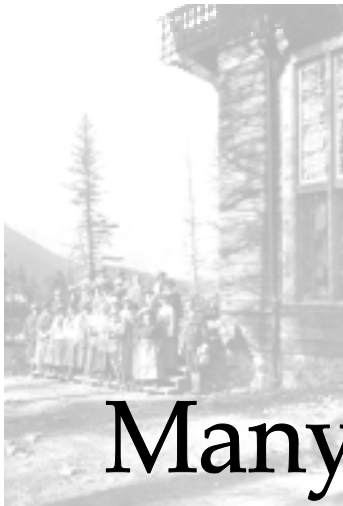


Many Glacier Hotel  
Historic Structure Report

Glacier National Park  
Montana

July 2002

*Watercolors by Henry Sorensen, Graphics by Shaila Sorensen, Layout by Gayle Burgess, Editing by Gail Slemmer*



# Many Glacier Hotel Historic Structure Report

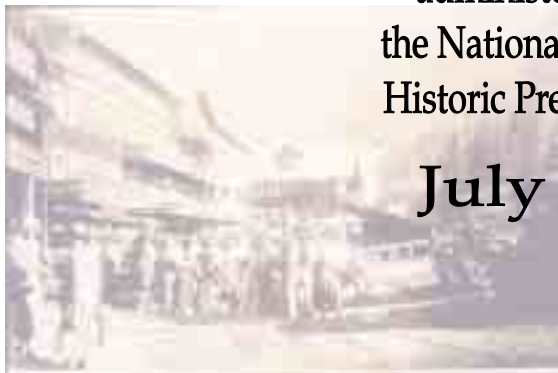


Prepared by  
National Park Service

under Johanna Favrot Grant Program

administered by  
the National Trust for  
Historic Preservation

July 2002





*This document is dedicated to each and every one who has a story about the Many Glacier Hotel.*

*From the Hills – both father and son – who had the vision and commitment to build this monumental hotel, to the railway and construction workers who weathered the harsh winter of 1914 constructing “Many.”*

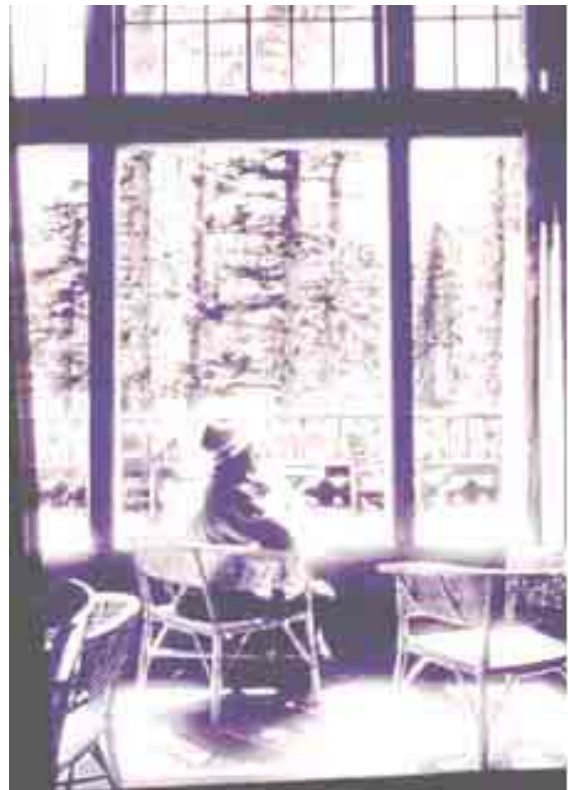
*From the millions of park visitors who sought to experience some of Glacier National Park’s most beautiful wilderness offered from the hotel’s doorstep, to the thousands of Many Glacier Hotel employees who could never get enough of the hotel and her surrounding natural beauty.*

*But mostly, this document is dedicated to the caretakers of our nation’s historic treasures who have struggled to save this grand hotel, her story and the significant role of “Many” in the history of the National Park Service, the Great Northern Railway, and the western United States.*

*The National Park Service, who values its role to protect cultural resources, wishes to thank the organizations, support groups, and individuals who have partnered to save this National Historic Landmark.*

*Special appreciation is given to the National Trust for Historic Preservation, who awarded the grant that initiated the generation of this document.*

*The preparation of this document and associated research has served to support and enhance several preservation projects ongoing and proposed in the near future at Many Glacier Hotel.*



*Courtesy Minnesota Historical Society*



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# PROJECT BACKGROUND AND GOALS

In 1996 the National Trust for Historic Preservation placed Glacier National Park on its list of “America’s eleven most endangered places.” The Many Glacier Hotel, built between 1914 and 1917, is part of that listing because the infrastructure of the eighty-five-year-old National Historic Landmark is decaying from the inside out, with failing foundations, rotting framework, defective mechanical and electrical systems, and declining integrity.

In an effort to save and restore this National Historic Landmark hotel for future generations, the National Park Service has been working with Glacier Park, Inc., the concessioner for five major historic accommodations in the park, to develop a financially sound restoration plan for the Many Glacier Hotel. The plan will serve as a prototype for preserving the park’s remaining historic accommodations.

A financially sound restoration plan for the Many Glacier Hotel will have to address many factors: the identification and protection of those features that contribute to the hotel’s historical and architectural significance; compliance with the current building codes; the provision of an appropriate level of services to park visitors; and fiscal responsibility to public taxpayers and to the private investors who support the hotel’s operation as a park concession.

To facilitate the initiation and development of the restoration plan, Glacier National Park applied for a grant from the Johanna Favrot Fund for Historic Preservation. The Johanna Favrot Fund, administered by the National Trust for Historic Preservation, was created to help save historic places across the country. It approved a grant of \$8,000 to Glacier National Park for development of a restoration concept and rehabilitation plan for the Many Glacier Hotel. The Many Glacier Hotel was one of eight projects selected for assistance in May of 1997. This initial edition of what will become an incrementally more complete *Historic Structures Report* is a product of that grant.

This *Historic Structures Report* focuses on the value of the Many Glacier Hotel as a National Historic Landmark and on the treatments and actions needed to preserve and maintain the hotel’s historical and architectural significance. Part one, “Developmental History” describes the hotel’s original architecture, major changes, and character-defining features. Part one also includes a summary of the most recent architectural and engineering studies conducted to document the condition of the structure and the many discrepancies with modern building codes. Part two, “Treatment and Use,” identifies the treatments that would be required or desirable to support the building’s long-term preservation and use as a National Historic Landmark hotel. Part two also analyzes those treatment and use alternatives currently under consideration, for their consistency with the long-term preservation of the buildings’ integrity as a National Historic Landmark.

Decisions about the ultimate treatment and use of the Many Glacier Hotel will be informed by a number of studies and documents. In addition to this document, they include

## 1 Project Background and Goals

*General Management Plan, Glacier National Park* (NPS 2000a): This plan establishes the ultimate treatment and use of the building as a National Historic Landmark hotel.

*Commercial Services Plan for Glacier National Park* (NPS 2001a): This plan, currently in preparation, defines the appropriate type and number of commercial services to be provided in each developed area of the park, and what role the Many Glacier Hotel should play in providing appropriate and necessary services. These recommendations are based on the information provided in this *Historic Structures Report*, the *Condition Assessment*, the *Structural Integrity Assessment*, and additional investigative studies.

*Condition Assessment, Many Glacier Hotel*, prepared for the National Park Service by Architectural Research Consultants, Inc. (NPS 2001b): This study addresses compliance with life-safety and building codes and the requirements for universal access. It also presents a general overall investigative accounting and evaluation of plumbing and electrical systems and fixtures, and of the existing condition of architectural finish treatments.

*Structural Integrity Assessment, Many Glacier Hotel*, prepared for the National Park Service by Architectural Research Consultants, Inc. (NPS 2001f): This study, normally a part of the condition assessment, was conducted as a discrete study to analyze the building's extensive structural problems and to recommend actions for emergency stabilization and eventual structural code compliance. It compiles structural information gathered through site visits, reviews of existing drawings, conversations with maintenance personnel, and the numerous geotechnical, architectural, and structural reports conducted over the past fifteen years. The loading and performance criteria used to evaluate code compliance are based on the 1997 *Uniform Building Code*.

*Emergency Stabilization Project, Many Glacier Hotel*, prepared for the National Park Service by Architectural Research Consultants, Inc. (NPS 2001d): This study presents emergency stabilizations alternatives for areas of extreme structural concern: the foundations at annexes 1 and 2, the balconies of annexes 1 and 2, and the south bridge.

The long-term preservation of the Many Glacier Hotel as a National Historic Landmark and internationally famous visitor destination will depend on finding solutions that respect the buildings' historic integrity while meeting modern standards of safety and visitor service, and while generating the fiscal resources to make the undertaking feasible.

As a critical part of that effort, this *Historic Structures Report* fulfills the goals of

- (1) documenting those features that define the hotel's character and contribute to its architectural and historical significance as a National Historic Landmark
- (2) identifying the treatments necessary to ensure the long-term preservation and use of the structure as a grand hotel
- (3) ensuring that all alternatives under consideration adequately consider the protection and long-term preservation of the hotel's character-defining features

Data collected for preparation of this report did not include original research. Due to funding and staffing limitations, as well as readily available research data on the hotel, this report consolidates past and ongoing research information for presenting recommendations regarding treatments and further study. This report will be amended as information is gathered to support future treatments.



PART ONE:  
DEVELOPMENTAL  
HISTORY OF THE  
MANY GLACIER  
HOTEL





Courtesy Minnesota Historical Society

# 1 CONTEXT AND SIGNIFICANCE

## HISTORICAL CONTEXT

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*The Historical Development Of Glacier National Park Into One Of The West's Great Destination Resorts*

[Sources: Much of the information specific to the Many Glacier Hotel included in this section is from the National Register nomination forms for the Many Glacier Historic District and Hotel (NPS 1975, 1986a, and 1995). Additional information has been provided from the *Historic Preservation Architectural Guide, Many Glacier Hotel*, prepared for the National Park Service by James R. McDonald Architects (NPS 1986b). This guide contains many historic photographs, which should be useful in considering alternatives for rehabilitation. This document also contains floor plan drawings with maintenance problems identified on them.]

Glacier National Park, established in 1910, was pushed through the legislative process under the considerable influence of the president of the Great Northern Railway, Louis Hill. Hill's railroad ran along what became the southern edge of the new park. Scrutinizing the pattern set by the Northern Pacific in Yellowstone and the Atchison, Topeka and Santa Fe at Grand Canyon, Hill knew that the creation of a destination resort at this park would tremendously increase revenues from passenger traffic on his main lines.

During the early development of the National Park System most of the large natural parks in the West were isolated to the extent that accommodations such as meals and lodging were essentially unavailable. The sheer size of these parks and the time required to traverse them necessitated the establishment of lodging and food service within park boundaries. The Northern Pacific had begun building Yellowstone's overnight accommodations in 1883-84 with the National Hotel at Mammoth, and by 1903 they had commissioned the Old Faithful Inn, with its archetypal rustic architecture by Robert Reamer. The Atchison, Topeka and Santa Fe had financed the southwestern versions of grand hotels, El Tovar, Hopi House, and Hermits' Rest, introducing architect Mary Colter's work at Grand Canyon. What both of those railroads had done, and what Hill wanted to accomplish, was to build resorts in architectural styles that would create images — buildings that would be noteworthy and memorable in their own right. Distinctive architecture contributed to the sense of place, and these attractive places could be reached in comfort only by rail.

While working to establish Glacier as a national park, Hill promoted the area as the "American Alps." To him, it was only logical that the single architectural theme befitting the new park was the Swiss chalet style.

Between 1910 and 1915, the Great Northern Railway and its wholly owned subsidiary, the Glacier Park Hotel Company, constructed two enormous luxury hotels and a series of backcountry chalets and tent camps. The two major hotels, the Glacier Park Hotel and the Many Glacier Hotel, were the core structures. The chalets, of log and stone construction, and the informal tent camps were placed in the backcountry within an easy day's horseback ride or hike of either one of the major hotels or of each other.

The historic Belton Chalet (also a National Historic Landmark), developed at Belton (present day West Glacier) was the western point of departure for park guests who began their park adventure from the western side of Glacier National Park. A carriage ride from Belton would take visitors to a boat launch at Apgar. From Apgar, visitors traveled over the pristine, glacial blue waters of Lake McDonald to arrive at Lake McDonald Lodge, a Swiss Alpine lodge designed by Kirtland Cutter, an architect commissioned by John Lewis in 1912. (Cutter prepared the original drawings for the Many Glacier Hotel.)

The stylistic unity of the Glacier National Park development distinguished it from the development at Yellowstone, which included an eclectic mix of Victorian and classical revival structures along with its archetypal rustic architecture at Old Faithful. The development at Grand Canyon was similarly diverse, although it, too, included highly significant archetypal styles.

Following the European manner of chalet development, the Glacier Park Hotel Company and the original hotelier who built the Lewis Glacier Lodge (Lake McDonald Lodge) at Lake McDonald added a new dimension to railroad development in national parks by combining opportunities for luxury with opportunities for overnight “wilderness” experiences. (By comparison Yellowstone and Grand Canyon offered first-class overnight hotels, from which the great majority of the more adventurous visitors took only day trips, returning to their hotels at night.) After a long cross-country train ride to Glacier National Park, most visitors liked to spend several nights at one of the grand hotels. There, entertainment at cabarets and fine dining were the norms, and boat and horseback rides could be arranged. Adventurous guests could then string together a number of catered backcountry treks that allowed them to traverse the Continental Divide between the east and west districts and to use the high country chalets for more spartan overnight stays.

Until the Going-to-the-Sun Road was completed in 1932, horseback trips along backcountry trails were the only assisted means of traveling from the park’s east district to the west. Eight chalet developments were constructed in the backcountry, spaced within a day’s horseback ride (10 to 18 miles) of a hotel or another chalet. The locations followed three tour routes known as the outside, inside, and north circle routes. Tours using the outside route set out from Glacier Park Lodge and proceeded to the Two Medicine, Cutbank, and St. Mary Chalets before heading west to the Going-to-the-Sun Chalets. Tours using the inside route used the Gunsight Chalets then went over Lincoln Pass to the stone-walled Sperry Chalets and finally ended at the Lewis Glacier Hotel, where the guests were reunited with their luggage after the two-week-long trek. The north circle route usually took guests from the Many Glacier Hotel to the Many Glacier Chalets (which predated the grand hotel), the Granite Park Chalets, and on to Waterton Lakes. The St. Mary Chalets were used as an overnight transfer point for going from the east to either the west or the north. They were centered between the Glacier Park Lodge and the Many Glacier Hotel at the park’s east entrance.

A typical chalet development consisted of sleeping cabins, dining halls, and perhaps kitchen and employee dormitory cabins. Tent camps along the 10-18 mile treks between the chalets made it possible for saddle-sore guests to have meals and respite during the day.

Many celebrity guests were noted as having been booked on these trips, including Charlie Russell. The renowned western artist stayed at the short-lived Gunsight Chalets before going on to the Sperry Chalets and two weeks later arriving at the Lewis Glacier Hotel. Presidents Hoover and Roosevelt made the Two Medicine Chalets their headquarters in Glacier. Hoover had his Summer White House there in 1930. FDR stayed there during his 1934 ‘The Year of the National Parks Tour.’ During his famous Fireside Chat made from the chalets, FDR told his radio audience about the park, “Perhaps I can best express to you my thrill and delight by saying that I wish every American, old and young, could have been with me today. The great mountains, the glaciers, the lakes and the trees make me long to stay here for all the rest of the summer... There is nothing so American as our national parks.” He was entertained by the Civilian Conservation Corps (CCC) and received at powwows, where he was named the “Big Chief” and inducted into the Blackfoot Tribe.

The Going-to-the-Sun and St. Mary Chalets could be accessed by horse, boat, or hiking. The Going-to-the-Sun Chalets were the showiest of the lot. They operated until 1940, were closed for the war years, and were removed in 1949 because the National Park Service deemed them beyond economical repair. The St. Mary Chalets were closed in 1944, the Cutbank Chalets were razed in 1949, and the Two Medicine Chalets were closed in 1942 and razed in 1953, leaving only the dining hall as the present camp store. Other chalets succumbed to the destructive forces of avalanches (Gunsight in 1914) and fires (Many Glacier in 1936), leaving only two.

Hill's choice of one architectural theme and extensive backcountry development to encourage visitors to temporarily leave the luxury of the enormous hotels and experience the "American Alps" by more rustic means created a new paradigm for American national park tourism. It also gave an architectural unity and a sense of place to an entire region of immense proportions.

The remaining buildings of this elaborate front- and backcountry system – the Many Glacier Hotel, the Sperry and Granite Park Chalets, and the award winning restoration of the Belton and the Two Medicine Campstore at Lake McDonald – are exceptional examples of the park's historic architecture and powerfully evoke the classic western national park character for present-day guests. All of these remaining structures are registered National Historic Landmarks. Those facilities that have been removed – the Two Medicine, Cutbank, St. Mary, Going-to-the-Sun, Gunsight, and Many Glacier Chalets – would have completed the necklace of accommodations that draped gracefully over the vast wilderness.

## NATIONAL SIGNIFICANCE OF THE MANY GLACIER HOTEL

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[Sources: The "Many Glacier Hotel Historic District National Register Nomination" (NPS 1975) and the "Great Northern Railway Buildings National Historic Landmark, National Register Nomination" (NPS 1986) identify specific features contributing to the hotel's National Historic Landmark status. The addendum to the Many Glacier Historic District nomination found in "Inventory and Evaluation of Historical Buildings and Structures Within Glacier National Park" (NPS 1995) expands the boundaries of the historic district, describes the interiors and exteriors of contributing buildings, and describes the grounds, the bridges, and other historic features within the district, but it does not directly address the contributing features of the hotel.]

The Many Glacier Hotel was first listed on the National Register of Historic Places in 1976 as the centerpiece of the Many Glacier Hotel Historic District. In 1987 it became a National Historic Landmark, recognizing its status as one of the major structures left from the Great Northern Railway development within Glacier National Park. The Many Glacier Hotel is registered as a "world class accommodation." The registration requirements for eligibility as a world class accommodation are addressed in "Historic Context and National Register Guidelines for Concession Operations, Glacier National Park, Montana" (NPS n.d.)

The hotel meets the National Register criteria for both historical and architectural value, as noted in the nomination forms:

*"The primary value of these structures is associative (eligible under National Register criterion A)-- in that they can establish a cognitive link between past policy and events. Individual properties may also be considered significant for their architectural values (eligible under National Register criterion C). The park's large hotels appear to represent excellent examples of rustic, monumental architecture, including what has been previously informally identified as "Swiss chalet" style....The development funded by the Great Northern Railway in Glacier National Park is unique in National Park architecture."*

## 1 Context and Significance

Today the Many Glacier Hotel remains a visitor lodging facility, retaining much of its original character while striving to meet the needs and requirements of contemporary park visitors. The 1984 national landmark nomination noted that “the hotel boasts a true Swiss atmosphere from the Alpine beauty which surrounds the building to the decor of the striking lobby. Placemats on the tables in the large dining room still promote this ‘Alpine hostelry... in the Switzerland of North America.’”



Looking east down Swiftcurrent Valley and Swiftcurrent Lake, with Many Glacier Hotel seen at far side of lake.  
*Courtesy Glacier National Park Archives*

## HISTORY OF DEVELOPMENT

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Great Northern Railway President Louis Hill picked the Many Glacier Hotel site in 1909. The hotel was constructed between 1914 and 1918, at a time when travel to Glacier National Park was still primitive, when visiting the park was a true adventure, and when a park visitor was a wilderness traveler.



The hotel rests adjacent to Swiftcurrent Lake, which had to be artificially raised to create this natural looking setting at the end of a twelve-mile road through Swiftcurrent Valley. The hotel's imposing scale is humbled only by the backdrop of the glacial lake, massive glaciated peaks, and walls of jagged rock. The hotel is a grand gateway to the unsurpassed beauty of the Swiftcurrent and Grinnell Valleys, which meet at its doorstep.

The final hotel design was created by St. Paul, Minnesota Architect Thomas D. McMahon and built at a total cost of \$500,000. The construction of the hotel was an impressive operation. A road from

St. Mary was built to support the construction effort; and a quarry and sawmill were developed locally to obtain stone and lumber. Four hundred men under the direction of contractor E.G. Evensta were employed by the railroad during the two working seasons it took to complete the main structures (range of pay \$0.30 to \$1.65 per hour). Window sash glass and other materials were transported to the site by freight wagons, which left every morning for the five-day trip from Midvale (East Glacier).

The Many Glacier Hotel site began changing when a larger number of guests began to travel to the hotel in their own automobiles in the late 1920s. This new means of transportation resulted in development of vehicle parking and site design to separate horse and vehicle traffic. An entrance porch to the lobby was added in 1932, and in 1957 a porte cochere was added to provide a protected drop-off zone for visitors arriving by automobile and bus.



Porte Cochere developed at main entry to hotel to protect guests from "the elements."  
*Courtesy Glacier National Park Archives*

## 1 Context and Significance

A major rehabilitation of the interior of the hotel occurred during the 1950s. The bathrooms were changed so that private baths were provided for each guestroom; the kitchen was upgraded, the circular stairway leading from the grand lobby to the lower lake level was removed, and the lobby was altered to include a larger gift shop. Sprinkler systems were introduced for fire suppression, and the fire escape balconies were strengthened.

A second major rehabilitation of the historic fabric occurred in the early 1980s. Guestrooms were refurbished. The gift shop was expanded further into the lobby. The former pool area was retrofitted for use as employee quarters. The exterior was painted. The dining room windows, which dated to the 1950s, were replaced, and the dining room ceilings were suspended below the trusses.



*Above left:* Original dining hall with exposed roof trusses. Note pergola and decorative Oriental umbrellas left, Blackfeet pictographs right, and evergreen trees at stone fireplace. Furniture included 36 hardwood chairs, 122 Japanese wicker chairs, square homemade tables, round tables, homemade sideboards, tray stands, Japanese lanterns, blue willow ware china and one tea tray wagon. *Left:* Following 50's remodel, dining hall after ceiling was dropped below bottom of trusses, wood floor covered with linoleum.

*Courtesy Glacier National Park Archives*



Upgrades to the hotel continue annually as funding allows. In the winter of 2000-2001, work began to improve the life-safety features of the hotel for the benefit of the guests. The steam heat system was abandoned and replaced with electric heat, which required the installation of new wiring. The hotel will no longer use propane, natural gas, or heating oil fuels, the delivery of which was expensive. In addition, the fire alarm/smoke detection system was upgraded.

During the 2001-2002 construction season, emergency stabilization work began on the hotel. Work included rightening and stabilization of the foundation for the south section of annex 1, balcony reconstruction at the south end of annex 2, and associated work. Phases II and III, to begin in the fall of 2002, will serve to upgrade the building envelope including remaining balcony stabilization, window and door repair, siding, and roofing.

## CHRONOLOGY OF DEVELOPMENT

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Throughout the hotel's history, modifications to the building have been necessary to enhance operating efficiency, improve service to guests, and bring the building up to current health and life-safety codes. Many of these modifications are listed below in a timeline which has been largely copied from the *Historic Preservation Architectural Guide* (NPS 1986) and supplemented from original research by Tessie Bundick, Historian, Glacier Park Foundation.

1915

- Main lodge, annex 1, and kitchen construction completed

1917

- Annex 2, south bridge, indoor plunge pool, laundry, and waterline constructed

1926

- Stair removed in southeast corner of lobby to allow for expansion of the entrance to the bridge

1928

- Original green stain on dining room walls renewed

1932

- Entrance porch to lobby added

1933

- Metal bands put on checked lobby columns
- Fireplace removed from Grill Room (St Mortiz)

1934

- Heating system revised
- Lecture hall (Lucerne Room) enlarged and Grill Room remodeled
- Grill fireplace removed
- Cocktail lounge developed



Annex 2, left, and connecting south bridge with spired cupola constructed in 1917. The spire was likely inspired by the first set of drawings submitted by Kirtland Cutter but rejected by Louis Hill. *Courtesy Glacier National Park Archives*

## 1 Context and Significance

1937

- New drop ceiling added to dining room
- Pool and dressing rooms rebuilt

1939

- Half of balconies rebuilt and several doors on the lakeside permanently closed
- New furnishings (rugs, runners, chairs, dressers, blankets, stoves, etc.) provided to lobby and guest room

1940

- Grill Room remodeled (again)

1941

- Laundry extension added
- Employee pub added

1943

- Exterior repairs and painting (split siding replaced, repairs to porches, balcony floors and railings, exterior stairways, skylights, and roof)

1948

- New water supply and reservoir constructed

1950

- Iron hangers added to strengthen balconies

1952

- Bathrooms added and remodeled in main building and annex 1
- Building paper added to west and south sides of hotel by removing siding and window trim

1953

- New transportation counter added
- Kitchen ventilation system added

1956

- Bathrooms added and remodeled in annex 2
- All balconies on west side of hotel removed and repaired
- Eaves on west side boxed
- Four chimneys below rooflines removed
- Asbestos cement roof shingles replaced with wood shingles

1957

- Bus platform and entrance canopy added (porte cochere topped with spire)
- Wall added to separate cocktail lounge from bridge
- New guestrooms added above gift shop
- Compressor room added
- Convention hall and women's toilet added
- Reservation desk and office built
- Green linoleum laid down on lobby floor
- Steel supports added to Lucerne Room
- New bathrooms installed in rooms 115 and 315
- Boiler room piping added
- Spiral stairway from lobby to basement removed and



Porte Cochere added in 1957 to protect arriving and departing guests from the weather. *Courtesy of Glacier National Park Archives*

gift sales area expanded over the infill floor

1959

- Steel supports added to St. Moritz Room
- Kitchen remodeled

1960s

- Steel angles added to shore up failing balconies

1964

- Water system repaired after damage by flood

1970s

- Additional supports added to balconies

1982-4

- Rooms remodeled (paint, carpet, tile, etc.), and refurnished
- Corridor and lobbies repainted and recarpeted
- Fire detection system installed
- Some rooms and bathrooms made accessible to mobility-impaired visitors
- New fire stair installed
- Kitchen remodeled and updated to meet codes
- New banners and carpet installed in dining room
- Exterior siding and trim painted
- Exterior windows painted and screens reworked
- Balconies reconstructed on the west side of annex 2 and the east side of annex 1
- Balcony balusters replaced
- Gift shop extended into lobby space
- Transoms and windows covered in lobby
- Additional exit constructed at ground level, mid-annex 2
- Annex 2 freight elevator shaft blocked
- Annex 2 north stairway enclosed and remodeled
- Stairway in southeast corner of lobby extended to ground floor and enclosed
- Former pool area remodeled for employee quarters
- Smoke doors added to corridors in annexes 1 and 2

1990

- Carpet removed and underlayment replaced on exterior lakeside deck
- Door at gift shop changed from vinyl bifold to roll-up grill
- Nonhistoric pendant lights in Lucerne Room replaced with ceiling fans
- Exterior deck covering replaced
- Basement-level light fixtures replaced
- Sackett replaced with drywall
- Corridor annex painted as others (light camisole)
- Roof resingled

1991

- New carpet installed in hotel rooms
- Swiss Lounge remodeled (lounge previously remodeled in 1957); no description of work
- Ventilation fans installed in two employee restrooms adjacent to the kitchen
- Carpet installed in approximately 80 guest rooms
- Sagging, damaged Sackett wallboard replaced in rooms with drywall (rooms not listed)

## 1 Context and Significance

1993

- Old bakery remodeled for employee recreation room (includes new exterior door)

1994

- Air-door blower installed on the exterior entry door to the St. Moritz Room

1997

- New transformers and electrical wiring installed

1998

- Lobby gift shop remodeled

2000

- Wood support posts attached to failing balconies in emergency effort to open guestrooms

2001-2002

- Annex 1 south (Stagger Alley section) stabilized (emergency stabilization and rightening) and extraneous structural fixes (e.g., steel angles, tension cables, wood supports) removed
- Annex 2 south balconies reconstructed with steel structural members

## **ADMINISTRATIVE HISTORY**

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The Great Northern Railway constructed the Many Glacier Hotel and operated it until 1960. In 1960, Many Glacier Hotel, along with the rest of the chain, was sold to Don Hummel from Arizona. Hummel formed Glacier Park, Inc., and ran the Many Glacier Hotel and other Glacier National Park hotels for twenty years. He sold the operation to The Dial Corp in 1981. Today, the National Park Service owns fee title to the Many Glacier Hotel complex. Glacier Park, Inc., a subsidiary of Viad Corp (formerly The Dial Corp) has a compensable interest in the facilities and owns the furnishings.



## 2 HOTEL ARCHITECTURE AND CHARACTER-DEFINING FEATURES

The stone segments creating the arched windows were constructed from locally quarried stone. *Courtesy of Minnesota Historical Society*

[Sources: Most of the information about the original architecture and major changes is from the *Historic Preservation Architectural Guide*. Some information, especially regarding changes that occurred after 1986 is from the *Condition Assessment*. Other information has been furnished by Tessie Bundick, Historian for the Glacier Park Foundation, who completed archival research at the Minnesota Historical Society. The determinations of character-defining features are based on National Register nomination forms and subsequent consultations with NPS cultural resource specialists and the Montana State Historic Preservation Office.]

### **BUILDING EXTERIOR**

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#### **Original Architecture**

The largest structure of the entire group of Great Northern Railway Buildings, the enormous Many Glacier Hotel was constructed on a north-south axis conforming to the shoreline of Swiftcurrent Lake on the west and an exposed upthrust shelf of bedrock on the east. The main entrance to the hotel was on the east side of the building, with access to the lake from a west-side walkout on the lower level. The original plans included the main lobby building with surrounding guestrooms, an annex with additional guestrooms, and a kitchen and dining wing connected to the annex by a bridge. These buildings were completed between 1914 and 1915. An enclosed swimming pool was added to the kitchen and dining wing in 1917, and construction of a second wing of guestrooms was begun due to high demand.

The wood-frame structures ranged from one to four-and-one-half stories in height and were constructed on stone rubble foundations with walkouts to the west lake side. The foundations, the fireplace at the entrance, and the waterfront terrace with arched windows and doors were constructed from native stone quarried close to the hotel. The walls were covered with wood clapboard siding that may have been originally painted or stained. (Completion of paint analysis will verify original surface treatments and colors.)

The wood double-hung windows, and the trim around the doors and fixed windows, had a decorative jigsaw pattern that was painted white and yellow (exact colors to be determined from paint analysis). The oversized windows surrounding the lobby were detailed in color and striping with colors beyond the standard trim specifications. Exterior balconies with jigsaw-cut balustrades extended from the guestrooms on all sides of the structure. The cuts in the balustrades created a cloverleaf pattern. Square asbestos cement shingles laid out in a honeycomb (diamond) pattern were used extensively on both roofs and basement walls.

The roof design was characterized by interesting angular rooflines, such as truncated or clipped gable roofs (also referred to as jerkerhead roofs), with gabled roof eave dormers and eave gables projected over jigsaw cut outlookers.

The following exterior features are mentioned in the hotel's nomination forms for NHL status, written by Laura Souliere. These features contribute to those qualities of the hotel's architecture that made it eligible to be listed as a National Historic Landmark.

- Structure is largest of all of the extant Great Northern Railway developments.
- Enormous building with its multiple wings and additions stretches a great distance along lakeshore
- Building is up to four stories in height and designed as a series of chalets.
- Principal building materials are stone for foundations and the basement walls of the original wing, with wood frame superstructures.
- Of special note are the stone basement walls of the original portion
- Rugged texture of the rough rubble masonry and the segmentally arched openings add considerable interest to the structure.
- Exterior walls are finished with brown painted wood siding.
- Windows are framed with moldings cut in Swiss jigsaw designs. Principal moldings and window frames are painted white with yellow jigsaw detailing.
- Roofline has considerable variation; the gable roofs often have clipped-gable ends. Multiple dormers and hip roofs add further interest to the rooflines. The roofs are all finished with wood shingles.
- Each of the annexes has balconies. Balcony balustrades are wood, sawn in jigsaw patterns found in chalet architecture.

### Major Changes

The exterior balconies have required extensive repair and reinforcement. As early as 1919, props were being placed under the balconies in the winter to prevent breaking from the heavy winter snow. In 1921 Hill began documenting his concern that structural bracing of balconies was of great concern "as they were weak and a person's weight could be enough to make them fall." Fifty percent of the balconies were noted to have been rebuilt in 1939, and several doors were permanently closed on the lakeside, resulting in narrow decorative facsimiles of balconies.

In 1950 a system of steel cables, rods, and brackets was installed to shore up the failing balconies. In 1956 all the balconies on the west side (lakeside) of the hotel were removed and repaired, with steel supports added. In the 1960s steel double angle columns were added on the fronts to some balconies, followed in the early 1970s by additional steel angles attempting to mimic the column/angle detail at the back. The columns were attached to the balconies at the steel cable bracket locations. Vertical angles and cable supports were added to the remaining balconies in the mid 1970s. The balconies on the west side of annex 2 and the east side of annex 1 were reconstructed in 1982-84. Wood support posts were attached as an emergency measure to further stabilize failing balcony locations in the summer of 2000 (failure noted during initial *Condition Assessment* inspection by the structural engineer).

In 1984, several balcony balusters were replaced and the old balusters were thrown away. Some of the jigsaw cut diamond and cloverleaf pattern balustrades on the balconies were replaced with a simpler diamond and oval shaped pattern. The balustrade top rail was repainted a bright yellow, whereas originally, it was believed to be more cream in color.

In the spring of 1956, the Glacier Park Company was granted approval to replace the asbestos cement roofing shingles with wood shingles, "as thick as you can get them and we believe that the large Canadian

shingles... will be suitable" (March 20, 1956, letter from Glacier National Park Superintendent J.W. Emmert to Mr. J.S. Jeffries, Vice President of Glacier Park Company).

In 1957 a porte cochere was added to provide a visitor drop-off zone at the east entrance. The spire-topped cupola on the porte cochere was designed to reflect the one over the north bridge and may be found historically significant in its own right due to its association with an NPS major building boom called Mission 66.

Other changes to the exterior appearance have included boxing of the eaves on the west side (1956), removal of four chimneys that were below the roof line (1956), and construction of an additional exit at ground level in mid annex 2 (1982-1984). Mechanical ventilation equipment has been added to the large sloping roof that sets over the dining hall and kitchen.

### Building Exterior Character-Defining Features

The following list expands upon the original National Historic Landmark National Register nomination list of features. This comprehensive list identifies all features determined critical to the hotel's historic character. If the structure were to lose some of these features over time, then the cumulative effect could result in the denigration of its status as a National Historic Landmark. (\*Denotes features that have been altered or removed.)

- Massive scale
- Location
- Honeycomb (diamond pattern) roof shingles\*
- Honeycomb (diamond pattern) shingles for wainscoting at lower level, lake side
- Clipped-gable (jerkerhead) roofs with gabled dormers along eaves
- Eaves with jigsaw-cut outlookers and knee braces
- Decorative pendants
- Hierarchical tiering of balconies
- Flag poles with decoratively carved supporting brackets and poles with "pointed stars" ends\*
- Stone chimney at entrance to lobby
- Stone rubble foundation
- Built-in bench seats along lobby porch and lake level pergola entry\*
- Decorative jigsaw-cut window and door trim and paint scheme (trim varies between bath and sleeping room windows on the upper levels; lower lake level rooms have square cut trim only – similar to interior detailing)
- Wood windows (six-over-one double hung)
- Spire-topped cupola over the south bridge
- Weathervane atop cupola over south bridge\*
- Pattern of the fenestration spacing, both horizontally and vertically
- Both gable and flat pergola covered entries to lake level St. Moritz Room (Grill Room) \*

Decorative knee braces and pendants. Artwork: Shaila



Main lobby windows.  
Artwork: Shaila Sorensen  
1999



## 2 Hotel Architecture and Character-Defining Features



Site of Many Glacier Hotel along the banks of Swiftcurrent Lake, 1940. *Courtesy Glacier National Park Archives*



Note flagpoles and weather vane atop south bridge cupola, 1932. *Courtesy Glacier National Park Archives*



East side of hotel with tourists waiting to board the "Old White" touring buses. 1920 Note stone chimney at entry, flag pole supports, and balconies without extensive "add-on" supports (steel angles, cables, wood posts). *Courtesy Glacier National Park Archives*



Photograph displays siting of Many Glacier Hotel. Note porte cochere spire attempting to mimic lower spire over original south bridge to left. *Courtesy Glacier National Park Archives*



View of many glacier hotel from west side of Swiftcurrent Lake. Note pergola over entry to lake level of main building (no longer exists), original water tower (foundation remains today), fence along walk between hotel and lake. *Courtesy Glacier National Park Archives*



South end of Many Glacier Hotel. Annex 2 in background with spired South Bridge in middle of photo connecting the annex and main lobby building to right. Note flagpole supports. *Courtesy Glacier National Park Archives*



Visitors on front veranda off of lobby, 1933. Mt. Gould in distance. Note original gable-covered entry (no longer exists) to lower level Grill Room (original Soda Fountain was next to this entryway). *Courtesy Glacier National Park Archives*

## 2 Hotel Architecture and Character-Defining Features

Photo taken from boat dock.  
1975. Note different wall treatments over lower levels -- stone at main building, honeycomb pattern asbestos cement tiles over framed annex building. Both buildings have clapboard siding above. Also note grand windows at lobby, clipped – “jerkerhead” – gables. Pergola covered entry to lake level main building no longer present. *Courtesy Glacier National Park Archives*



South end of main building.  
Note arched window and doors heads composed of segments of locally quarried stone.  
*Courtesy Glacier National Park Archives*



Built-in seating and deck chairs for lobby porch overlooking swiftcurrent lake – west. *Courtesy Minnesota Historical Society*



## INTERIOR SPACES

For purposes of analysis of the hotel interior, the hotel has been divided into six units: main lobby building (including the porte cochere), annex 1, annex 2, north bridge, south bridge, kitchen and dining wing, and employee services wing (employee dining room and pub) (see figure 1).

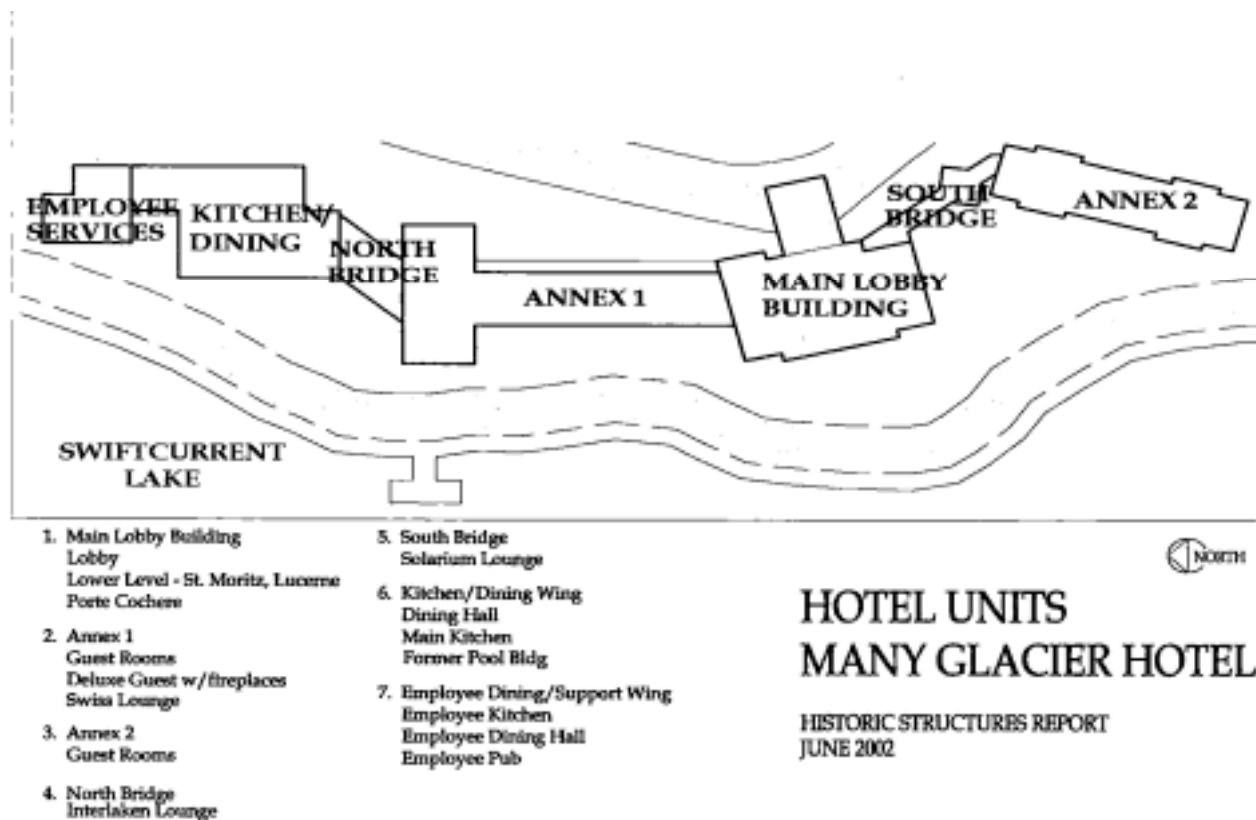


Figure 1: Plan of Many Glacier Hotel (modified plan sheet from *Commercial Services Plan* report, ARC/ Dekker/ Perich/ Sabatini, Albuquerque, NM, 2001)

## Main Building

### Original Architecture

The main building encompassed an atrium-like four-and-one-half-story hotel lobby, surrounded by overlooking balconies and guest chambers, and a lower level, historically accessed by a central staircase. The exposed interior structural system was constructed of massive 30- to 36-inch diameter logs (believed to be old growth Douglas-fir, as detailed at East Glacier Park Lodge) that rose from basement to roof level. The characteristic log members were repeated and sized proportionally for columns, roof framing, and stair rails throughout the building.

The building's rustic Swiss chalet architecture was reinforced by details including Swiss designs in the jigsaw-cut balusters along the overlooking balconies and connecting stairways, and by five-foot-high rough wood wainscot topped by Sackett board and ceilings broken into squares by a wood-batten trim, which was painted the color of the wainscot. The guest chambers were accessed by panel doors with "X"-patterned

## 2 Hotel Architecture and Character-Defining Features

wooden battens and embellished with red-and-white Swiss crosses on each door identifying the room number.

The lobby was the central focus for the hotel, providing a spatial quality much like the “naos” space (inner cell) of a Greek Temple, except rustic in materials and finishes. The neoclassical revival design was developed through the layout of oversized columns, as adaptations in log of Greek Doric column styles, in a classical colonnade. This plan is believed to be rooted in the Oregon Forestry Building presented in the 1905 Lewis and Clark Exposition in Portland.

A skylight in the ceiling directed light into the main lobby space. A large, copper-hooded, open fire pit dominated the north end of the lobby. At the south end a large spiral staircase led to the lake level. The staircase was laid out with double helical curves forming two opposing complete circles



Base of original log columns set in main building. The typical peeled log column measured approximately 36 inches at its base and reduced to approximately 30 inches at its peak. This photo shows the floor of the Grill Room opened for repair work to bad concrete bases under log columns in 1952. *Courtesy Glacier National Park Archives*

around a fountain that rested on the lower level and was overlooked from an ornate circular handrail on the main floor. Large windows on the west side overlooked Swiftcurrent Lake and the mountain valley. The main lobby was decorated with a vast array of motifs including bear skins, buffalo heads, a huge 180-foot canvas mural painted by Medicine Owl and other Blackfeet Chiefs, which told the history of the Blackfeet Indian Nation, and totem poles imported from the Pacific Northwest. Japanese lanterns advertised the afternoon teas and filled the air with a festive atmosphere.

Chamber guestrooms with special features, such as fireplaces, historic plumbing fixtures, and doors to the exterior balconies, encircled the lobby. Adjoining rooms shared baths. Fourth-floor chambers were typically employee quarters offering lavatories, and two of these units had fireplaces. The ceilings in the fourth-floor rooms reflected the hotel's historic rooflines.

The lake level basement was divided into the Grill Room (present-day St. Moritz Room) and the Lucerne Room. The Grill Room, also sometimes referred to as the Bamboo Room and often referred to by Hill as the Casino, had a hardwood floor for dancing, an accompanying orchestra platform, a soda fountain, and a small kitchen. The Lucerne Room was designed as a lecture hall. A large stone fireplace was incorporated into the east stone foundation, and a second, metal-covered "campfire" fireplace was located more centrally in the Grill Room. After a day of outdoor adventure, guests were treated with a socializing space that included entertainment and evening programs for education.

Many interior building elements were mentioned in the NHL nomination by Laura Souliere. These salient features, listed below, contribute to those qualities of the hotel's architecture that made it eligible to be listed as a National Historic Landmark.

- Balconies with railings patterned with Swiss designs
- Enormous peeled logs supporting the balconies and portions of the roof structure
- Capitals atop log columns
- Round copper fireplace w/painted metal chimney
- Board-and-batten wainscoting w/painted wall finish (fiberboard) battened in rectangles above
- Guest room doors w/"X"-patterned wood slats
- Red-and-white Swiss crosses on each door
- Décor, e.g., placemats in dining hall

## Major Changes

Interior spaces usually receive the most attention and as a result change more often for a variety of reasons.

The major changes in the lobby have been the removal of the spiral staircase (1957) and the expansion of the gift shop (1984), which has taken over about one-third of the lobby space. The expansion of the gift shop space has greatly diminished the original openness of the lobby, and because of fire code regulations, a wood framework has been constructed over the shop to give support for sprinkler lines and lighting. The sales displays in the gift shop further cut down on the natural lighting afforded the lobby because they encroach upon and obscure the windows in the south end.

The stairway in the southeast corner of the lobby was removed in 1926, and the entrance to the south bridge leading to annex 2 was expanded in that location.

The wood batten on the walls and ceiling in the lobby has been repainted to match the background color, with a resulting loss of its original character. In the 1950s, green linoleum was laid down on the lobby floor. New lighting fixtures, a new color scheme, and the introduction of carpet have further altered the character of the lobby. The existing furnishings are contemporary and offer no flavor of the historic period.

## 2 Hotel Architecture and Character-Defining Features

The major changes to the guest rooms surrounding the lobby on the second and third floors have been the addition and remodeling of bathrooms in 1952 and 1957, and new paint, carpet, and tile in 1982-84. New guestrooms were added above the gift shop (before it was expanded into the lobby) in 1957. The employee rooms on the fourth floor remain nearly in original condition, with the exception that the wood surfaces have been painted.

In 1934, the Grill Room on the lower level was redesigned to include a cocktail lounge along the east side of the room. The original drawings had planned for a small cocktail lounge at the west side of the Grill Room with seven-foot-high partition walls. While no evidence of the partition walls remains, the existing log columns still reveal traces of the built-in tables that were shown in original drawings.

The original character of the former Grill Room, present St. Moritz Room, has slowly been changed with the addition of new materials. The former wood dance floor has been covered with sheet goods, perhaps linoleum. The campfire stove was removed between 1934 and 1935. In 1934, the lecture hall was enlarged to seat 300, along with other actions that included relocating partitions to the next tier of posts towards the soda fountain and expanding the soda fountain further into the Grill Room. Steel plumbing supports were added to both the St. Moritz and Lucerne Rooms in the 1950s. In 1957, the former photographer room was remodeled into a restroom.

Additional changes to the main building have included the installation of metal bands around the large columns in the lobby after it was observed that the columns were checking (1933), the addition of a new transportation counter (1953), the addition of a reservation desk and office (1957), and the extension of the stairway in the southeast corner of the lobby to the ground floor and enclosure of the stairway (1982-84).

### **Main Building Character-Defining Features**

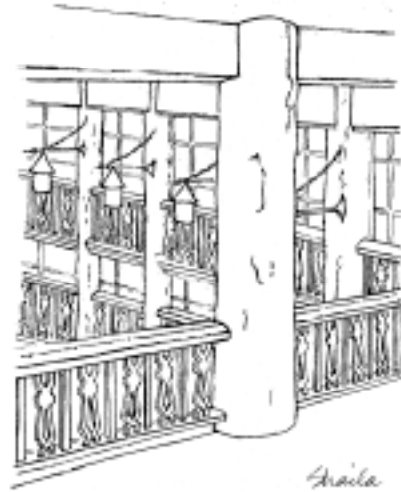
If the structure were to lose some of these features over time, then the cumulative effect could result in the denigration of its status as a National Historic Landmark. (\* Denotes a feature that has been altered or removed.)

Lobby and interior balconies:

- Four-story atrium-like lobby enclosed by massive log columns
- Openness\*
- Views up from lobby floor\*
- Views from the surrounding balconies into the lobby\*
- Log capitals atop log columns
- Decorative balustrades including profile and height of top rail
- Spiral staircase to lower level\*
- Stone hearth, fireplace, and chimney
- Stone fireplace at entry
- Light fixtures
- Skylight
- Large windows on west side of lobby overlooking the lake
- Windows at north and south ends of lobby area\*
- Registration area plan and space\*
- Interior stairs with their newel posts, balusters, and handrails
- Exposed structural system consisting of the columns, beams, roof rafters, roof purlins, cross ties, and exposed tongue-in-groove sheathing.

Lake-level spaces:

- Large peeled log columns
- Stone walls along eastern wall
- Stone hearth and chimney
- Exposed stone foundation and arched doorways and windows to the lakefront
- Board-and-batten wainscoting topped by painted Sackett board walls and ceilings battened in rectangles above, with the battens painted the color of the wainscot\*
- Hardwood dance floor\*
- Orchestra platform
- Soda fountain\*
- Original stone fireplace\*

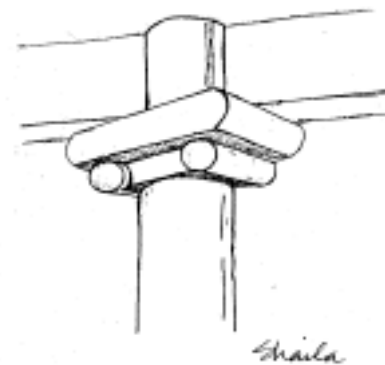


Main building guest rooms

- Floor plans\*
- Board-and-batten wainscoting and battened Sackett board walls
- Period plumbing fixtures\*

Above: Interior balcony log columns and balustrades

Below: Log column capital typical in lobby



## 2 Hotel Architecture and Character-Defining Features

Grill Room fireplace removed in 1935. Note the bamboo poles tied around the log columns. Hill wished the Grill Room to have a Polynesian feeling. *Courtesy Minnesota Historical Society*



Original Lucerne Room conference center, lake level of main lobby building. Note arched windows, beams, light fixtures, and furnishings. *Courtesy Minnesota Historical Society*



Lake level view of spiral staircase connecting main and lake level of main lobby building (removed 1957). *Courtesy Glacier National Park Archives*



*Right and below:* Hotel interior as it appeared in 1915. The décor was very eclectic, consisting of Oriental paper lanterns, bearskin rugs over balconies, Blackfeet pictographs, Navajo rugs, railroad items, wicker furniture, Windsor chairs, homemade tables, bison heads (both real and plaster of Paris), painting by John Fery and totem poles from the Northwest. *Courtesy Minnesota Historical Society*



The fireplace hood was designed after the Sibley hood that the U.S. Army used in tents. It was made out of cast iron and was raised and lowered with counterweights. *Courtesy Minnesota Historical Society*



## 2 Hotel Architecture and Character-Defining Features



Hotel lobby looking south towards gift shop, circa 1920. Note lights, bear skin rugs, staircase, smaller gift shop, furnishings. *Courtesy Glacier National Park Archives*



Oriental lantern, 1931. *Courtesy Glacier National Park Archives*

The fountain and staircase descended to the basement floor, present day St. Moritz Room. At night, the water of the fountain was colored with electric lights for effect.

Many Glacier Hotel lobby, 1930. Note top of spiral staircase, fountain filled with plants, Chinese lanterns and bear skins decorating the surrounding area. *Courtesy Glacier National Park Archives*





Painting of interior log structure: log columns with capitals, log beams and trusses. Original crafted balustrades. Patterned batten boards over Sackett board above wood wainscoting. *Artwork Henry Sorensen 1999*

Original gift shop at one end of the lobby selling such items as cigars, clothing, and toilet water. *Courtesy Minnesota Historical Society*



Original lobby window overlooking Swiftcurrent Lake. *Courtesy Minnesota Historical Society*

## **Annex 1**

### **Original Architecture**

Annex 1, constructed with the main building, displayed similar architectural detailing. The corridors had the same six- to eight- foot wainscots (dependent upon floor level) topped by battened Sackett board walls and ceilings.

Low windows in the walls between interior hallways and guestrooms, along with transom windows above the guestroom entry doors, offered increased ventilation and natural lighting into the hallways. The intentional use of windows in an interior hallway for guests may have been inspired by the sleeping car accommodations aboard trains. Guestroom doors in the annex were the same style wood batten construction as those in the main building and decorated with the Swiss cross room numbering.

A light well extended from the second floor hallway through to the roof, allowing for a naturally lit social seating space. Wood burning stoves may have been used at one of the social nodes on the second floor of the annex's north end.

Annex 1 included 162 guestrooms with steam heat, hot and cold running water, electric lights and telephones. Eight corner suites came with private stone fireplaces. Other original amenities included a shoeshine stand, tailor and barbershop, beauty shop, dispensary, fireman's room, telephone and telegraph services, and a transportation desk.

### **Major Changes**

Much of the original architectural detailing in the interior hallways remains intact, even though inappropriate color choices and the covering of windows have compromised the original character.

When new fire safety regulations were adopted, glass in the low hallway windows, and in the transom windows above the guestroom doors, no longer met the new regulations. Rather than comply with appropriate glass replacements, the windows were sealed. The high transom windows have been covered from the hallway side using beveled tongue-and-groove boards, and the low windows in the walls have been fully enclosed on both sides with fiberboard. The telltale impressions of the window openings remain as irregular surfaces.

The original shared bathrooms were rehabilitated to provide private baths for all guestrooms in 1952.

All the guestrooms and hallways were refurbished with new paint, carpet, and tile in 1982-84. In all rooms the chair rail was painted to match the carpet (a turquoise green), and the wood battens on the walls above were painted to match the adjacent surfaces rather than the original accent color. The choice of colors contrasts adversely with the originally used palette of finishes. As part of this refurbishment the rooms were fitted with furniture selected by interior designer Marian Van Tress to be compatible with rustic styles and the materials on the walls and floors. Her designs for the drapes and bedspreads were meant to be Swiss in character.



Interior Swiss Lounge, 2001. *Courtesy Glacier National Park*

lounge – the Swiss Lounge. The Swiss Lounge, constructed adjacent to the north bridge of annex 1 between 1953 and 1954, presented architectural detailing with less rustic and more Swiss motif. Details included a lowered ceiling resting on dimensional wood beams supported by highly decorative columns and corbels.

### Annex 1 Character-Defining Features

(\*Denotes a feature that has been altered or removed.)

Standard rooms and corridors:

- Board-and-batten wainscoting and chair rail\*
- Painted Sackett walls and ceilings battened in rectangles, with the battens painted to match the color of the wainscot\*
- Low windows in walls between corridors and guest rooms and high transoms over guest room corridor entry doors \*
- Vertical “V” board panel doors with “X”-patterned wood battens (some have been removed\*)
- Red-and-white Swiss crosses on each guestroom entry door
- Medicine cabinets over sinks (\*some)
- Wood trim at doors, windows, and base in rooms and corridors (\*some)
- Light well from second floor hallway through to roof (\*altered)

The hallway ceilings – especially in the lake level corridor, also nicknamed “Stagger Alley” – have been all but obscured by pipes, sprinklers, and electrical conduits. The utility clutter, in addition to contemporary light fixtures, distracts significantly from the visitor experience.

Automatically closing smoke doors were added to the corridors in 1982-84. These doors are compatible with the rest of the structure. Some service and support room entries, along with public restroom doors, have been replaced with flush panel doors that are not in keeping with the building’s character.

Five guestrooms at the north end of annex 1 were remodeled in the 1950s to provide a



Corner fireplace in Deluxe Guestrooms. Note obtrusive contemporary light fixture. 2001 *Courtesy Glacier National Park*

### 3 Existing Conditions

Deluxe guest rooms:

- Stone fireplaces, corner rooms
- Interior and exterior doors (\*some)
- Steam heater registers (\*some lost)
- Specific plumbing and electrical fixtures, including footed tubs\*
- Fourth-floor rooms that reflect the roof ridges and valleys
- Milled wood trim

## North Bridge

### Original Architecture

The connector between the main dining room and annex 1 was a three-story multi-use area. The lower level plan identified two rooms and a barbershop (original location) on the lake side. These spaces contained oversized window assemblies composed of three mullioned elements: (1) across the top a horizontal rectangular fixed pane running the full width of the assembly, (2) a fixed center pane, and (3) two-over-two double hung windows at both sides of the central window. When the swimming pool house was constructed, these decorative windows were mostly lost in its shadow.

The main level of the north bridge offered an open-space lounge (referred to as the Interlaken Lounge) until the Swiss Lounge (annex 1) was constructed in the 1950s. The finishes in the Interlaken Lounge were similar to other finishes throughout the hotel with the wainscot and battened walls and ceilings. Banks of oversized fixed plate glass windows provided a sunny open area. Divided light French doors exited to an exterior stairway on the lakeside.

The second floor plan for the bridge provided six chamber rooms with two shared baths with details typical of other guestrooms.

### Major Changes

The lake level rooms were changed to service areas for the hotel's maintenance and housekeeping staffs (date unknown). This change, coupled with the changes to the pool house structure, has removed a positive visitor experience from this section of the hotel, both inside and out.

Doors and glazing in the windows of the Interlaken Lounge, on the main level of the north bridge, have been altered. A low wall (assumed to be constructed as part of the 1950s remodel work), has not significantly changed the open space feeling. A cashier's counter at the northeast end of the bridge distracts from the openness that existed prior to its placement.

### North Bridge Character-Defining Features

(\*Denotes a feature that has been altered or removed.)

- Board-and-batten wainscoting topped by painted Sackett walls and ceilings battened in rectangles, with the battens matching the color of the wainscot\*
- Low windows and high transoms along guest room corridors\*
- Vertical "V" board panel doors with "X"-patterned wood battens (some have been removed\*)
- Red-and-white Swiss crosses on each guestroom entry door

- Medicine cabinets in rooms
- Wood trim around doors, windows, and base
- Multi-light French windows at end of hallway
- Lavatories in each room
- 10-light French doors off of main level to stairway leading to lake
- Exposed log columns and wood beams
- Stone fireplace in Interlaken Lounge; exposed stone chimney in hall above with stovepipe thimble
- Windows in Interlaken Lounge\*

## Kitchen/Dining Wing

### Original Architecture

The original dining hall, accessed at the end of the north bridge through multi-light French doors, was designed as a large open space that revealed a high ceiling with exposed trusses. Original construction included four wood posts aligned with the western edge of the hearth supporting a pergola that extended seventeen feet into the dining room. A huge stone fireplace anchored the space at the far north end of the room. Double skylights helped illuminate this grand hall.

Both the east and west walls contained oversized, highly decorative window assemblies, including picture windows and operable double-hungs. The west wall (lake side) included seven assemblies, while the east wall held only one. The finishes in the dining room were similar to other areas, with the wainscot and battened walls and ceilings. An original painting, commissioned by Hill, and pictographs adorned the interior walls of the dining hall.

Below the dining hall were the boiler room and the women's and men's dressing rooms, which adjoined the swimming pool. The swimming pool house included multi-light double-hung and fixed windows and two skylights in the shed roof. The original pool was constructed of 6x6 and 6x8 log sections covered on both sides in 1x6 tongue and groove. The rehabilitation included a concrete-faced tank. The roof material used for the pool house was J. M. transite shingles, as opposed to the asbestos cement shingles used on the main lodge.

The kitchen layout included a bakery, meat refrigerator, dairy and fruit refrigerators, and a storeroom. The kitchen had two large skylights and a roof assembly to house the mechanical devices.

### Major Changes

The kitchen/dining wing has been drastically altered over the past eight-five years. These changes reflect changes in health codes, amenity needs in the dining room (including the need to remove flies, improve the fenestration, and restrict bat flights), closure of the heated indoor swimming pool area, and expansion of the maintenance group.

A drop ceiling was added to the dining room in 1937, and the pergola was removed. The finish on the new ceiling was similar to other battened ceilings throughout the building. The architectural detailing in the dining room has not changed since, but the rustic character has been lost due to the painting out of details such as the battens on the walls and ceiling. Windows were replaced in 1984 based on the 1950s designs.

The dining room was recarpeted in 1982-84, and large flags were hung from the ceiling. The new flags, although appropriate to the theme, seem to overpower the room, and thus the simpler detailing has been lost. A waitress station was developed near the kitchen passage doors, which infringes upon the open space.

### 3 Existing Conditions

In 1936 high water levels in Swiftcurrent Lake caused water seepage into the swimming pool. The pool and dressing rooms were rebuilt in 1937, but the seepage problems were never adequately solved. The pool was closed in the 1960s. In 1982-84 the concrete pool was filled, and the area was remodeled for housekeeping and employee dorm space. The adjoining dressing rooms have been remodeled to house the shop, housekeeping offices, and some dorm space.

A kitchen ventilation system was added in 1953, and the kitchen was rehabilitated in 1959 and again in 1982-84. Reflective film was adhered to the oversized lake windows to help minimize the overheating that occurred from these large glazed areas.

In 2000-2001, a mechanical cooling system was installed after substantial bat abatement was completed in the attic space above the dining hall and kitchen.

#### **Kitchen-Dining Wing Character-Defining Features**

(\*Denotes a feature that has been altered or removed.)

- Massive stone fireplace
- Board-and-batten wainscoting topped by painted Sackett walls above with the battens painted to match the color of the wainscot\*
- Large picture windows with highly decorative trim details \*
- Open floor plan of the dining hall\*
- Exposed roof trusses\*
- Oil painting of the hotel commissioned by Hill
- Original exposed truss ceilings\*



Many Glacier Hotel dining room, CIRCA 1940. Note fireplace on far end of room, tables prepared for guests. Chinese lanterns light the room. In 1949, a typical dinner menu consisted of baked Columbian River salmon, tartar sauce, fried half spring chicken a la Maryland, braised loin of pork dressed, applesauce, omelet, escalloped potatoes, snow potatoes, buttered string beans, cauliflower in cheese sauce, angel food cake, chocolate sundae, and chilled cantaloupe. *Courtesy Glacier National Park Archives.*

Dining area below pergola seen in above photo at left. *Courtesy Minnesota Historical Society*



## Employee Dining/Support Wing

### Original Architecture

The employees' dining room displayed similar construction detailing to the rest of the structure. The walls had the same five-foot wainscot topped by battened Sackett walls. However, the ceiling was open, exposing the truss structural system and displaying the 2-inch thick by 4-inch wide tongue-and-groove roof boards. Double-hung windows were ganged into pairs and placed around the space. The laundry in the basement had a concrete floor and walls covered with transite panels.

### Major Changes

The employee dining area remains much as it was originally. The isolation of the hotel may have led to the addition of a self-contained post office structure at the far southeastern corner of the dining hall. In 1941 an employee pub area was added. The pub has been expanded to meet the staff's need to socialize outside the dorms. The social areas of the dorms have been removed. The remainder of the old laundry is a plumbing storage area/shop with a carved-out office for security and secure storage for the pub. There is no spare space for housekeeping or maintenance or the social welfare of the employees.

The basement interiors in this wing have been modified extensively over the years. The original laundry was housed here until the function was moved to the East Glacier Lodge. Today the only vestige of the laundry function is a sterile corridor-like space for employee washers and dryers.

In 2001-2002, the original boilers were removed from the boiler room beneath the dining hall. This space is presently being remodeled to serve as a maintenance support work area.

### Employee Dining/Support Wing Character-Defining Features

(\*Denotes a feature that has been altered or removed.)

- Tongue-and-groove exposed sloped ceiling and roof structure
- Board-and-batten wainscoting topped by painted Sackett walls battened in rectangles, with the battens painted to match the color of the wainscot\*
- Double-hung windows with divided lights
- Open floor plan of the dining hall
- Vertical "V" board panel doors with decorative boards and divided lights between the employee area and the kitchen

## South Bridge

### Original Architecture

The south bridge, built in 1917 with annex 2 was a single-story solarium-type transition building between the main building and annex 2. The cupola was topped with a spire accented by a weathervane. The roof was covered in red shingles.

Like the rest of the hotel public areas, it had a six-foot wainscot with battened Sackett wallboard above and on the ceilings. The walls were lined with oversized picture windows that afforded views to the lake and to the east.

## Major Changes

The batten boards have been painted to match the adjacent wall surfaces. The floor has been carpeted, and contemporary lighting fixtures with surface-mounted conduit have been installed. The weathervane is no longer present and double doors have been replaced with singles.

## South Bridge Character-Defining Features

(\*Denotes a feature that has been altered or removed.)

- Interior floor plan with its openness and connection to main building
- Fenestration pattern and size
- Wood trim
- Cupola\*
- Vertical wood panel double doors with lights\*

## Annex 2

### Original Architecture

Eighty-room annex 2 was completed in 1917 to meet the demand for rooms at Many Glacier. Constructed two years after the main building, annex 1 and the dining hall were completed, annex 2 varied slightly from the original structures. It was a four-and-one-half-story structure with a simple double-loaded corridor system and reliance on external fire-exiting stairs off the balconies. Annex 2, like annex 1, incorporated shared baths.

The same as annex 1 and the main building, the corridors of this annex had six- to eight-foot rough sawn wainscot topped by battened Sackett wallboard ceilings throughout the corridors and guestrooms. The corridors of annex 2, like annex 1, included high and low windows to augment the lighting and ventilation. The hallway doors matched those of the rest of the facility with vertical "V" grooved panel doors with "X" patterned battens, and room numbered placed upon decorative Swiss crosses.

### Major Changes

Individual bathrooms were constructed in the 1950s. Room surfaces have been modified in this annex more than anywhere else has in the hotel. Most of these surface changes have created a more 1960s-1970s motel feel, with laminate wood paneling and glue-on fiberboard wall and ceiling panels. Some of the rooms have had their wood floors refinished, a change that visually improved the rooms, but generally the floors are carpeted. The hallway wainscot remains a dark stained color versus the white to cream color that annex 1 displays. The low windows in the guest room walls and the transom windows above the doors were closed for fire protection, as in annex 1, however, locations and sizes of original hallway windows are more readily identifiable in this annex because their frames are delineated with trim.

The freight elevator shaft was blocked in 1982-84, and the north stairway was enclosed at that same time.

### Annex 2 Character-Defining Features

(\*Denotes a feature that has been altered or removed.)

- Board-and-batten wainscoting topped by painted Sackett walls and ceilings battened in rectangles, with the battens painted to match the color of the wainscot
- Low windows and high transoms\*
- Vertical “V” board panel doors with “X”-patterned wood battens (some have been removed\*)
- Red-and-white Swiss crosses on each guestroom entry door
- Medicine cabinets in rooms
- Wood trim
- Multi-light French windows at end of hallway
- Carvings on cap of newel posts in stairway
- Watchman’s boxes
- Lake level private decks for southwest end and corner rooms facing Grinnell Glacier

## ARCHITECTURAL EVALUATION

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An in-depth survey of the hotel’s architectural details is not within the scope of this initial study. However, the information that is known is included as a starting place for further research. This section of the report will be expanded as information is gathered to support future preservation, rehabilitation, and restoration projects.

### Exterior Features

Salient features of the interior, such as the hierarchy of window types and sizes, skylights, masonry chimneys and archways, dormers, and penthouses, have been exposed as architectonic elements of the exterior facades. The exterior balconies also contribute to an interesting three-dimensional-looking façade that is distinctive in each of the elevations and varies from wing to wing.

The exterior would lack its Swiss architectural influence if the hotel’s exterior appearance no longer included the many wooden features such as the door and window head, sill, and side trim; the verge or barge boards along the rake of the roof, eaves and decorative pendants, and roofline fascia; and the balustrades, brackets, and finials of the balconies, fire escapes, and observation decks. The typology of the Swiss style trim requires complete documentation prior to any work that may disturb or replace these assemblies.

Careful recordation of the hierarchical assemblies of windows, for instance, is needed to preserve the historically consistent use of head trim, which features jigsaw patterns of rounded cuts topped with a band of dentils capped with a drip molding and flashing. All of these highly ordered assemblies are believed to be painted yellow or some variance of yellow or cream. The suggested yellow paint was used sparingly and denotes a special horizontal feature like the above-described head trim, the handrails on balconies, the frieze boards over the main entrance, or the horizontal band at the roofline to mark the edge between dormers and walls.

Window side trim steps down in size and complexity of jigsaw curves with the importance of the opening. View windows from guestrooms are taller and have more curves symmetrically placed on the outer edge than do the bathroom windows, which have a stepped straight board arrangement. Doors leading to balconies have the largest side trim with more elaboration, compared to the windows. All sideboards are painted white.

At the highly detailed grand lobby and dining hall windows, patterns as well as colors were incorporated into the trim design to further impose importance on these spaces.

The balusters of the outdoor railing assemblies are less elaborate than the lobby balcony treatment. They are made of 1x wood boards painted dark brown with straight cuts that step out wider and narrower four times in each vertical piece. This creates an interest in pattern of negative and positive geometries that emphasizes the transparency of the railing assembly. This does not mean they are not without interest. Instead, they offer a view through them that has the interplay of light and dark crafted fretwork and a consistency from wing to wing that unifies the expansive sweep of the sprawling structure along the lakeshore.

A challenge of the rehabilitation will be to maintain the Many Glacier Hotel character, and in some instances restoring the character where lost, when new materials and methods must be incorporated due to changes in technologies, environmental concerns, building code upgrades, and loss of availability to historic fabrics.

## Interior Features

### Columns and Capitals

Several types of columns and capitals exist throughout the hotel, built at different times in certain public spaces.

Doric-like columns and capitals are found in the lobby of the main building and the Interlaken Lounge. These columns are full heights high, unfluted, and without bases, giving them an unbroken verticality. They are constructed of natural bark-off log with a stain varnish or shellac finish. The wooden components that form the echinus and abacus blocks are curve-edged and mitered square blocks of increasing size laid on top of the columns with a neck transition. The larger upper blocks support the round log beams that surround the atrium-like space of the lobby.

Columns with Ionic-like capital detailing are found in the uniquely designed Interlaken Lounge. The capitals are comprised of two scroll- or volute-like elements made of short smooth logs on either side of the rounded echinus blocks that sit atop the columns. The abacus blocks are curved edge square blocks, similar to those of the lobby capitals, and support the major beams. The squared beams of this lounge intersect at angles that are formed at the transition between the annex building and the dining hall.

The Swiss Lounge that adjoins the Interlaken Lounge has highly decorative columns and corbels compared



Lobby window. Note diagonal striping on vertical trim. Cut-out circles in perimeter trim were originally designed and in fact believed to be painted blue in color. *Courtesy of Glacier National Park Archives*

### 3 Existing Conditions

with the other column types. The columns support wood-trimmed beams that are exposed below the ceiling. Floral painted designs adorn the square posts, and the corbels are shaped with curves that step out and complement the Ionic-like capitals of the adjacent Interlaken Lounge.

Typical log columns found in other public spaces have no capitals. In the basement, where large diameter logs support the deep, heavy timber beams of the lobby, the low ceiling height makes these columns appear to be stout or squat like the heavy early Doric columns of ancient Greek architecture.

#### **Stairways**

Open stairways leading to the upper levels rise along the perimeter of the lobby's open, four-story-high atrium. More formal stairs built with nominal lumber connect the lower floors, while the highest stairs are part of the characteristic log work of the structural log post-and-beam system. The balusters along the balcony railing are highly crafted jigsaw-cut boards with rounded cutouts alternating with straight spindles.

In annex 1 (north) the public stairway connecting the floors at the north ends of the corridors is situated just off an interior open space where the annex meets the north bridge. The stairway exits to the outside at the lake level. The stairs are made of logs, have handrails, and the newel posts have handcrafted texturing.

The stairway in annex 1 (south) is located mid corridor, without any specially designed or sized social space attached. This stairway is more utilitarian, serving as access to all floors, and exits to the outside on the uphill east side.

#### **Elevators**

The elevator in annex 1, no longer used, has characteristic doors facing the corridors that have simpler detailing than the guest room doors.

The elevator shaft of annex 2 was blocked in 1982-84. Some of the shaftway footprint on the upper floors has been claimed for ice machines or housekeeping support.

Both elevators have a penthouse structure that rises above the roofline.

#### **Wall Finishes**

The wainscoting found throughout the hotel consists of rough sawn 1x10 vertical boards with 1x2 wood trim battens over the joints. A chair rail composed of three trim pieces caps the wainscoting. The effect is a three-dimensional pattern covering two thirds of the wainscoted walls. The top third of these walls and the ceiling is gypsum wallboard, referred to as Sackett wallboard because of the original specification. The Sackett wallboard is accented with a regular pattern of 1x2-batten strips whose color historically matched the wainscot. The spacing of the batten strips responds to scale of the space (e.g. dining hall battens are spaced further apart than the guestroom battens).

#### **Fireplaces and Chimneys**

Rustic architecture, often referred to as "Parkitecture," in National Park Service structures, is classically displayed in the fireplaces and the exposed stonework used in the chimneys, window arches, and basement retaining walls. Along with the massiveness of the common open spaces and the towering majesty of the

huge log columns, the stonework contributes impressively to the sense of old world craftsmanship using naturally occurring building materials.

The giant fire pit, with its copper hood over the raised stone hearth, dominates the lobby and seeks to bring the outdoors inside with its reference to outdoor fire pits. A secondary but still large fireplace just inside the east main entrance promises a cozy reception by a warm hearth. Its stone chimney is an attractive part of the building's front façade. A third fireplace in the basement, just below the second, is capable of heating the large theater hall. Its stone work combines with the surrounding stone masonry of the lower level retaining wall.

The dining hall fireplace is majestically located at the center of the north end wall and is the focus of attention with its chimney stonework rising vertically to the ridge of the gable end. This chimney, like all the other extant chimney masonry, extends into the exterior walls and through the eave or roof plane.

Lesser fireplaces and chimneys are found in the lounges, the hallway openings, and the luxury guestrooms. However, many of the smaller fireplaces and their chimneys have been removed over time. A comparison of the historic photos of the east façade with that façade today reveals the regrettable decrease of a feature that was not only functional but an essential part of the designer's palette for using native materials and old world masons' craftsmanship.

The arch shape of the fireplaces and the exterior lakeside basement windows is another salient feature. The arches are shallow in the relationship between the rise and the span, which emphasizes their role of supporting a long horizontal expanse of masonry that is expressed inside and out along the lakeside wall. An observation deck with a log rail and balustrade rings the top of the masons' robust-looking walls below. The voussoirs and keystones of the arches are large vertically laid stones that project beyond the surrounding masonry wall plane. They have not been cut, thus emphasizing the stones' deep texture and massiveness over the elegant rounded fenestration framed below with fanlight-like mullions. The low profile public meeting spaces in the Lucerne and St. Moritz Rooms are enhanced by these solid-looking walls with their rhythmic pattern of masonry piers alternating with large picture-window openings to the lake.



## 3 EXISTING CONDITIONS

Springtime snow conditions at Many Glacier, 1956. *Courtesy Glacier National Park Archives*

Various projects have been completed over its eighty-five-year lifetime to maintain the hotel and to meet the demands of visitation and the changes in life-safety and other building codes. However, the short seasons of use coupled with long harsh winters have pushed the limits of the building structurally, aesthetically, and functionally.

### STRUCTURAL SYSTEMS AND EXTERIOR SURFACES

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[Sources: Most of the information in this section is summarized from *The Many Glacier Hotel Structural Integrity Assessment*. The assessment was undertaken as a discrete component of the *Condition Assessment* of the Many Glacier Hotel and was conducted with an emphasis on resolving many of the hotel's urgent structural needs. The report identifies visually observable deterioration of structure-related materials, weaknesses in structural members and connections, and settlement and foundation problems. The report also estimates whether the building has adequate capacity to withstand structural criteria in conformance with the *1997 Uniform Building Code (UBC)* and criteria adopted by the American Society of Civil Engineers. Information about the condition of exterior surfaces is summarized from the *Condition Assessment*.]

Following five years of monitoring, study and investigation by various engineering consultants, the consensus of opinion is to stabilize the severely deteriorated structural elements threatening to fail. A Phase I Emergency Stabilization construction contract has initiated the stabilization work of the most severely threatened section, the annex 1 foundation.

The westerly rotation of the east foundation wall in annex 1 was the most threatening symptom of the failing structural integrity. The leaning of this basement wall has been reported many times over the past fifty years, including in the 1984 guide by James McDonald. As a result of the deferred maintenance, the leaning condition had worsened until everyone became uncomfortably accustomed to it. The name originally given to this lake level hallway - "Stagger Alley" - because of staggering guests leaving the adjacent cocktail lounge, gained additional meaning as the hallway walls themselves began to "stagger."

The 2001 *Structural Integrity Assessment* summarized comprehensive research completed over time by various professionals and identified the issues that have combined to cause the condition of this wall. The list focused on the lateral pressures caused by drifted snow pack on the uphill east side of the hotel and the saturation of backfilled soils during spring thaw. The assessment document includes two alternatives for emergency stabilization of the wall and the structural members it supports (see "Alternatives and Impacts" in part two of this report for a summary of those alternatives).

A second structural concern was the failing balconies. The exterior balconies were noted as early as 1921 to be in questionable condition.

*“At Many Glacier Hotel the bracing of balconies is important. . . The present condition is almost dangerous as a person sitting on the balcony could probably push it out and go over . . . This should be remedied.”*

(Excerpt from letter to A.H. Hageland from Louis Hill dated September 18, 1921)

Over time, the exterior balconies have weathered many winters and sustained unusually heavy snow loading, which has exacerbated the problems with the originally undersized and underdetailed structural support system. Most of the balconies were built with stout wooden members that could cantilever quite a distance for a long time under the best of weather conditions. In this northern remote area, the balconies’ decks, exterior stairs, balustrades, railings, joists, beams, brackets, and decking have gone through several life cycles and are now physically and functionally exhausted. Several “fixes” over time have been undertaken in an attempt to keep the balconies stable for occupancy including the addition of double steel angles, steel cables and wood posts. Some balconies were entirely removed with exterior doors bolted and nailed shut.

Final recommendations to stabilize the foundation in annex 1 and to provide structurally sound balconies were used to package the Emergency Stabilization Construction Package completed over the 2001-2002 construction season.

The condition of the remainder of the hotel’s structural systems and exterior surfaces is summarized in table 1.

**Table 1. Condition of Structural Systems and Exterior Surfaces, 2001**

Unit	Feature	Condition
Main Building	Balconies	Balconies are in poor repair; reinforced with steel cables anchored to framing in attic.
	Roof	Rafters are undersized for code-determined design snow loads. Outrigger framing is grossly undersized.
	Floor joists	Floor joists are undersized and overstressed. Interior balconies are OK.
	Lake level	Timber girders rest on grade. Inspection of 30-inch timber column footings is recommended.
	Lateral system	2 <sup>nd</sup> , 3 <sup>rd</sup> , and 4 <sup>th</sup> floor walls lack shear reinforcement.
	Exterior surfaces	Exterior surfaces are severely weathered: wood door and window frames have deep fissures, exterior doors have deep cracks and lower area deterioration, all screen frames are in poor condition, most windows are in poor condition, and the roof has areas of missing and very brittle cupped wood shingles. Some areas of the plank siding have joints with deteriorating foam sealant. The skylights or the flashing leak from the wind-driven rain. The terrace is in good condition.
	Porte cochere	OK
Annex 1 South	Balconies	Steel columns have been added to the outside faces of the balconies to support cantilevered timber beams.
	Roof	Rafters are grossly undersized for code-determined design snow load.

**Table 1. Condition of Structural Systems and Exterior Surfaces, 2001**

<b>Unit</b>	<b>Feature</b>	<b>Condition</b>
Annex 1 North	Floor joists 1 <sup>st</sup> floor	No problems on 2 <sup>nd</sup> , 3 <sup>rd</sup> , or 4 <sup>th</sup> floors. Bearing wall has shifted 24 inches between 1 <sup>st</sup> floor and basement.
	Lake Level	East-side stone masonry basement wall has rotated towards the lake, causing a large amount of displacement of the lake level and 1 <sup>st</sup> floors.
	Lateral system Exterior surfaces	Walls lack shear reinforcement. Exterior surfaces are severely weathered, similar to the main building.
	Balconies	Balconies are joined by a tension cable, which is probably inadequate. Emergency shoring has been installed.
	Roof	Rafters and roof girders are grossly undersized for code-determined design snow load.
	Floor joists	1 <sup>st</sup> floor joists in corridor are grossly undersized. On other floors the joists in the light well area are undersized. Timber girders are undersized by 100 percent (have 50 percent of required capacity).
Annex 2	3 <sup>rd</sup> floor	The mortar in the stone masonry chimney on the third floor is severely deteriorated.
	Lake level	Floor girder is rotted.
	Lateral system Exterior surfaces	Walls lack shear reinforcement. Exterior surfaces are severely weathered, similar to the main building.
	Balconies	Timber blocking for reinforcing angle supports is inadequate. 4 <sup>th</sup> floor balconies OK. 3 <sup>rd</sup> floor balcony supports pulling away from building.
	Roof	Rafters grossly undersized for code-determined design snow load.
	Floor joists	Floor joists are undersized by about 20 percent for loading of 40 psf.
North Bridge	Lake level	Concrete slab in trunk room has failed. A subsidence in the northeast quadrant of the footing system has caused the building to begin to sag at about its one-third point when moving from north to south down any corridor.
	Lateral system Exterior surfaces	Walls lack shear reinforcement. Exterior surfaces are severely weathered, similar to the main building.
	Roof	Rafters are grossly undersized for the code-determined design snow load.
	Floor joists Lake level	Corridor floor joists are slightly overstressed. Timber beam has failed; already has new concrete footing and timber post. A short section of exterior stone masonry footing lacks backfill. West stairway is in advanced stage of deterioration.

**Table 1. Condition of Structural Systems and Exterior Surfaces, 2001**

<b>Unit</b>	<b>Feature</b>	<b>Condition</b>
	Exterior surfaces	Exterior surfaces are severely weathered, similar to the main building.
South Bridge	Roof	Rafters are grossly undersized for code-determined design snow load. Some rafters are broken. One area of the roof is collapsing from ice falling from the main building.
	1 <sup>st</sup> floor	Settlement is extreme. Structural damage in the crawl space is causing the floor system and west window wall to sag. This situation breaks glazing in the large plate windows each year.
Kitchen/Dining Wing	Roof	Roof trusses are grossly undersized.
	1 <sup>st</sup> floor	OK
	Lake Level	Mechanical equipment lacks anchor bolts.
	Lateral system	Walls lack shear reinforcement.
	Exterior surfaces	Exterior surfaces are severely weathered, similar to the main building.
Kitchen	Roof	Roof trusses are grossly undersized and lack reinforcement. The change to mechanical ventilation affected the kitchen's east elevation, and patching has not always been successful. Wood shingle roofing is in brittle and damaged condition on the west side of the building. The east-facing roof was recently replaced.
	1 <sup>st</sup> floor	The exterior stair on the lakeside has deteriorated severely.
	Lateral system	Walls lack shear reinforcement.
	Exterior surfaces	Exterior surfaces are severely weathered, similar to the main building. Much of the exterior surface is in poor condition due to the west-facing elevation, the large glass areas creating wall movement, and heat damage to the frames and sills.
Employee Dining/Support Wing	Roof	Roof rafters do not meet code-determined design snow load.
	1 <sup>st</sup> floor	The exterior stair to grade is in poor condition.
	Lake Level	Drainage is inadequate. Untreated wood sills have rotted.
	Lateral system	The exterior walls and the wall separating the kitchen and the employee dining area lack shear reinforcement.
	Exterior surfaces	Exterior surfaces are severely weathered, similar to the main building.
Employee Pub	Roof	The rafters are grossly undersized for the code-determined design snow load and lack reinforcement.
	Lake level	The roof gutter system no longer protects the stone masonry wall. Lower storage area is in poor condition with multiple code violations.

## LIFE-SAFETY SYSTEMS

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[Source: The following information is from the *Condition Assessment*.]

The *Condition Assessment* found two deficiencies definable as “imminent hazard” or “having a condition that could cause serious or life-threatening injury or death at any time.” These deficiencies are the poor structural condition of some exterior balconies and the height of all exterior balcony guardrails (about 28 inches). It is the opinion of the condition assessment group that the building does not qualify for “Unsafe Building” status per section 206 of the UCBC (and sections 102 and 302 of the *Uniform Building Code*.)

Special fire protection issues exist in annex 2 and the north bridge. Unlike annex 1, annex 2 requires use of the balconies for fire exits from the building. The failing status of the balconies makes this a critical issue. The poor condition of the remaining balcony stair units still needs to be addressed. The second-floor rooms in the north bridge are on a dead-end corridor. During an emergency this will exasperate the required egress route called for in the current life-safety codes.

## MECHANICAL SYSTEMS

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[Source: The following information is from the *Condition Assessment*.]

The water and wastewater distribution systems do not meet current standards. The wastewater piping has a varied installation history, some of it is eighty – five years old, while some is only a few years old. The concern is that the piping under the hotel is generally beyond its life expectancy, especially since the ground is prone to saturation from periodic flooding and weeping of water under the floor system of annex 1. The pipes are currently rusting and suffering from pinhole leaks. The required winterizing procedure of yearly drain and fill has exacerbated the corrosive rusting of the pipe interiors.

With the abandonment of the steam heating system in the winter of 2000-20001, the pipe for that system remains as hazardous material threatening occupants’ health.

Air conditioning units were recently added in the interstitial space between the drop ceiling and the attic over the kitchen and dining area. (Most of the small windows in the dining area are malfunctioning due to settling of walls or other problems with old window hardware and fit.)

Additional changes are needed to meet code in the kitchen. They are described in the project sheets in the appendix to the *Condition Assessment*.

## ELECTRICAL SYSTEMS

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[Source: The following information is from the *Condition Assessment*.]

All secondary electrical panels and power distribution systems need to be upgraded. About 80 percent of the wiring is either knob-and-tube or early paper-wrapped romex. The design for a power system upgrade needs to continue from the new primary main distribution panel locations to the secondary panels.

Illumination levels are inadequate. Fixture selection has not always been compatible with the historic period.

Electrical service is inadequate in the employee dining/support wing. Additional information on the code deficiencies in the kitchen are described in the project sheets in the appendix to the *Condition Assessment*.

## INTERIOR SPACES AND FINISHES

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[Source: The following information is from the *Condition Assessment*.]

### Main Building

The interior of the lobby is constantly upgraded to make it visually appealing and comfortable to guests. It is in good condition, but the overall design vocabulary needs to be studied. The guestrooms surrounding the lobby have a mix of design styles.

### Annex 1

The interior condition ranges from very poor to good. The lake level has serious moisture problems from the weeping foundation wall in the crawl space area.

Completion of the Phase I Emergency Stabilization Project during the 2001-2002 construction season will eliminate any water seepage into the lake level crawl space. Also, because completion of the stabilization work required removal of all wall and ceiling treatments in guestrooms lining this corridor, several lost historical finish treatments were restored (e.g. wood wainscoting with wood chair rail and battens above, vertical panel doors to private baths that had been flush panel).

### North Bridge

Interiors vary from poor in the basement employee quarters/laundry processing area, to good on the Swiss Lounge level, to fair in the second-floor guestroom area.

### Kitchen/Dining Wing

Other than the housekeeping offices, the remainder of the lower floor has seen major wear and tear due to high use. Although some upgrades to the exhaust system in the kitchen have occurred recently, the overall kitchen needs to be evaluated with present day standards.

### Employee Dining/Support Wing

All spaces show signs of deterioration. This wing has high use impact and needs continuous interior maintenance. The food serving, dry storage/office, and restroom spaces are currently inadequate to meet the needs of the number of people using the spaces.

### South Bridge

The carpet is worn and will have to be lifted for anticipated repairs to sloping floors. The wall and ceiling treatments are not consistent with a uniform design that has been contemplated for the interior finishes.

Work under the Many Glacier Phase I Emergency Stabilization Project included stabilization of floors beams and supports, replacement of failing roof rafters at north end of bridge, and replacement of excessively deteriorated window sills and jambs.

## **Annex 2**

Most interior areas are in good to fair condition. The hall carpeting is beginning to fail in places. Room carpeting varies in condition. The masonite-like bathroom wainscot surfaces show a lot of wear and scratches.

The scope of work under the Phase I Emergency Stabilization Project completed 2001-2002 construction season included reconstruction of egress stairway and associated balconies at south end of annex.



*Courtesy Glacier National Park Archives*

## **PART TWO: TREATMENT AND USE**





*Courtesy Minnesota Historical Society*

## 4 ULTIMATE TREATMENT AND USE

The ultimate treatment and use for the Many Glacier Hotel is to preserve the historic structure, its context in the Swiftcurrent Valley, and its traditional uses. The Many Glacier Hotel provides the opportunity for today's visitors to continue to experience the Many Glacier /Swiftcurrent area like the first overnight guests. The existing landscape provides essentially the same scenery as was viewed from the hotel lobby in 1915.

### **BROAD DIRECTION FOR TREATMENT AND USE**

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The *General Management Plan for Glacier National Park* specifies that

“Nationally significant historic resources [in the Many Glacier area] would be preserved and managed to maintain the grand hotel and family lodge traditions.” (NPS 2000a)

Acknowledging that “funding the preservation work at the hotel is at the heart of the matter,” the National Park Service considered several alternatives to the traditional use of the Many Glacier Hotel as a summer-only concessioner-operated grand hotel. The following alternatives were *considered but rejected* at the general management planning stage:

- Use of the structures for purposes other than lodging
- Extending the operating season beyond May-October
- Purchase and operation by a nonprofit organization
- Private funding that would demand additional development that is beyond the needs necessary to serve visitor needs

## STANDARDS FOR TREATMENT

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Decisions regarding the treatment of historic properties are governed by a number of federal laws, executive orders, and regulations, notably Section 106 of the National Historic Preservation Act, which requires the identification, evaluation, and consideration of cultural resources as part of the decision making for all federal projects, and the Secretary of the Interior's "Standards for the Treatment of Historic Properties." The Secretary's Standards were promulgated with the intention of maximum retention of a cultural resource's existing form, features, and detailing. Over the years these Standards have been made more elaborate so that they apply to most types of resources, not only buildings. They now also cover in detail any of the primary treatment types available to a resource's owner, which are preservation, rehabilitation, restoration, or reconstruction. These distinctive, but closely related, treatments are defined as follows:

- *Preservation* focuses on the maintenance and repair of existing historic materials and the retention of a property's form as it has evolved over time.
- *Rehabilitation* acknowledges the need to alter or add to a historic property to meet continuing or changing uses, while retaining the property's historic character.
- *Restoration* is undertaken to depict a property at a particular period of time in its history, while removing evidence of other periods.
- *Reconstruction* recreates vanished or non-surviving portions of a property for interpretive purposes.

The Secretary's Standards have been fine tuned to ensure that under any of these four approaches, the protection, maintenance, and repair of *existing historic fabric* is emphasized, while replacement of extant components is minimized and when absolutely necessary follows the prescription of replacement-in-kind.

National Park Service Director's Order DO-28 expands on the Secretary's Standards with guidelines and methodologies that have proven effective and compliant with the National Historic Preservation Act. These guidelines and methodologies include some "do's and don'ts," and some "recommended versus not recommended applications."

The design/preservation professionals working for the National Park Service (whether as employees or under contract) must be knowledgeable of and utilize all of these guidelines, standards, and laws, along with the applicable building codes, when analyzing and implementing alternative treatments. When park managers approve a certain treatment for a cultural resource, they are in effect certifying its compliance with resource protection guidelines, standards, and laws as spelled out in a programmatic memorandum of agreement between the National Park Service and the Advisory Council on Historic Preservation.

## SPECIFIC TREATMENT STRATEGIES

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The Many Glacier Hotel's diverse needs for treatment will require layers of treatment strategies to carry out the direction of the *General Management Plan*.

The recommendations for treatment presented in the next chapters ("Requirements for Treatment," and "Alternatives and Impacts") represent the outcome of the careful consideration and weighing of the needs of the historic fabric of the landmark hotel and the needs of its users – visitors, employees, and those who are charged with the perpetual care and management of this resource for all stakeholders. The proposed work will involve the use of three of the preservation approaches described under the Secretary's Standards: The use of preservation techniques will be primary; however, resolving the building's many life-safety and accessibility issues and meeting mechanical and electrical system codes will require rehabilitation; also some limited restoration of salient features will be recommended. For the operational phase following the preservation/ rehabilitation/ restoration work, the programs for facility management, preventive maintenance, daily housekeeping, and the annual cycle of closing for winter and reopening in spring will adhere to the standards for preservation, using post-construction guides and manuals

As the work proceeds and more historic fabric is uncovered, decisions about specific approaches and treatments will continue on a case-by-case basis. The implementation team's guidance will continue to come from the criteria that helped the building's managers and the authors of this initial study evaluate the hotel's historic significance, physical condition, proposed use, and intended interpretation.

The restoration standards require procedures for decision-making and compliance with section 106 of the National Historic Preservation Act beyond the scope of this initial study. A more complete *Historic Structures Report* documenting additional research and investigation will be required before undertaking work to reintroduce period appearances. The relevant HSR additions could be produced incrementally as the work unfolds so that each essential feature is permitted to be restored authentically.

Although reconstruction techniques are not applicable at this time, since the hotel has survived with enough of its original and significant form to allow for its treatment using less intervention, it could someday conceivably become imperative because of the catastrophic loss of an entire wing of the hotel due to severe winter storm damage or fire. Reconstruction standards are the most rigorous and would not be contemplated if a lesser intervention, such as restoration, would suffice. In the rare case when it might be desirable to reconstruct a major element, the action would require approval from the director of the National Park Service following exhaustive documentation and a full NHPA Section 106 compliance review.



*Courtesy Glacier National Park Archives*

## 5 REQUIREMENTS FOR TREATMENT

The preservation and use of the Many Glacier Hotel in its grand hotel tradition will involve treatments that fall within four categories of consideration: (1) those treatments that would be required to stabilize the National Historic Landmark structure and to preserve or restore its character-defining features, (2) those treatments needed to comply with applicable building codes, (3) those treatments that may be desirable to make the structure more functional and attractive to the majority of park visitors, and (4) those treatments needed to increase operational efficiency and to meet standards of employee welfare and support. Treatments in each of these categories are discussed separately, below. However, the packaging of treatments as funding becomes available may include a mixture of elements from each category, such as elements needed to stabilize the structure along with elements needed to update electrical and mechanical systems to conform with current building codes.

Generally preservation/rehabilitation efforts will be packaged to correct as many deficiencies as possible, including

- Deteriorating structural components, such as foundations, exterior balconies, walls, and floors
- Life-safety code deficiencies (e.g., inadequate fire suppression systems, excessive travel distances or dead ends blocking emergency egress, lack of fire doors)
- Electrical systems that do not meet current codes or that cannot respond to the demand placed upon them (e.g., knob-and-tube wiring)
- Inadequate and inefficient heating systems
- Asbestos hazards and pest infestations and related health concerns, (e.g., hantavirus, bats)
- Inadequate utility systems (e.g., inadequate wastewater treatment)
- Poor pedestrian circulation and service vehicle conflicts
- Limited access for visitors with disabilities
- No operable elevators for accessibility or service functions

Many of these items are potential threats to health, life and safety, and universal access and were addressed in the 2001 *Condition Assessment*.

### **TREATMENTS REQUIRED FOR BUILDING STABILIZATION**

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Numerous problems found by past investigations are associated with deterioration of structure-related materials, weaknesses in structural members and connections, and settlement and foundation problems. Further investigation of structural conditions is recommended and should be appended to this document as the findings and treatment plans advance.

Table 2 lists the recommended treatments included in the *Structural Integrity Assessment*, along with additional interventions identified by the HSR team to arrest serious deterioration or to keep latent defects from further damaging the integrity of the hotel. In order of magnitude the treatments range from the emergency stabilization work required immediately to reduce lateral pressures on the masonry foundation, to maintenance factors of a more mundane nature.

**Table 2. Recommended Stabilization Treatments**

<b>Unit</b>	<b>Feature</b>	<b>Recommended Treatment</b>
Main Building	Balconies Lake level	Completely reconstruct balconies. Inspect 30-inch timber columns; replace if necessary. Replace rotted girders (currently resting on grade) on concrete footings.
Annex 1 South	Balconies Roof 1 <sup>st</sup> floor Lake Level	Completely reconstruct the balconies. Install new 2x12 rafters. Install new timber beams, columns, and footings in the basement under the 1 <sup>st</sup> floor corridor east wall. Immediately conduct emergency stabilization.
Annex 1 North	Balconies 3 <sup>rd</sup> floor Lake level	Completely reconstruct balconies. Repoint the mortar in the stone masonry chimney. Replace rotted floor girder.
Annex 2	Balconies Lake level	Shore up balconies to their original position and provide adequate blocking. Remove and replace concrete slab in trunk room. Replace one footing and timber column.
North Bridge	Lake level	Replace failed timber beam. (Concrete footing and timber post have already been replaced). Add concrete backfill to a short section of exterior stone masonry footing. Replace the west stairway.
South Bridge	Roof 1 <sup>st</sup> floor	Completely reconstruct the roof. Install new concrete footings and timber posts. Repair damage to floor systems caused by settlement problems.
Kitchen/Dining Wing	Roof Lake Level	Reinforce roof trusses. Install anchor bolts on mechanical equipment..
Kitchen	Roof 1 <sup>st</sup> floor	Reinforce roof trusses. Remove and rebuild the exterior stair on the lakeside. Install new concrete footings at the bases of the stub posts in the crawlspace.
Employee Dining/Support Wing	Roof	Double the existing rafters.

**Table 2. Recommended Stabilization Treatments**

Unit	Feature	Recommended Treatment
	1 <sup>st</sup> floor	Rebuild or replace the exterior stair to grade.
Employee Pub	Roof	Reinforce the rafters.
	Lake level	Repair or replace the roof gutter system to protect masonry.

## TREATMENTS REQUIRED FOR RESTORATION OF CHARACTER-DEFINING FEATURES

Restoring those features that define the character of the Many Glacier Hotel as a National Historic Landmark would require the treatments listed in table 3. Decisions to undertake these treatments will require additional substantive study and consultations with stakeholders.

The benefits of restoring the lobby interior would be considerable. The lobby is the entry space, important architecturally and because it provides visitors' first impressions of the hotel. It is a transitional space, introducing visitors to the hotel's traditional historic uses, as well as the way the building functions today. It is a necessary and important space for visitor orientation to the natural setting that surrounds the hotel and for social interaction, travel planning, and relaxation. The lower level spaces are less significant than the main floor lobby; however, the interconnection that existed between the floors when the original spiral staircase was in place provided an important link, and the restoration of that feature would upgrade the lower level's significance in the overall hotel.

Additional studies would be required to support restoration work. In addition to studies required for restoring specific elements, a general furnishings study should be completed with a priority on electrical and plumbing fixtures, and a fabric analysis of all finish treatments should be completed with a priority on wall wainscoting and battens.

**Table 3. Recommended Restoration Treatments**

Unit	Feature	Recommended Treatment
Main Building	Exterior balconies	Remove extraneous structural additions (steel cables, steel angles, 2x framing support additions) during or after stabilizing and rebuilding the extant balconies.
	Porte cochere	Explore alternatives to link the porte cochere architecture with that of the main structure.
	Lobby	Relocate the enclosed gift shop. Restore the circular stair from the lobby to the lower level. Explore alternative locations for the registration area to regain the historical character of the bank of windows that are now behind it. Repaint interior upper walls and ceilings to restore the rustic color scheme.

**Table 3. Recommended Restoration Treatments**

<b>Unit</b>	<b>Feature</b>	<b>Recommended Treatment</b>
	Lower level	Restore the fountain at the base of the stair leading from the lobby to the lower level. Restore an appropriate layout based on a reevaluation of the original spatial relationships between the snack bar/gift shop, kitchen, and St. Moritz Room. Restore the hardwood dance floor in the St. Moritz Room.
Kitchen/Dining Wing		Repaint interior upper walls and ceilings in dining room to restore the rustic color scheme.
Annex 1	Exterior balconies	Replace missing east-side balconies. Remove extraneous structural additions during or after stabilizing and rebuilding the extant balconies
	Interior hallways	Repaint interior upper walls and ceilings to restore the rustic color scheme. Repaint/stain the five-foot wainscot.
Annex 2	Exterior balconies	Remove extraneous structural additions during or after stabilizing and rebuilding the extant balconies
	Interior hallways	Repaint interior upper walls and ceilings to restore the rustic color scheme. Repaint/stain the five-foot wainscot.
All units	Lighting, plumbing, finishes, furnishings	After careful research and development of a universal theme for lighting and plumbing, surfacing materials, finishes, and furnishings, replace these interior elements.
	Doors	Replace randomly placed flush panel doors with historically compatible doors

## **TREATMENTS REQUIRED TO MEET BUILDING CODES AND FEDERAL REGULATIONS**

The treatments required to meet building codes and federal regulations have been organized into the following systems: weather protection, structural framing, electrical/ mechanical/ plumbing, accessibility, and hazardous materials and other health and safety risks.

### **Weather Protection Systems – Building Envelope**

#### **Exterior Walls and Fenestration**

All exterior surfaces exhibit severe weathering that will need periodic or cyclical maintenance to extend the serviceable life of building materials such as wooden doors, window frames, screen frames, plank siding, and skylights. Regularly scheduled applications of preservation maintenance treatments will not only sustain the useful life of the materials, saving cultural resources, but will also be more economical than a

major removal and replacement project. Weatherstripping, re-insulating, caulking, reglazing, scraping and painting, sealing and flashing, and oiling and tightening hardware are all necessary routines that are permitted under a routine Programmatic Memorandum of Agreement with the State Historic Preservation Officer and can be covered by various funding sources. West-facing elevations are the most severely weathered. The kitchen's large glassed areas experience wall movement, and the frames sustain high temperature damage. Use of epoxy repair systems by experienced technicians may add some time before replacement-in-kind is mandatory.

## Roof

The recommended treatments for roofing and structural supports are listed in table 4. The south bridge is in need of immediate emergency reroofing. In all areas, the grossly undersized rafters need to be reinforced. Gutter and eaves troughing needs to be replaced following the historic profiles as much as possible.

Repair and replacement of roofing shingles requires a study of alternatives to identify a replacement-in-kind material without asbestos. Extensive research has been completed and continues in an attempt to bring back the texture and pattern of the original honeycomb pattern asbestos cement shingles that were installed originally. Consultation continues between the designers, Glacier National Park's Cultural Resource Specialist and Historical Architect, as well as the State Historic Preservation Officer.

**Table 4. Recommended Treatments for Roofing and Structural Supports**

<b>Unit</b>	<b>Feature</b>	<b>Recommended Treatment</b>
Main building	Roof	Reinforce rafters and outriggers to meet code-determined snow loads whenever reroofing is scheduled.
Annex 1 South	Roof	Install new 2x12 rafters to meet code-determined snow load.
Annex 1 North	Roof	Reinforce rafters and girders to meet code-determined snow loads.
Annex 2	Roof	Reinforce rafters to meet code-determined snow loads.
North Bridge	Roof	Reinforce rafters to meet code-determined snow loads.
South Bridge	Roof	Reroof and reinforce undersized and broken rafters.
Kitchen/Dining Wing	Roof	Reinforce roof trusses.
Employee Dining	Roof	Double existing rafters to meet code-determined snow load.
Employee Pub	Roof	Reinforce rafters to meet code-determined snow load.

## Structural Framing Systems

The “somewhat undersized floor joists” may be kept in place and strengthened by sistering up with reinforcement lumber.

The annex 1 floor system has been damaged by lake level moisture problems and will require replacement after the water intrusion problems are solved.

The south bridge floor will have to be replaced after the sloping problems are resolved.

## Lateral Resistance Reinforcement Systems

The recommended treatments for lateral resistance reinforcement are listed in table 5. New plywood sheathing needs to be installed beneath the existing siding in several exterior walls. In the dining room, a steel moment frame needs to be installed inside the existing wall to provide the required lateral resistance while still maintaining all the glazing. Several interior walls will need to be resheathed with plywood. On the first floor of the main building, where there are few interior walls, steel-braced frames need to be installed inside the walls around the lobby.

**Table 5. Recommended Treatments for Lateral Resistance Reinforcement**

Unit	Feature	Recommended Treatment
Main building	Lateral system	Install interior and exterior plywood sheathing on both sides of the walls on the 2 <sup>nd</sup> , 3 <sup>rd</sup> , and 4 <sup>th</sup> floors. Install steel-braced frames inside the walls around the 1 <sup>st</sup> floor lobby.
Annex 1 South	Lateral system	Install plywood sheathing underneath existing lap siding on the exterior walls. Resheath the interior walls with plywood on both sides. Install new concrete shear walls in the basement level.
Annex 1 North	Lateral system	Sheath the interior and exterior walls with new plywood.
Annex 2	Lateral system	Install new plywood sheathing beneath the existing siding. Resheath all interior walls with plywood.
Kitchen/Dining Wing	Lateral system	Install a steel moment frame inside the existing dining room wall to provide the required lateral resistance. Study the feasibility of maintaining all the existing glazing versus replacement. Sheath the other wall in plywood underneath the existing sheathing.  Install new plywood sheathing beneath the existing exterior lap siding in the kitchen.
Employee Dining	Lateral system	Sheathe the exterior walls and the wall separating the kitchen and the employee dining area with new plywood beneath the existing sheathing.

## Electrical Systems

The fire protection and electrical systems in the main building need to be rehabilitated to meet applicable codes. Some of this work has recently been completed. All secondary electrical panels and distribution systems need to be replaced, and UL approved fixtures need to be installed and rewired. The service areas, such as the office, front desk, kitchen, and employee dining/support wing must be upgraded to meet demand and applicable codes.

## Mechanical/Plumbing Systems

A life cycle cost evaluation indicates that the piping should be replaced as part of system improvements to meet current codes. Such work can only be done as part of a general rehabilitation project due to the extent of wall/ceiling/floor damage it would create. The goal of all infrastructure work should be to conceal nonhistoric runs and devices as much as possible in walls and above ceilings, with minimal demolition

Heating is mandatory even in summer months. The use of energy efficient fuel and distribution systems must be continually reviewed and updated to hold down operating expenses and to assure a stable temperature and humidity level for interior finish preservation. Ventilation concerns, especially in the annex 1, must be addressed as well.

The timing of mechanical/plumbing system improvements should coincide with the other work affecting interior finishes.

## Accessibility Requirements

The entire structure needs to be comprehensively reviewed for compliance with the requirements for universal access (specifically, the technical requirements included in the *Uniform Federal Accessibility Standards* and the *Americans with Disabilities Act Accessibility Guidelines*).

## Hazardous Materials And Other Health And Safety Risks

The hazard posed by the structural condition of the exterior balconies will be addressed by the recommended stabilization treatments. The design solution needed for the guardrail can be informed by the following points: A 36-inch balcony guardrail height is allowed under exceptions in section 405.2 of the UCBC. Section 608.2 of the UCBC allows existing width and rhythm of vertical elements of the guardrail to remain. If the balcony is replaced, it is assumed that the new design will be required to comply with rhythm and spacing requirements. *(During Phase I of the Emergency Stabilization project completed during the 2001-2002 construction season, design resolutions were made between the State Historic Preservation Officer, the Authority Having Jurisdiction, and Glacier National Park regarding the acceptable heights of guardrails, rise and run of egress stairs, and stairway handrails.)*

Removal of asbestos pipe cladding from the old steam system will require technically certified subcontractors and monitoring systems. *(During the 2001-2002 Emergency Stabilization Project, asbestos pipe cladding was removed from the crawl space in annex 1 during the course of developing shear walls to link into the new foundation wall. In addition, the concessioner completed contract work that removed the steam heating system and public exposed pipe.)*

Hantavirus, bird, and bat infestations are annual risks when opening the hotel from a winter shutdown. Safety and health protocols need to be described for all new employees and contractors.

Lead paint removal from interior and exterior walls, woodwork, windows, and doors will require special testing and personal protective equipment to meet OSHA regulations and the Clean Air Act.

Special restrictions will be required to protect the lakeshore from inadvertent spills of construction debris or building materials that could pollute the waters. All of the work and deliveries will be done in a designated wilderness area, and the special precautions and restrictions on power equipment applicable to all wilderness areas must be enforced.

## VISITOR AMENITY ISSUES

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Continued use of the Many Glacier Hotel as a luxury accommodation (in the grand hotel tradition) raises a number of issues. The public's ever-increasing expectations for improved levels of service in other historic hotels and nationwide chains will pressure the operation at the Many Glacier to compete by meeting the new standards of bathroom amenities, room size, security, and furnishings befitting the place and the demographics of the customer.

The following treatments would be desirable if not required to provide the levels of service expected by the majority of contemporary visitors:

- Provide standard-sized private bathrooms, including toilets, sinks, and showers, for guestrooms. At least 5 percent should be fully accessible to meet the requirements of UFAS and ADAAG.
- 
- Provide soundproofing with improved wall insulation between guestrooms. ("Stagger Alley" guestrooms were sound and thermally insulated during the course of work completed 2001-2002).
- 
- Install thermostatic and humidistatic controls, insulation, and weatherstripping to realize stable interior temperatures and eliminate drafts. Installation of these energy retrofits should be concurrent with the removal and replacement of outer cladding and roof sheathing, and with treatments in the crawlspace.
- 
- Rodent-proof the entire structure as much as reasonably possible and provide educational material about the varied species of wildlife in the northern Rockies and the possible hazards associated with wildlife encounters, both indoors and around the grounds.
- 
- Redesign the front desk area to celebrate the history of the Great Northern Railway and its monumental effort to erect this and the other hotels. Avoid the visual intrusion of the back office administrative area into the lobby.
- 
- Install an elevator in annex 1 and redesign the nonconforming stairwell to meet egress requirements with consideration for the historic fabric.
- 
- Hide exposed piping runs in hallways and guestrooms with consideration for minimizing demolition.

## OPERATIONAL EFFICIENCY AND EMPLOYEE WELFARE AND SUPPORT ISSUES

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The following treatments would be required to meet generally accepted standards for operational efficiency and employee support. The staff areas and maintenance spaces have received extensive wear-and-tear deterioration. The choice for replacement finishes should be as durable as possible yet environmentally

## 5 Requirements for Treatment

friendly. Sustainable practices should guide the decisions for the materials as well as the housekeeping and upkeep processes.

- Wire the hotel for better technology and security systems (could be accomplished concurrently with rewiring to meet life-safety and electrical codes).
- Redesign and rebuild the support rooms in the basement of the main building.
- Rehabilitate the staff rooms on the fourth floor of the main building.
- Rehabilitate the food serving, dry storage/office, and restroom spaces in the dining/kitchen wing to meet the needs of the number of people using the rooms.



## 6 ALTERNATIVES AND IMPACTS

Because of the number and complexity of the issues involved, the alternative treatments of the Many Glacier Hotel will be analyzed in detail in separate environmental planning documents (either environmental assessments or environmental impact statements). The information provided below is intended to inform those analyses by identifying the potential impacts of alternatives known to be under consideration and by recommending mitigating measures needed to protect the integrity of the building's character-defining features.

As additional interventions are considered in the future, all reasonable alternatives will need to be analyzed for the purpose of avoiding adverse effects on the building's character-defining features, or if no alternative exists, then to determine mitigating measures that will protect those qualities that make the hotel eligible for its designation as a National Historic Landmark.

### ALTERNATIVES RELATED TO BUILDING STABILIZATION AND PRESERVATION/RESTORATION OF CHARACTER-DEFINING FEATURES

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#### Emergency Stabilization Of The East Foundation Wall, Annex 1 (South)

Two options were evaluated for emergency stabilization of the east foundation wall of annex 1 (south). The options were first identified in the *Structural Integrity Assessment* and were the basis for discussion in a value analysis session conducted in the fall of 2000. The results of that analysis can be found in the report, *Value Analysis Study, Emergency Structural Stabilization of the Many Glacier Hotel* (NPS 2000b).

Cost estimates reinforced the HSR team's recommended strategy for the project (Alternative B), and it was selected as the preferred stabilization method. Alternative B would involve repair of the stone rubble foundation wall and the walls above it, as well as emergency stabilization measures to ensure that the wall can withstand lateral pressures exerted on it in the future. It calls for pushing the wall into structurally adequate bearing position, reinforcing the historic rubble foundation with a reinforced concrete retaining wall on the east side and new concrete shear walls on the west side, and installing a complete drainage system discharging into the lake. Straightening the walls on the east side would require the removal and restoration of historic balconies.

Table 6 summarizes the work elements in the recommended alternative, their impacts, and recommended mitigation.

**Table 6. Alternatives for Structural Stabilization of Annex 1**

<b>Recommended Alternatives</b>	<b>Potential Impacts</b>	<b>Recommended Mitigation</b>
<p>Place a new reinforced concrete retaining wall adjacent to the east side of the historic stone rubble foundation wall. Add new reinforced concrete shear walls to the west side of the historic rubble foundation wall. <i>(This work was completed 2001-2002 construction season)</i></p>	<p>The stone rubble foundation wall is a character-defining feature. The reinforcements would have high potential to change the historic appearance of the wall; however, no portion of this wall section was historically visible above grade on the east side of the hotel. This option would provide long-term protection for the wall and the structure above it (a significant beneficial effect).</p>	<p>No need for mitigation (vener face), since the wall is not visible above grade. <i>(2001-2002 project proved this to be true)</i></p>
<p>Construct new concrete shear walls along the existing cross walls in the lower level crawlspace and utility room.  <i>This work was completed 2001-2002 construction season</i></p>	<p>Reinforcing shear walls encapsulating the existing walls would be visible and change the historic appearance of the existing walls. This option would provide long-term protection for the structure above it (a significant beneficial effect).</p>	<p>Shear walls would be visible only from crawlspaces and utility areas not generally visible to the public.  <i>2001-2002 project proved this to be true</i></p>
<p>Push west wall into a more upright (structurally adequate) bearing position.  <i>This work was completed 2001-2002 construction season.</i></p>	<p>The hallways’ wood wainscoting, batten detailing on the high walls and ceilings, finishes, patterns of fenestration, and doors are character-defining features. Moving and straightening the east wall would have high potential for damaging the historic fabric of these features (a significant and permanent adverse effect), especially if the wall was straightened plumb.</p>	<p>Historic fabric should be salvaged, labeled, and reinstalled in the original locations. The historic finishes should be matched wherever historic fabric must be replaced to complete construction. To mitigate excessive damage to historic fabric on upper levels, the straightening of the list should be only to the degree that brings the structure into compliance with applicable building codes for structural soundness. Full plumbness would not be necessary or desirable.  <i>2001-2002 project proved this to be true, in fact damage to fabric in upper levels was far less than anticipated.</i></p>

## Reconstruction of the South Bridge

Table 7. Alternatives for Reconstruction of the South Bridge

Alternatives Under Consideration	Potential Impacts	Recommended Mitigation
Reconstruct the south bridge.  Establish the plate glass window's historicity and consider its replacement with the original window configuration.	The interior floor plan and exterior elevations, including the fenestration pattern, window trim, cupola, and siding dimension are character-defining features. Reconstruction would have a high potential for damaging or losing historic fabric (a significant and permanent adverse effect). Return to the original window configuration would have a significant beneficial effect.	The exterior siding, window trim, cupola structure, and flower boxes should be dismantled, and the historic material should be salvaged and stored for reinstallation over the new structure.

## Reconstruction of Exterior Balconies

Table 8. Alternatives for Reconstruction of the Exterior Balconies

Alternatives Under Consideration	Potential Impacts	Recommended Mitigation
Remove existing balconies from the east side of annex 1; install new balcony system once wall has been stabilized. Replace the west balconies on the main lobby building and the south end fire escape balconies on annex 2  <i>Balconies from annex 1 have been removed and steel structure for replacement balconies installed. Annex 2 balconies have been removed, new steel structure installed, wood cladding of steel installed, and treads, balustrades, rails, and decking reinstalled as detailed and approved by NPS cultural resource specialists, and</i>	Exterior bracketed wooden balconies and galleried porches with jigsaw cut balusters have been identified as character-defining features. However, the balconies are not completely historic in their present form because many incompatible structural elements have been added over the years and because the current materials date mostly from the 1980s. Nevertheless, their removal and replacement would have high potential for further damage or loss of the remaining historic fabric (a significant and permanent adverse effect). In contrast, there would also be high potential for the removal of the incompatible steel structural	All of the authenticated historic fabric should be salvaged and reinstalled in original configurations and locations. The historical profiles of the brackets, railings, and supports; the historical size of the decks; and other historical components of the balconies should be matched if historic fabric is beyond repair and new materials are necessary to complete construction and provide structural integrity.  <i>The state historic preservation officer and the local authority having jurisdiction have agreed</i>

**Table 8. Alternatives for Reconstruction of the Exterior Balconies**

<b>Alternatives Under Consideration</b>	<b>Potential Impacts</b>	<b>Recommended Mitigation</b>
<i>the state historic preservation officer.</i>	supports added over the years to reinforce the balconies (a significant beneficial effect).	<i>upon handrail details that would improve the safety of the facility without extensively compromising the features of the balconies and stairways.</i>

## **ALTERNATIVES RELATED TO MEETING BUILDING CODES AND OTHER LEGAL REQUIREMENTS**

Work elements specific to poor roofing, dead-end corridors, fire protection, air infiltration, utility system upgrades, and accessibility were discussed during the value analysis session in response to recent studies which raised concern over the problems these items present. However, the team determined such issues to be outside the range of the first “stabilization” phase. These items will become a high priority in the next funding package proposed for fall of 2002, and alternatives will be developed at that time. This *Historic Structures Report* will be appended at that time.

## **ALTERNATIVES RELATED TO VISITOR AMENITIES**

The issue of whether the interiors of the guest rooms within the hotel should be restored to their historic appearance with its more spartan ambiance or updated to meet current standards for space and amenities will be addressed in the *Commercial Services Plan* and accompanying environmental impact statement. Two alternatives are currently under consideration (1) update/upgrade the guestrooms and (2) restore the guestrooms to their historic appearance. They are summarized in table 9.

**Table 9. Alternatives Related to Visitor Amenities**

<b>Alternatives under Consideration</b>	<b>Potential Impacts</b>	<b>Recommended Mitigation</b>
<b>Alternative 1. Update and Upgrade Guest Rooms</b>		
Reconfigure rooms to meet contemporary square footage standards for bedrooms with adjacent private bathrooms	Fewer larger rooms would result in a loss of revenue unless a higher rate was permitted. Fewer rooms could disappoint visitors, who currently book well in advance to ensure availability.	The visitor service impacts of a reduction in rooms could be mitigated by providing additional rooms elsewhere in this visitor use area or in other visitor use areas in the park.

**Table 9. Alternatives Related to Visitor Amenities**

<b>Alternatives under Consideration</b>	<b>Potential Impacts</b>	<b>Recommended Mitigation</b>
<b>Alternative 2. Restore Guest Rooms to a Historic Appearance</b>		
Return to the historic layout of the original hotel	Private bathrooms would be lost, and shared bathrooms reinstated – an approach the tourism industry deems undesirable in hotel operations.	Guests would have to be prepared for an experience that will never change with time, thus making it unique to the hospitality industry and worthy of some sacrifice. Care would have to be taken to not half-restore the hotel, thereby inadvertently creating a false appearance that never existed historically.
Restore certain architectural elements of the historic period, including furnishings, while maintaining many of the changes that have occurred in recent years. Replace existing fixtures with compatibly designed fittings that complement the extant historic features and details without needing to replicate an earlier appearance.	An association with those styles of the historic era could lend an ambiance without requiring a total restoration to a specific time in the past. Some historic materials might be lost if it was determined to return to original unpainted wood wainscoting.	Guests would be informed of the nonhistoric as well as the original remnants that comprised the upgraded rooms, so that they would not be misled about authenticity.

## **ALTERNATIVES RELATED TO OPERATIONAL EFFICIENCY AND EMPLOYEE SUPPORT**

**Table 10. Alternatives Related to Operational Efficiency and Employee Support**

<b>Alternatives Under Consideration</b>	<b>Potential Impacts</b>	<b>Recommended Mitigation</b>
Rehabilitate the current boiler room (after steam heating system is replaced with electric heaters) and move the plumbing functions into that space.	Loss of historic plumbing fixtures	Maintain representative sampling of historic heating devices in guest rooms, common spaces, work areas and mechanical room (e.g. boiler facades)



# GLOSSARY

*Balcony.* A platform projecting from the wall of a building and surrounded by a railing

*Baluster.* An upright member which supports a handrail

*Balustrade.* A railing consisting of a series of balusters resting on a base, usually stair treads or floor, which supports a continuous stair or handrail

*Batten.* A strip of wood or metal placed across a surface to cover joints between two adjoining boards or panels. In the Many Glacier Hotel wood battens are used as trim for covering the joints of the Sackett wall or ceiling boards.

*Board and batten.* A system of boards or panels and their connecting batten strips

*Capital.* The top of a column. In classical architecture the capital was made of three components: the neck where it meets the shaft, the echinus or spreading member above it, and finally the abacus or block at the top. The Many Glacier Hotel capitals contain two of the parts, the echinus and the abacus.

*Celotex.* See wallboard.

*Chalet.* A house with an overhanging roof common in Switzerland

*Character defining feature.* A prominent or distinctive aspect, quality, or characteristic of a historic property that contributes significantly to its physical character. These features range from general characteristics of the site design and architectural style down to specific details.

*Clapboard.* Beveled board used for siding structures

*Clipped gable.* Shortened or cut back ridge at roof ends. Similar to hip gable roof and referred to as a jerkerhead roof as well.

*Corbel.* A short timber placed lengthwise under a beam or girder; also, a bracket of wood that

projects from the side of a wall and serves to support a cornice, the spring of an arch, a balustrade, etc.

*Cupola.* Small, usually domed structure surmounting roof

*Doric Order.* In classical Greek architecture, the oldest and plainest of the orders, originally seen with fluted heavy columns and simple capitals. By the renaissance a simpler form was revived in the Etruscan or Tuscan style. The Many Glacier Hotel columns use a Doric-like capital on an unfluted column.

*Double-hung window.* A window with two overlapping sashes that slide vertically in tracks

*Drop ceiling.* A lowered, false ceiling placed typically to cover mechanical and electrical equipment

*Eave dormer.* A projecting structure built out from a sloping roof, usually with a window and its own smaller roof; built to break up the eave line and give a vertical gable element to an otherwise strong horizontality.

*Eave gable.* The lower part of the overhang at the gable rake

*Fenestration.* The placement or arrangement and sizes of the windows and exterior doors of a building

*Footing.* The spreading course or courses at the base or bottom of a foundation wall, pier, or column

*Gable.* The triangular wall beneath the end of a triangular roof

*Gallery.* A porch, veranda, or long balcony, often with a roof

*Girder.* A large or principal beam used to support concentrated loads at particular points along its length

*Gypsum Wallboard.* A type of wallboard with a plaster core sandwiched between two layers of paper. Gypsum board was patented in 1894 by Augustine Sackett. By World War I, production methods for gypsum board were standardized and it was widely used for the construction of military barracks. Over time, various fillers were added to decrease weight (pumice, bubbles, etc.), to increase fire resistance (asbestos) and to increase crack resistance (wood and mineral fibers). Dextrin, or starch, is typically used as a binder. Gypsum board, also called drywall, is fire resistant, dimensionally stable and inexpensive. During World War II, gypsum board completely replaced the use of metal lath/plaster walls in new construction because the prefabricated boards were faster to assemble and because the use of steel was restricted. Synonyms: plasterboard; plaster board; wallboard; drywall; Sheetrock® [U.S.Gypsum]; Gypsite; Sackett Board; Samson Plaster Board; Adamant; Bestwall Firestop; Gold Bond; Rocklath; rock lath

Museum of Fine Arts, Boston (2000)

*Ionic Order.* The second order of Classical Greek architecture, characterized by two opposing volutes in the capital

*Jigsaw pattern.* Sharply cut curves in a repeating pattern

*Joist.* One of a group of light, closely spaced beams used to support a floor deck or flat roof

*Lateral system.* The system of structural components used to respond to lateral forces upon a structure

*Lateral force.* A force acting generally in a horizontal direction, such as wind, earthquake, or soil pressure against a foundation wall

*Moment frame.* Structural framing details designed to resist moment, the force acting upon a structural member causing it to rotate

*Outlooker.* A structural member used to support a deep overhanging roof

*Porte cochere.* Projecting roof at a building entrance, providing shelter for those getting in and out of vehicles

*Rafter.* A framing member that runs up and down the slope of a pitched roof

*Sackett Board.* A type of wallboard that was specifically detailed in the original drawings for the hotel. See *Gypsum Wallboard.*

*Segmental arch window.* Window opening with full half-round arched head developed from sections of stone bonded together with mortar

*Shear wall.* A wall surface that acts as a deep beam to help stabilize a building against deformation by lateral forces

*Sheathing.* The structural covering applied to the outside of the roof, wall, or floor framing of a frame structure

*Tuscan Order.* In the style of the classic Roman order of architecture, characterized by an unfluted column with a ringlike capital and a frieze that is like the Doric order. See also *Doric Order.*

*Transom.* A small opening above a door separated by a horizontal member. Usually contains a sash or a louver panel hinged to the transom bar.

*Truss.* A structural unit consisting of such members as beams, bars, and ties; usually arranged to form triangles. Provides rigid support over wide spans with a minimum amount of material

*Voussoir.* Any of the wedge-shaped stones that make up the curved portions of an arch

*Wainscot.* A wall facing, usually of wood, cut stone, or ceramic tile, that is carried only partway up a wall.

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