Wood shingles (Boston lap)	3	Poor	Serious	
Roof	Roof surfacing	Wood Shingles (sawn)	3	Poor	Serious	Replace in near future
Roof	Air Infillt. barrier	Unknown				
Roof	Roof sheathing	Spaced S4S boards	1	Good	Minor	
Roof	Insulation - See Ceiling					
Roof	Flashing	Galvanized (penetrations only)	3	Fair	Minor	Replace when roof
Roof	Roof edgeing	None				
Roof Str	Rafters	2x8 S4S or ruff-sawn @ 16" O. C.	1	Excellent	Minor	
Roof Str	Diagonal braces	2x4	1	Excellent	Minor	
Roof Str	Cfg Joist	2x6 S4S @ 16" O. C.	1	Excellent	Minor	
Outlookers	Decorative Log	Peeled Log rafter tails & purlin ends	1	Excellent	Minor	

FASCIA / SOFFIT

Exterior Roof Edge None

APPLIED DECORATIVE LOG STRUCTURE - EXTERIOR WALLS

Orig Log	Sill Logs	Applique all walls	5	Poor	Serious	Replace deteriorated
	Verticals	Applique all walls	1, 5	Varied	Serious	Replace Bases
	2nd floor line	Applique all walls	1	Fair	Minor	
	Gable Bracing	Applique all walls	1	Fair	Minor	

EXTERIOR WALLS

Walls	Siding	6" Wd T & G	2 Fair	
Walls	Air infiltration barrier	Unknown		
Walls	Framing	2x6 @ 16" O.C.	1 Good	
Walls	Insulation	Unknown		
Walls	Windows - Dorm	4/4 Double Hung wood	2 Fair/Poor	Minor
Walls	Windows - Main Building	Fixed, Sliders, and Casement	2 Fair	
Walls	Casings and Trims (thru-out)	1x4 jamb; 1x6 head flat wood profiles	2 Fair/Poor	
Walls	Exposed Purlin Ends	Peeled Log rafter tails & purlin ends	1 Good	
Walls	Main Entry Door	Pair - Wd w/ glazing	1 Good	
Walls	W. Center Door	??	5 ...	Code compliance
Walls	SW Door	??	5 ...	Code compliance
Walls	Removeable Shutters	Pld wd board assemblies	2 Fair	Make consistent
Walls	Signboards	Material unknown - contemporary	5 Fair	Remove

FRONT (NORTH) PORCH

Roof	See Main Building	Contemporary Metal	1 Good	
Roof	Edge Trim	2x6 @ 16" O.C.	1 Good	
Roof	Rafters	??	1 Fair	
Roof	Exposed Rafter Tails		1 Good	
Roof	Sheathing		1 Good	
Beams	Beam @ open side of porch	Laminated 2x6	5 Fair	Increase strength
Columns	Original Columns	Log	1 Good	
	Bracing Columns	4x4	1 Good	
Bracing	Struts; railing	Log and Timber	1 Good	
Floor/Walk	Concrete	Unknown if reinforced	1 Good	Eliminate

SW PORCH (DELIVERY DOCK)

Roof	See Main Building	2x6 @ 16" O.C.	1 Good	
Roof	Rafters		1 Fair	
Roof	Exposed Rafter Tails		1 Good	
Roof	Sheathing	T & G Decking	1 Good	
Beams	Beam @ open side of porch	Laminated 2x12	1 Good	
Columns		Log	1 Fair	
Floor/Walk	Concrete	Unknown if reinforced	1 Fair	

CANOPY AT SW DOOR

Roof	See Main Building		5	Remove or
Roof Str	Rafters	2x4's	5 ...	sensitively re-design
Roof Str	Braces	2x4's	5 ...	Remove
				Remove

1ST FLOOR INTERIOR - MAIN BUILDING (RETAIL)

Int-1st Fl.	Retail Space	Ceiling	Celotex panelized w/ battens	4	Fair	
Int-1st Fl.		N. Wall	Celotex panelized w/ battens	4	Fair	
			Slatwall display panels	5	...	Remove
Int-1st Fl.		E. Wall	Celotex panelized w/ battens	4	Fair	
Int-1st Fl.		W. Wall	Celotex panelized w/ battens	4	Fair	
			Slatwall display panels	5	...	Remove
Int-1st Fl.		S. Wall	Celotex panelized w/ battens	4	Fair	
			Open into Display Alcove			
Int-1st Fl.		Base	4" Wood - WP pine series	??	Fair	
Int-1st Fl.		Flooring	Resilient Floor Tile	5	Poor	Replace
Int-1st Fl.		Door(s)	See Exterior Wall Description			
Int-1st Fl.		Casing & Trims	??		??	
Int-1st Fl.		Vapor Barrier	??		??	
Int-1st Fl.		Ceiling Insulation	Fiberglass Blanket (R-19)	3	Good	
Int-1st Fl.	Display Alcove	Ceiling	GPDW	1	Good	
Int-1st Fl.		N. Wall	Open into Retail Space			
Int-1st Fl.		E. Wall	GPDW	1	Fair	
Int-1st Fl.		W. Wall	GPDW	1	Fair	
Int-1st Fl.		S. Wall	GPDW & Pegboard (p/d)	1, 5	Fair	Remove Pegboard
Int-1st Fl.		Base	4" Rubber	??	Poor	
Int-1st Fl.		Flooring	Resilient Floor Tile	5	Poor	
Int-1st Fl.		Door(s)	Flush wd door	4	Good	thickness ?? core ??
Int-1st Fl.		Casing & Trims	WP series pine	??	Fair	
Int-1st Fl.		Vapor Barrier	??		??	
Int-1st Fl.		Ceiling Insulation	Not insulated; habitable space above			

1ST FLOOR INTERIOR - CONNECTING LINK & DORMITORY WING

Note To Reviewer:

Rooms within the 1st floor of the Dormitory/Connecting Link wing are finished similarly and are therefore treated as a single entry into this spreadsheet; where there are differences in finishes they are tabulated separately below the general listing.

General Materials

Int-1st Fl.	Ceiling	GPDW	1	Good	
Int-1st Fl.	N. Wall	GPDW	1	Good	
Int-1st Fl.	E. Wall	GPDW	1	Good	
Int-1st Fl.	W. Wall	GPDW	1	Good	
Int-1st Fl.	S. Wall	GPDW	1	Good	
Int-1st Fl.	Base	4" Rubber (typical)	**	Varies	
		WP series pine @ main corridor only	**	Fair	
Int-1st Fl.	Flooring	Hardwood	1	Good	
Int-1st Fl.	Door(s)	Flush wood doors	??	Good	thickness ?? core ??
Int-1st Fl.	Casing & Trims	WP series pine	**	Good	
Int-1st Fl.	Vapor Barrier	??		??	
Int-1st Fl.	Ceiling Insulation	Not insulated; habitable space above			
Int-1st Fl.	Window(s)	See Exterior Wall Description			
Int-1st Fl.	Partition Framing	2x4 @ 16" O.C.	1	Good	
	Cabinetry		4	Good	
Kitchen	Mop Sink & Wall Backsplash		4	Good	
Kitchen	Wainscot	Marble w/ mtl trims	5	Varies	
Bathroom(s)	Lav Counters	PLAM	4	Good	
Bathroom(s)	Flooring	Resilient Sheet Flooring	5	Poor	

2ND FLOOR INTERIOR - CONNECTING LINK & DORMITORY WING

Note To Reviewer:

Rooms within the 2nd floor of the Dormitory/Connecting Link wing are finished similarly and are therefore treated as a single entry into this spreadsheet; where there are differences in finishes they are tabulated separately below the general listing.

General Materials

Int-2nd Fl.	Ceiling	GPDW	1	Good	
Int-2nd Fl.	N. Wall	GPDW	1	Good	
Int-2nd Fl.	E. Wall	GPDW	1	Good	
Int-2nd Fl.	W. Wall	GPDW	1	Good	
Int-2nd Fl.	S. Wall	GPDW	1	Good	
Int-2nd Fl.	Base	WP series pine (typical)	**	Good	
		4" Rubber (Bathrooms only)	**	Poor	
Int-2nd Fl.	Flooring	Hardwood	5	Very Poor	
Int-2nd Fl.	Door(s)	Flush wood doors	??	Good	
Int-2nd Fl.	Casing & Trims	WP series pine	**	Good	
Int-2nd Fl.	Vapor Barrier	??		??	
Int-2nd Fl.	Ceiling Insulation	Fiberglass blanket; voids in some areas	1	Fair	
Int-2nd Fl.	Window(s)	See Exterior Wall Description			
Int-1st Fl.	Partition Framing	2x4 @ 16" O.C.	1	Good	
	Wainscot	Marlite w/ mtl trims	5	Varies	
Bathroom(s)	Lav Counters	PLAM	4	Good	
Bathroom(s)	Flooring	Resilient Sheet Flooring	5	Poor	
					Refinish/Replace thickness ?? core ??
					Add to insul

STAIRS

Center Stair

Ceiling	GPDW	1	Fair	
Walls	GPDW	1, 5	Poor	Replace
Treads and Risers	Wood w/ Rubber center walking surface	1	Fair	Re-finish
Railing	Wood - one side only	1, 5	Fair	Add to railing

South Stair

Ceiling	GPDW	1	Fair	
Walls	GPDW	1	Fair	
Treads and Risers	Wood w/ Rubber center walking surface	1	Fair	Re-finish
Railing	Wood - one side only	1, 5	Fair	Add to railing

2ND FLOOR STRUCTURE				
Structure	Dorm Wing	2nd Floor Joists	2x10 @ 16" O.C.	1 Good
		2nd Floor Sheathing	1x Diagonal Sheathing	1 Good
1ST FLOOR STRUCTURE				
Structure	Main Bldg - 1927	1st Floor Joists	2x8 Ruff Sawn @ 12" O.C.	1 Good
		1st Floor Sheathing	1x wood boards	1 Good
		Framed Cripple Walls	2x4 @ 16" O.C.	1 Good
Structure	Dorm Wing - 1951	1st Floor Joists	2x10 @ 16" O.C.	1 Good
		1st Floor Sheathing	1x Diagonal Sheathing	1 Good
Structure	Conn Link - 1971	1st Floor Joists	2x10 @ 16" O.C.	1 Good
		1st Floor Sheathing	1x Diagonal Sheathing	1 Good

LATERAL FORCE RESISTING SYSTEM
 Structure See Structural Commentary

HARDWARE
 Hardware ??
 Hardware ??

MECHANICAL
 Mech TBD
 Mech Minor Retain ducts

ELECTRICAL
 Elec 1, 5
 Elec 1 Good

EQUIPMENT / FIXTURES
 Equip 4 Good
 Equip 4 Minor ADA trim
 Equip 5 Poor ADA compliant

SECURITY
 Security ??

FIRE DETECTION / EXTINGUISHING SYSTEMS

Fire
Fire
Fire
Fire

Fire Detection
Fire Alarm
Fire Extinguishers
Emergency lighting

None
None
Unknown

5
5
5
5

ERRATA

Painting

Exterior
Interior

5
3, 5

Repaint in entirety
Repaint in entirety

ENERGY CONSIDERATIONS

Cursory observations regarding thermal resistance available at the existing Photo Shop were made during the course of preparing measured drawings for the facility. Those observations are:

① Roof – Dormitory wing: The roof assembly of the dormitory wing is insulated with 6" of Fiberglass blanket insulation. Thermal resistance available from this assembly would have exceeded typical insulating practices for 1971 (date of the relocation of the structure) and would still meet the minimum building code requirements for 2005 under the aegis of the International Energy Code. However, should the NPS desire to increase thermal resistance for this portion of the structure it could easily be achieved since the attic of the Dormitory wing is relatively unobstructed and is readily accessible.

① Roof – Exhibit / Sales area: The roof assembly of the Retail wing is insulated with 6" of Fiberglass blanket insulation (R-19 rating). Comments regarding the Dormitory wing also apply to this portion of the structure.

① Walls – Dormitory wing: Wall construction for the Dormitory wing consists of a lapped siding exterior (embellished with applied log), 2x4 wood framing, and a GPDW interior. The walls may have been insulated in 1971 (along with new wall finish); if they are uninsulated - since there is a cavity available, thermal resistance could be introduced into the walls in a number of ways; (1) foam insulation injected into the cavity thru holes and the holes repaired when complete, (2) interior furring that includes high R-value rigid insulation (polyisocyanurate), or (3) exterior cladding that includes insulating materials. It is beyond the scope of this report to determine the most economical system for improving thermal resistance of the walls although injection of foam is a fairly common practice and specialty sub-contractors are available that routinely perform this work. Application of insulation to the exterior would be the least preferred option due to historical appearance.

① Walls – Exhibit / Sales area: Unknown; it is assumed that there is no insulation within the wall cavity since these walls were not refinished in 1971. As noted for the Dormitory wing, it is believed that insulation could be added utilizing one of the methods identified for the dormitory wing.

① Floor system – Dormitory wing: The floor system of the dormitory wing is 2x wood framing with a sub-floor and finish flooring. It is uninsulated. However, it could be easily insulated from the crawl space below. An alternative improvement would be to insulate the interior surface of the concrete crawl space walls with rigid insulation rather than to insulate the floor system. This would offer the advantages of providing a heated space for any plumbing that exists within the crawl space, is probably less costly, and may be easier to achieve. As a footnote, the substructure beneath the dormitory wing is in extremely good condition and the quality of workmanship equals or exceeds new construction standards.

① Floor system – Exhibit / Sales area: Similar to the Dormitory Wing, the floor system of the retail wing is 2x wood framing with a sub-floor and finish flooring. It is uninsulated. However, it too could be insulated from the crawl space below. As described for the Dormitory Wing an alternative improvement would be to insulate the interior surface of the concrete crawl space walls with rigid insulation rather than to insulate the floor system. Like the Dormitory Wing, the substructure beneath the Retail wing is in extremely good condition.

◆ Infiltration - Windows / doors are in fair condition; if it is envisioned that the facility would be used during off-season it is recommended that these assemblies be improved. Weatherstripping of doors is mandated and applying storm windows (preferably to the interior) is encouraged.

STRUCTURAL CONSIDERATIONS

CRITERIA FOR SELECTED STRUCTURAL SYSTEMS

LOCATION

Old Faithful; Yellowstone National Park - 44 degrees 46' North latitude; 110 degrees 52' West longitude; 8200' elevation (approx.).

STRUCTURAL BUILDING CODES

Building codes and requirements applicable to the engineering evaluation of this structure are as follows:

- 2003 International Building Code (An occupancy classification has been established in the Building Code section of this report)
- 2003 International Existing Building Code
- Recommended Lateral Force Requirements - Structural Engineers Association of California (reference only)
- MSU CE & EM publication: Snow Loads For Structural Design In Montana (Videon-reference only)
- Iowa State University Publication: Structural Snow Loads (Keller - University Of Colorado)
- ASCE 7-latest edition

LOADS

Loading and factors pertinent to the development of this structure include:

VERTICAL LOADS

Snow -

From MSU CE & EM publication:

Interpolated Ground Snow Load (50 yr reoccurrence) = (0.025) x (8200) = 205 PSF
(Drifted snow must be accounted for as applicable)

Roof Snow Load: (205) x (0.6 wind) x (0.8 slope) = 98 PSF

From Iowa State Univ. publication:

Roof Snow Load: (8200) x (0.012) x (0.9 Ce factor) = 89 PSF

USE 90 PSF

Floor Live Loads

Corridors and exits - 100 PSF

Assembly areas - 100 PSF

Offices - 50 PSF

Residential Occupancy - 40PSF

Mechanical & Electrical Equipment loads - Actual Weight

STRUCTURAL CONSIDERATIONS (CONTINUED)

Lateral Loads

Wind - 90 MPH basic wind speed; exposure 'B' (general) & exposure 'C' (cladding); importance factor of 1.0

Basic wind pressure $P = 11.77$ PSF (calculation attached)

Uplift on roof $P = (-) 15.86$ PSF

Overhangs (worst case) $P = (-) 31.05$ PSF

Seismic (earthquake); Static Lateral Force Procedure - section 1615 - IBC 2003

Seismic Use Group - 1.00 (non-essential use and non-hazardous use)

Importance factor 1.0

Site Class D (used in lieu of Soils investigation)

From Building Seismic Safety Council maps (NEHRP):

Maximum considered Earthquake - Short Period Response Coefficient = 1.50g

Maximum considered Earthquake - Long Period Response Coefficient = 0.50g

Soil / Structure interaction factors:

$F_a = 1.0$

$F_v = 1.5$

Design Earthquake Factors (% of gravity; adjusted for site and structural type)

$SDS = 1.00$ (short period earthquake)

$SD1 = 0.50$ (long period earthquake)

Evaluate structure based on worst load from (2) factors calculated above.

Based on the building code and calculation (attached), the Photo Shop falls into a "High Risk" category 'D' or 'E' classification.

Interior walls and partitions - 5 PSF lateral load (minimum)

Concrete / masonry wall base anchorage - 200 PLF

Distributed loads and total base shear are shown on the diagram in the appendix; *note that the factors and loads listed are for new construction.*

SOILS

It has not been determined that a soils investigation has been done at this site; the basis for the foundation engineering in 1971 is not known at this time.

OTHER CONSIDERATIONS

Hazardous materials: - obvious hazards were not identified at the site during the preparation of this report; however, a hazardous materials survey has not been conducted by a qualified analyst.

Movement of the structure: it is recommended that thermal, shrinkage, and time - dependent factors continue to be monitored at the facility.

STRUCTURAL CONSIDERATIONS (CONTINUED)

SELECTED STRUCTURAL "SAFETY CHECKS"

Loads and forces applicable to "safety checks" for the building are as listed above.

Building Code requirements as they pertain to structural members were also reviewed as part of this report. Code deficiencies as they are known to exist are listed below, along with a suggested method of mitigation:

FACTORS:

Live load reduction factors were not applicable to this review because the spans and supported areas in the facility are smaller than the minimums established by the building code.

Duration Of Load factors:

1. A duration of load factor of 1.15 has been assigned for Snow Loads.
2. A duration of load factor of 1.33 has been assigned for Seismic and Wind Loads.

Deflection is a measure of rigidity and is significant to safety for structures that are continuous frame systems; it is not generally a safety consideration for structures like the Haynes Photo Shop but is rather a measure of performance. Significant deflections were not noted at the property, based on visual observation.

FINDINGS:

For this report, calculations were done to the extent that weaknesses could be identified and decisions could be made regarding use of the building as well as developing the Preservation Plan; however, additional supplemental calculations would be required to develop connections and details at the time that remedial construction occurred. The following weaknesses have been identified:

- The small roof area above the connecting link that is spanned by a trussed roof assembly will have to be analyzed and the truss web members checked for adequacy. The trusses are not well connected, and there is significant distortion (judged to be material failure rather than structural failure) of some truss members. Selected members need to be replaced and all connections of the trusses need to be re-gusseted and re-anchored. This work can be done in place and the impact to the other materials within the attic would be minimal.
- Selected floor joists and rafters were checked as a part of this report. Members checked & results are:
 - Dormitory Rafters - Slightly overstressed (10%) at 90 PSF snow load; they are within allowable stresses with 80 PSF snow load. Based on their visual appearance and performance it is believed that they are adequate for continued use. Monitoring is recommended.
 - Dormitory Ceiling Joists - adequate; with some reserve strength.
 - Dormitory 2nd floor joists - adequate; with some reserve strength.
 - Dormitory first floor joists - subject to further review; bracing from center fnd. support may be required.
 - Retail wing first floor joists - adequate; with some reserve strength.

Other members remain to be checked; based on performance there is no reason to believe that they are undersized at this time.

STRUCTURAL CONSIDERATIONS (CONTINUED)

- Seismic factors were developed as a part of this report (see above and appendix); and a general seismic analysis of the structure was completed. The general analysis utilized the same criteria as for new construction, did not include torsional effects, did not take into account available load reduction factors (1.33 factor), and assumed that the weight of the first floor and foundation contributed to the overall base shear; the analysis was completed to the extent that shear forces in the exterior walls could be compared with available resistance on-site. For simplicity the general analysis assumed that the two wings were independent of one another and that the connection was made with either a seismic joint or included a shear collection element that was able to resist the combined loads from the two respective wings.

As a point of information earthquake loading as required by building codes is based on statistic probability that is determined from the history of seismic activity in a region, the presence of known faults in the area, and the geology of the underlying soils. The coefficients used in the formulas are then developed by the National Earthquake Center and published in the building codes as maps. Seismic forces are high at Old Faithful due to the volatile nature of the site and the high acceleration factors that the building codes list for that location.

The Haynes Photo Shop structure has inherent lateral resistance; the structure is a box (shear wall) assembly, the cellular nature of the dormitory rooms adds resistance to lateral forces, and the use of wood members make it a fairly ductile (forgiving) structural system. By 1971 attention to seismic forces was well established and it is speculated that the structure was reviewed for lateral forces at that time. The structure has also experienced significant forces from historic seismic events (i. e. Hebgen quake of August 1959) and does not exhibit any significant failures or crack patterns that would be expected from an overstressed building.

The available resistance offered by the existing exterior walls at the Haynes Photo Shop consists of the combined resistance from the shiplap siding (horizontal board diaphragm) and the interior gypsum wallboard. Results from the general seismic analysis were mixed – the long axis shear walls (walls parallel to the long dimension of the wings) would be deficient for new construction criteria but could be brought into compliance with relatively minor bracing; however, the short dimension walls (walls parallel to the short dimension of the wing) are grossly inadequate for forces as analyzed for new construction. Bracing is mandated for the short direction walls, and, as good construction practice it is recommended that the corners of the long walls in the retail wing be stiffened due to the high percentage of glass in those retail wing walls.

Existing buildings are not necessarily required to meet the criteria used for new construction – the degree of compliance is dependent on the anticipated continued use of the facility as well as any anticipated changes within the facility. This topic requires decision making and further calculation; once initiated the evaluation of a complete seismic resisting system should be carried to conclusion (beyond the scope of this report). One way to provide additional resistance for the structure would be to incorporate the non-structural log applique as bracing elements; this strategy could be pursued with little effect on the appearance of the structure.

As a footnote there is a cabling system within the crawl space of the retail wing that may have been intended to provide seismic resistance - this assembly requires additional investigation to confirm its purpose. The concluding thought is that further investigation is mandated.

- Door and window headers - not checked during the preparation of this report. By inspection, conventional carpentry practices would be adequate for these members.
- Exterior wall studs – due to their length the wall studs in the Retail Wing were checked during the preparation of this report. They are marginally overstressed under full snow load (within 6%) at those conditions where they are full height; note that the porch roof provides stability along the North wall and the Dormitory wing provides stability to the South. Although the 'Log-Out' elements are primarily decorative they could be used to stabilize the wall studs in the end walls with minor modifications to the connections between the log members, and it is recommended that this be done.
- Soils related movements - None were noted during visits to the site during the preparation of this report.

BUILDING CODE REVIEW

A building code analysis was done for the **Photo Shop** to determine if there were major areas of concern to be addressed as part of the preservation plan. This analysis is general in nature but it includes the primary elements that impact current and future use of the facility. Additional detailed building code requirements would be considered during subsequent phases of project development or preparation of construction documents; detailed requirements are defined to include those technical issues that would not adversely impact the concepts or recommendations for this structure.

Building Codes reviewed during the preparation of this report included:

_ 2003 International Existing Building Code (IEBC)

The provisions of this Code constitute the minimum standards for change of occupancy, alteration, or repair of existing buildings and structures including Historic structures. The purpose of this code is to encourage the continued use or reuse of existing buildings and structures.

_ 2003 International Building Code (IBC)

This Code provides minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings and structures. This code is intended for use with new structures and as a source of criteria for the IEBC by reference.

_ NFPA 101 - Life Safety Code

CRITERIA

As applicable to the **Photo Shop**, the IEBC has been determined to be the primary reference for evaluation of the property. If in the process of evaluating the structure an unsafe condition is uncovered, then the appropriate authorities will be duly advised..

The requirements of IBC are generally stricter than those of the IEBC due to the fact that they are applicable to new construction rather than the reuse of existing buildings; however, the two codes are very similar in regard to topics dealing with life – safety issues. Both codes were consulted and are reported on in the following pages in the interest of allowing park administration to evaluate the benefits of attaining a higher standard of safety if cultural values are not compromised and if the cost / benefit ratio is low.

The application of the IBC and its companion code, the IEBC, is a recent development in the Western United States. The IEBC, in contrast to its forerunner the UCBC, is more lenient in regard to recognized historic structures that are to remain as-is or are to be repaired; however, alterations or changes in occupancy quickly shift the emphasis toward new construction criteria depending on the level of impact from the proposed changes. The IBC and the IEBC also require automatic fire sprinkler systems to a much greater extent than the previously used codes. Depending on the nature of the historic property these systems can be intrusive and compromise cultural values; at the very least they add considerable expense to the maintenance of the property. Those impacts are identified on the following pages.

Reviewers are cautioned that the code information contained in this document is informational only; as projects are developed further research and consultation of the building code is warranted.

The requirements of IEBC differentiate between repair, alteration, and additions (or relocation) of existing buildings; generally the more a structure is changed then the more restrictive the application of the building codes. As an example an existing building that is repaired (only) is not required to meet as many provisions of the building code as one that is altered or added to. The IEBC has further established three different levels of alterations to existing buildings for purposes of evaluating code requirements; therefore, doing a code analysis on an existing building is directly tied to knowing how much change is planned for the structure in the future.

To assist in understanding how this may be applied to the **Haynes Auto Camp Picture Shop** a 'codeflow' chart has been developed that shows which portions of the building code are applied to the various repairs or changes that can occur to existing buildings. The chart is incorporated on the following page.

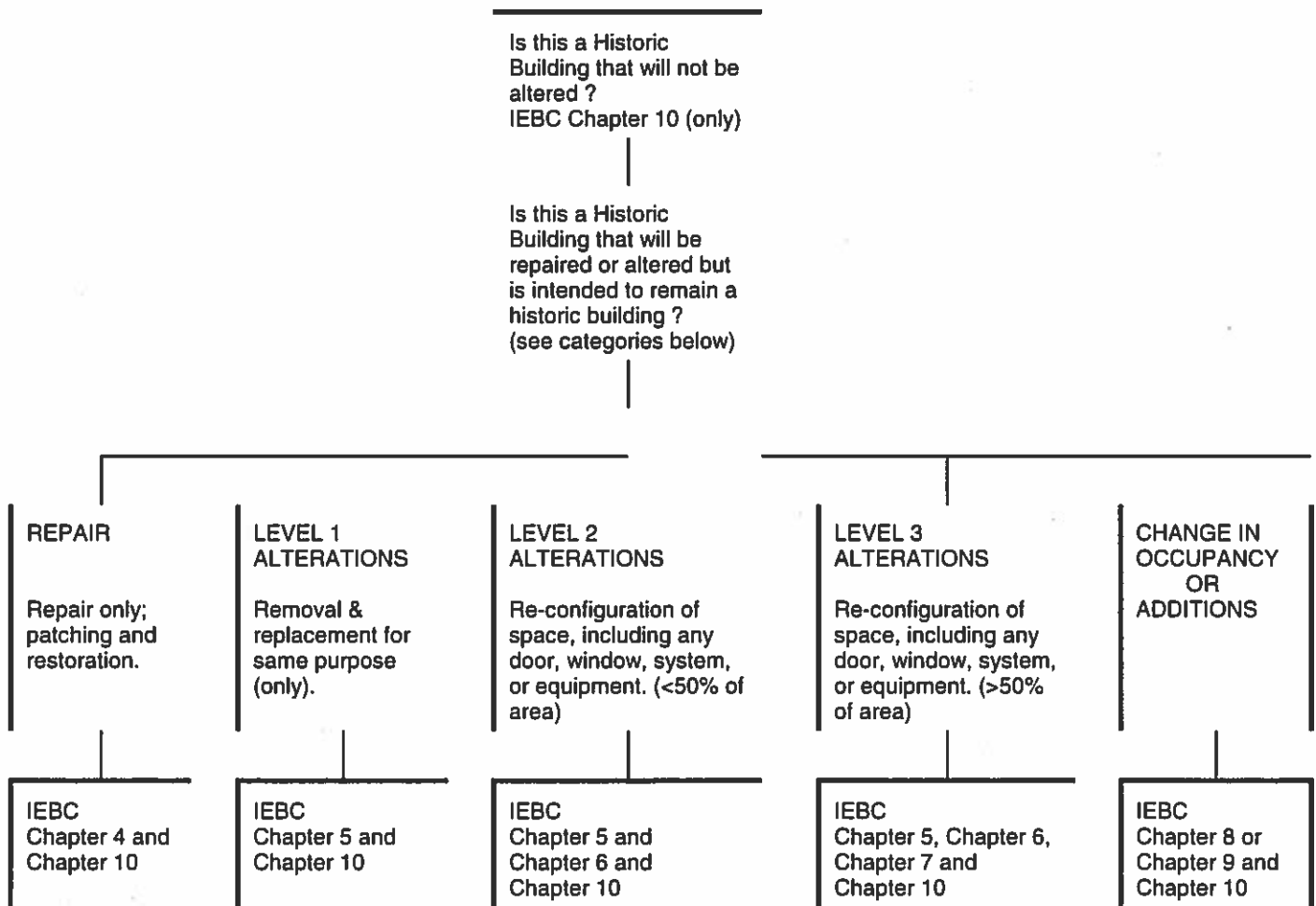
In the interest of being thorough, several of the code alternatives were looked at as they may apply to this historic property. Those alternatives are documented within this section of the report in chart format. Conclusions and recommendations from the comparisons of the various alternatives may be found at the end of the section.

BUILDING CODE REVIEW (CONTINUED)

The following flowchart identifies the path of Building Code analysis to be applied to any Historic property as well as a brief description of the criteria that determines which classification is appropriate to the project. Each level has different requirements with the least impactful requirements in the left category and the more restrictive and impactful requirements progressively listed toward the right. The applicable chapters of the IEBC that apply to the classification are listed below each category for the convenience of the reviewer.

As noted in the first box the fewest requirements would be for an Historic Property that will not be altered.

INTERNATIONAL EXISTING BUILDING CODE (IEBC) FLOWCHART



The Haynes Auto Camp Picture Shop historic property has been evaluated as an unaltered building, a repaired building, and a Level 1 Alteration building for comparison on the following pages; other classifications can be reviewed at the discretion of Park Administration.

BUILDING CODE COMPARISONS

Two charts have been prepared to assist in the decision-making process for re-using this facility:

The first chart tabulates broadscope building code requirements as they would apply to the following uses for the structure:

- Building used as-is; and for the same purposes it was used for historically (Retail and Residential); this category is for comparison only recognizing that by programmatic agreement the structure cannot be used for retail.
- Building used as-is; repaired only without consideration to historic designation.
- Building used as-is; replacement materials or assemblies only.
- Building used as a change in occupancy; but remaining as an historic property.
- Building used for new purposes with minor re-configuration; (Retail used for Assembly or Exhibit; Dorm wing used for housing or offices).
- Building totally remodeled for new purposes; (Retail used for Assembly or Exhibit; Dorm wing used for housing or offices).

To complete this comparison, it was necessary to incorporate some simplifying assumptions. They are:

- The Dormitory Wing was rehabilitated in 1971 to comply with the 1970 Uniform Building Code; code changes since 1973 (including greater emphasis on existing structures and recognition of historic structures) would apply.
- Regardless of the proposed use for the facility, it would be desirable to optimize accessibility for ADA as a publicly owned building.
- Although application of the *INTERNATIONAL EXISTING BUILDING CODE* permits judgement on the part of the building official regarding fire issues it has been assumed that the building official would adopt stricter views regarding fire compliance for this facility because of geographic location, limited resources, and the potential use of the facility during un-accessible (winter) seasons.

The second chart attempts to synthesize the broadscope requirements of the first chart into work specific to this building for the categories identified. For simplicity the categories of 'historic use' and 'repair only' have been deleted since it is assumed that at least a portion of the building will experience a change in occupancy (the retail wing) and that some re-configuration will be required to satisfy accessibility requirements as well as create safer stair enclosures.

Although the compilation may seem extensive, the reviewer is reminded that there are some very positive aspects to this structure and that some items on the deficiency list are relatively inexpensive to achieve. Included among the positive factors to consider are:

- The foundation and sub-structural walls are in extremely good condition and are likely well engineered (1971).
- The dormitory wing is well compartmentalized for fire safety with fire resistive walls, ceilings, and floors in every room (attributed to the 1971 application of building codes).

- Exiting and corridors generally comply with requirements of current codes (again; 1971).
 - Mechanical and Electrical systems also date to 1971; in the case of the electrical distribution system it is likely that many of the materials and devices can continue to be used - however, mechanical systems have served for approx. 35 years and are likely due for replacement.
 - The structure is insulated; it will not comply with current IECC requirements but adding to the energy envelope could be achieved with relative ease because of the open nature of attic spaces and crawl spaces.
 - Structural elements (rafters, joists, and beams) are suitable for continued use. There are a few selected truss members that need strengthening (or better connections) and selected seismic bracing will be required.
-

The recommended treatment for the building after consideration to the classifications studied is to perform all work on the Photo Shop to comply with the Level 2 category of improvement; this alternative will preserve and protect the greatest amount of historic fabric - and at the same time give NPS flexibility in the utilization of the resource. Furthermore, all proposed uses imply ADA toilet improvements that will cause re-configuration of some of the space within the facility resulting in a Level 2 determination.

As a footnote detailed spreadsheets of the various levels of building code analysis are appended to this report in an Appendix.

CHART 1 - BUILDING CODE REQUIREMENTS FOR DIFFERENT LEVELS OF USE

** FOR PURPOSES OF THIS COMPARISON, LEVEL 3 ALTERATIONS ARE TREATED THE SAME AS NEW CONSTRUCTION REQUIREMENTS. EXISTING FLOOR AREAS = 6033 S.F.

CODE REQUIREMENT	HISTORIC STRUCTURE IEBC - CH. 10	REPAIRED BUILDING IEBC - CH. 4	LEVEL 1 ALTERATION REPLACEMENT FOR SAME PURPOSE	LEVEL 2 ALTERATION MINOR RE-CONFIGURATION	NEW CONSTRUCTION/ LEVEL 3 ALTERATION MAJOR RE-CONFIGURATION	CHANGE OF OCCUPANCY
1. Allowable Area	Not defined; 20 % increase if change occupancy	Not defined - stays same size	Not defined - stays same size	Not defined - stays same size	23000 S.F.	27600 S.F.
2. Allowable Height	Not defined	Not defined	Not defined	Not defined	2 story (type V-A)	Not defined
3. Fire Rating - structural frame	1-hr or FSS; same as 1970 UBC*	1-hr or FSS; same as 1970 UBC*	1-hr or FSS; same as 1970 UBC*	1-hr or FSS; same as 1970 UBC	1 - hour	1-hr or FSS; same as 1970 UBC
4. Fire Rating - interior bearing walls	1-hr or FSS; same as 1970 UBC*	1-hr or FSS; same as 1970 UBC*	1-hr or FSS; same as 1970 UBC*	1-hr or FSS; same as 1970 UBC	1 - hour	1-hr or FSS; same as 1970 UBC
5. Fire Rating - Floor Construction	1-hr or FSS; same as 1970 UBC*	1-hr or FSS; same as 1970 UBC*	1-hr or FSS; same as 1970 UBC*	1-hr or FSS; same as 1970 UBC	1 - hour	1-hr or FSS; same as 1970 UBC
6. Fire Rating - Roof Construction	1-hr or FSS; same as 1970 UBC*	1-hr or FSS; same as 1970 UBC*	1-hr or FSS; same as 1970 UBC*	1-hr or FSS; same as 1970 UBC	1 - hour	1-hr or FSS; same as 1970 UBC
7. Fire Separation Walls	Not Req'd	Not Req'd	Not Req'd	Not Req'd	Not Req'd	**depends on occ.
8. Fire Barrier Wall - Occ Separation	2 - hr or FSS**	2 - hr or FSS**	2 - hr or FSS**	2 - hr or FSS	2 - hour	2 - hr or FSS**
9. Fire Barrier Walls - Exit ways (stairs and corridors)	1 - hr or FSS*	1 - hr or FSS*	1 - hr or FSS*	1 - hr or FSS	1 - hour	1 - hr or FSS*
10. Fire Partitions - Guest Rooms	Required or FSS	Required or FSS	Required or FSS	Required or FSS	Required	Depends on Occ.
11. Fire Doors - Stairways	1 - hour or FSS*	1 - hour or FSS*	1 - hour or FSS*	1 - hour or FSS	1 - hour	1 - hour or FSS*
12. Fire Doors - Corridors	20 - min. or FSS*	20 - min. or FSS*	20 - min. or FSS*	20 - min. or FSS	20 - min.	20 - min. or FSS*

CODE REQUIREMENT	HISTORIC STRUCTURE IEBC - CH. 10	REPAIRED BUILDING IEBC - CH. 4	LEVEL 1 ALTERATION REPLACEMENT FOR SAME PURPOSE	LEVEL 2 ALTERATION MINOR RE- CONFIGURATION	NEW CONSTRUCTION/ LEVEL 3 ALTERATION MAJOR RE- CONFIGURATION	CHANGE OF OCCUPANCY
13. Fire Exits	No Less Safe	No Less Safe	No Less Safe	(2) from each wing.	(2) from each wing.	(2) from each wing.*
14. Interior Finishes	No requirement	No Less Safe	Class A/Class C	Class A/Class C	Class A/Class C	Class A/Class C
15. Fire Alarm System	No requirement	No requirement	No requirement	Required	Required	may be required
16. Smoke / Heat Vents	No requirement	No requirement	No requirement	No requirement	No requirement	No requirement
17. Smoke Alarms/Detection	No requirement	No requirement	No requirement	Required	Required	may be required
18. Emergency Lighting	No requirement	No requirement	No requirement	Required	Required	may be required
19. Accessibility - Rooms; all accessibility provisions subject to detailed requirements.	No requirement if no changes, repairs, or alterations.	No less accessible	(1) entry; (1) toilet; (1) ea. rep. Space	(1) entry; (1) toilet; (1) ea. rep. Space; all new spaces.	All Spaces	(1) entry; (1) toilet (min).
20. Doors - Panic Hardware	****	No Less Safe	****	Req'd @ 'A' occ.	Req'd @ 'A' occ.	****Req'd if change retail to 'A' occupancy.
21. Stair Handrails	No Less Safe	No Less Safe	No Less Safe	(1) / stair; same as 1970 UBC	(1) / stair; same as 1970 UBC	(1) / stair; same as 1970 UBC
22. Stairway Enclosure	1 - hr rated*	No Less Safe	No Less Safe	1 - hr rated	1 - hr rated	1 - hr rated*
23. Exterior stairs/fire escapes	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
24. Egress Windows	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
25. Natural Light (8%); Natural Ventilation (4%)	No requirement (exist complies)	No requirement (exist complies)	No requirement (exist complies)	No requirement (exist complies)	Required	Subject to Bldg. Official review
26. Energy Efficiency	No requirement	No requirement	All new work to conform to IECC	All new work to conform to IECC	Must comply w/ IECC	All new work to conform to IECC
27. Combustible Exterior Materials	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted

CODE REQUIREMENT	HISTORIC STRUCTURE IEBC - CH. 10	REPAIRED BUILDING IEBC - CH. 4	LEVEL 1 ALTERATION REPLACEMENT FOR SAME PURPOSE	LEVEL 2 ALTERATION MINOR RE- CONFIGURATION	NEW CONSTRUCTION/ LEVEL 3 ALTERATION MAJOR RE- CONFIGURATION	CHANGE OF OCCUPANCY
28. Roof Covering	No Less Safe	No Less Safe	No Less Safe	New work to be Class 'B'	Class 'B'	New work to be Class 'B'
29. Mechanical	No requirement if no changes, repairs, or alterations.	No Less Safe	New work (only) to comply with IMC	New work (only) to comply with IMC	comply with IMC	New work to comply with IMC
30. Plumbing	No requirement if no changes, repairs, or alterations.	Some materials prohibited - lead, thinwall, etc.	New work (only) to comply with IPC	New work (only) to comply with IPC	comply with IPC	New work (only) to comply with IPC
31. Electrical	Repairs to comply w/ NEC (generally)	Repairs to comply w/ NEC (generally)	Repairs & new work to comply w/ NEC	Repairs & new work to comply w/ NEC	comply with NEC	Repairs & new work to comply w/ NEC
32. Special Construction	No requirement if no changes, or alterations.	No requirement if no changes, or alterations.	N/A unless elevator added at owners discretion.	N/A unless elevator added at owners discretion.	Applies to Elevator for accessibility requirements.	N/A unless elevator added at owners discretion.
33. Security	No requirement unless added at owners discretion.	No requirement unless added at owners discretion.	No requirement unless added at owners discretion.	No requirement unless added at owners discretion.	No requirement unless added at owners discretion.	No requirement unless added at owners discretion.

* Applies only if the existing conditions are declared unsafe by the Building Official.

** This separation assumes Assembly use of the retail wing, and Dormitory use of the residential wing.

*** NPS has a policy of Fire - Sprinklering all residential occupancies; this policy would affect cost of utilizing facility.

CHART 2 - BUILDING CODE REQUIREMENTS - SPECIFIC IMPROVEMENTS

Topic	PROPOSED USES FOR THE HAYNES AUTO CAMP PICTURE STORE IN OLD FAITHFUL			Total Remodel without consideration to Historic Designation
	Change In Occupancy retaining Historic Designation	Level 2 Alteration retaining Historic Designation w/ Change in Occupancy		
Fire Suppression System; (NPS policy for R occ.)	Add Fire Sprinkler System	Add Fire Sprinkler System		Add Fire Sprinkler System
Fire Barrier Wall between Occupancies (includes attic)	2 - hour rating	2 - hour rating		2 - hour rating
Modifications to Exit Stairs	Enclose for smoke; re-configure for landings and door swings	Enclose for smoke; re-configure for landings and door swings		Enclose & fire rate for 1-hour; re-configure for landings & doors
Corridor doors				Rated for fire; provide closers
Number of Exits***	Add 2 nd exit from former retail space	Add 2 nd exit from former retail space		Add 2 nd exit from former retail space
Interior Finishes		Rated in exits; fire retardant applied in former retail area		Rated class A in former retail area; rated class C elsewhere
Fire Alarm System	Required	Required		Required
Smoke detection	Required	Required		Required
Emergency Lighting	Required	Required		Required
ADA accessibility	(1) entry; (1) toilet; (1) ea. representative space. Wider doors at 1 st floor. ADA hardware at 1 st floor.	(1) entry; (1) toilet; (1) ea. representative space. Wider doors at 1 st floor. ADA hardware at 1 st floor.		All spaces accessible; Elevator required. Wider doors at 1 st & 2 nd floor. ADA hardware throughout.
Panic Hardware	Required at exits from former retail	Required at exits from former retail		Required at exits from former retail

Stair Handrails	Replaced w/ stair re-configuration	Replaced w/ stair re-configuration	Replaced w/ stair re-configuration
Energy efficiency	New work to comply with IECC; recommend adding insulation.	New work to comply with IECC; recommend adding insulation.	All must comply with IECC
Roof covering	Existing can remain; must be class 'B' if replaced	Existing can remain; must be class 'B' if replaced	Must be class 'B'
Mechanical	New work to comply with IMC	New work to comply with IMC	Comply with IMC
Plumbing	New work to comply with IPC	New work to comply with IPC	Comply with IPC
Electrical	New work to comply with NEC	New work to comply with NEC	Comply with NEC
Structural	Repair selected trusses; stiffen beam at entry porch; Seismic report & bracing.	Repair selected trusses; stiffen beam at entry porch; Seismic report & bracing.	Repair selected trusses; stiffen beam at entry porch; Seismic report & bracing.

*** Communicating doors between former retail wing and dormitory wing may be able to be used to satisfy need for 2nd exit from former retail wing depending on how the corridor and stairs in the dormitory wing are reconfigured (IBC permits exiting through intervening spaces in some cases).

EVALUATION OF HAYNES AUTO CAMP PICTURE SHOP FOR COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT.

The general categories that are analyzed for compliance with ADA guidelines are listed in the table below. Topics that are related to more than one historic property within the Old Faithful Building Complex are annotated in the 'BUILDING COMPLEX' column of the table and will not be specifically addressed by this report on the Haynes Auto Camp Picture Store.

CATEGORY	APPLICABLE	NOT APPLICABLE	BUILDING COMPLEX; ADDRESSED BY SEPARATE STUDY	COMMENTS
1. ACCESSIBLE ROUTE	X			Provided - no further action required.
1 - PARKING	X			Designated parking spaces to be assigned.
2 - PASSENGER LOADING ZONE	X			(1) Required - none exists for this facility.
3 - PATHWAYS			X	Numerous accessible paths surround the structure.
4 - DRINKING FOUNTAINS (AND TELEPHONES)	**			**Add if they do not already exist.
5 - RAMPS	X			Front (main) entrance is grade level entrance. A ramp to the SW exit is recommended.
6 - STAIRS	**			**Re-configuring the central stair is recommended; revising the T & R profile can be done.
7 - LIFTS		X		None required
8 - ENTRANCES	X			Door @ SW exit does not comply w/ ADA rqmts.; other doors @ 1st fl. rms to be reviewed.
9 - DOORS AND GATES	X			Door hardware does not comply with ADA rqmts.
10 - BUILDING LOBBIES AND CORRIDORS		X		No formal Lobby per se; see discussion regarding corridors
11 - ELEVATORS	**	**		2nd fl. not req'd to be accessible. (4.1.3 exc. 1)
12 - ROOMS AND SPACES	X			1st fl. Bathrooms & 1 st fl. rooms to be accessible.
13 - ASSEMBLY ROOMS	X			Fully accessible - no further action required.
14 - TOILET ROOMS	X			Restrooms do not comply; 1 st fl. to be reconfigured
15 - BATHTUBS AND SHOWERS	X			Restrooms do not comply; 1 st fl. to be reconfigured
16 - RESTAURANTS AND CAFETERIAS		X		
17 - HEALTH CARE		X		
18 - MERCANTILE		X		
19 - LIBRARIES		X		
20 - POSTAL FACILITIES		X		
21 - DWELLING UNITS	X			1st fl. Bathrooms & 1 st fl. rooms to be accessible.

SUMMARY

Mandatory Accessibility Provisions:

1. Designate ADA parking space(s) within the parking lot for this facility.
2. Provide ADA unloading/loading zone for this facility (may be related to parking space).
3. Provide (or re-activate) ADA telephones and drinking fountain within facility.
4. Make SW exit door ADA compliant (including rescue landing or ramp).
5. Revise entrance hardware and hardware into accessible spaces to be ADA compliant.
6. Provide a minimum of (1) accessible toilet room on first floor.
7. Revise doors into designated 1st floor rooms to be accessible.

Alternative Accessibility Provisions:

1. Re-configure central stairway to be ADA compliant. (In addition to ADA issues the central stair does not meet landing requirements for new stair construction; it is, however, "no less safe" as an existing element as interpreted by the building codes. However, the nature of the lack of an upper landing at this stair is judgementally a hazard as shown by the photographs within this report, and it is therefore strongly recommended that this condition be improved for continued use of the facility). Furthermore, if the building is used for a higher hazard occupancy, at least one of the two stairways in the Dormitory Wing must be fire enclosed - reconfiguration would also facilitate fire enclosure of the stair (IBC 1005.3.2 exception 8 & IEBC Chapter 8).
2. Provide elevator to serve 2nd floor.
3. Make 2nd floor toilet rooms accessible.

The provisions identified above have been integrated into the overall Preservation Plan with the strategy that alternative measures do not have to necessarily be done but need to be considered as the building continues to be used. Improvements to the central stair have been treated as a mandatory requirement for purposes of this report.

THE PRESERVATION PLAN

BASIS FOR THE PRESERVATION PLAN

The **Preservation Plan** is derived from review of the historic documentation of the Haynes Photo Shop, the rating/priority matrix of the condition assessment, and the technical evaluations of fire, code compliance, and structural safety.

The extent of work to be accomplished at the property must be consistent with a high standard of preservation ethics and integrity as mandated by the ***Secretary of the Interior's Standards for the Treatment of Historic Properties***. The recommendations contained within this Preservation Plan are based on the following rationale:

The proposed treatment of the building is preservation of existing fabric and replacement with in-kind materials to the maximum extent feasible, with consideration to protection of persons and property from life - safety issues. The intent is to sensitively integrate life - safety elements and new uses into the structure (recognizing that they ensure the long-term life of the building) without compromising the historic character.

Continued use of the Photo Shop will have elements of Preservation, Rehabilitation (if there is a change in historic use), and Restoration included within work suggested by this report. Reconstruction is not contemplated.

1. Exterior elements will be preserved and enhanced.
2. All interior spaces will be preserved; modifications for changes in use as well as life - safety improvements will be treated as rehabilitations within a historic structure.

The final appearance of the Photo Shop is intended to be essentially the same as what we see today; with emphasis on having the building appear well - maintained and related to it's surroundings. The building has conveyed that appearance throughout much of it's history, has had little (if any) change to its appearance, and continues to convey a sense of time and tradition as an excellent example of rustic "log - out" architecture as it was developed during the maturing years of Yellowstone national Park.

PRIORITY #1

Fundamental Protection of at-risk elements has been identified as the first priority of preservation to be addressed. Stability of the trusses within the connecting link attic and completion of a seismic evaluation are identified under this priority.

PRIORITY #2

Fire safety has been assigned as Priority # 2. Construction of a fire barrier between the two wings within the attic, enclosure of the two stairs in the dormitory wing, and introduction of a fire sprinkler system consistent with NPS policy are the primary fire concerns.

PRIORITY #3

Rehabilitation and Sealing of the Exterior Building Envelope has been assigned as Priority # 3. Replacement of deteriorated decorative logwork, site drainage, and exterior maintenance and / or enhancement are identified.

PRIORITY #4

Providing for changed use and ADA accessibility issues are Priority # 4. Depending on proposed uses, there may be very little rehabilitation required to the floor plan. The building was found to be deficient in regard to ADA restroom accommodations, exit platforms, and access to first floor secondary spaces.

OTHER PRIORITIES:

A listing of other work to be done to the Haynes Auto Camp Picture Store and a prioritization of that work is shown on the accompanying table. The prioritization sequence is based on the condition assessment developed in an earlier section of this report, numerous site visits, and in-office evaluation of the current conditions at the facility.

It is realized that budgetary restraints as well as the logistics of construction sequencing will have an effect on the implementation of this plan; however, the table does reflect the order of importance of preservation activities as determined by this report.

PRESERVATION PLAN

PRIORITY #1

Safety
 Safety
 Safety
 Gussett selected trusses
 Seismic Evaluation
 E. Q. bracing

1 See text
 1.1 Code requirement
 1.2 ??

PRIORITY #2

Fire
 Fire
 Fire
 Fire/ADA
 Int-1st Fl.
 Fire
 Fire
 Fire
 Fire
 Fire
 Occupancy Separation
 Enclose stairs
 Add fire suppression sys
 SW & Ctr exit door & landing
 Door(s)
 Add smoke detection
 Add Fire Alarm System
 Add emergency lighting
 Panic Hardware - exits
 Fire Extinguishers

2
 2.1 Re-configure
 2.2 Fire Sprinkler
 2.3 Ramp option
 2.35 thickness ?? core ??
 2.4
 2.5
 2.6
 2.7
 2.8 Add / Upgrade

NPS Policy

Flush wd door

Good

Unknown

PRIORITY #3

Orig Log
 Orig Log
 Site
 Sill Logs
 Verticals

Applique all walls
 Applique all walls
 Site Grading
 8" - 12" Log attached to wood framing.
 8" - 12" Log attached to wood framing.
 Adequate drainage to NE, N, & NW;
 - South, East & West sides of building.
 potential for negative drainage around
 south end of dormitory wing and along
 portions of the East wall.

Poor
 Varied
 Mixed
 3 Replace deteriorated
 3.05 Replace Bases
 3.1 Create swale at
 S. end & E. wall

Site
 Site
 Site
 Walls
 Canopy
 Canopy
 Walls
 Walls
 Walls
 Porch
 Porch
 Painting
 Curbing
 Storage structures
 Fences
 Signboards
 Rafters
 Braces
 Windows - Dorm
 Removeable Shutters
 Windows - Main Building
 Beam @ open side of porch
 Bracing Columns
 Exterior

Poor
 Fair
 Fair
 Fair
 ...
 ...
 Fair/Poor
 Fair
 Fair
 Fair
 Good
 3.15 ?? Co-ord w' site
 3.2 Rec. Relocate
 3.22 Remove
 3.24 Remove
 3.26 Remove
 3.28 Remove
 3.3 Add storm windows
 3.3 Make consistent
 3.35 ??
 3.4 Increase strength
 3.45 Eliminate
 3.5 Repaint in entirety

PRIORITY #4

ADA	1st floor unisex toilet		4
Equip	Showers	Poor	4.02 ADA compliant
Equip	Lavatories	Good	4.05 ADA trim
Equip	Water Closets	Good	4.07 ??
Mech	Plumbing	Good	4.09 Modify where new
ADA	1st floor door widths		4.1 Increase for ADA
ADA	Replace Door Hardware - 1st		4.12 ADA access
ADA	Identify Parking Stall		4.14
ADA	Assign Unload Zone		4.16
Mech	Heating	..	4.2 Retain ducts
Elec	Retail Wing	..	4.22 Upgrade
Elec	Dorm Wing	Good	4.24 Modify where new
Int-1st Fl.	Retail Space	...	4.3 Remove
Int-2nd Fl.		Very Poor	4.3 Refinish/Replace
Int-1st Fl.	Flooring	Poor	4.32 Replace
Center Stair	Flooring	Poor	4.4 Replace
Center Stair	Walls	Fair	4.41 Re-finish
South Stair	Treads and Risers	Fair	4.42 Re-finish
Center Stair	Treads and Risers	Fair	4.43 Add to railing
South Stair	Railing	Fair	4.44 Add to railing
Painting	Interior	Fair	4.5 Repaint in entirety
Energy	Insulate walls		4.6
Energy	Add insul to attic (optional)		4.7

PRIORITY #5 - MISCELLANEOUS

Structure	Foundation 2- Dorm Wing	Excellent	5 Remove debris
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PRIORITY #6 - ENHANCEMENTS

Site	Site Landscaping	Natural Gravel along N. side of structure	Fair	6 Maintain; enhance
Site	Site Landscaping	Gravel w/ scattered grass & ground cover	Fair	6.05 Maintain; enhance
Int-1st Fl.	Retail Space	Celotex panelized w/ battens	Fair	6.1 Enhance / Replace
Int-1st Fl.	Retail Space	4" Wood - WP pine series	Fair	6.11 Enhance / Replace
Int-1st Fl.	Retail Space	??	??	6.12 Enhance / Replace
Int-1st Fl.	Display Alcove	GPDW & Pegboard (ptd)	Fair	6.13 Remove Pegboard
Int-1st Fl.	Display Alcove	Resilient Floor Tile	Poor	6.14 Enhance / Replace
Int-1st Fl.	Display Alcove	4" Rubber	Poor	6.15 Enhance / Replace
Int-1st Fl.	Display Alcove	WP series pine	Fair	6.16 Enhance / Replace
Int-1st Fl.	Dorm Wing	WP series pine @ main corridor only	Fair	6.2 Enhance / Replace
Int-1st Fl.	Dorm Wing	WP series pine	Good	6.21 Enhance / Replace
Int-1st Fl.	Bathroom(s)	Resilient Sheet Flooring	Poor	6.22 Replace
Int-1st Fl.	Dorm Wing	4" Rubber (typical)	Varies	6.23 Enhance / Replace
Int-1st Fl.	Dorm Wing	Hardwood	Good	6.24 Add to finish
Int-1st Fl.	Kitchen		Good	6.25 Refinish
Int-1st Fl.	Bathroom(s)	Marlite w/ mtl trims	Varies	6.26 Replace
Int-1st Fl.	Bathroom(s)	PLAM	Good	6.27 ??
Int-2nd Fl.		WP series pine (typical)	Good	6.3 Enhance / Replace
Int-2nd Fl.	Casing & Trims	WP series pine	Good	6.31 Enhance / Replace
Int-2nd Fl.	Flooring	Resilient Sheet Flooring	Poor	6.32 Replace
Int-2nd Fl.	Base	4" Rubber (Bathrooms only)	Poor	6.33 Replace
Int-2nd Fl.	Wainscot	Marlite w/ mtl trims	Varies	6.34 Replace
Int-2nd Fl.	Lav Counters	PLAM	Good	6.35 ??

PRIORITY #7 - FUTURE

Roof	Roof ridge	Wood shingles (Boston lap)	Poor	7 Replace in near future
Roof	Roof surfacing	Wood Shingles (sawn)	Poor	7.1 Replace in near future
Security	Security system	None		7.13 Add system
Roof	Flashing	Galvanized (porch & penetrations only)	Fair	7.2 Replace when roof



OVERALL SITE VIEW FROM THE NORTHWEST



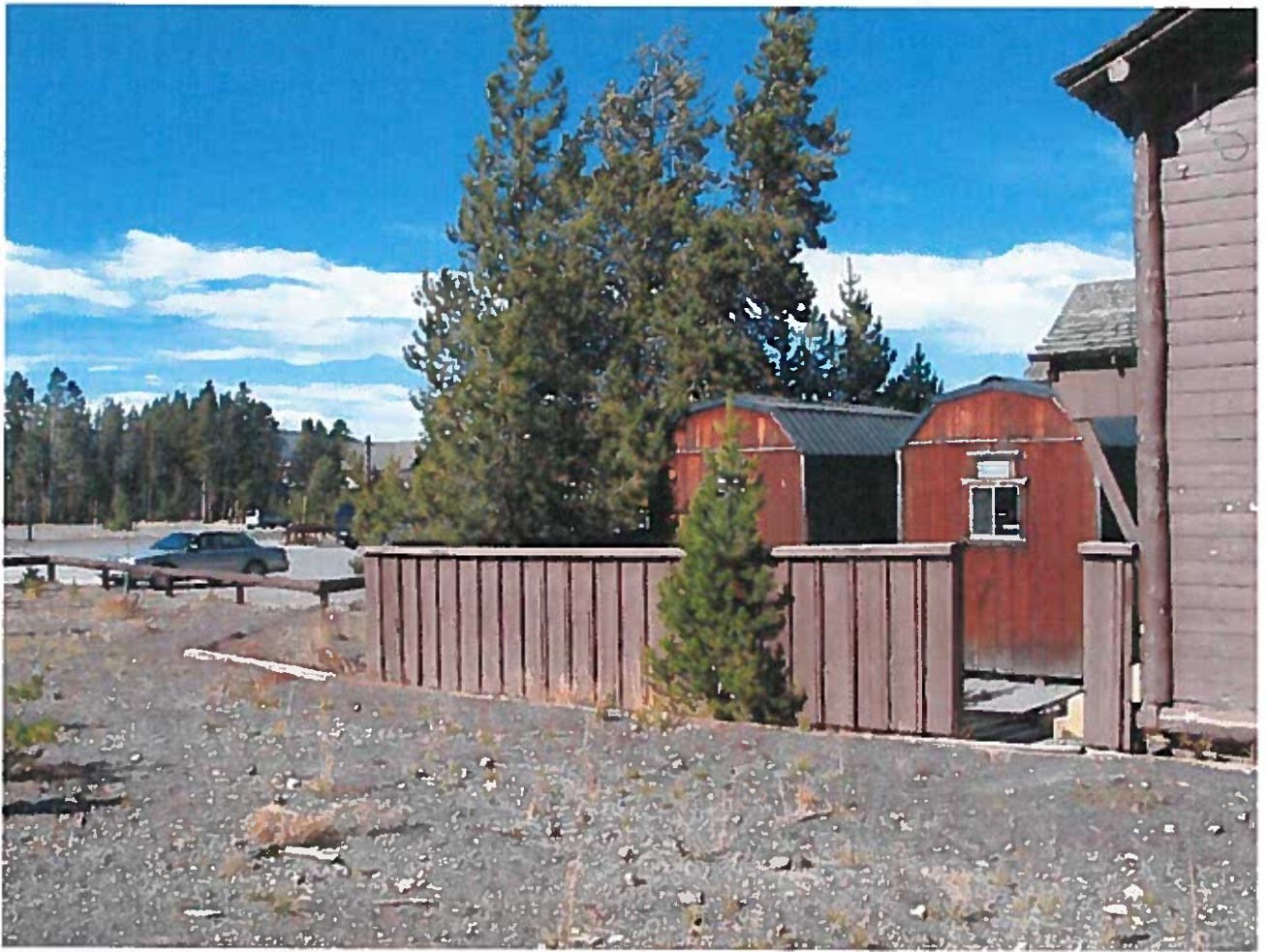
ADJACENT 'SNOW LODGE' STRUCTURE THAT WRAPS AROUND THE SOUTH AND EAST SIDES OF THE HAYNES HISTORIC PROPERTY



Haynes Auto Camp Picture Store - Old Faithful - YNP



OVERALL SITE VIEW FROM THE WEST



RELOCATEABLE STORAGE SHEDS LOCATED AT THE SOUTHWEST CORNER OF THE STRUCTURE

It is recommended that these units be relocated to a less publicly visible area so that views of the Haynes structure as well as the Snow Lodge can be maximized.



NORTH ELEVATION - MAIN ENTRANCE INTO STRUCTURE

Note that sidewalk is at grade and is accessible; large retail windows on first floor are covered with shutters (winterized).



WEST ELEVATION - SIDE ENTRANCE/EXIT AND FORMER DELIVERY ENTRY INTO STRUCTURE

Shed roofed projection at the corner of the retail wing and the dormitory wing is a 1971 addition.



SOUTH ELEVATION -

Tables, chairs, and walkway are related to the adjacent Snow Lodge.



VIEW FROM SOUTH EAST



**EAST ELEVATION OF
HAYNES AUTO CAMP
PICTURE STORE**

Portion of Snow Lodge can be seen at the left side of the photo of the South end. Note that drainage could be improved around the South end of the Dormitory Wing (left end).

Northern end of East Elevation

All exterior photos shown on this and preceeding pages describe the "log out" applied log decoration representative of structures built in Yellowstone during the time period of this building. It is not a fenestration that is widely used except for structures associated with "Parkitecture" or romantic log constructions at timbered and recreational landscapes.





WEST END OF FRONT PORCH

DETAIL - FRONT PORCH

Note intermediate temporary supports between original porch columns for snow load. The supporting beams could be strengthened to eliminate the need for the temporary supports.





CLOSE-UP VIEW OF SIDE ENTRANCE/EXIT AND FORMER DELIVERY ENTRY INTO STRUCTURE

Note that the applied log fenestration was also used for this addition.

SIGN PLACQUE - SOUTH WALL
(east & West walls similar)

It is recommended that these placques be removed and once a new use has been determined for the struacture that a more sensitive system of signage be applied for building identification.

It is also recommended that the antenna be removed and the roof repaired as required.



LOG CURBING

Partially buried log curbing is located along portions of the East and South walls of the building - it may have been intended to function as a planting bed perimeter for foundation planting.



ROOF INTERSECTIONS - SW RE-ENTRANT CORNER OF BLDG.

This photo shows all (3) roof edge conditions:

1. Exposed false purlin ends,
2. Exposed wd framing rafter tails,
3. Wood flat fascia (SW addition only)

The edge sheathing board should be replaced at the time that the structure is re-roofed.

CONC PLINTH @ BASE OF COLUMNS

The wood columns at the front entrance porch have been separated from grade by concrete plinths as illustrated (painted).





DETAIL OF APPLIED LOG FENESTRATION AT THE FRONT ENTRY PORCH

Note that the applied log members are non-structural and are decorative elements applied to the exterior of the structure - as shown on following pages selected portions of these members need to be replaced.



DETAIL OF LOG "APPLIQUE"

Note splice in applied decorative log work.

DETAIL - LOG "APPLIQUE"

The upper frieze log could be extended if desired for visual purposes.





**INTERSECTION - APPLIED LOG SILLS
AND COLUMN**

SW corner of Retail Wing of building.

SAME INTERSECTION - VIEW FROM EAST

Note deteriorated log members that need to be replaced.





INTERSECTION - APPLIED LOG SILLS
AND COLUMN

NE corner of Retail Wing of building.

EXAMPLE OF APPLIED COLUMN
TO BE REPLACED WITH NEW
LOWER SECTION.





**NEGATIVE DRAINAGE -
SE PORTION OF
STRUCTURE**



**UNKNOWN FEATURE -
THIS MAY BE FOR CRAWL
SPACE VENTILATION**

Located along East wall of
foundation.

DETAILED PHOTOS OF LOG
DETERIORATION IN THE
APPLIED DECORATIVE SILL
LOGS.





CRAWL SPACE BENEATH RETAIL WING SHOWING NEW REINFORCED CONC FOUNDATION



REMOVEABLE PANEL IN NEW FOUNDATION WALL.

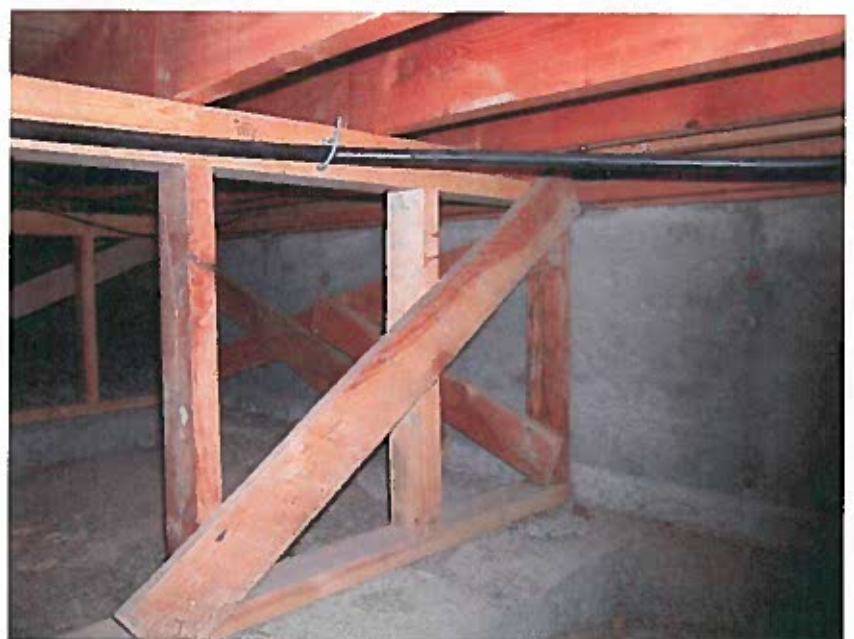
CMU could be removed in this area of foundation if required. Note the good condition of the existing floor joists as well as the new wood framed cripple wall in the upper photograph. These CMU blockouts are thought to have been used as pockets for girders during the moving process for the building.

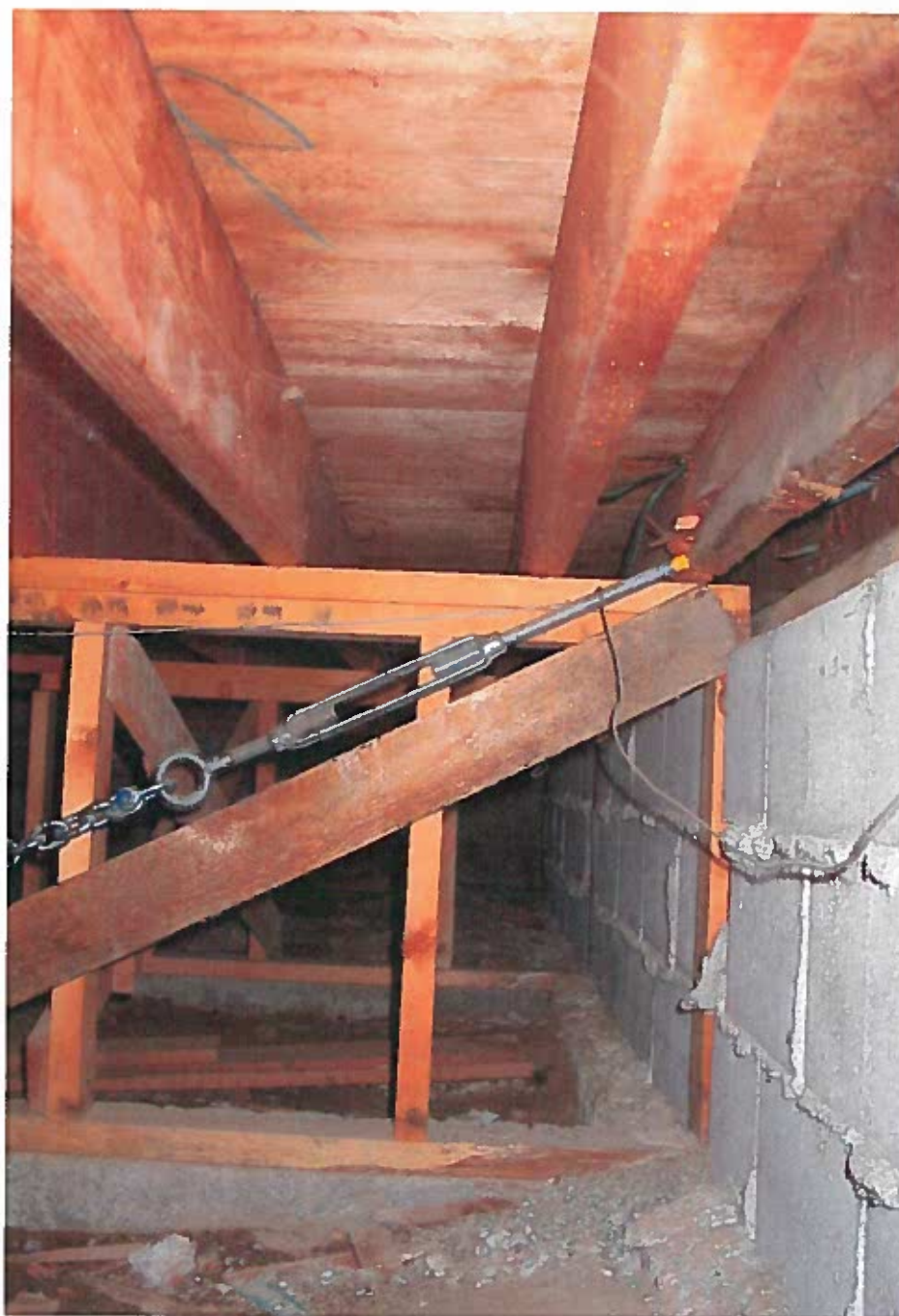


CRAWL SPACE BENEATH RETAIL WING

Detail of Cross Bracing between intermediate cripple wall supports.

East end condition at Cripple Walls





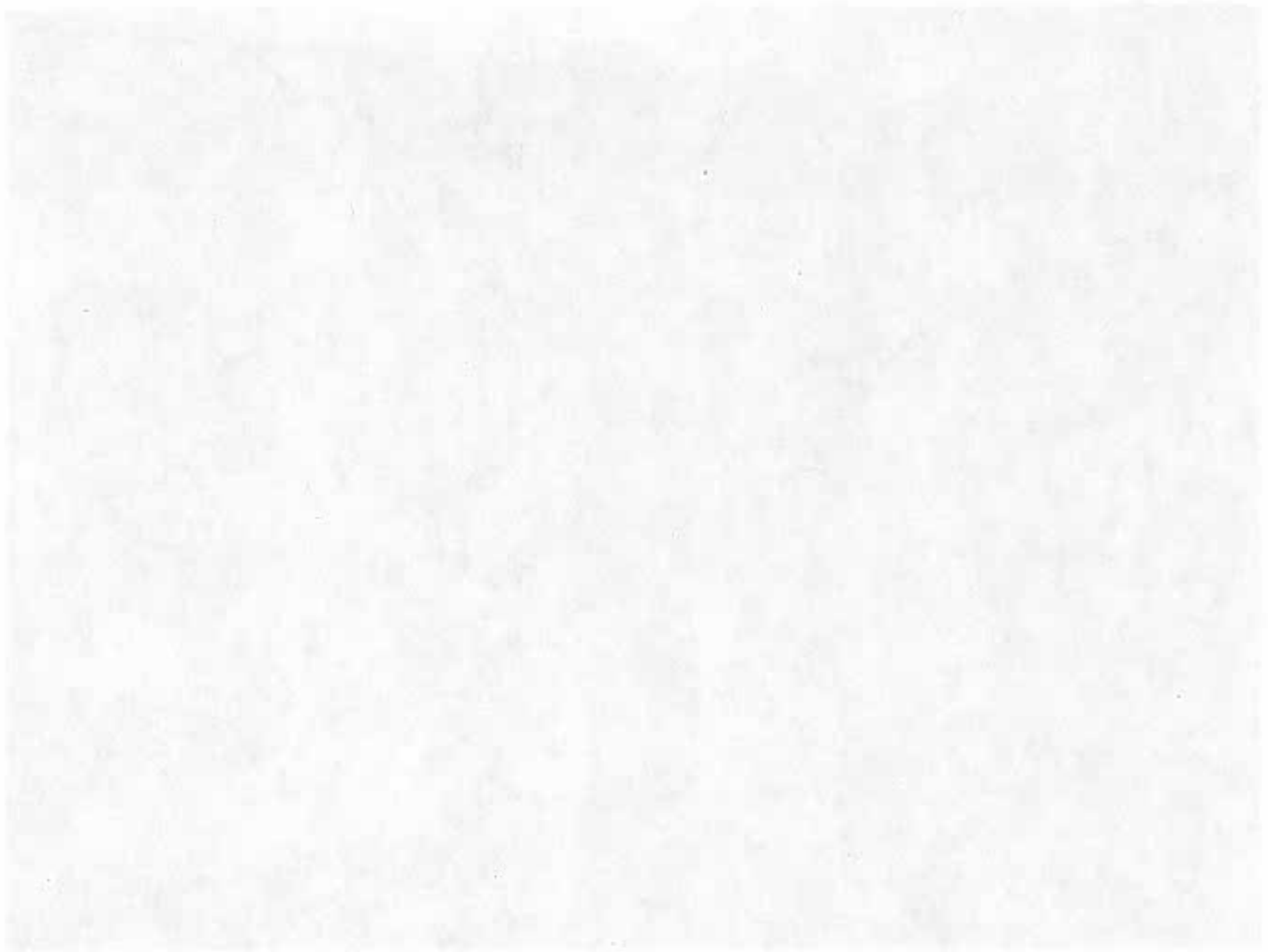
CRAWL SPACE BENEATH RETAIL WING

Detail of NORTH SEISMIC TIE (NorthWest corner)



CRAWL SPACE – TYPICAL OF BOTH RETAIL & DORMITORY WINGS

Detail of Crawl Space ventilation (currently filled with insulation); the blockouts for the floor girders used during the moving process has been utilized as a way to ventilate the crawl space.



THE HAYNES AUTO CAMP PICTURE STORE - OLD FAITHFUL - YNP

THE HAYNES AUTO CAMP PICTURE STORE - OLD FAITHFUL - YNP



NEW FLOOR
SYSTEM
BENEATH
DORMITORY
WING



CRAWL SPACE
BENEATH DORM
WING

See following page
for concrete
foundation elements.



**CRAWL SPACE
BENEATH
DORMITORY WING**

New reinforced
concrete stem wall
and footing; new
copper plumbing.



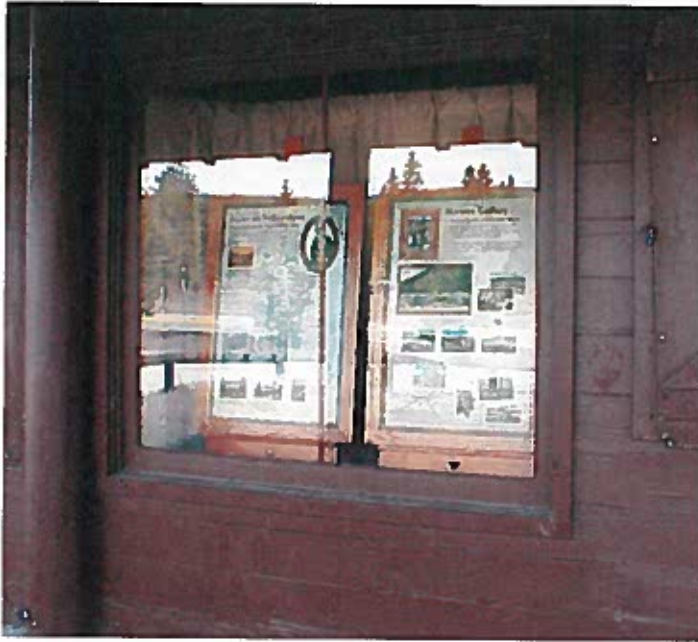
**CRAWL SPACE
BENEATH
DORMITORY WING**

Debris needs to be
removed; floor
system could be
insulated at either
the plane of the floor
or around the
perimeter of the
concrete stem wall.



INTERIOR VIEW OF RETAIL WING - LOOKING NW

Front (main) entrance into building can be seen on right side of photograph.



DISPLAY WINDOW - RETAIL WING
EXTERIOR VIEW

Currently used to exhibit interpretive panels.

INTERIOR VIEW OF TYPICAL RETAIL SPACE
DISPLAY WINDOW



WINDOW TRIM AND FINISH AT TYPICAL
RETAIL SPACE SHOW WINDOW



INTERIOR VIEW OF
RETAIL WING -
LOOKING SW

Exhibit/display alcove
can be seen along left
side of photograph.



CLOSE-UP VIEW OF EXHIBIT/DISPLAY SPACE



EXHIBIT/DISPLAY
ALCOVE AT SOUTH
SIDE OF SPACE



WINDOW HARDWARE AT
EXHIBIT/DISPLAY SPACE



**FIRST FLOOR CORRIDOR -
DORMITORY WING**

**Note: Store-rooms and office are
located to each side of the
corridor; the dayroom is located
at the end of the hall (South end).**



**OFFICE SPACE LOCATED AT THE NORTH
END OF THE EAST SIDE OF THE FIRST
FLOOR CORRIDOR (see plan)**



DAYROOM - LOCATED IN THE SOUTH-WEST CORNER OF THE DORMITORY WING



FIRST FLOOR SUB-CORRIDOR FROM SIDE DELIVERY ENTRANCE TO OFFICE AREA



SINKS - COMMERCIAL KITCHEN AREA - SE CORNER OF DORMITORY WING; FIRST FLOOR



**FLOOR SINK IN FIRST FLOOR
MECHANICAL/UTILITY AREA.**

Note FRP in sink alcove area.



FOOD PREPARATION AREA (WITHOUT EQUIPMENT) - COMMERCIAL KITCHEN AREA - SE CORNER OF DORMITORY WING; FIRST FLOOR



STORE-ROOM FLOOR - FIRST FLOOR

Note: All flooring in the first floor of the Dormitory Wing is T & G hardwood flooring; the flooring appears to be in good condition on this floor level.



**WOMEN'S ROOM -
FIRST FLOOR OF
DORMITORY WING**

MEN'S ROOM - FIRST FLOOR

Note: None of the bathroom facilities within the building comply with ADA requirements - see commentary in the chapter on accessibility.



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SECOND FLOOR CORRIDOR - DORMITORY WING

Note: All walls and ceilings on this level are non-combustible (GPDW) materials and are in good condition; hardwood flooring on this level appears to have been water damaged and will require rehabilitation.



**TYPICAL SECOND FLOOR RESIDENCE
ROOMS - DORMITORY WING**

**Note: Sizes of the rooms vary; see floor plans
for room sizes and comparisons.**





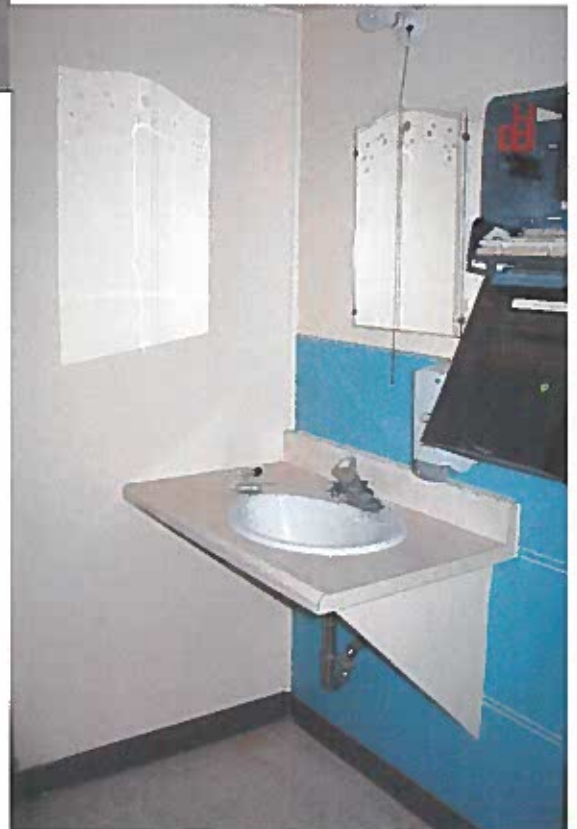
**TYPICAL SECOND FLOOR RESIDENCE
ROOMS - DORMITORY WING**





SECOND FLOOR
WOMEN'S ROOM;
DORMITORY WING

VANITY / COUNTER AREA



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**SECOND FLOOR
MEN'S ROOM;
DORMITORY WING**

**STORE-ROOM FOR LINENS, BEDDING, AND
LUGGAGE - 2ND FLOOR OF DORMITORY
WING**

Note the poor condition of the hardwood
flooring.



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ROOF @ RETAIL WING

General view of bracing pattern within the roof structure of the Retail Wing

DETAIL BENEATH SADDLE OF CONNECTING LINK ROOF

This photo shows the original location of the Dormitory Wing connection to the Retail Wing (prior to moving and realignment).





ROOF @ RETAIL WING

Note: this roof has rafters, braces, king posts, and collar ties; see structural section of report.



RETAIL WING ROOF BRACES

It is not known if the knob & tube wiring is connected; all other wiring within the facility is within conduit.



RETAIL WING - ATTACHMENT OF THE DECORATIVE LOG ROOF RIDGE PURLIN THAT CAN BE SEEN FROM THE EXTERIOR OF THE FACILITY.

Note the extremely good condition of all of the wood members.



RETAIL WING - PATTERN OF WOOD BRACES AND TIES WITHIN THE ROOF FRAMING ASSEMBLY.

Note the R-19 roof insulation, condition of the structure & sheathing, and the false decorative log rafter ends along the eave line.

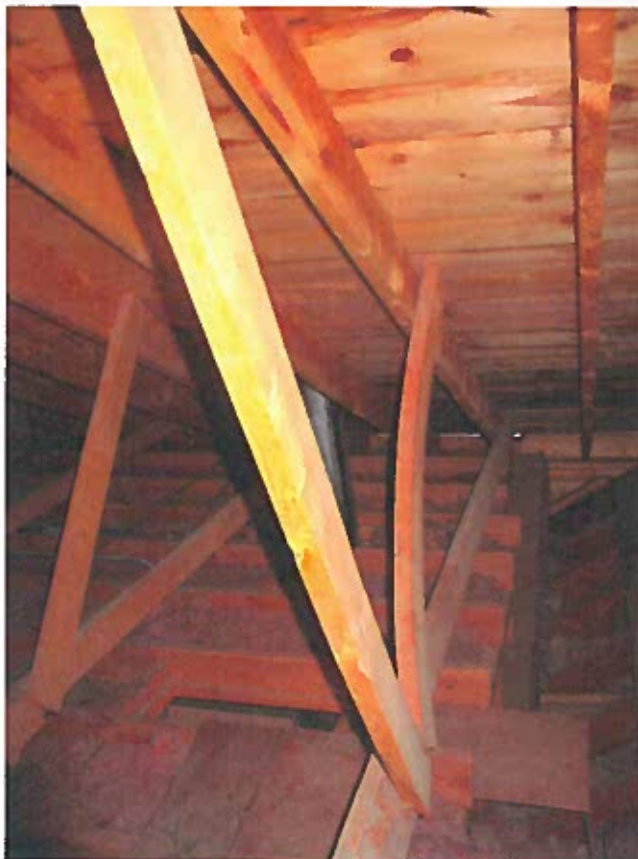




RETAIL WING -
PATTERN OF
PURLIN AND
BRACE
ATTACHMENT
DETAIL.



ACCESS HATCH
IN ROOF
BETWEEN
RETAIL WING
AND
DORMITORY
WING OF ATTIC
STRUCTURE.



IN 1971 A SHORT CONNECTING TRANSITIONAL SECTION OF STRUCTURE WAS INSERTED BETWEEN THE RETAIL STORE AND THE DORMITORY WING TO ACCOMMODATE A DELIVERY CORRIDOR ON THE FIRST FLOOR AND A 2ND STAIRWAY BETWEEN FLOORS; THE ROOF STRUCTURE ABOVE THIS CONNECTING LINK IS A COMBINATION OF POSTS AND TRUSSED RAFTERS AS SHOWN ON THESE PHOTOS. THESE ELEMENTS REQUIRE SOME ADDITIONAL NAILING AND STIFFENING TO BRING THE QUALITY OF ROOF STRUCTURE UP TO A LEVEL COMMENSURATE WITH THE REST OF THE BUILDING.

Note: the bent web in the adjacent photo is from distortion - not from being overstressed.



TRANSITIONAL SECTION OF STRUCTURE - THESE ARE EXAMPLES OF TRUSS TYPE CONNECTIONS THAT REQUIRE ADDITIONAL NAILING AND GUSSETING. WORK ENVISIONED FOR THESE MEMBERS CAN BE DONE IN-PLACE.

Note the presence of insulation in this section of roof and the electrical work in the form of metallic conduit. It is recommended that the insulation be added to in the interest of energy conservation.



HSR - Haynes Auto Camp Picture Store - Old Faithful - YNP



DETAIL WHERE
CONNECTING
LINK CEILING
ADJOINS
ORIGINAL ROOF
STRUCTURE
ABOVE RETAIL
WING.



TYPICAL ROOF
STRUCTURE
ABOVE
ORIGINAL
DORMITORY
WING - NOTE
CONDITION OF
RAFTERS,
BRACES, AND
JOISTS. THIS
SECTION OF
ROOF IS ALSO
INSULATED
ALTHOUGH IT IS
NOT VISIBLE IN
THIS PHOTO.



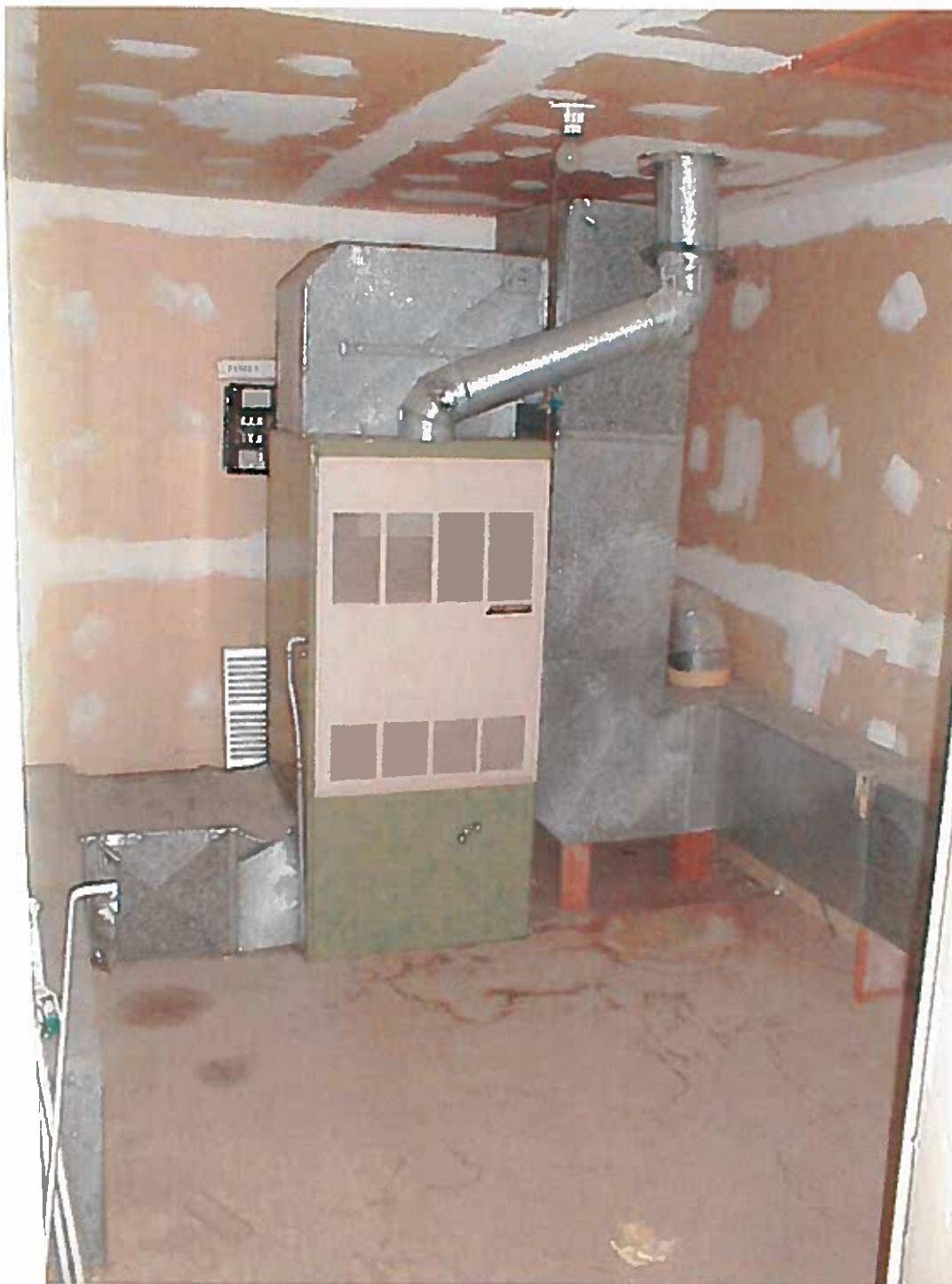
ELECTRICAL
SERVICE
CONNECTIONS
LOCATED ON
THE EAST WALL
OF THE
EXTERIOR OF
THE
STRUCTURE.



GAS METER
AND
CONNECTION -
EAST WALL OF
THE EXTERIOR
OF THE
STRUCTURE.



FIRST FLOOR MECHANICAL/UTILITY ROOM - LOCATED IN THE DORMITORY WING



SECOND FLOOR MECHANICAL ROOM - LOCATED IN THE DORMITORY WING
- NW CORNER.



DUCTWORK FROM THE
SECOND FLOOR MECHANICAL
ROOM - ACCESS IS SINTO THE
ROOF STRUCTURE OF THE SW
ADDITION.



TYPICAL DISTRIBUTION
DUCTWORK IN THE
ATTIC SPACE OF THE
DORMITORY WING.



CIRCA 1971 ELECTRICAL PANEL; IT IS NOT KNOWN IF PANELS WILL REQUIRE BEING REPLACED. IT IS BELIEVED THAT THE CONDUIT AND CONDUCTORS WILL COMPLY WITH CURRENT CODES.



EXAMPLES OF ELECTRICAL BOXES AND CONDUIT WITHIN THE ATTIC OF THE DORMITORY WING.

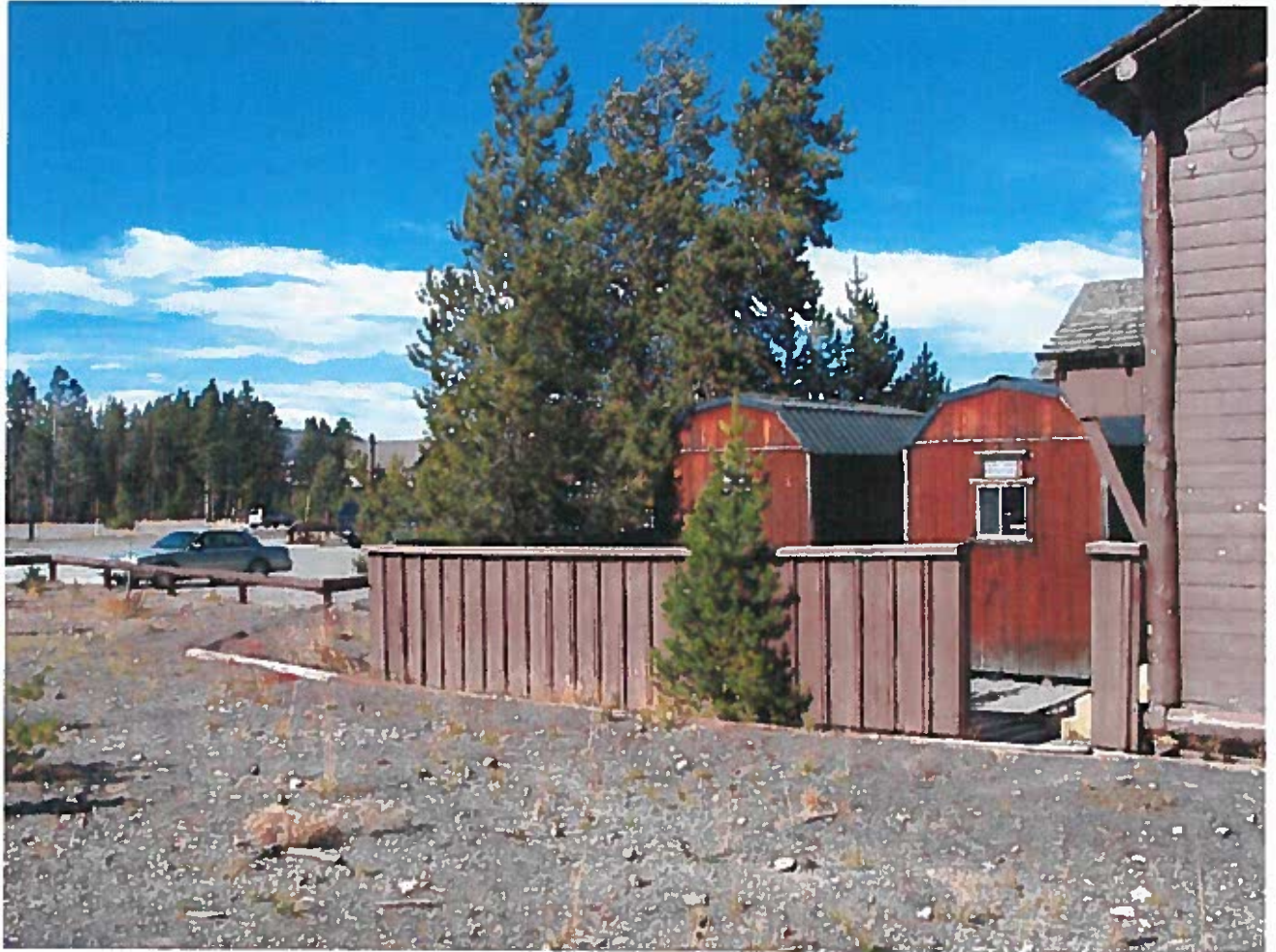


OVERALL SITE VIEW FROM THE NORTHWEST

EXAMPLES OF ELECTRICAL BOXES AND CONDUIT WITHIN THE ATTIC OF THE DORMITORY WING.



OVERALL SITE VIEW FROM THE WEST



RELOCATEABLE STORAGE SHEDS LOCATED AT THE SOUTH-WEST CORNER OF THE STRUCTURE.

It is recommended that these units be re-located to a less publicly visible area so that views of the Haynes structure as well as the Snow Lodge can be maximized.



ADJACENT SNOW-LODGE STRUCTURE THAT FITS AROUND THE SOUTH AND EAST SIDES OF THE HAYNES HISTORIC PROPERTY.



VIEWS OF THE CENTER EXIT STAIR
BETWEEN THE TWO FLOORS OF THE
DORMITORY WING.

Note the damage to the walls of the stairway from moving equipment and belongings up and down the stairs. All walls and ceilings of the stair are of fire-resistive materials. The South stair is similar in construction to this stairway albeit in better condition.





MAIN ENTRANCE DOORS

HARDWARE DETAIL - MAIN ENTRANCE

Doors comply with ADA clearances, swing, and direction of travel; automated closers could be added and the doorknob may have to be replaced with a lever lock.





DETAIL OF SIDE (DELIVERY) ENTRANCE; Note hardware & direction of swing.

SOUTHWEST EXIT FROM DORM WING

There are (3) concrete steps with a minimal landing accessing this entry/exit. It is recommended that the step/landing arrangement be replaced with a code compliant landing and new steps or ramp. It is also recommended that the Gablet (recent) be replaced with an assembly that appears more permanent and that is more strongly related to the architecture of the structure.





TYPICAL SIDING - EXTERIOR WALL

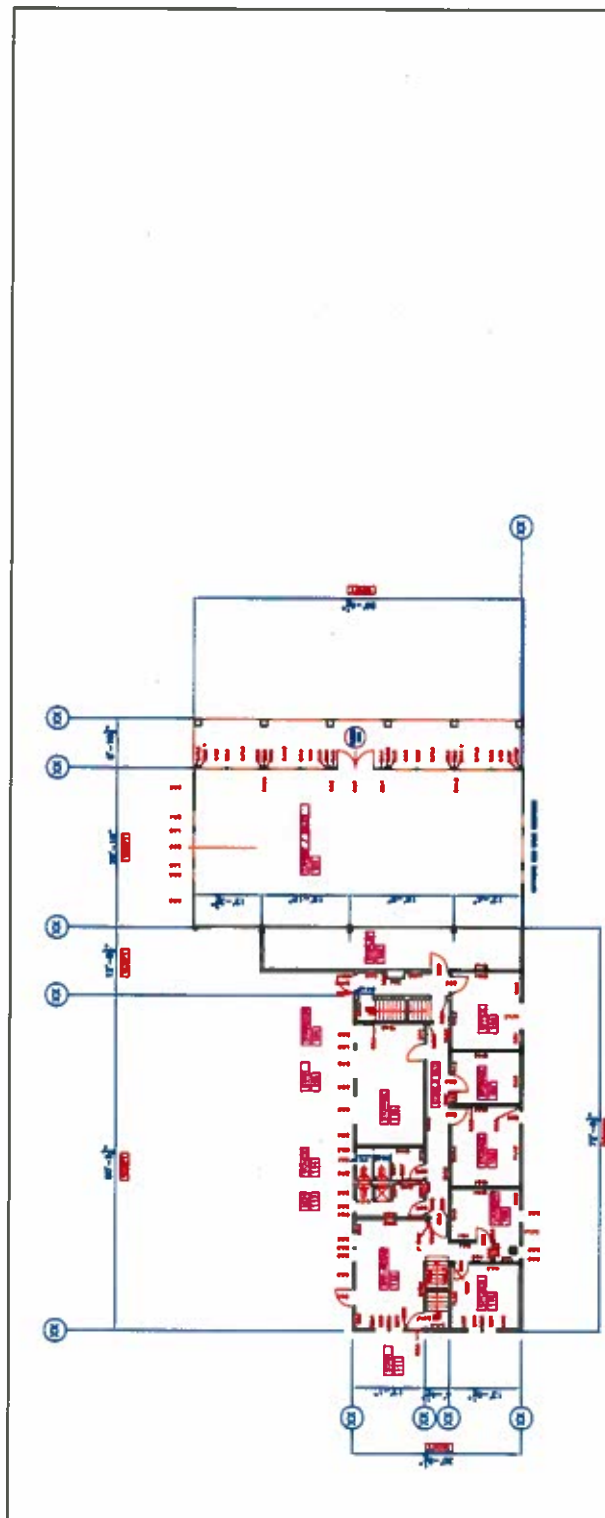
Siding application is T & G wood applied over standard wood framed stud walls.

Note the snow shutters that are installed over all first floor exterior openings; the appearance of the structure would be improved during the off-season (winter visitors) if these assemblies were all constructed to be of similar appearance.

"GHOST DOOR"

The infill of a previous door opening can be seen in the siding pattern between the two log uprights - this opening was located midway along the East wall of the structure.





EXISTING 1ST FLOOR PLAN
10' = 1" (1/8" = 1')

REVIEW SET

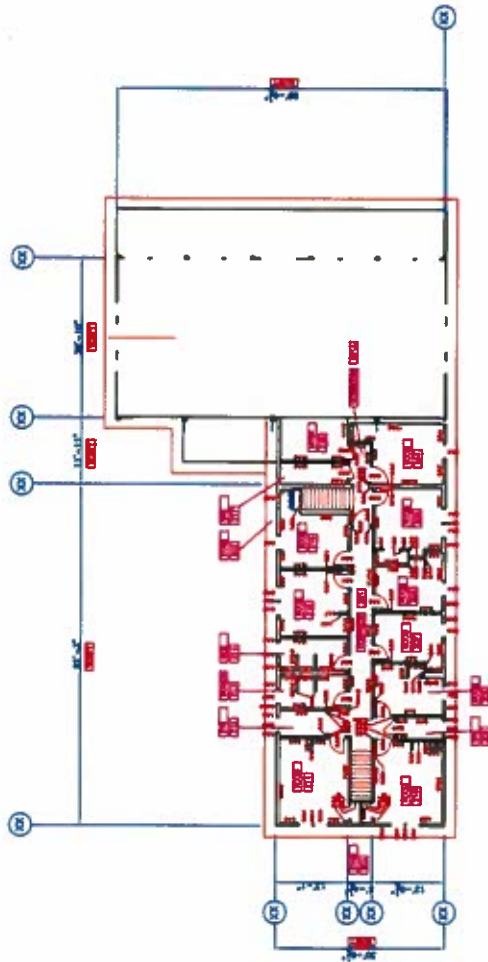
DRAWINGS PARTIALLY COMPLETE

LEGEND
 --- EXISTING
 --- PROPOSED
 --- REMOVAL OF EXISTING
 --- NEW
 --- 1/8" = 1'

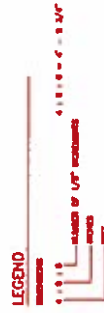
ALL DIMENSIONS SHOWN ON THIS DRAWING ARE BASED ON THE FIELD SURVEY AND THE FIELD NOTES. THE FIELD SURVEY WAS CONDUCTED BY THE ARCHITECT AND THE FIELD NOTES WERE REVIEWED BY THE ARCHITECT AND THE ARCHITECT'S FIRM. THE ARCHITECT'S FIRM IS NOT RESPONSIBLE FOR THE ACCURACY OF THE DIMENSIONS SHOWN ON THIS DRAWING.

HAYNES PHOTO SHOP
 JANUARY 10, 1997

	DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE YELLOWSTONE NATIONAL PARK	PROJECT NO. 05-8-TNP	XX
	HAYNES AUTO-CAMP PICTURE SHOP OLD FAITHFUL YELLOWSTONE NATIONAL PARK YELLOWSTONE CENTER FOR RESOURCES	PREPARED BY JAMES H. HAYNES	CHECKED BY JAMES H. HAYNES



EXISTING 2ND FLOOR PLAN



ALL DIMENSIONS SHOWN ARE THE UNFINISHED DIMENSIONS OF THE BUILDING. THE FINISHED DIMENSIONS OF THE BUILDING WILL BE DETERMINED BY THE ARCHITECT. THE ARCHITECT IS NOT RESPONSIBLE FOR THE ACCURACY OF THE DIMENSIONS SHOWN ON THIS DRAWING. THE ARCHITECT IS NOT RESPONSIBLE FOR THE ACCURACY OF THE DIMENSIONS SHOWN ON THIS DRAWING.

HAYNES PHOTO SHOP



PROJECT NO.
03-6-TNP
XX

ALAN HAYNES
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Department of the Interior
National Park Service
Yellowstone National Park

HAYNES AUTO-CAMP PICTURE SHOP
OLD FATHER
YELLOWSTONE NATIONAL PARK
YELLOWSTONE CENTER FOR RESOURCES

JANUARY 11, 1957

THE UNIVERSITY OF CHICAGO HAS DEVELOPED A NEW METHOD FOR MEASURING THE EFFECTS OF DRUGS ON THE NERVOUS SYSTEM. THE METHOD INVOLVES THE USE OF A SPECIAL TYPE OF ELECTRODE WHICH IS INSERTED INTO THE NERVOUS TISSUE. THE ELECTRODE IS CONNECTED TO A SPECIAL TYPE OF AMPLIFIER WHICH IS USED TO MEASURE THE EFFECTS OF DRUGS ON THE NERVOUS SYSTEM. THE METHOD IS USED TO MEASURE THE EFFECTS OF DRUGS ON THE NERVOUS SYSTEM IN A VARIETY OF SITUATIONS. THE METHOD IS USED TO MEASURE THE EFFECTS OF DRUGS ON THE NERVOUS SYSTEM IN A VARIETY OF SITUATIONS.



NORTH ELEVATION



HAYNES AUTO-CAMP PICTURE SHOP
OLD FAITHFUL
YELLOWSTONE NATIONAL PARK

YELLOWSTONE CENTER FOR RESOURCES



Department of the Interior
National Park Service
Yellowstone National Park

[illegible]

Product No.
05-0-YNP





January 11, 2007





HAYNES PHOTO SHOP



Department of the Interior
National Park Service
Yellowstone National Park

HAYNES AUTO-CAMP PICTURE SHOP
OLD FAITHFUL
YELLOWSTONE NATIONAL PARK

YELLOWSTONE CENTER FOR RESOURCES



HAYNES PHOTO SHOP

January 31, 2007



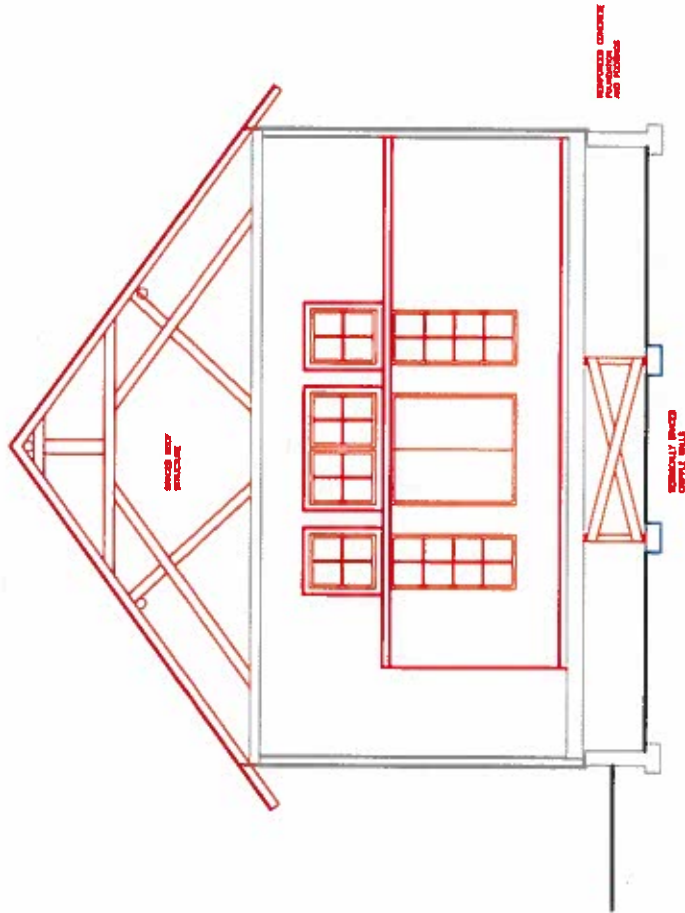
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PAGE (7 of 1)

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Department of the Interior
National Park Service
Yellowstone National Park

HAYNES AUTO-CAMP PICTURE SHOP
OLD FAITHFUL
YELLOWSTONE NATIONAL PARK

YELLOWSTONE CENTER FOR RESOURCES



SECTION THROUGH RETAIL WING



0 4 8 12

ALL DIMENSIONS SHOWN ON THIS DRAWING ARE BASED ON FIELD MEASUREMENTS. DIMENSIONS OF MATERIALS AND FINISHES ARE TO BE DETERMINED BY THE ARCHITECT AND SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT. DIMENSIONS OF MATERIALS AND FINISHES ARE TO BE DETERMINED BY THE ARCHITECT AND SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT.

HAYNES PHOTO SHOP



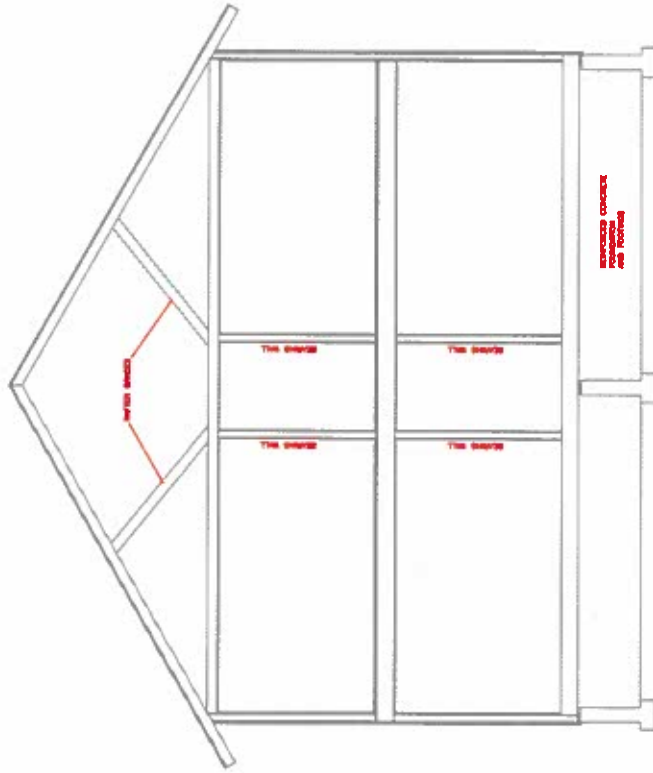
PROJECT NO.
05-6-YHP

DESIGNED BY
DAVID L. HAYNES

Department of the Interior
National Park Service
Yellowstone National Park

HAYNES AUTO-CAMP PICTURE SHOP
OLD FAITHFUL
YELLOWSTONE NATIONAL PARK

YELLOWSTONE CENTER FOR RESOURCES



REINFORCED CONCRETE
FLOORING
AND TYPING

SECTION THROUGH DORMITORY WING



ALL DORMITORY ROOMS DO NOT EXCEED THE 1000 SQ. FT. LIMIT. THE DORMITORY
AND SHOP SERVICES ARE THE PROPERTY OF THE NATIONAL PARK SERVICE AND
THEY ARE NOT TO BE USED FOR ANY OTHER PURPOSE. THE DORMITORY
OR SHOP SERVICES ON THE BALCONY TO BE USED AS THE DORMITORY
ROOM AT THE TIME THE DORMITORY ARE USED TO THE DORMITORY.

HAYNES PHOTO SHOP



PROJECT NO.
05-6-TMP

A1

MINISTERIAL SERVICE
AND JUDICIAL SERVICE
GRAND JURY ROOMS



HAYNES AUTO-CAMP PICTURE SHOP
OLD FAITHFUL
YELLOWSTONE NATIONAL PARK
YELLOWSTONE CENTER FOR RESOURCES

**IEBC CHAPTER 10
HISTORIC BUILDINGS**

ITEM	REQUIREMENT	APPLICABLE
1001.2	Building to be investigated, evaluated, and report filed with Building Official	APP
1001.3	When occupancy R-3 also used for Group A, B, or M purposes such as tours, exhibits, public assembly, or museums less than 3000 SF then building can be classed as occupancy B	N/A
1001.4	If in Flood Hazard area and improvements are substantial, must comply with IBC 1612; Exception: if a historic building will continue to be a historic building after repairs or work is completed then the work is not considered to be a substantial improvement.	N/A
1002	Repairs: 1. Repairs may use original or like materials 2. If historic building is determined dangerous, no work is required except to correct unsafe conditions 3. New foundations for relocated historic buildings to comply with IBC; otherwise building treated as a historic building 4. Chapter 4 applies if any repairs are made 5. Replacement using original materials shall be permitted except glazing in hazardous locations must comply with safety glazing requirements of the IBC	APP APP-truss members N/A APP APP
1003	Fire safety: 1. Requirements apply if historic building undergoing alterations, change of occupancy, or are moved; otherwise do not apply. (GENERAL) 2. Historic buildings that do not conform to IBC and that constitute a fire hazard shall be fire sprinklered. Fire sprinklers shall not substitute for the required number of exits. (DOES NOT APPLY) 3. Door, corridor, & stairway widths not in conformance with IBC may be approved by the Code Official if he deems adequate room for egress. (DOES NOT APPLY-WIDTHS OK) 4. Main exit doors need not swing in the direction of travel if other means of egress available for total occupant load. (EXIST DOOR SWINGS O.K.) 5. Groups R-1, R-2, & R-3: Transoms may remain if fixed in fire resistant wall and there is a sprinkler on each side of the transom. (N/A-NO TRANSOMS) 6. Historic finishes can remain. 7. In buildings three stories and less exit enclosures shall limit the spread of smoke but do not have to be fire rated. (STAIRS MUST BE ENCLOSED) 8. Where 1-hour fire resistance is required by code it need not be provided where the existing wall and ceiling finish is wood or metal lath and plaster. (1-HR REQD @ INT BRG WALLS-STRUCTURE MEETS THIS REQUIREMENT) 9. Historic glazing materials in interior walls required to be 1-hour may be permitted when provided with smoke seals and the area is fire sprinklered. (N/A-NO GLAZING @ INT WALLS) 10. Grand stairways are excepted from handrail requirements and guardrail requirements provided that they are not dangerous. (N/A) 11. Guardrails: (N/A-NONE IN FACILITY) A. Height to be 42" (N/A) B. Existing ornamental patterns shall be accepted 12. Alternative exit signs permitted for historic buildings if character of space damaged; subject to approval of building official	If altered or use of building is changed, chapters 5, 6, & 7 may apply in addition to these requirements The structure meets some of the requirements of section 1003 as it exists; it is recommended that fire resistance be improved for introduced materials into the future. (On the basis of making the building no-less-safe)

1004	Alterations: 1. Accessibility: requirements of section 506 applies only to historic buildings that undergo alterations; if altered section 506 requirements are to be met unless technically infeasible. If historic significance of the property is threatened or destroyed by compliance with 506, then the following alternative requirements may be applied: A. At least one main entrance shall be accessible; if a main entrance cannot be made accessible then an accessible non-public entrance that is unlocked while the building is occupied shall be provided, or, a locked accessible entrance with a notification system or remote monitoring shall be provided. B. Multilevel buildings: an accessible route from an accessible entrance to public spaces on the level of the entrance shall be provided C. Where toilet rooms are provided at least one accessible toilet shall be provided; may be for each sex or unisex. D. Slope of ramp may be increased to 1 in 8 if run is 24" or less.	APP (if alterations) APP-IN COMPLIANCE IN COMPLIANCE APP N/A
1005	Change of Occupancy: 1. Chapter 8 applies except as noted below 2. Allowable floor area of historic buildings changing occupancy may be increased by 20% 3. Historic structures changing to a higher hazard occupancy may use alternative methods to comply with fire resistance and exterior opening protective requirements. 4. 1-hour occupancy separations may be omitted when the building is fire sprinklered 5. Where fire retardant roof covering is required roof covering materials not less than class C shall be permitted. 6. Door, corridor, & stairway widths not in conformance with IBC shall be approved by the Code Official if he deems adequate room for egress. 7. Main exit doors need not swing in the direction of travel if other means of egress available for total occupant load. 8. Transoms may remain if fixed (in fire resistant wall) and are wireglass in metal frames or other approved glazing is installed on one side of the transom. 9. If finishes are required to be Class III flame spread or better, existing non-conforming materials shall be surfaced with fire retardant paint or finish. 10. Where 1-hour fire resistance is required by code it need not be provided where the existing wall and ceiling finish is wood or metal lath and plaster. 11. Existing stairways shall comply with chapter 8; alternatives for stairways & railings may be accepted by the Code Official if they meet the intent of these provisions. Exception: Buildings less than 3000 SF allow existing conditions to remain at all stairs and railings. 12. Alternative exit signs permitted for historic buildings if character of space damaged; subject to approval of building official. 13. Existing historic stairways in buildings changed to a Group R-1 or R-2 occupancy shall be accepted where it can be shown that the stairway can support 75 PSF 14. Existing light levels are acceptable if compliance with section 811.1.1 will lead to a loss of historic character or materials. 15. Accessibility (section 812.5/ shall apply to historic structures that change occupancy unless technically infeasible. Alternative requirements of 1004 shall be permitted if compliance with these requirements threaten or destroy the historic significance of the building.	NOT NEEDED NOT NEEDED NOT NEEDED 1005.5-CLASS C REQD APP TO STAIR APP-IN COMPLIANCE N/A N/A N/A LESS THAN 3000 SF May be applied. APP May be applied. APP
1006	Structural: 1. Historic buildings shall comply with applicable structural provisions for the work as classified in chapter 3 (i.e. repair, level 1, 2, 3 alterations, change in occupancy, relocated buildings, or additions) Exception: Code official may accept existing floors and approve operational controls that limit the live load on any such floor. 2. If code official determines that a component or portion of a building is dangerous, only that specific component or portion shall be required to be repaired, strengthened, or replaced.	APP APP

Summary:

If the Photo Shop is not altered it complies with most of the criteria of Chapter 10. To comply with Chapter 10 the following must be done:

1. Dangerous structural members must be repaired, strengthened, or replaced (selected truss members only).
2. A report and evaluation must be filed with the Building Official; this report may be used for that purpose.
3. Exit stairs must be enclosed.
4. The main floor must be accessible throughout (primarily hardware revisions).
5. At least (1) accessible toilet on the main floor must be provided.

The following page details the Building Code requirements for the "Repairs" classification; requirements of that category are in addition to the issues listed under Chapter 10.

IEBC CHAPTER 4
REPAIRS TO EXISTING BUILDINGS

APPLIES TO HISTORIC BUILDINGS EXCEPT AS MODIFIED BY CHAPTER 10

ITEM	REQUIREMENT	APPLICABLE
401.2	Use materials permitted by Code or use like materials	APP
401.3	Work shall make building no less conforming to code than it was before the repairs	APP
401.4	If in Flood Hazard area, must comply with IBC 1612	N/A
403.1	Cannot use hazardous materials for repair	APP
403.2	Replacement glazing to comply with safety glazing requirements.	APP
404.1	Existing level of fire protection to be maintained.	APP
405.1	Existing means of egress maintained.	APP
406.1	Existing level of accessibility maintained.	APP
407.1.1	Seismic Evaluation Required (see IEBC for detailed requirements)	APP
407.1.2	Wind design and analysis is required of existing building undergoing repairs.	APP
407.2	Repairs shall not reduce strength or stability of existing building.	APP
407.3	Structural repair to damaged buildings: New members to comply with IBC requirements If damage is substantial: Engineering analysis and evaluation is required. Repaired structure must comply with IBC wind & seismic requirements If damage is less than substantial: Repair may be made with materials, methods, and strengths in existence prior to the damage.	APP N/A N/A APP
408	Electrical repairs may be done with like material except: Receptacles to comply with 406.3(D) of NEC Edison base plug fuses may be used only in limited applications (see 408.1) Grounding of grounding type receptacles permitted to be grounded to any point. Hospital grade receptacles required in patient bed locations. Frames of ranges, ovens, cook units, dryers, etc. may be grounded to the grounded circuit conductor.	APP APP APP N/A N/A
409	Mechanical: must comply with 401.1	APP
410	Plumbing: Prohibited materials: Copper and brass traps and tailpieces less than .027" wall thickness Solder with more than 0.2 percent lead Water closets w/ a concealed trap or unventilated space or with walls not thoroughly washed at each discharge. Cement, concrete, mastic, hot-pour, or O-ring joints. Joining of different types of plastic with solvent Saddle type fittings	May apply if repairs

410.2	Water closets: replacement water closets must comply with International Plumbing Code; maximum capacity shall be 1.6 gallons per flushing cycle.(3.5 gallons for blowout design).	May apply if replace.

Summary:

In addition to the requirements of Chapter 10 (Historic Buildings),

a repaired Historic Building must comply with the following:

1. A seismic evaluation is required
2. A wind analysis is required
3. New structural repairs must comply with IBC
4. Specific electrical devices must comply with IBC and NEC (see 408 above)
5. "Like" materials may be used; hazardous materials cannot be used for repairs
6. The building can be made no-less-safe
7. Existing fire protection, egress, and accessibility are to be maintained

If the structure is altered but the alterations affect less than 50% of its area, then the requirements for Level 1 Alterations on following pages would apply.

IEBC CHAPTER 5

LEVEL 1 ALTERATIONS

APPLIES TO HISTORIC BUILDINGS WITH REPLACEMENT LEVEL ALTERATIONS EXCEPT AS MODIFIED BY CHAPTER 10 AND CHAPTER 4

ITEM	REQUIREMENT	APPLICABLE
501.2	Work shall make building no less conforming to code than it was before the repairs	APP
501.3	If in Flood Hazard area, must comply with IBC 1612	N/A
503.1	New interior finishes to comply with flame spread requirements of IBC	APP
503.2	New carpeting to comply with radiant flux requirements of IBC	N/A
503.3	All new work to comply with IBC, ICC Electrical code, Energy Conservation code, IMC, and IPC (mechanical & plumbing)	APP
503.3.1	International Fuel Gas Code applies to General Regulations, Gas Piping Installation, Chimneys and Vents, and Specific Appliances.	May apply
504.1	Existing level of fire protection to be maintained.	APP
506.1	Accessibility requirements apply (see 506.1.1 - 506.1.12 and chapter 11 of IBC; if technically infeasible the alteration shall provide access to maximum extent feasible. The altered element or space is not required to be on an accessible route Accessible means of egress are not required Existing buildings are not required to have type B dwelling or sleeping units Altered entrances are not required to be accessible if the building has an existing accessible entrance on an accessible route. Altered elevators shall comply with ASME A17.1 & ICC A117.1 Platform lifts complying with ASME A18.1 & ICC A117.1 are permitted as part of an accessible route. Ramp slopes may be steeper than req'd by IBC where space is limited (see 506.1.4) Raised or sunken dining permitted if same ambience available at accessible space. One of each type of performance area to be accessible; all not required to be accessible. Alternatives acceptable for jury boxes and witness stands. Accessible alarms for sleeping units in I-1, I-2, I-3, R-1, R-2, & R-4 occupancies apply only to the quantity of spaces being altered. Accessible Uni-sex toilet permitted if existing toilet rooms cannot be altered. One accessible dressing, fitting, or locker room may be located at same location as other facilities if it is technically infeasible to alter existing rooms. Maximum threshold height of 3/4" at doors (beveled) Accessibility of existing facilities not required to exceed that of new construction. Alterations shall not reduce existing accessibility. When alterations impact areas of primary function, then an accessible route must be provided including toilet rooms / fountains except as noted: 1. Cost of accessible route need not exceed 20% of cost of alteration of space 2. Provision does not apply to alterations limited to windows, hdwr, controls, outlets, or signs. 3. Provision does not apply if alteration limited to mechanical, electrical, fire protection systems or abatement of hazardous materials.	APP APP APP only if R3 APP N/A (currently) N/A (currently) APP N/A APP N/A APP APP N/A APP APP APP APP
507.1	Structural: Applies to replacement of building supported equipment and to re-roofing Where additional dead load is generated structural components to comply with IBC	N/A may apply

unless stress is increased less than 5%.	N/A
Parapet bracing and wall anchors required for all re-roofs of unreinforced masonry bearing wall buildings in Seismic Design Category D, E, or F.	
Roof diaphragms to be evaluated for all re-roof projects that exceed 50% of the roof area if roof diaphragm is part of a lateral force resisting system.	APP

Summary:

In addition to the requirements on the previous two pages, the following requirements would have to be complied with if the Photo Shop is altered to a "Level 1" category:

1. Interior finishes are to comply with flame spread criteria - this is dependent on finishes selected.
2. Alterations to the building would have to comply with the International Mechanical Code, International Plumbing Code, International Energy Conservation Code, and International Fuel Gas Code (new work only).
 - A. Additional insulation would be required.
 - B. Ventilation & combustion air requirements may require adjustment.
3. Additional accessibility requirements would apply (see above).
 - A. Accessible alarms required at altered spaces
 - B. All areas of Primary function to be accessible.

If the historic property is altered and the alterations affect more than 50% of its area, then the requirements for Level 2 Alterations on the following page would apply.

APPLIES TO HISTORIC BUILDINGS WITH ALTERATIONS < 50% OF FLOOR AREA EXCEPT AS MODIFIED BY CHAPTER 10, CHAPTER 4, AND CHAPTER 5

HSR - Haynes Auto Camp Picture Store; Old Faithful - YNP

603.2.3	Stairway enclosures: Where work area of any floor exceeds 50% of total floor area stairways that are part of means of egress shall be smoke tight construction.	May apply
603.3	Provide smoke barriers for Group I-2 occupancies : 1. Where work area is on a story for more than 30 patients; divide story into not less than 2 compartments rated for 30 minute separation not to exceed 22500 SF with 200' maximum travel distance	N/A
603.4	Interior finish of walls and ceilings in exits and corridors to comply with IBC.	APP
603.5	Guardrails: Provide at every portion of a floor or dock that is more than 30" above the floor or grade below; construct in accordance with IBC	N/A
604	Fire Protection: 1. Provide sprinklers in high rise buildings serving more than 30 occupants 2. Groups A, E, F-1, H, I, M, R-1, R-2, R-4, S-1, and S-2: A. If more than 1 tenant or 30 occupants building shall be sprinklered if: 1. Work area is required to be sprinklered in accordance with IBC for new construction; and 2. Work area exceeds 50% of the floor area B. Work areas in Group R occupancies of 3 stories or less are excepted. C. Mixed uses: if work area of one use requires sprinklering it can be limited to use requiring it only if there is fire separation between other uses. 3. Work in a windowless story shall be sprinklered if it would be required to be sprinklered in new construction as defined by IBC 4. Work areas that share more than 1 tenant or an occupant load greater than 30 5. All sprinkler systems to be supervised by control systems and alarms (see 604.2.5) 6. Standpipe system required if more than 50' above or below fire department access 7. Approved fire alarm system required; existing systems may be used. Alarm installation must comply with occupancy requirements listed in IBC 8. If re-configured space > 50% of floor, then entire floor must meet fire protection reqmt. 9. Smoke alarms required for R occupancies & I occupancies (sleeping)	N/A LESS THAN 30; <u>may</u> have to sprinkler if change to multiple offices. N/A N/A LESS THAN 30 N/A N/A APP may apply APP
605	Means of Egress: 1. Applies only to areas being re-configured (work area) 2. Number of exits to comply with IBC (on every story) - see IBC 3. Single exit allowed if occupant load less than 50 and travel distance less than 75' for group A, B, E, F, M, U, and S occupancies 4. Single exit allowed for B, F-2, and S-2 occupancies if not more than 2 stories and less than 3000 SF/floor if travel distance less than 75' 5. Single exit allowed for parking garages with mechanical parking 6. Single exit allowed in group R-1 and R-2 occupancies if occupant load (less staff) is less than 12; (not permitted for developmentally disabled). Also permitted if not more than (2) stories and not more than 4 dwelling units per floor and travel distances less than 50'. 7. Group R-1 and R-2 buildings with multiple levels within the dwelling units have special provisions as well as exceptions (see 605.3.6) 8. Group R-2, H-4, H-5, I, rooming houses, and childcare centers: single exit permitted if one story w/ max. occupant load of 10 and travel distance less than 75' 9. Group R-2: single exit permitted from below grade story if sprinklered and egress window available from each dwelling unit. 10. Group R-2: single exit permitted if fewer than (4) dwelling units per floor and smokeproof enclosure or exterior stair available within 20' of entrances into each unit. 11. Group R-3: single exit from below grade permitted if fire sprinklered.	APP multiple exits multiple exits N/A not recommended N/A N/A N/A N/A N/A
605.3	Fire Escapes: 1. Unobstructed access w/o locks required 2. Access through doors; windows permitted from single dwelling units or sleeping units in R-1, R-2, and I-1 or from spaces with max. occupant load of 10 3. New fire escapes permitted only where exterior stairs cannot be utilized. 4. Openings within 10' of fire escapes to be protected with 3/4 hr fire assemblies. 5. Ladders prohibited for E, I, rooming houses, and child care centers on fire escapes.	N/A Note: egress windows not required - each R-2 room has access to fire rated corridor with (2) exits at opposite ends of corridor. (IBC 2000; 1009)
605.3.1	Fire Escape construction: 1. 100 PSF LL; steel or non-combustible unless Type V; 22" min.; 8" max riser; 8" min tread; 40" x 36" min landing within 8" to bottom of door.	N/A
605.3.2	Mezzanines with occupant load > 50 or travel distance > 75' require (2) independent means of egress. (If sprinklered may increase travel distance to 100')	N/A

605.3.3	Group A: Main entrance must be able to exit ½ of total occupant load	APP (complies)
605.4	Egress doorways: 1. (2) required for all rooms and spaces with occupant load greater than 50 or a travel distance greater than 75'. (exceptions: storage rooms with an occupant load less than 10 or for spaces that are served by only a single exit) 2. (2) required for I-2 occupancy; and for any patient sleeping room or suite of rooms greater than 1000 SF	APP (complies) N/A
605.4.2	All egress doors serving occupant loads greater than 50 shall swing in the direction of travel.	APP (level 2)
605.4.3	Door closer: 1. Self closing doors required if serve an exit passage or exit stair 2. If re-configured space > 50% of total area self closing doors required throughout	APP APP
605.4.4	Panic Hardware: Required for all Group A occupancies with an occupant load greater than 100.	APP (only if major space is used for Assembly)
605.4.5	Emergency power source required for power controlled doors in Group I-3 occupancy in areas that have 10 locks or more.	N/A
605.5	Corridor doors and openings: 1. Hollow core doors and louvered doors prohibited 2. If corridors are not fire rated then openings need not be fire rated 3. 1-3/8" solid core minimum thickness w/o glass other than approved wireglass 4. Dwelling and sleeping units of R-1, R-2, and I-1 to have closers 5. All replacement doors to be 1-3/4" minimum *6. Exceptions: Corridor doors within a dwelling or sleeping unit; existing doors complying with 15 min. HUD rating; existing doors in fire sprinklered building (must be smoke gasketed however), group homes with 15 occupants max and a fire sprinkler may omit closers; and door assemblies with a 20 min. rating. 7. If re-configured space exceeds 50% of floor area, then all openings to comply with requirements.	APP APP APP APP
605.5.2	Transoms: Groups I-1, R-1, and R-2 transoms glazed with 1/4" wireglass in rated frames and permanently secured / sealed.	N/A
605.5.3	Misc. Corridor openings: Consistent with other corridor construction	APP
605.6	Dead End corridors: 1. Not to exceed 35" 2. May be 50' if equipped with fire alarm system (except for group A or H occupancies). 3. May be 70' for building if equipped with fire sprinkler system - limited to 50' for floor if equipped with fire sprinkler system (except for group A or H occupancies)	NO DEAD END CORRIDORS
605.7	Means of egress lighting: Artificial lighting required	APP
605.8	Exit signs: required; if work area > 50% applies to entire area	APP
605.9	Handrails: 1. Required for all exit stairways 2. Provide (1) up to 66"; (2) if wider than 66"	APP
605.10	Guardrails: 1. Applies to all stairs, landings, or balconies more than 30" above floor or grade.	N/A
606	Accessibility: 1. Comply with chapter 5 - Level 1 alterations 2. If stair or elevator added then accessible route must be added to new work 3. If group I-1, I-2, I-3, R-1, R-2, or R-4 added then new accessibility requirements apply to the quantity of spaces being added.	APP N/A APP
607	Structural: 1. New alterations to not reduce strength or stability of building or members 2. New members to comply with IBC 3. Existing members supporting new vertical loads to comply with IBC; 5% increase in stress permitted. 4. Level 2 alterations that increase the seismic base shear by more than 5% must comply with chapter 7 (707)	APP APP APP N/A

	5. Alterations that cause a change in snow drifts shall comply with IBC (exceptions: where stress is not increased by more than 5%, or group R occupancy with fewer than 5 dwelling units that qualifies for light frame construction methods.	N/A
608	Electrical: 1. Newly installed electrical to comply with chapter 5 (level 1 alterations) 2. Groups A-1, A-2, A-5, H, and I: wiring upgraded as required in chapter 5 for all re-configured space 3. Groups R-2, R-3, and R-4 regulated by International Residential Code must conform to 608.3.1 - 608.3.7 (see requirements re: number of C.O. & life fixtures, etc.)	APP N/A APP
609	Mechanical: 1. Natural or mechanical ventilation required (see International Mechanical Code) 2. Ventilation: 5 CFM outdoor air & 15 CFM ventilation air required per person 3. Local exhaust required for all newly introduced devices that produce particulates, odors, fumes, vapors, combustion products, gaseous contaminants, organisms, etc. in such quantity as to affect health	APP
610	Plumbing: If occupant load increased by 20% then fixtures for the story to be provided in quantities required by International Plumbing Code.	APP (assembly occupancy)

Summary:

In addition to the requirements for Chapters 4 and 10 the following requirements would have to be complied with if the Photo Shop is altered to a "Level 2" category:

1. Vertical openings and stairways would have to be enclosed with 1-hour assemblies.
2. Smoke alarms & smoke detection required if used for R occupancy
3. An approved fire alarm system is required for all proposed uses.
4. There are more stringent requirements regarding means of egress and exit doors; entrance doors to be self closing.

****NPS policy requires fire sprinklering for all residential occupancies in addition to the building code requirements identified above.**

APPENDIX 'X'

ACCESSIBILITY GUIDELINES

BACKGROUND (Excerpted from UFAS Unit 2 - Regulatory issues)

The four federal standard setting agencies, the General Services Administration, the Department of Defense, the Postal Service, and the Department of Housing and Urban Development developed the Uniform Federal Accessibility Standards (UFAS) to be consistent with the Minimum Guidelines and Requirements for Accessible Design (MGRAD). As such, when introduced in 1984, UFAS was the most comprehensive standard to date and is still the mandatory standard for all buildings designed, constructed, altered, or leased with federal funds.

Cities, counties, or states develop their own building construction regulations, and most have added accessibility provisions by adopting in whole or in part the technical specifications of ANSI 117.1 (1980), (1986), UFAS, MGRAD, or those in one of the model codes. All states have some form of access standards.

If no federal money is used in the design, construction, or renovation of the facility, then the Architectural Barriers Act (1968) does not apply. However, if no federal money is used in the renovation of the facility then the provisions of the local building code must be complied with. In recent times most states have adopted the latest edition of the International Building Code. The 2003 edition of IBC contains provisions for accessibility that are referenced from CABO/ANSI 117.1. In summary, the ADA requirements are very similar regardless of the source of funding.

HISTORIC STRUCTURES

In regard to historic structures, UFAS provides the following guidance in UNIT 2 - Regulatory Issues:

The general approach to application of [A.D.A.] standards is to require a cooperative analysis of each renovation/alteration to a "qualified structure" (i.e. a property already listed or declared eligible for listing on the National Register of Historic Places) by interested parties, state and local advisory councils on historic preservation, and others to determine the extent and methods for compliance. The procedures for completing this analysis are described in Section 106 of the National Historic Preservation Act of 1966, as amended.....

.... The agency can use alternate means to create program access

.... Nevertheless (considering the procedure described above) those historic buildings covered by the Architectural Barriers Act must adhere to the provisions of UFAS when renovations are undertaken.

Under MINIMUM REQUIREMENTS FOR PROJECT TYPE the UFAS standard continues:

In the special case of historic buildings the requirements for providing access are detailed in Subsection 4.1.7 of UFAS, pages 13-14.** The general approach to application of standards at historic sites is to require a cooperative analysis of each renovation/alteration to a "qualified structure" to determine the extent and methods for compliance. The procedures for completing this analysis are described in Section 106 of the National Historic Preservation Act of 1966, as amended, 16 United States Code 470 (including Executive Order 11593, Protection and Enhancement of the Cultural

Environment); and "Protection of Historic and Cultural Properties", 36 CFR Part 800.

Each federal agency is responsible for taking into account the effect of an undertaking on any property included (or eligible for inclusion) in the National Register of Historic Places. As a general rule, an official from the federal agency will work with the State Historic Preservation Officer and other interested parties to identify potential conflicts and propose methods for resolving the conflicts during the early planning stages of the project. The goal of this initial planning is to determine what effects (either None, Not Adverse, or Adverse), the proposed undertaking will have on the property.

If it is determined that there will be some effect on the property, the Advisory Council on Historic Preservation reviews and comments on the proposed plans and either amends or accepts the plan. If it is determined that some adverse effect will occur, it is necessary to draw up a Memorandum of Agreement outlining how the effects will be taken into account. An understanding is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Only after the Council has determined that accessibility requirements for accessible routes, ramps, entrances, toilets, parking, displays, and signage have an adverse effect can the special application provisions of Subsection 4.1.7(2), page 14, be utilized. And even then, all requirements which do not have an adverse effect must be met.

(** applicable portions of Pages 13 & 14 of Subsection 4.1.7 have been attached for reference.)

Note that the preceding paragraphs apply only to federally funded projects; projects funded through State, local, or Private sources must comply with CABO/ANSI 117.1.

The Federal Standards (as well as CABO/ANSI 117.1) both have provisions for implementing 'Alternative Measures' to compliance requirements.

Alternative measures: The wording in ANSI regarding alternative measures is identical to the federal standard (UFAS); the only difference being that a state or local preservation officer can apply the criteria and the involvement of the presidents Advisory Council is not required. A condensation of the Alternative Measures is listed below:

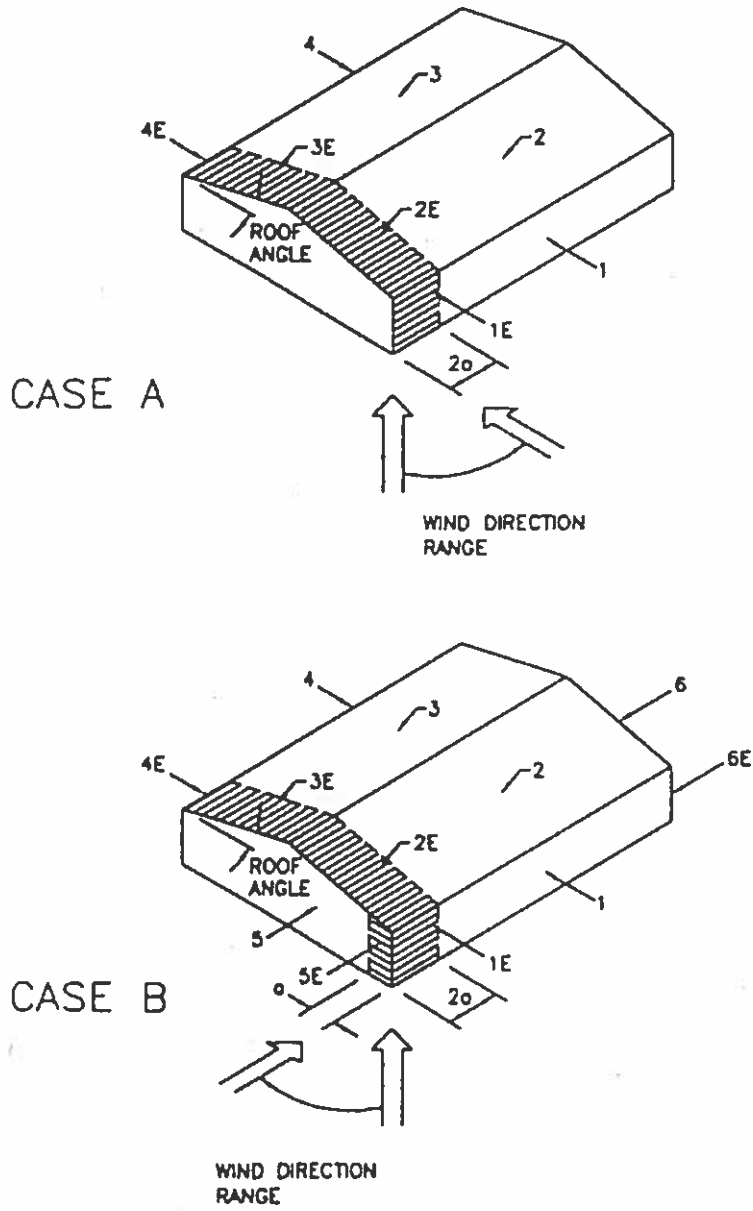
Accessible routes: Can be limited to (1) for historic properties if multiple routes create adverse impacts.

Accessible Entrance: Only (1) accessible entrance is required to be provided and it does not have to be the primary public entrance.

Accessible toilets: Only (1) accessible toilet is required within a facility if adverse effects are caused by providing multiple toilets; it can also be of uni-sex design.

All publicly used spaces on the accessible floor of the facility must be accessible; not all floors within the facility have to be accessible if vertical access causes adverse effects although it is strongly encouraged.

WIND



SEISMIC FACTORS - IBC 2003

PROJECT: Haynes Auto Camp Picture Store; Old Faithful

DATE: September 12, 2006

Seismic Use Group (SUG) ☒ I Ie = 1.00
 {1604.5} ☐ II Ie = 1.25
☐ III Ie = 1.50

Site Class:..... ☐ A
☐ B
☐ C
☐ D
☐ E
☐ F

Assumed Class (1615.1.1)
 Soil properties unknown ☒ D

Spectral Response (from NEHRP) - MCE
 Ss (0.2 sec-site B - 5%) = 150 g Short Period Acceleration
 S1 (1.0 sec-site B - 5%) = 50 g (1) Second Acceleration

Site Coefficient Fa (table 1615.1.2(1)) = 1
 Site Coefficient Fv (table 1615.1.2(2)) = 1.5

Maximum Considered Earthquake (adjusted) Sms = 1.5 Fa(Ss) (1615.1.2)
 Maximum Considered Earthquake (adjusted) Sm1 = 0.75 Fv(S1)

Design Earthquake (short period) SDs=2/3 Sms = 1 (1615.1.3)
 Design Earthquake (short period) SD1=2/3 Sm1 = 0.5

SEISMIC DESIGN CATEGORY

(based on SUG & Response acceleration (1616.3))

For Short Period Response Structures

☐ A minimal risk
☐ B low-to-moderate risk
☐ C moderate risk
☒ D high risk
☐ E high risk-near source
☐ F high risk-near source

For 1-sec. Period Response Structures

☐ A minimal risk
☐ B low-to-moderate risk
☐ C moderate risk
☐ D high risk
☒ E high risk-near source
☐ F high risk-near source

SEISMIC - IBC-EQUIVALENT STATIC FORCE PROCEDURE - (STATIC)

PROJECT: Haynes Auto Camp Picture Store; Old Faithful

DATE: 9/12/2006

STRUCTURE PERIOD (T) - (APPROXIMATE FORMULA METHOD)

Coefficient Ct:

Steel Moment Frames; Ct = ... 0.035

Concrete Moment Frames; Ct = ... 0.03

Eccentrically Braced Steel Frames; Ct = ... 0.03

All Other Buildings; Ct = ... 0.02

Ct selected for use on this structure =

Height of Structure (hn) = (feet).....

(hn)^{3/2} = 117.5755

(hn)^{3/4} = 10.84322

Structure Period T = Ct(hn)^{3/4} = ...

STRENGTH / DUCTILITY COEFFICIENT FOR SELECTED LATERAL RESISTING SYSTEM (R)

Capacity Coefficient R from Table 1617.6; R =

IMPORTANCE FACTOR (Ie) from previous page =

DESIGN EARTHQUAKE FACTOR (SDS) previous page = Short Period Response

DESIGN EARTHQUAKE FACTOR (SD1) previous page = 1 - sec. Response

SEISMIC RESPONSE COEFFICIENT (Cs)

Basic: Cs = SDS / (R / Ie)

R / Ie = 2

Limit: need not exceed SD1 / (R / Ie)(T)

Limit: may not be less than 0.044(SDS)(Ie)

For SDC of either E or F:

Enter S1 from previous page =

Cs = (0.5)(S1) / (R / Ie) =

APPLICABLE Cs TO BE USED FROM ABOVE PROCEDURE =

DESIGN BASE SHEAR

Basic Calculation: V = CsW

SEISMIC WEIGHT of building from previous tabulation =

Design Base Shear this structure =

