National Park Service
U.S. Department of the Interior
Alaska Regional Office



Rangers' Dormitory Building #21

DENALI NATIONAL PARK AND PRESERVE

HISTORIC STRUCTURE REPORT

Front Cover:
View of the Rangers' Dormitory (Building #21) looking southwest from the Headquarters Access Road, 2019, photo by Hennebery Eddy Architects.

NPS Task Order #140P2019F0257
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Project Address:
Rangers' Dormitory
Building #21
Headquarters Access Road
Headquarters District
Denali National Park and Preserve
Cultural Resources Inventory - Historic Structures (CRIS-HS): 005235

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Executive Summary 0.01



Image 1: Signage adjacent to the Headquarters Access Road, southeast of the primary building entrance walkway, 2019.

INTRODUCTION

The Rangers' Dormitory (Building 21), now known as the Headquarters Building, is located within the boundary of the Mount McKinley Park* Headquarters Historic District approximately three miles from the park's entrance on the 92.5-mile Denali Park Road (Park Road). The Ranger's Dormitory is one of 17 resources contributing to the original historic district listed in the National Register of Historic Places by the National Park Service in 1987. Following a boundary expansion in 2016, the historic district now encompasses 37 resources (26 contributing and 11 non-contributing) and a network of connected roads, including the Park Road's own historic district.

The Rangers' Dormitory was designed by the National Park Service (NPS) and constructed by park personnel and contracted labor in 1934-35. One of multiple buildings developed at this location for park administration and staff, the building initially served as a bunkhouse for park rangers but was converted in 1952-54 to the park administrative headquarters providing office space for park administrators.

Design Guidelines for the historic district were established in 1985 and amended in 2016. A Cultural Landscape Inventory was completed for the district in 2004 and a Cultural Landscape Report was published in 2008. These documents outline areas and period of significance for the district, provide guidance for repair, alteration, and new construction within the district, and recommend landscape rehabilitation.

PURPOSE

This Historic Structure Report (HSR) was prepared as a planning and management document for Denali National Park and Preserve to inform future rehabilitation and maintenance projects at the Rangers' Dormitory (Building 21), now the park administrative headquarters. It provides historical, architectural, and long-term stewardship information. The primary purpose of this HSR is to: document the property; identify the significant character-defining features of the building and site; assess current conditions; and provide guidance for immediate treatment and long-term use and stewardship. Additionally, the park is specifically interested in considering improvements to building accessibility at entrances, restrooms, and the second floor.

**Denali National Park's initial name was Mount McKinley National Park, named after Mount McKinley and in honor of President McKinley. The mountain's name according to local Athabaskan communities is Denali. With respect to native Athabaskan languages, the park was renamed to Denali National Park (along with the mountain itself) in 2016.*

REPORT ORGANIZATION

This HSR is organized in general accordance with the following NPS documents as applicable: NPS-28 Chapter 8: Management of Historic and Prehistoric Structures, Preservation Brief 43: The Preparation and Use of Historic Structure Reports, and the Denver Service Center (DSC) Workflow for HSRs.

An HSR is broken down into three parts:

- *Part 1 - Development History* includes the history and significance of the property and its changes over time. It concludes with identification of character-defining features and a complete description of all building and immediate site components and their conditions.
- *Part 2 - Treatment and Use* discusses the best overall treatment approach and appropriated uses. It identifies regulatory requirements and lists treatment recommendations that correspond directly with the building component descriptions. Alternative treatment options are included where applicable. Part 2 also includes an assessment of effect for treatment recommendations and alternatives.
- *Part 3 - Record of Treatment* documents projects completed under the guidance of this HSR and includes a summary of the work and associated technical data.

This HSR includes Parts 1 and 2 only. Part 3 documentation should be completed, including all information outlined in the DSC Workflow for Part 3, as work on the building is completed. This documentation should be appended to this report to maintain a complete building record.

METHODOLOGY

This report was prepared through a three-step process: archival research, on-site inspection, and professional analysis.

Available historic district, building, and site documentation, including a previous HSR, design guidelines, cultural landscape report, and preservation plan, was provided by the park and DOI-Unified Region II - Alaska office. Additional archival research was conducted through the park maintenance files stored at the Building and Utilities facilities near C-Camp and electronic historical archives.

An on-site inspection of the existing conditions and context was carried out by Hennebery Eddy Architects (HEA) and KPFF (structural) on October 14-17, 2019. Conditions at the time of the survey were dry and clear but several inches of snow obscured the ground and limited roof visibility. Access was provided to the site, exterior, and interior of the building. Conditions were photo-documented and recorded using field assessment forms developed for this project. Moisture meters and resistance drilling was used to confirm exterior log and lumber conditions.

Mechanical, electrical, and plumbing (MEP) systems were assessed by Interface Engineering based on existing drawings and photo-documentation provided by HEA and KPFF. Interface did not conduct an on-site assessment.

Unless noted otherwise, all photographs and drawings in this report have been provided by Hennebery Eddy Architects. Images by others are credited accordingly.

Recommendations for overall treatment, use, component treatment, and maintenance align with the preferred treatment of rehabilitation and are in accordance with *The Secretary of the Interior's Standards for Rehabilitation* and *NPS Cultural Resource Management Guidelines*.

MAJOR FINDINGS

Exterior Materials

Exterior materials are generally in fair condition requiring minor localized repairs and paint. Rot at the second column from the north on the west porch, as well as the projecting end of a stabilization beam at the northwest corner, should be repaired.

The exterior retains moderate integrity with the exception of the replacement fixed and casement windows. Restoring these back to groups of four-over-four double-hung wood sash windows would elevate the exterior integrity of the building to high.

Interior Alterations

The character of the interior has been significantly altered with the exception of the first floor fireplace. Partition walls have been removed and added and original finishes have been concealed or replaced with 1950s or contemporary finishes commonly associated with office spaces. Current finishes are in fair to good condition. The existence and conditions of original finishes should be investigated in each room.

Accessibility

As the National Park Service administration headquarters for the park, the building should be made accessible to the greatest extent feasible without impacting its historic integrity. This can be achieved by providing the following:

- One accessible building entrance.
- One accessible route from the parking area to the accessible entrance.
- Equivalent access to primary function areas on the ground floor with an accessible route.
- One accessible restroom.
- Compliant signage.

Providing access to all primary function areas on the ground floor negates the need to make the second floor accessible. The size, scale, and roof shape of the building make an internal limited use/limited access (LULA) elevator impractical and the addition of an elevator shaft to the north or south elevations would negatively impact the building's high exterior integrity, the district's visual integrity, and would significantly impact the program area of the building on both floors.

RECOMMENDATIONS

Of the four standard treatment approaches for historic resources - preservation, restoration, rehabilitation, and reconstruction—rehabilitation is recommended as the preferred treatment for the Rangers' Dormitory and adjacent site associated cultural lanscape. This treatment allows for preservation and restoration of character-defining features while providing for improvements and flexibility to continue meeting the evolving needs of park's administrators and staff.

General building recommendations from the 2016 Design Guidelines remain applicable:

- Develop and adhere to a cyclic maintenance plan, including:
  - Annual inspections of the foundation, siding, windows, doors, finishes, and roof material.
  - Cleaning and repainting on a 7-year basis.
- Retain character-defining features.
- Conduct repairs in-kind.
- Avoid exterior alterations.
- Coordinate proposed projects with park cultural resource manager and State Historic Preservation Office (SHPO) on a case-by-case basis to confirm projects are completed in accordance with *The Secretary of Interior's Standards for the Treatment of Historic Properties*.

Additionally, relevant site and landscape recommendations from the 2014 *Cultural Landscape Report* include:

Circulation and Parking:

- Eliminate parking and through-traffic from center of historic district. Maintain access for emergency vehicles, propane delivery, and ADA access.
- Enhance and protect roadside vegetation and character throughout historic district.
- Preserve views and vistas of the surrounding landscape.

Buildings and Structures:

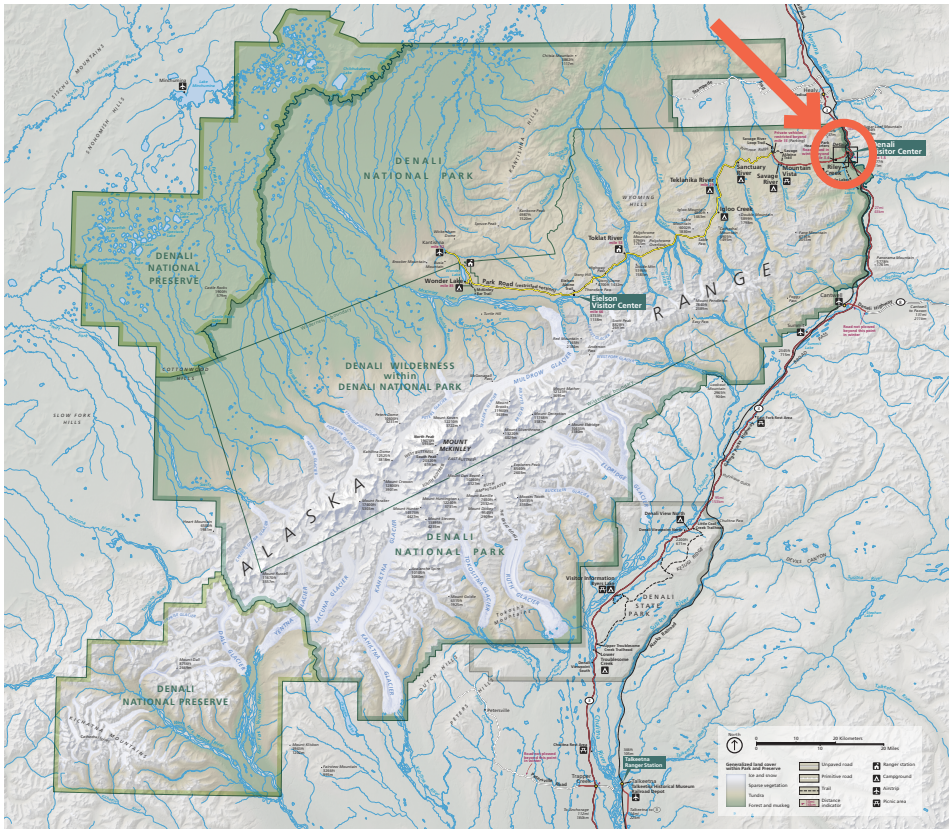
- Specify appropriate locations and characteristics for adjacent new buildings.
- Preserve existing visitor services, administrative and residential uses.
- Thin vegetation around structures to mitigate fire risk and improve views.

Small-Scale Features:

- Develop and install a palette of non-historic park fixtures that are appropriate to the historic character of the headquarters district.

Treatment recommendations to address primary condition concerns include:

- Execute recommended maintenance and repairs.
- Consider replacing fixed and casement windows to match original multi-lite double-hung windows per historic images.
- Consider restoring interior character defining features where feasible by restoring wood flooring, installing panel and batten wall system, and period compatible light fixtures.
- Consider reorganizing spaces to return the living room to communal/conference space and remove non-historic partition wall. This will also provide equivalent access to primary function areas at the ground floor.
- Improve building accessibility by providing an accessible entrance, restroom, and access to primary function areas at the ground floor. An elevator is not recommended due to the significant impact in reducing already limited usable space if installed at the interior and the significant visual impact of a penthouse through the roof or an external elevator shaft on either the north or south elevations.


DENALI NATIONAL PARK
DENALI NATIONAL PRESERVE
DENALI WILDERNESS within DENALI NATIONAL PARK
ALASKA RANGE
Eielson Visitor Center
Wonder Lake
Park Road
Toklat River
Teklanika River
Sanctuary River
Savage River
Mountain Vista
Riley Creek
Denali Visitor Center
Denali Visitor Center
Denali Visitor Center

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Administrative Data 0.02



Image 4: Headquarters Road looking north, 1985 (photo by Kathleen Lidfor for the 1985 National Register nomination).

LOCATION & BUILDING DATA

Park Name:	Denali National Park and Preserve
Area:	Mt. McKinley Park Headquarters Historic District
Resource Name:	Headquarters Building
Historic Name:	Rangers' Dormitory (Building 21)
Resource Address:	Headquarters Access Road
CRIS-HS* #:	005235
FMSS#:	00001514
Date of Construction:	1934-35
Architect/Contractor:	NPS/staff/contract labor
Historic Function:	Staff Housing
Current Function:	Administrative Offices
Area:	3,468 sf

ASSOCIATED BUILDINGS AND FEATURES

The following buildings and features are also contributing resources to the original historic district.

CRIS-HS #:	005236	Office Building (Building 22)
	005238	Warehouse (Building 101)
	005240	Barn (Building 106)
	005237	Superintendent's Residence (Building 23)
	001075	Dog Feed Cache and Sled Storage (Building 105)

**Cultural Resources Inventory System - Historic Structures*

036503	Dog Houses (105A)
036504	Dog Kennels (105B)
005242	Electric Light Plant (Building 110)
005239	Garage (Building 103)
005244	Comfort Station (Building 112)
005241	Boiler House (Building 107)
035001	Employee Residence (Building 12)
035002	Employee Residence (Building 13)
035000	Garage & Repair Shop (Building 102)
005243	Super.'s Garage (Building 111)
036505	Retaining Walls (111A)

In 2016 the original historic district boundary was expanded to include the residential area to the southeast, expanding the period significance from 1926-1941 to a period of significance of 1950-1961. Contributing resources to the expanded boundary area include the following buildings and two roads:

Single Residence (Building 26)

Single Residence (Building 27)

Single Residence (Building 28)

Single Residence (Building 34)

Six-Plex Apartments (Building 51)

Boiler House (Building 54)

Three-Stall Garage (Building 217)

Boiler House Spur Road

Residential Loop Road

TREATMENT & USE

Park planning documents, including the 1987 Historic Structure Report, Preservation Plan drawings, and Headquarters District Design Guidelines, call for the rehabilitation and continued use of the Rangers' Dormitory (Building 21) as an administrative office. These documents identify the need for ongoing maintenance to preserve the extant historic materials, as well as missing or altered features that can be restored to improve the buildings design integrity.

Since the early 1950s the building has provided office space for park administrators and staff. There are no current plans to change the use of the building.

CULTURAL RESOURCE DATA

Period and Level of Significance

Significance

The Rangers' Dormitory was listed in the National Register of Historic Places in 1987 as a contributing resource to the original Mount McKinley National Park Headquarters District. The district is significant at the state level under Criterion A and C in the areas of conservation, recreation, and architecture.

Criterion A

As a contributing resource in the historic district, the Rangers' Dormitory serves as a physical representative of NPS involvement with conservation and recreation movements in Alaska and the development of Denali National Park and Preserve.

Criterion C

The Rangers' Dormitory is significant under Criterion C as a representative of NPS Rustic Architecture. The design, construction, materials, and siting of the building and other district buildings represent an early example of the NPS philosophy of rustic style architecture from its prime to its culmination.

Period of Significance

The period of significance for the original Mount McKinley National Park Headquarters District is 1926-1941. The period of significance was expanded to include 1950-1961 when the boundary area was expanded in 2016. Specific to individual resources within the district, the period of significance typically starts with the date of construction and includes any alterations that are significant in their own right to the historic context and that occur within the district's period of significance. The period of significance for the Rangers' Dormitory spans from 1934-1935, the initial years of construction. Consideration should be given to expanding this period for both the district and the building to encompass major alterations considered significant in the historical development of the headquarters area.

RELATED EXISTING STUDIES

Study of the headquarters area includes:

- *Mt. McKinley Park Headquarters Historic District Preservation Plan* (Historic American Building Survey (HABS) Drawings), 1985-86, prepared by the NPS Alaska Regional Office.
- *Design Guidelines, Mt. McKinley Headquarters Historic District*, June 1, 1985 and 2016, prepared by the NPS Alaska Regional Office.
- *National Register of Historic Places Nomination*, 1987, prepared by the NPS Alaska Regional Office.
- *National Register of Historic Places boundary expansion*, 2016, prepared by the NPS Alaska Regional Office.
- *Historic Structure Report: Mt. McKinley Park Headquarters Historic District & Wonder Lake*, January 1, 1987, prepared by the NPS Alaska Regional Office.
- *Condition Assessment of Denali National Park Building 21 Park Headquarters*, 2002, prepared by Rim Architects.
- *Cultural Landscape Report for Park Headquarters, Denali National Park and Preserve*, 2008, prepared by the NPS Olmsted Center for Landscape Preservation.
- *Accessibility Assessment* and *Historic Building Accessibility Deficiency List*, 2012, prepared by KPB Architects.
- Inspection Report, Headquarters Building 21, North Basement Wall, 2015, prepared by BBFM Engineers Inc.

Documentation in the form of drawings for construction, repair, and renovation projects included:

- HABS drawings (AK 35 C), 1985-86, prepared by the NPS Alaska Regional Office.
- Sketch for proposed accessible ramp at west elevation, 2010, prepared by park staff.
- Rehabilitate HQ Utility Infrastructure - Utilidor, conformed construction drawings, 2014, prepared by Michael L. Foster & Associations.

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PART 1

DEVELOPMENT HISTORY

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Image 5: Panoramic view of the park headquarters showing the original headquarters building, Building 22, at its previous location near the Park Road and flagpole, date unknown (DENA 3555, Denali National Park and Preserve Museum Collection).

DEVELOPMENT HISTORY + CONTEXT

Denali National Park and Preserve

Originally established as Mount McKinley National Park by an act of Congress in 1917, the park boundary encompassed 1.6 million acres of land with no road, rail, or air access.[1] The public could enter the park by foot, horseback, boat, or dog sled team (in the winter). A few years later, funding was appropriated for a park superintendent, staff, and establishment of a park headquarters in 1921. This headquarters was abandoned 4 years later.

During this same time period the Alaska Railroad was being constructed from Seward on the southern Gulf of Alaska coast nearly 500 miles to the interior city of Fairbanks by the Alaska Engineering Commission.[2] The railroad reached the park area boundary in 1921-22. AA settlement grew just north of Riley Creek as a railroad station was constructed. Small businesses developed that catered to the railroad labrorers. This station later became McKinley Park Station, the transportation hub for visitors to the park. The creek was bridged shortly after in 1922, followed by the bridge across the Tanana at Nenana, officially establishing visitation by rail to the national park in 1923.[3]

With increased visitation by rail came demands for transportation and lodging. The National Park Service worked with the Alaska Road Commission (ARC), the federal road building entity established in 1905 by the U.S. War Department, to construct a road through the park. The two agencies agreed on a cooperative project to build a road (Park Road) connecting the railroad depot to the Kantishna mining district. Work began in 1922 and proceeded over many summers to final completion in 1938.[4] NPS also granted a park concession in 1923 to establish a tourist facility at Savage River and provide transportation.[5] The Savage Camp served as the main visitor destination for fifteen years.

With the railroad came opportunity for entrepreneurs who set up businesses, including roadhouses, trading posts, restaurants, and grocery stores, near the railroad station. Park lands were modestly expanded in 1922 to capture and protect important wildlife habitat at the east and south boundaries and again in 1932 east to the Nenana River to include McKinley Park Station and the community and businesses that had developed around it. Only remnants of this development remain today.[6]

The park continued modest development to accommodate increasing visitation by rail. McKinley Park Hotel construction began near the rail station in 1937 by NPS using funds from the Works Progress Administration (WPA). It opened in 1939, shifting visitation away from the Savage Camp. Tour bus trips further into the park were provided from the

hotel. The original hotel burned down in 1972, was replaced with a temporary hotel (that lasted nearly three decades), and then subsequently removed in 2001 to make way for the current Denali Visitor Center development.[7] Other development included cabins for road crews, Civilian Conservation Corps (CCC) camps, bridges, campgrounds, patrol cabins and ranger stations, as well as previously developed mining camps and cabins.

The Denali Highway, completed in 1957, stretches 135 miles from Paxson to Cantwell, connecting the Richardson and Parks highways. Before the Parks Highway was completed in the early 1970s, the Denali Highway was the only road access to the national park. The Denali Highway stops in Cantwell south of the park. A short stretch of road was constructed in the park to connect McKinley Park Station to the new highway in Cantwell.[8] In anticipation of the increase in visitation completion of the highway would bring, the park began long-range development planning under "Mission 66," the nationwide federal initiative intended to improve park facilities and remedy maintenance backlogs by 1966, the 50th anniversary of the National Park Service. Mt. McKinley National Park received $7.2 million for road and trail improvements and $2.5 million for buildings and utilities.[9] Plans called for construction of four visitor centers, one near the park entrance, one at Wonder Lake, and two others as interpretive centers. A visitor center with limited services at Eielson (mile 66) was the only one of the four that was constructed. Designed by the NPS Western Office of Design and Construction in San Francisco, California, the small visitor center was completed in 1958 and opened to the public in 1960. Completion of the George Parks Highway in 1972 increased visitation beyond the capacity of the small visitor center resulting in an expansion in 1975.[10]

In 1980, the Alaska National Interest Lands Conservation Act tripled the size of the park to 6 million acres and changed the name to Denali National Park and Preserve.[11] A General Management Plan (GMP) for the park was authored in 1986 by the park, in collaboration with the Denver Service Center, the Alaska Regional Office, and the Alaska Division of Parks and Outdoor Recreation. Exponential increase in visitation over time combined with changing visitor expectations lead to construction of the Denali Visitor Center on the former site of the McKinley Park Hotel near the railroad depot in 2005, replacement of the Eielson Visitor Center with the current structure in 2008, and construction of the Murie Science and Learning Center in 2003-04 which also serves as the winter visitor center.

Since 1925, through decades of weighing development of visitor services against conservation of the natural environment, the headquarters area has served as the steadfast administrative hub for the park. The area was listed in the National Register of Historic Places in 1987, including fourteen contributing buildings constructed between 1926-1941, and continuously adaptively used to meet the changing needs of park administration and staff.

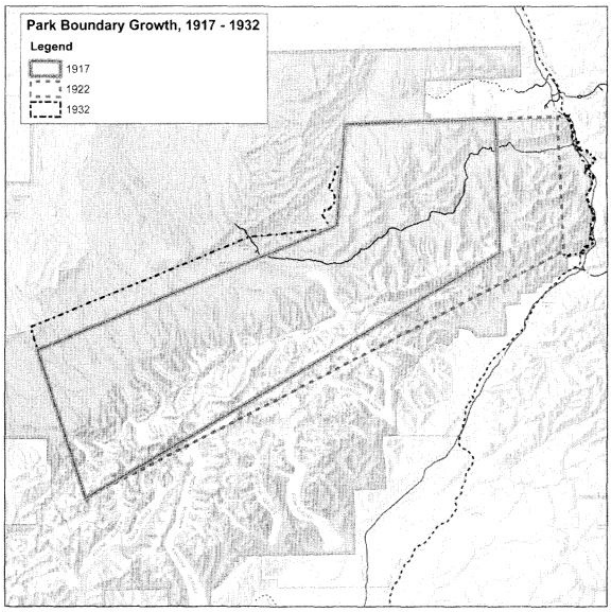


Image 6: Park boundary growth diagram (from Crown Jewel of the North).

Headquarters Area

The park's first superintendent, Henry P. "Harry" Karstens, was tasked with establishing a park headquarters area with funding allocated in 1921.[12] A logical location was near the railroad station, but much of the land in the area had already been claimed for business pursuits. Subsequently, the first park headquarters was located near the confluence of Riley and Hines creeks and was subject to flooding and extreme cold, and was inconvenient for managing visitation. The park headquarters was relocated to its present location in 1925.[13]

Dismantling of buildings from the first headquarters location and construction of the initial new buildings, including three one-room log cabins, a barn, and other temporary structures, was undertaken by park staff and Superintendent Karstens. Nine structures were completed between 1925 and 1927. Building materials included logs and rough-sawn lumber resulting in contextual structures matching those built by locals. The first Superintendent's Office (Building 22) was one of these nine buildings completed in 1926. This structure has been moved three times since then; twice prior to being nominated to the National Register of Historic Places. These moves took placed in 1950 and 1952, and the

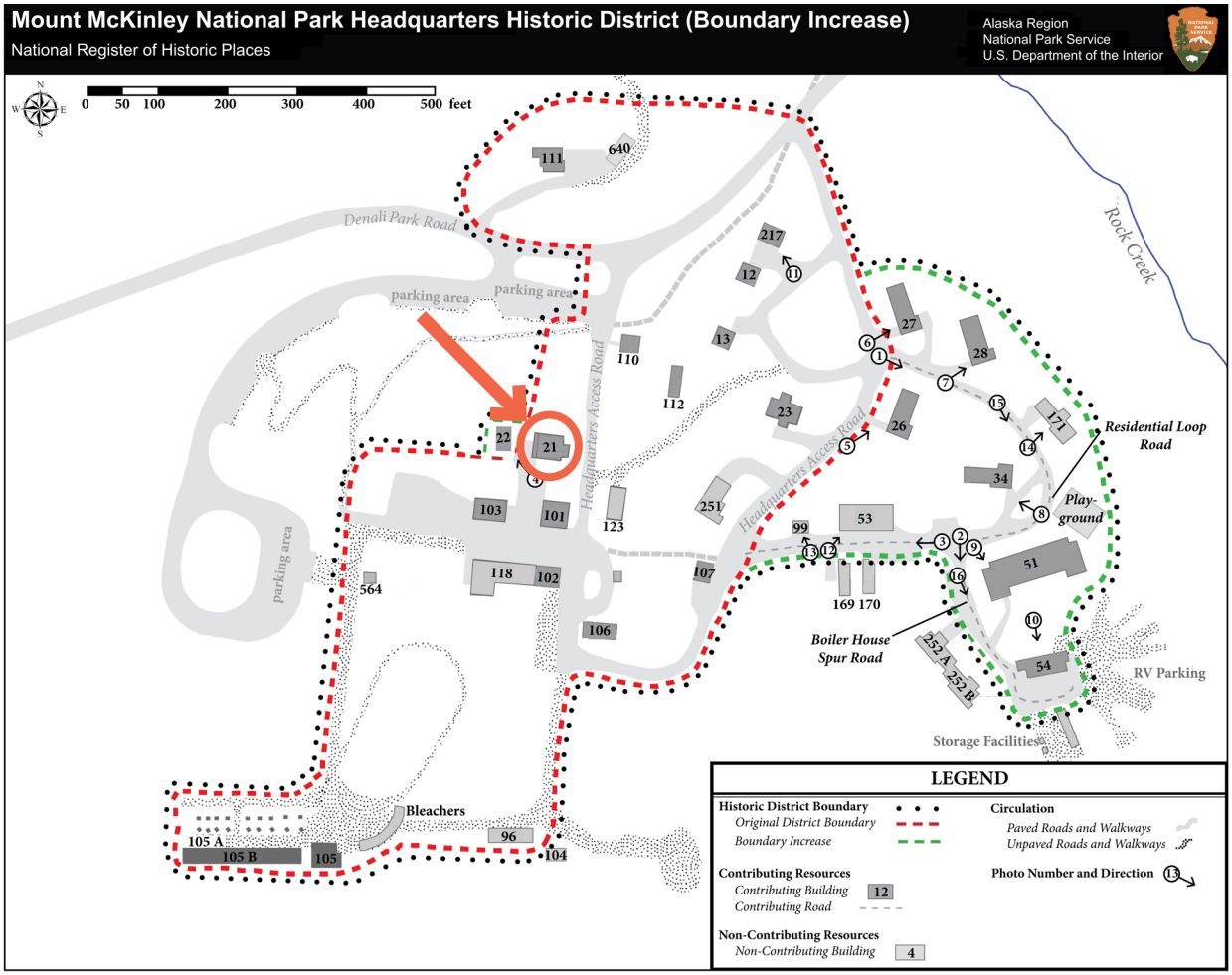


Image 7: Headquarters Historic District, original and expanded boundaries, 2016. The original headquarters building (Building 22) was relocated from its third location north of the Park Road (where building 610 now sites) to its current location behind the Rangers' Dormitory (current Headquarters Building 21, shown circled) in 2016.

building retained its significance and integrity after each move. In 1950, it was moved south and west of its original location to the west of Building 118 (the "utility area" of headquarters).[14] During the two years the superintendent's office (P-22) was located here, it served as an office for the construction and maintenance staff.[15] Historic photos of the building (P-22) at its second location in the historic district show the gabled front porch is absent. In 2016, the building was moved to its current location at the center of the original historic district.[16]

NPS architects began designing buildings for the park and headquarters area in 1928. Park rangers and hired local contractors replaced earlier structures with permanent NPS-designed construction from 1928 through 1937. These structures were formally designed by architects in the NPS Rustic Style, which drew from the local vernacular architecture.[17]

Early structural fires resulted in the loss of a laborer's cabin and the original rangers' quarters in 1934. The rangers' dormitory (Building 21), designed by NPS, was subsequently constructed from 1934-35 to house bachelor rangers. Amenities included a communal kitchen and living room with a stone fireplace. Rangers were housed in the building for nearly twenty years and it was dubbed the "Ranger Club."[18] From 1952 to 1954 the building was converted to its current function as the park's administrative headquarters and includes the superintendent's office.

The CCC constructed employee residences, a machine shop, roads and other infrastructure in the headquarters area during the summers of 1938 and 1939.

Dog kennels for winter patrols have been a feature of the headquarters area since 1922 when the first dog team was purchased by Superintendent Karstens.

The dog feed cache and cookhouse building (Building 105) was constructed in 1930 and then relocated by the CCC to its current location in 1938.

Fire struck again in 1939 claiming the 1929-30 two-story log superintendent's residence located north of the Park Road. Due to lack of funds the building was not replaced in the same location. Instead an employee residence (Building 23) was constructed to serve the park superintendent and followed by other staff in the future. This was the last structure completed within the headquarters area in the Rustic style, coinciding with a fundamental shift in the National Park Service (and the federal government) toward embracing the modern movement.

RECOMMENDED PERIOD OF SIGNIFICANCE

The historic district nomination to the National Register of Historic Places establishes the period of significance for the original headquarters district as 1926-1941. This period was expanded to include 1950-1961 when the boundary area was expanded in 2016. Within the district period of significance, the period of significance for an individual building is based on its date of construction and any alterations or associations that have occurred in the building's lifespan that are significant in their own right within the context of the district.

The period of significance for the Rangers' Dormitory spans from 1934-1935, the initial years of construction. The change in use to the park headquarters and superintendent's office c.1952-54 is a significant event in the development of the headquarters area. Consideration should be given to expanding this period for both the district and the building to encompass these dates.

Endnotes

1 Bryant, Jane. Snapshots from the Past: A Roadside History of Denali National Park and Preserve. Center for Resources, Science & Learning, Denali National Park and Preserve, National Park Service, U.S. Department of the Interior. 2011, 4.

2 Norris, Frank. Crown Jewel of the North: An Administrative History of Denali National Park and Preserve, Volume 1. Alaska Regional Office, Division of Cultural Resources, National Park Service, U.S. Department of the Interior. 2006, 16.

3 Bryant, 4-6.

4 Norris, 35-36, 39-40.

5 Bryant, 22.

6 Bryant, 4-6.

7 Bryant, 14-15.

8 Bryant, 5.

9 Bryant, 110-112.

10 Bryant, 110-116.

11 Bryant, 5.

12 Norris, 28.

13 Bryant, 22.

14 Brown, et al. 2008

15 Snow, David, Gail Evans, Robert Spude, and Paul Gleeson. Historic Structure Report: Mt. McKinley Park Headquarters Historic District & Wonder Lake, Vol. 1. Alaska Regional Office, Division of Cultural Resources, National Park Service, U.S. Department of the Interior. January 1, 1987.

16 Bryant, 24-25.

17 Bryant, 24-25.

18 Bryant, 26.

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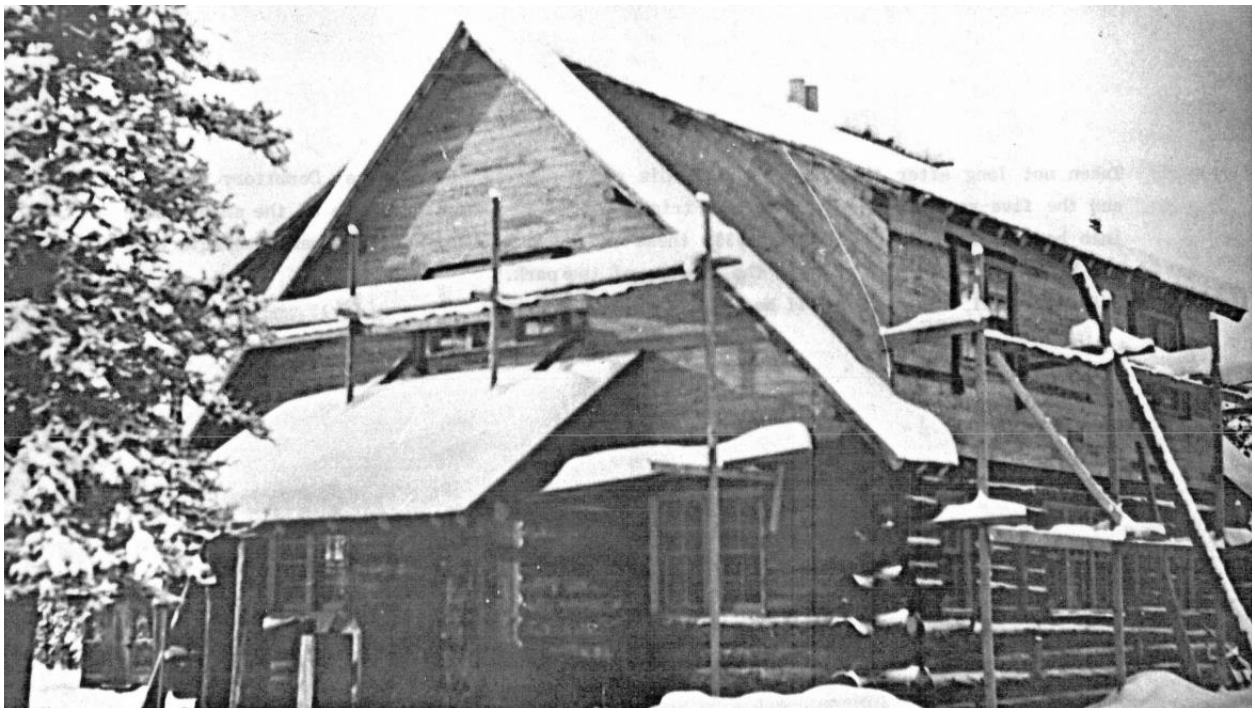


Image 8: Building 21 under construction, 1935 (Denali National Park and Preserve Museum Collection)

DESIGN & CONSTRUCTION CHRONOLOGY

Building History

In 1934, a structural fire burned the original rangers' quarters to the ground. The existing Rangers' Dormitory was constructed on the same site that same year. Designed by National Park Service architects at the Branch of Plans and Design in San Francisco, the building was constructed by park personnel with assistance from hired local carpenters. The building design reflects the materials that were available on site and regionally, as well as common regional techniques and construction practices, and resulted in an aesthetic that harmonized with its natural surroundings and the context of the headquarters area.

The dormitory interior originally featured a communal kitchen, dining room, living room and storage at the first floor and rooms for bachelor rangers and a restroom at the second floor. In 1952-54 the dormitory was converted into the park's administrative offices. Over time rooms were enclosed and subdivided, the kitchen was removed, restrooms were relocated to the first floor, and floor, wall, and ceiling finishes were concealed or replaced with finishes commonly associated with office space rather than residential use. The original multi-light windows were also replaced with single-lite casements or fixed units (with the exception of two locations on the east and south elevations).

The building continues to function as the headquarters administration building with offices and meeting spaces for the park superintendent, deputy superintendent, and other leadership team members. The basement was substantially retrofitted with equipment during a 2014 utility improvements project. In addition to general storage, the basement contains utilities for the building and adjacent buildings.

Major Alterations

The following summarizes documented and undocumented alterations:

KNOWN ALTERATIONS	
Year	**Action**
1934-35	Original construction as housing.
1947	Superintendent's Report: "The foundation of the Rangers' dormitory is slowly settling out of shape... the start of this condition is the result of a severe earthquake which occurred in 1947."
c.1952-1954	Initial conversion to administrative offices; floor plan and second floor restroom remain intact.
1952	Superintendent's Report: New footings installed, kitchen chimney and back porch work completed.
1953	Interior repainted; linoleum tile installed living room and 1st floor hallway; 2nd floor wood floors refinished; kitchen chimney reconstructed (SW corner room).
c.1953	"Building jacked up and supporting piers and timbers placed to remove strain on weak basement walls" (per maintenance records).
1958	Electrical upgrade.
1958-1989	Removal of second floor restroom and conversion to office; removal of closets between bedrooms at second floor to expand offices.
c.1970	Cedar shingle roof installed in place of original metal roof.
1976	Windows replaced (except window in current accessible restroom and three windows in east gable).
1976	Suspended ceilings, wall paneling, and carpeting installed throughout.
1977	"New bath – 1977 – Radio Room."

KNOWN ALTERATIONS	
Year	**Action**
c.1980	Basement fire caused by the concentration of utilities in the basement (phone, electrical, heating, water pumps, etc.) and associated with the phone system (per Steve Carwile, former park planner). Fire damaged undersides of first floor beams, joists, and sheathing.
Pre-1981	West porch added/altered to its current size (per HSR images).
1983	Exterior painted.
1981-1985	West porch altered from two stairs to a stair at the south door and a ramp at the north door (per HSR images).
Pre-1985	New 6" concrete wall added to exterior face of north foundation wall. No documentation found describing reinforcing or attachments.
1989-90	Conversion to current HQ office wall configuration; new accessible restroom adjacent to existing restroom; new wall paneling to match 1976 paneling; new carpeting; electrical upgrades; alterations to ceiling grid and lighting.
1992	Roof replaced; installer - Linder Construction, Anchorage, AK Steelite product – Galvanized Steel Roofing (24-gauge) with G90 Coating (minimized spangle).
2002	Carpet replaced; existing linoleum tiles abated.
2006	Fire Life Safety upgrades. Extent undocumented.
2014-2015	Mechanical system upgrade.

HISTORY OF USE

The Rangers' Dormitory was originally constructed as a bunkhouse for park rangers. In c.1952-54 the building was converted to office use as the headquarters administration building. It continues to be used by park administrators, including the superintendant and deputy superintendant, for office and meeting space.

INTEGRITY

As defined by the National Register of Historic Places, seven aspects comprise the evaluation of a resource's integrity. These include integrity of location, setting, design, material, workmanship, feeling, and associations. The Rangers' Dormitory ranks as follows:

- Location - high - the building remains in its original location.
- Design - moderate exterior, low interior - windows have been replaced with units that differ from the original windows and the interior layout and finishes and wall locations have been altered for office use, but the building continues to represent NPS Rustic Architecture.
- Setting - high - little alteration has been made to the surrounding cultural landscape and the relationship between the district buildings and roads.
- Materials - moderate exterior, low interior - windows have been replaced with units that differ from the original windows and the interior layout and finishes have been altered for office use, but a majority of original exterior materials remain and interior materials are concealed but extant.
- Workmanship - high - quality log and framed construction.
- Feeling - high - original exterior contextual and time period associations remain intact.
- Association - high - the building exterior maintains visual continuity with the rustic style architecture of the district and serves the administrative headquarters of the park.

With exterior alterations limited to the replacement of the original windows, the building exterior retains moderate integrity, successfully representing rustic style architecture and associations with the surrounding headquarters area development.

With the exception of a few character defining features, such as the stone fireplace and stair, the interior office spaces do not contribute to the integrity of the building. Partition walls have been added and most original finishes are concealed. Reversal of these interior alterations would significantly improve the building's interior integrity.

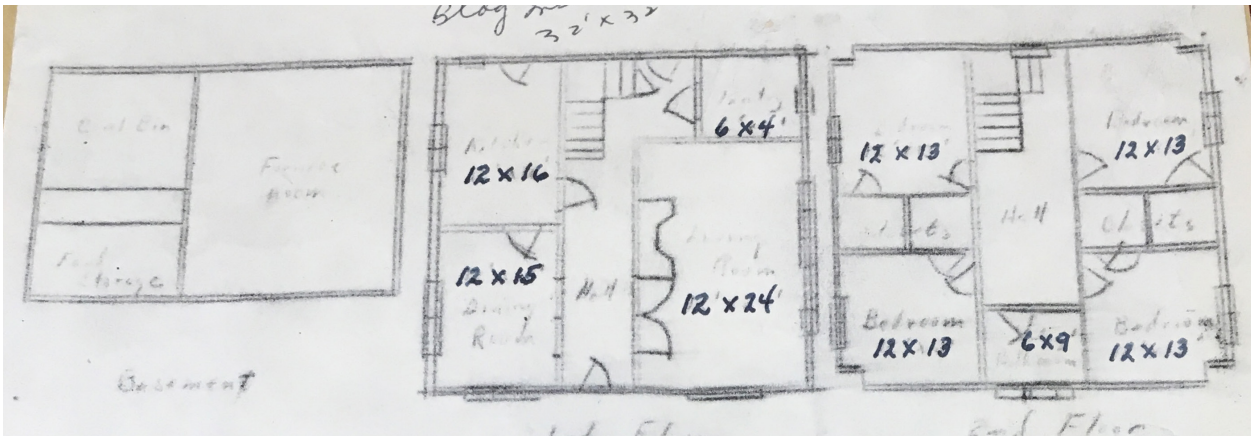


Image 9: Sketch of original dormitory floor plans, date unknown (from DENA maintenance files)

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Physical Description 1.03



Image 10: Primary east elevation and entrance, 2019.

OVERVIEW

The following section identifies the character-defining features of the building's exterior, interior, and immediate associated site. This section also contains a systematic accounting of features, materials, and spaces including assessment of accessibility, fire and life safety, structural, and building systems. Organized by assembly/component, each includes physical descriptions and current conditions, as well as identification of significance. Corresponding treatment recommendations and prioritization are identified in Part 2 - Treatment and Use.

GENERAL DESCRIPTION

The Rangers' Dormitory is located in the center of the original headquarters district directly off the Headquarters Access Road. The building is 1-½ stories under a steep gable roof with large dormers, square in plan, and of log and framed construction on a reinforced concrete foundation. Windows are predominantly replacement casements and fixed units with the exception of two openings which retain original double-hung wood sash windows. The primary elevation and entry face east toward the headquarters road and a rear porch faces a pedestrian trail to the west. The building currently continues to function as the Headquarters Building and houses the offices of most of hte Park Management Team. Directly behind the building to the west is the original superintendent's office (Building 22) that was moved to this location and rehabilitated in 2016.

CHARACTER DEFINING FEATURES

Character-defining features are those architectural materials and elements that contribute to communicating the building's significance. The Rangers' Dormitory is significant for its association with development of the headquarters area and as a good representation of NPS Rustic Architecture.

Character defining features of the building exterior were previously identified in the 2016 Design Guidelines and are amended in this report to include:

- Square plan, 1-½ story
- Front-gable, full length shed roofed wall dormers
- Corrugated metal roof (¾", 26 or 29 gauge, galvanized, field verify existing)
- Exposed log rafter tails and false purlins
- Horizontal log walls at first floor with saddle-notched battered corners
- Vertical half-log tongue-and-groove siding with false chinking gap at gable ends and dormer walls
- Native stone veneer chimney
- Double-hung wood windows - three at the east gable and one at the north elevation
- Shed roofed east elevation entry porch with log columns

The interior has been modified over the years. The following are character-defining interior features that remain. Interior character defining features are as follows:

- Stone clad fireplace, wood mantle, concrete hearth (extant)
- Select Interior Wall locations.
    - Existing wall finishes are not original.
    - See CDF Diagrams on the following pages for identification of original wall locations.



Image 11: Rangers' Dormitory, view looking southwest at the primary east elevation and north elevation, showing all exterior character defining features, 2019.

- Interior Stair location
    - o The location and openness of the stair are original characteristics.
    - o Existing stair finishes are not original.

Additional details are provided in the Condition and Treatment sections of this report.

The following diagrams identify elements that contribute to the building's architectural character at the interior on a room-by-room basis. In addition, each component assessed in this report includes a key that identifies its historic significance, as further explained in the Condition Assessment Methodology.

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Character Defining Features (CDF) Diagram - Rangers' Dormitory #21



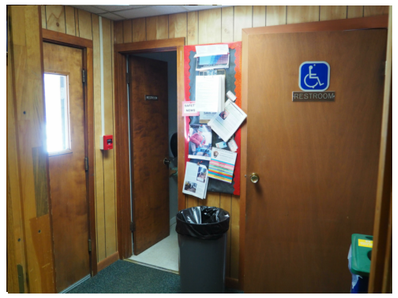
TOILET 1
-NO CDFs



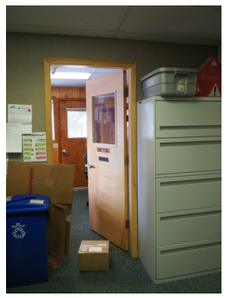
TOILET 2
-ORIGINAL WOOD WINDOW
-INTERIOR WALL LOCATION



OFFICE 1
-STONE FIREPLACE AND HEARTH
-INTERIOR WALL LOCATIONS



VESTIBULE
-NO CDFs



OFFICE 3
-INTERIOR WALL LOCATION



RECEPTION
-NO CDFs

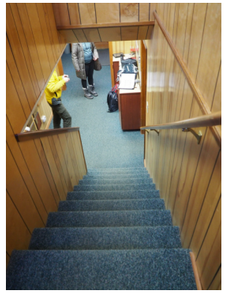


COPY/FILES
-INTERIOR WALL LOCATION

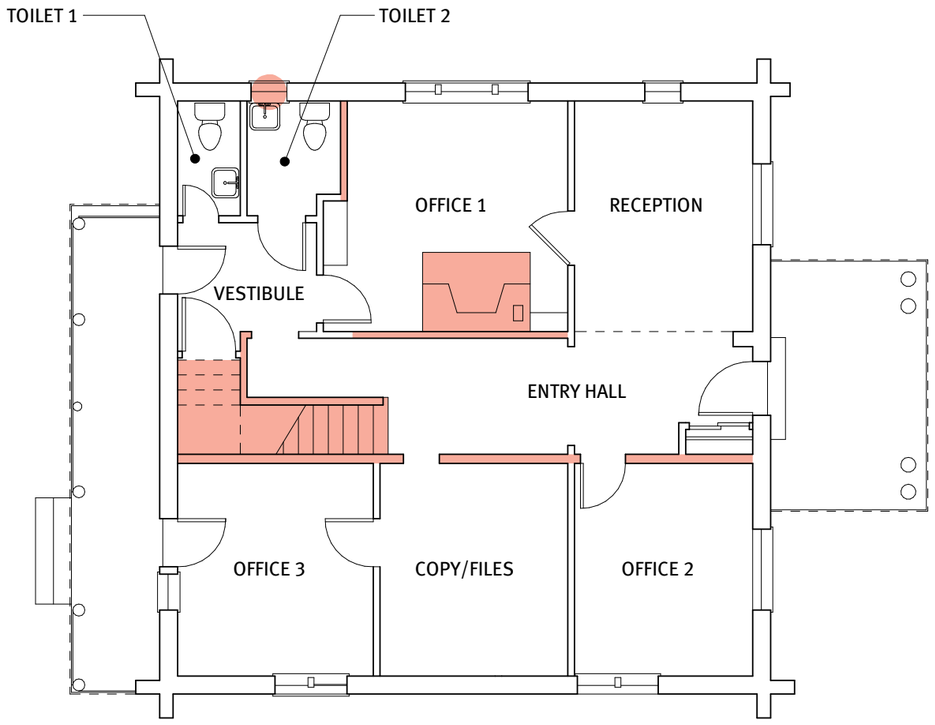


OFFICE 2
-INTERIOR WALL LOCATION





ENTRY HALL
-HALF-GLAZED EXTERIOR WOOD DOOR
-OPEN STAIR (UNFINISHED)
-INTERIOR WALL LOCATIONS



ORIGINAL CDF INTERIOR WALL LOCATION OR FEATURE

FIRST FLOOR PLAN
NOT TO SCALE

N

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Character Defining Features (CDF) Diagram - Rangers' Dormitory #21



OFFICE 4
-INTERIOR WALL LOCATIONS





HALL
-OPEN STAIR (NOT FINISHED)
-INTERIOR WALL LOCATIONS



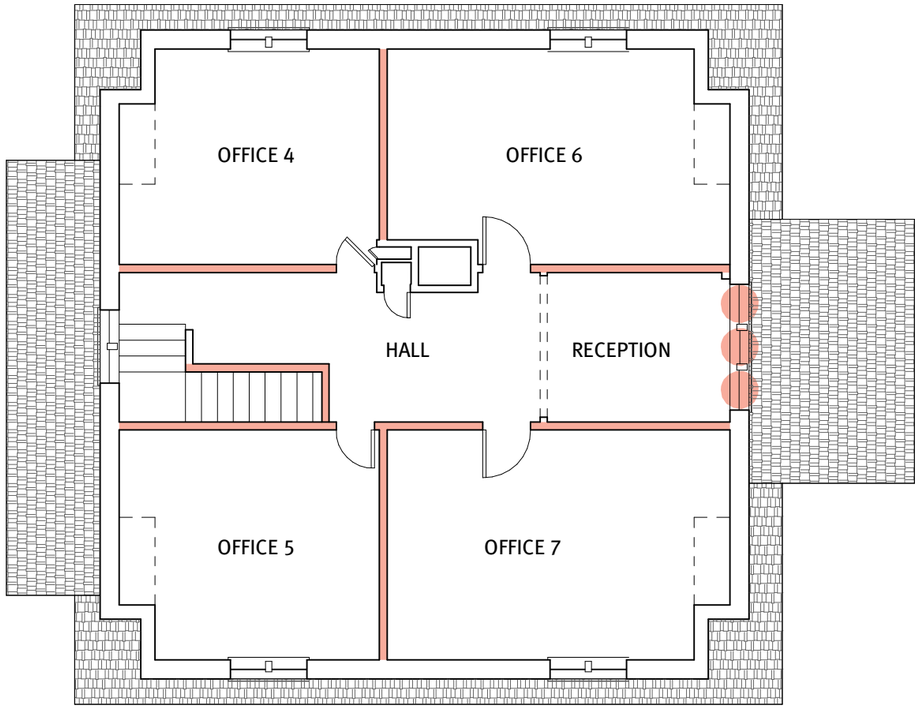
RECEPTION
-GROUP OF 3 ORIGINAL WOOD WINDOWS
-INTERIOR WALL LOCATIONS



OFFICE 5
-INTERIOR WALL LOCATIONS



OFFICE 7
-INTERIOR WALL LOCATIONS



ORIGINAL CDF INTERIOR WALL LOCATION OR FEATURE

SECOND FLOOR PLAN
NOT TO SCALE

N

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Character Defining Features (CDF) Diagram - Rangers' Dormitory #21



MECHANICAL 1
-EXPOSED STRUCTURE



MECHANICAL 2
-EXPOSED STRUCTURE

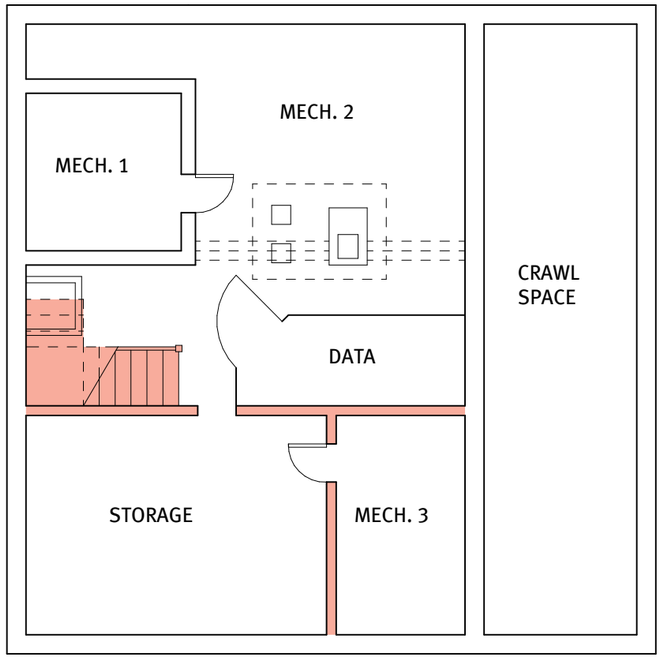




STORAGE
-EXPOSED STRUCTURE
-INTERIOR WALL LOCATION



MECHANICAL 3
-EXPOSED STRUCTURE
-INTERIOR WALL LOCATION



ORIGINAL CDF INTERIOR WALL LOCATION OR FEATURE

BASEMENT PLAN
NOT TO SCALE

N

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CONDITION ASSESSMENT METHODOLOGY

Each feature includes deficiencies observed at the time of the site visit conducted October 14-17, 2019. The project team had access to the exterior and interior of the building to perform an assessment of the current physical conditions.

Findings are organized by building exterior, building interior, site, and systems. The site includes the immediate surrounding area. Systems include structural, mechanical, electrical, plumbing, and fire and life safety. Components are organized from the roof down. All condition observations were visible. Moisture meters and a resistance drill were used to verify the extent of deterioration in logs. No destructive investigation was performed.

Corresponding annotated elevation diagrams indicating the location and approximate area of deficiencies are included at the end of this section. The diagrams serve to illustrate a majority of the deficiencies but are not all inclusive and do not include interior deficiencies, nor do they fully capture site conditions. Please refer to the following condition narrative for a complete record of all observed conditions.

Significance, Condition, and Priority Key

All building components in Part 1 and Part 2 are categorized by the significance of the feature, severity of condition, and priority of repair. Each component has an associated key identifying these characteristics. Treatment priorities are saved for Part 2 - Treatment and Use.

Significance Categories (Character Defining Features)

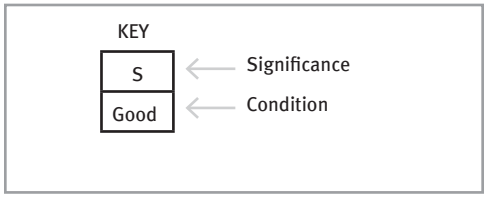
All building components and spaces are ranked by their contribution to the overall historic building fabric. These are defined as follows:

- *Significant (S):* Building component or space is a primary feature and should be preserved or restored to its original configuration and condition.
- *Contributing (C):* Building component is a secondary feature but still contributing to the overall historic character of the building.
- *Non-Contributing (NC):* Building component is not original, not representative of the period of significance, and can be altered or removed without impacting the historic character of the building. Removal and restoration would improve historic character and integrity.

Condition Categories

All conditions are categorized based on severity as good, fair, or poor. Each category is defined as follows:

- *Good Condition:* Building component is in good, operable condition. Minimal routine maintenance may be required such as refinishing or cleaning.
- *Fair Condition:* Building component is in sound structural condition with superficial deterioration requiring a low-level repair. Further neglect of condition may result in progression of the material condition to poor.
- *Poor Condition:* Building component is in severe condition experiencing deterioration and/or rot or is at the end of its useful life, rendering the material unsafe or insufficient. Repairs required may include substantial or full component replacement.



GENERAL CONDITIONS

Environmental Concerns

Asbestos Containing Materials (ACM)

Any future scope of work that disturbs an asbestos-containing substance must be executed by a professional trained in asbestos mitigation per the U.S. Environmental Protection Agency (EPA) and the Alaska Department of Environmental Conservation Solid Waste Program.

Areas commonly containing asbestos may include but are not limited to:

- Vinyl or composition tile flooring (including adhesives)
- Acoustic ceiling tile
- Mechanical, electrical, and plumbing (MEP) pipe and duct insulation
- Glazing compound at windows
- Celotex (or similar) wall and ceiling board

Building materials were tested for asbestos in 2002. Only the linoleum flooring tested positive and was abated in 2002. An early inventory shows the Rangers' Dormitory was constructed with Celotex, a board product containing asbestos. Maintenance orders after the asbestos testing note that the interior walls and ceiling should be gutted and replaced with new drywall. There is no evidence that this occurred. Walls and ceilings remain clad in wood paneling and a suspended ceilings installed in 1976. Therefore it is likely that the ceiling and wall materials contain asbestos. The work order also suggests replacing the total plumbing system and the bathrooms have been remodeled, but there are no invoices to suggest the extent of replacement plumbing work that would have removed asbestos-containing pipe insulation. Exploratory removal of wood wall paneling sections and ceiling tiles should be conducted in each room to confirm the existence of Celotex.

Lead-Based Paint (LBP)

At all areas where prepping and refinishing of a painted surface is required, paint should be tested for lead prior to disturbance. Any future scope of work that disturbs lead-containing paint must be executed by Certified Abatement Firm per the U.S. Environmental Protection Agency and the Alaska Department of Environmental Conservation Solid Waste Program.

Lead in Water

Lead can enter drinking water through corrosion of plumbing materials, especially where the water has high acidity or low mineral content that degrades pipes and fixtures. Lead can be present in old pipe fittings, solder, and faucets. Where older plumbing exists water should be tested for lead. Pipes and faucets that predate 1986 should be replaced with lead-free modern materials. Piping fittings, faucets installed before 2014 may not meet the current "No-Lead" standards.

Radon

Radon is a naturally occurring radioactive gas that is odorless, tasteless, and cannot be seen. Radon emitting from the soil can seep into an enclosed space such as a basement and become trapped where it will accumulate. Radon is addressed in NPS Reference Manual 36: Housing Management section 5.4.3.3. Buildings should be regularly tested or continuously monitored to determine the average annual radon level. Occupied housing that has an annual average radon level in excess of the EPA action level (currently 4 pCi/l for homes), will require mitigation of the radon.

Life Safety

Means of egress throughout the building shall be illuminated at all times that a room or space is occupied. Egress illumination should be connected to a back-up emergency power supply. Exits should be identified using illuminated Exit signs.

Accessibility/Universal Design

The following areas are known to be in violation of the Americans with Disabilities Act (ADA) regulations:

- There is no accessible entrance to the building
- The second floor includes meeting space that is not accessible
- Restroom clearances, fixtures, and accessories are not compliant in either restroom

Sustainability / Energy Conservation

The significant past alteration of the building interior offers opportunity for sustainable upgrades in future rehabilitation projects. Areas where energy performance and efficiency can be improved include:

- Exterior wall assembly (improved from the interior)
- Windows and doors
- Insulation
- Lighting (efficient fixtures, sensors)
- Plumbing fixtures
- Heating and natural ventilation
- Smart/programmable thermostat

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Building Exterior

OVERALL DESCRIPTION

The Rangers' Dormitory is a 1 ½-story log building with a 34'-0"x 34'-0" square plan and an unreinforced concrete foundation with full basement. The front gable roof is at a 12:12 pitch, features exposed log rafter tails at eaves and false purlins at gable ends, and is clad in corrugated metal panel roofing. Large wall dormers on both the north and south slopes allow for nearly a full second story. Projecting from the roof is a stone clad chimney.

Exterior walls are composed of horizontal peeled logs at the first floor and vertical half-log tongue-and-groove siding in the gable ends and at dormer walls. Logs are painted NPS Brown, saddle-notched and battered at corners, and gaps between logs have cementitious chinking. The vertical half-log siding includes a flat gap between boards to mimic chinking, is painted, and is scalloped with "v" shaped notches between boards at the bottom edged.

Original multi-lite double-hung wood sash windows are extant in the east gable and on the north elevation at the restroom. All other windows have been replaced with fixed or casement wood windows. Doors include a half-glazed 9-lite crossbuck wood door and paneled storm door at the primary east entry, half-glazed wood slab doors at the west entries, and a half-screened crossbuck screen door with scalloped edge around the screening at the west office entry.

The primary east elevation features a corrugated metal shed roof porch supported by log columns and log roof framing on a concrete slab. The ground floor elevation is two steps above the porch elevation. Porch lighting has been replaced with a compatible gooseneck fixture but relocated from the side to above the door. A 44" wide concrete walkway leads from the Headquarters Access Road to the porch.

The west elevation also features a similar porch that spans the width of the elevation. This porch has a wood framed deck and includes lumber railings between log columns. A pathway leads from the pedestrian trail directly west of the building to a set of wood steps to the porch. Two doors provide access to a private office (south) and the restroom vestibule (north). Landscaping around the building is predominantly native vegetation.

See the following component descriptions for more details.



Image 12: Rangers' Dormitory, view looking southwest at primary east elevation and north elevation, winter 2019.

CONDITIONS

Roof

The roof consists of a 12:12 pitched front gable with nearly full-length dormers on both the north and south slopes. The roof is clad in a non-original corrugated galvanized metal panel roofing system with exposed fasteners (appears to be ¾", 26 or 29 gauge, galvanized finish, field verify existing). The roof is supported by 6" diameter log rafters with sheathing, detailed further in the Structural section. Gable ends and dormer sides include 4"-6" false log purlin lookouts. Roof penetrations are limited to vents and a chimney. Short gutter sections have been added to both the east and west porches over pedestrian walkways. Gutters are residential K-style without downspouts.



Image 13: Corrugated metal roof at west edge of south slope showing disengaged fasteners.

Conditions:

S
Fair

Covering

The metal panels appear to be in good condition, however exposed fasteners are disengaged up to 1" from the roof surface on the southwest slope.



Image 14: Damaged trim at north slope of west eave.

S
Fair

Eaves, Exposed Rafter Tails, & Fascias

Exposed eaves are in fair condition exhibiting universal paint degradation. A portion of trim in front of the log verge on the north slope of the west elevation is damaged. Exposed log rafter tails at eaves appear to be in good condition with small checks and sound paint.

S
Good

Gable End Log Verge

Exposed log verge members at gable ends appear to be in good condition with small checks and sound paint.



Image 15: Gutter section mounted above stair to west porch.

S
Fair

False Purlins & Ridge Beam Lookouts

Four false log purlins and ridge beam per gable project from the façade supporting the eaves with two additional log purlins at each side of each dormer. Purlins and ridge beam lookouts are in fair condition with some small checks and deteriorating paint.

NC
Fair

Gutters & Downspouts

Gutters are worn and bent but securely attached. There are no downspouts as the intent is simply to divert water to the sides of the walkways.



Image 16: South dormer with exposed log rafters and false purlins, clad in half-log siding. Logs have small checks and paint degradation.

S
Fair

Log Components

Logs are employed as rafters, false purlins, verge trim, and first floor wall construction. Vertical half-log tongue-and-groove siding with a faux chinking gap between each half-log clads the upper gable ends and dormers. See porch sections for porch logs. The following component dimensions should be field verified before undertaking any project.

- 12” average diameter logs, face flattened 1-½”
- Butts and tips alternate in each course
- Logs battered 6” in 10’-0”
- 3” wedge profile at end of logs



Image 17: Saddle-notched battered log corners showing minor checking.

Conditions:

S
Fair

Horizontal Logs

Structural logs appear to be in fair condition overall. South elevation logs show universal paint degradation, surface weathering and checking. Oakum is exposed to weather at the southwest corner saddle-notching.

S
Fair

Vertical Half-Log Siding

The siding in the gable ends and on all elevations of the dormers is vertical half-log tongue-and-groove siding with a faux chinking gap between each half-log. Siding is exhibiting universal paint degradation with localized areas of more advanced surface deterioration.



Image 18: Northwest corner showing structural crack in foundation wall and severely rotted stabilization beam end.

C
Fair

Foundation

The foundation is unreinforced concrete that is exposed at the exterior approximately 2' above grade and has been painted. Above grade basement window openings on the south elevation have been infilled with concrete. The log construction sits directly on the concrete foundation at the first floor line. See the Structural section for further details and conditions.

Conditions:

In general, the painted finish on the foundation is failing. There are several hairline cracks on the north elevation, a centrally located crack on the south elevation, and a structural crack at the northwest corner of the west elevation near the exposed shoring beam installed to mitigate early settlement.

Windows

With the exception of the group of three two-over-four double-hung wood sash windows in the east gable and the four-over-four double-hung wood sash window at the first floor restroom on the north elevation, original multi-lite wood windows have been replaced with wood casement and fixed windows.

Conditions:

*See Window & Door Assessment forms in the Appendix for individual conditions at each window.

S
Fair

Original Wood Hung Windows

Original double-hung wood sash windows appear to be in good condition. The center sash on the east elevation and the north window sash are protected by exterior wood storm sash. Conditions include surface deterioration at sills and paint degradation. Operation hardware is missing from the north elevation restroom unit.



Image 19: Group of three two-over-four wood windows on the east elevation.



Image 20: Single four-over-four wood window at the restroom on the north elevation, storm window and obscure glass.



Image 21: Typical replacement pair of casements.

NC
Fair

Replacement Casements & Fixed

The two ground floor windows on the east elevation are large fixed picture windows. The rest of the windows were replaced with pairs of casement windows. One window on the first floor of the north elevation is a single casement and at the second floor a fixed window paired with a casement. The south elevation features a wider opening with a fixed window flanked by casement windows.

Replacement windows are generally in good condition exhibiting overall paint degradation and sill deterioration.

Exterior Doors

The building features three exterior doors - one primary entrance door on the east elevation and two secondary doors to the west porch. The east and southernmost west elevation doors appear to be older, if not original. The northern west elevation door is a contemporary door matching those that were installed in more recent office upgrades.

Conditions:

*See Window & Door Assessment forms in the Appendix for individual conditions at each door.

C
Fair

West Entrance (North) and East Entrance Door

The east and west endtrance doors and screen doors suffer general wear and tear, as well as finish failure. The entrances are also not accessible.

NC
Fair

West Entrance (South) Door

The contemporary northern door exhibits finish failure and general wear and tear. This door is not accessible.



Image 22: Primary east entry showing screen door, door, two step rise and rotated light fixture at head.



Image 23: South door on west elevation showing contemporary door and faux crossbuck scalloped screen door.



Image 24: North door on west elevation showing screen door.

S
Fair

East Porch

The primary elevation and entry porch consists of a corrugated metal shed roof, log roof framing, two pairs of roughly 12” diameter log columns, and a concrete slab. One 88” wide log steps with uneven 9” and 7” risers and 9” treads provide access to the elevated ground floor level. A gutter has been added to the eave to divert water from the pedestrian walkway.

Conditions:

The log structural members are in good condition with only a slight elevation in moisture content at the column bases. Checking in logs is natural. The log step tread surfaces are wearing and paint is failing. The path of travel from the road to the porch is accessible but there is currently no accessible route into the building.



Image 25: Primary entrance / east porch showing difference between porch elevation and finish floor elevation.

C
Fair - Poor

West Porch

The west porch consists of a corrugated metal shed roof, log rafters and beam, and 10” to 12” log columns at the corners and flanking entry openings. The elevated wood deck includes half-log siding skirting. The porch is accessed by two wood steps that are 60” wide and have 16” treads and 7” risers. No early documentation was located showing the original configuration of the west porch. However both doors existed in early plans as documented in Image 9, and must have exited upon a porch or deck. The porch is not visible in historic images that illustrate the southwest or northwest corners of the building. Photos from the last few decades show a porch spanning less of the west elevation and an iteration with a ramp to the north door that has since been removed. Gutters have been added over the steps and at the former ramp location.



Image 26: West/rear porch with shed roof and log structure.

Conditions:

Porch members exhibit universal paint degradation. The second log column from the south corner suffers significant structural rot at its base and a moisture content three times that of other adjacent wood features. Decking is deteriorating and buckling. The half-log

skirting exhibits surface weathering. There are no handrails at the stair.

S
Good

Chimney

A chimney projects 2'-0" above the ridge of the building from the north roof slope. It consists of a concrete structure clad in native stone veneer.

Conditions:

The chimney stone is soiled, but stonework and mortar joints appear to be sound as viewed from the ground. The chimney does not have a cap and/or spark arrestor. Flashing where the chimney penetrates the roof is less than 4" high.



Image 27: The concrete chimney projects from the ridge and is clad in native stone.

NC
Fair

Exterior Lighting

The building features three gooseneck replacement light fixtures, one at each entrance, in a dark bronze finish.

Conditions:

These fixtures are not original but are compatible and have been retrofitted with motion sensors. They are surface mounted to blocking and conduit is also surface mounted connecting the two fixtures on the west porch. There is no physical indication or historic documentation of original light fixtures on the west porch. Physical evidence and historic images show a light fixture on the east porch left of the entry door. The east fixture location has been changed to above the door.



Image 28: Industrial style compatible light fixtures retrofit with motion sensors.

C
Good

Immediate Site & Landscaping

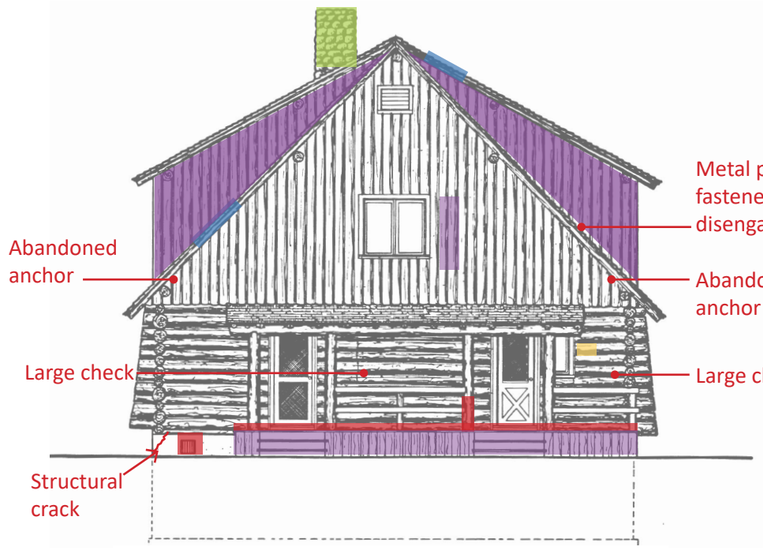
The site slopes down gently to the south and features native vegetation.

Conditions:

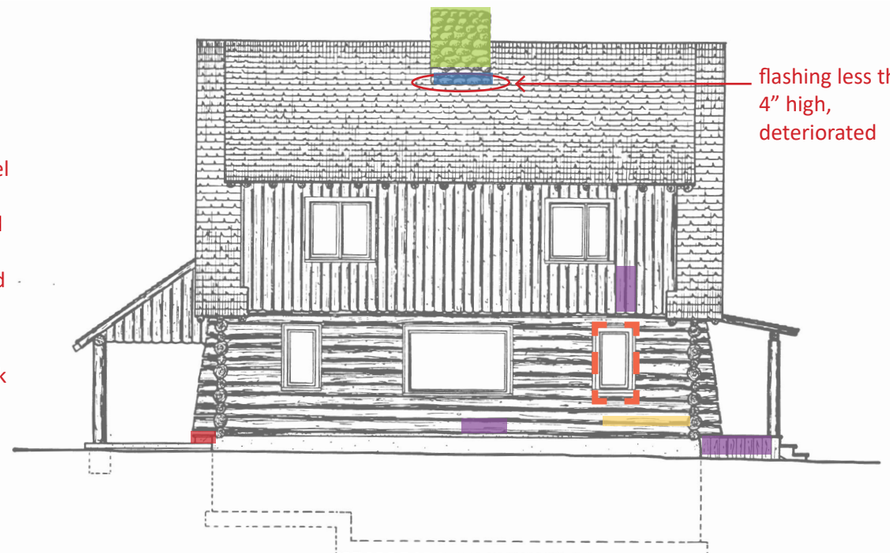
Snow blanketed the ground at the time of the site visit. Site drainage and vegetation issues were not observed. No signs of site water infiltration were observed in the basement.

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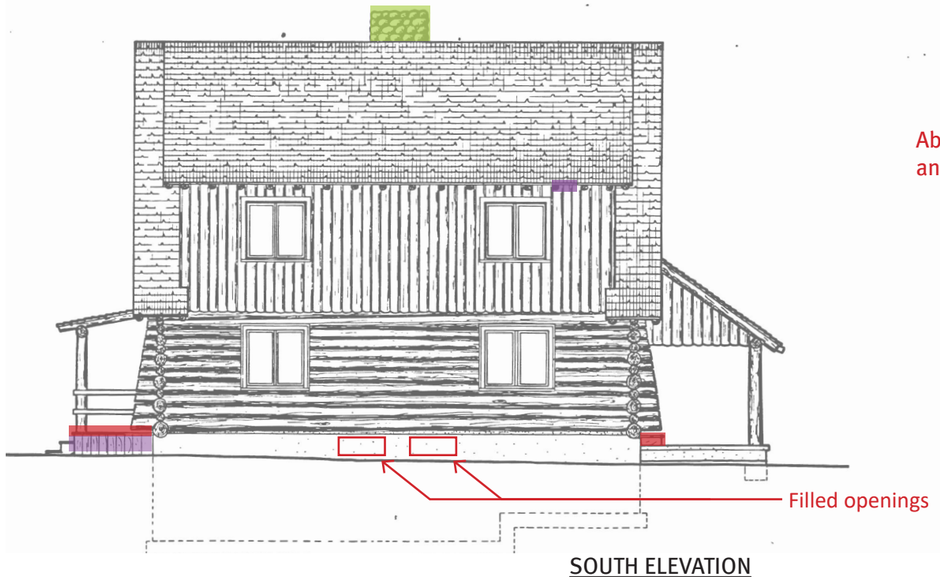
Exterior Elevation Condition Diagrams



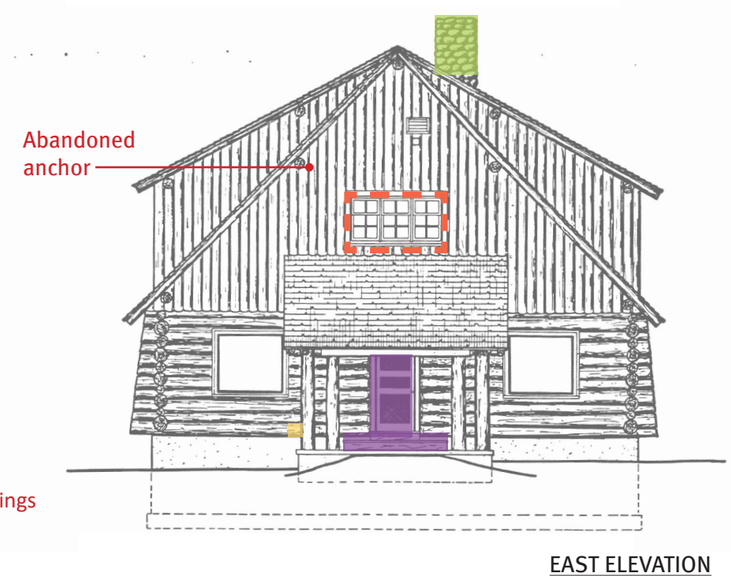
WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION



EAST ELEVATION

LEGEND

- WOOD ROT
- SEVERE PAINT DETERIORATION
- WARPING/CRACKING
- BIOLOGICAL GROWTH/SOILING
- CHINKING DETERIORATION
- EXTANT ORIGINAL WINDOW(S)

GENERAL NOTES:

1. Paint deterioration is typical at all concrete and wood surfaces.

2. Hairline cracks typical at concrete.

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Building Interior

OVERALL DESCRIPTION

The building interior layout and finishes were originally residential in nature. A plan sketch and notes in NPS Denali maintenance files dated 1950, prior to conversion of the building to administrative offices, shows four primary spaces on the ground floor organized around a central hallway. These included a living room in the northeast quadrant, dining room in the northwest, kitchen at the southwest quadrant and rear vestibule, stair, and storage pantry at the northwest. The second floor included a central hallway with four bedrooms and a bathroom at the east end of the hallway. The two bedrooms on each side had walk-in closets at their shared walls. See floor plan sketch, opposite page. Finish materials called out in the notes cite fir floors and walls of frame and Celotex construction. The c.1936 image below shows original wall finishes in the living room to be a panel board with flat stock battens and crown molding. This image matches one of the finished aesthetics advertised by the Celotex Corporation in the 1930s. As explained in period product specifications, Celotex of the 1930s and 1940s was “a building material made of sugar cane fibers by a continuous process of felting the tough fibers of the cane into a broad board. It has incorporated within it myriads of minute air cells, which contributes insulation against the passage of heat and sound.” Celotex panels were cut on site to widths spanning two studs and joints were finished with fiber or wood battens. The Celotex panel could be left natural, plastered, painted, or wallpapered. It is likely that this paneling system finished walls throughout the building with wood baseboards, window, and door trim.

In the early 1950s the building was converted to administrative offices, followed by related changes to layout and finishes over the next four decades. The existing configuration and finishes were largely in place by 1990 including removal of the kitchen and the second floor bathroom and walk-in closets, conversion of the pantry area to restrooms, and removal of original partition walls and construction of new partition walls. Finish alterations included covering the wood floors first with composition tiles and then the current high traffic carpet, cladding walls in the current wood paneling, installing the



Image 29: Rangers’ Dormitory interior in living room adjacent to fireplace, c.1936 (Denali National Park and Preserve Museum Collection) (left); 2019 interior in same location (right).

current suspended ceiling grid with acoustical tiles and fluorescent light fixtures, and replacing interior doors throughout with the current wood slab doors. The only interior character defining feature is the stone fireplace and what remains of the original wall structure and resulting room layout.

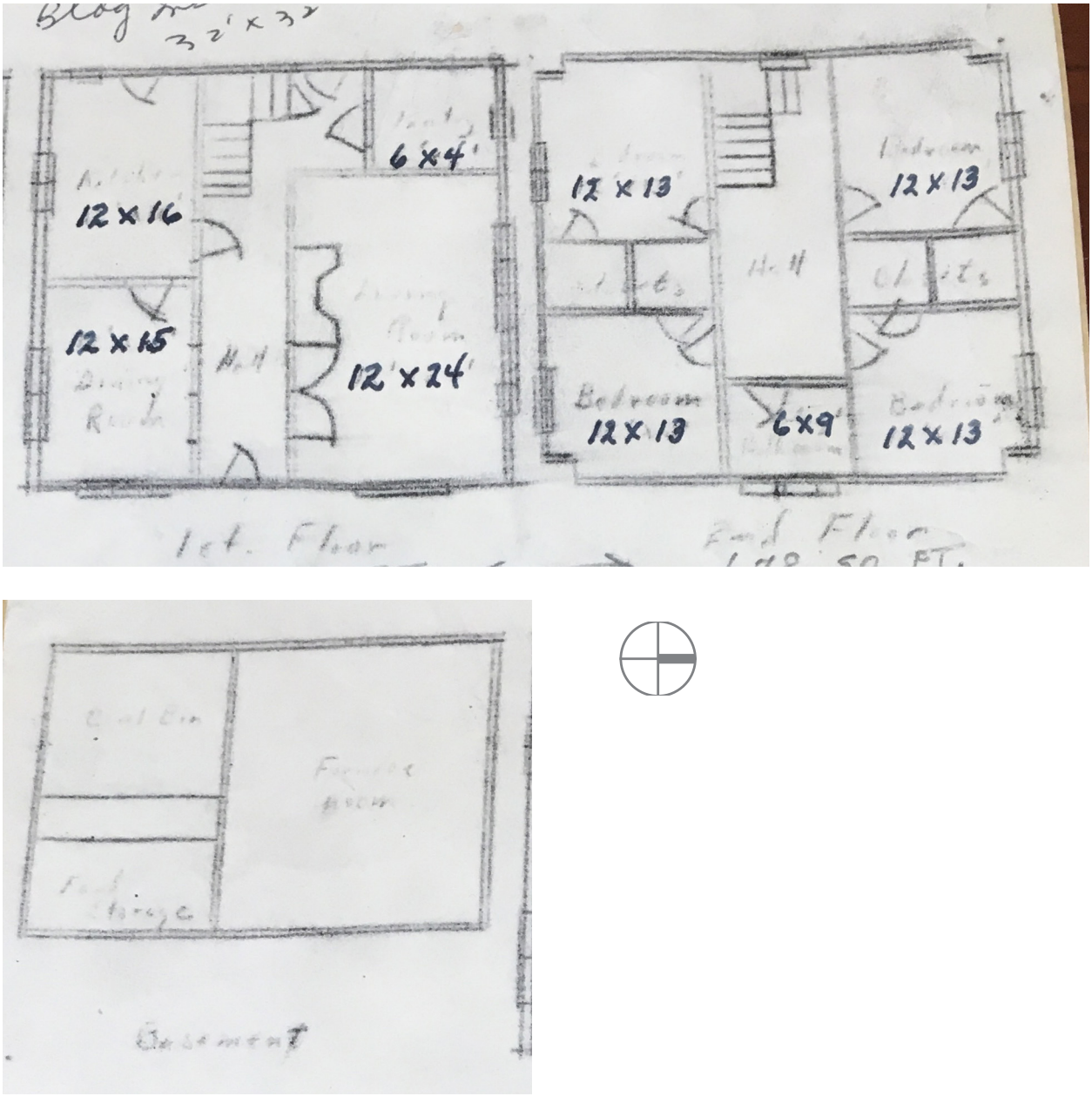


Image 30: Sketch of original dormitory floor plans, first floor (upper left), second floor (upper right), basement (lower left), date unknown (from DENA maintenance files)

CONDITIONS

NC
Fair

Flooring

Floors are covered with high traffic carpet, including the stair to the second floor, or composite sheet or tile flooring in the bathrooms.

Conditions:

Existing flooring likely covers original fir flooring throughout. Carpet and restroom flooring is showing signs of wear.



Image 31: Typical high traffic carpet installed throughout. Typical wood wall paneling includes base board.

NC
Good

Wall Finishes

Walls on the first and second floor are covered in vertical wood paneling with the exception of the small bathroom.

Conditions:

Paneling, base, and ceiling trim are in good condition throughout.



Image 32: Broken acoustic tile in office space.

NC
Fair

Ceilings

A metal grid suspended acoustic panel ceiling was installed throughout with the remodel to administrative offices.

Conditions:

The grid looks to be intact and in good condition. Some acoustic tiles have been damaged as a result of gaining access above the suspended ceiling. Lighting and fire life safety components are integrated into the suspended ceiling.



Image 33: View from the reception area toward the primary entry door.

NC
Good

Interior Doors

Nearly all interior doors are solid wood half-glazed contemporary office doors.

Conditions:

These doors are in good condition with little damage to the clear finish and compliant lever handles.



Image 34: Typical contemporary interior door.

S
Good

Fireplace, Mantle, & Hearth

A fireplace is in the ground floor office that once served as the communal living room for the rangers. The fireplace is of concrete construction clad in native stone. A full width concrete mantle breaks up the height of the fireplace and the hearth is made of flat native stone. Transition strips separate the contemporary carpet and ceiling from the hearth and upper chimney.

Conditions:

The fireplace, mantle, and hearth are in good condition but require cleaning.

The fireplace appears to still be operation as a wood burning fireplace with a manually operated damper, though it does not appear to be used.



Image 35: Stone chimney, stone hearth, and concrete mantle in office that was formerly the living room.

C
Good

Stair

The open stair from the first to the second floor is an L-shaped stair with a mid-level landing. Wood treads and risers are clad in high traffic carpet, walls are wood paneled, and wood hand rails are at 34” above the finished floor.

The basement stair is wood framed and unfinished.

Conditions:

Both stairs are in good condition.

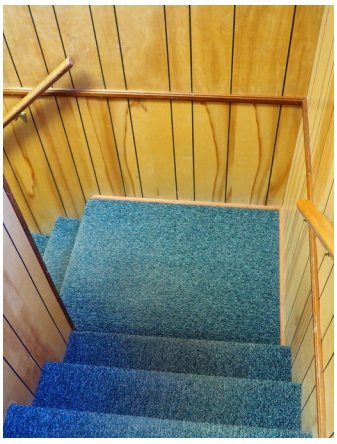




Image 36: L-shaped stair to second floor with wood paneled walls and carpet (left); winding stair to basement (right).

NC
Fair

Restrooms

There are two restrooms located at the northwest corner of the building. One is narrow with a 24” wide door, no daylight, and tight clearances between fixtures. Finishes in this restroom include sheet vinyl flooring, composite panel walls, and suspended acoustic tile ceiling. The other restroom was constructed in the early 1990s as an accessible restroom. Finishes include sheet vinyl flooring, wood paneled walls, and suspended ceiling.

Conditions:

The small restroom does not provide code required clearances between fixtures. The restroom intended to be accessible but does not meet current ADA requirements for clearances, mounting heights, and accessory locations. Plumbing fixtures are older, but functioning. See Plumbing section for more conditions.



Image 37: 1989-90 accessible restroom does not meet current ADA requirements.

NC
Fair

Interior Lighting

All original interior lighting has been replaced with fluorescent fixtures that are integral with the suspended ceiling system.

Conditions:

Existing fixtures are in good condition. See Electrical section for more conditions.





Image 38: Second restroom with narrow door and minimal clearances.



Image 39: Fluorescent light fixture in suspended ceiling grid.

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Structural Systems

DESCRIPTION

From a structural perspective, the Rangers' Dormitory is a rectangular, 1-1/2 story log and wood-framed building with a partial single level reinforced concrete basement. Dimensions of structural components are indicated where known or have been estimated. Prior to planning or executing any building improvements the size and spacing of members should be field verified.

Gravity Framing

The building features a combination of wood-framed construction techniques. The gable roof is framed with log rafters running from a ridge board over the exterior walls forming the roof overhang. The log rafters are approximately 6 inches in diameter and have a mid-span support bearing on interior bearing walls. The roof is sheathed with straight lumber sheathing which is approximately ¾" thick.

At the second story the perimeter walls are typical light-frame wood stud bearing walls. These walls are platform-framed over 2"x 8" floor joists at 16" o.c. spanning in the N-S direction. Floor joists are supported at the exterior and at interior stud bearing walls. The floor is sheathed with at least one layer of lumber sheathing, which is likely ¾" thick, at the second floor.

The perimeter walls at the ground level are conventional log construction with saddle-notched corners. The logs feature natural taper and corners are battered. The log diameters are highly variable and range from approximately 6" diameter to 14" diameter or greater. The log walls bear directly on the foundation wall and support the roof and second floor loads. The ground level floor is framed with 2"x 8" floor joists at 16" o.c. spanning in the N-S direction. Joists are supported by a concrete haunch in the basement wall at the north and south sides and by interior wood framed bearing walls in the basement. The floor is sheathed with two layers of 3/4" diagonal lumber sheathing and appears to have an additional layer of plywood underlayment above that.

The building foundation includes unreinforced board formed cast-in-place concrete walls which support the perimeter walls of the building. Where floor joists frame into the basement walls a haunch is provided to locally increase the width of the wall, allowing both the log walls and floor framing to bear directly on the wall. A crawl space occupies approximately ¼ of the building footprint with the remaining area full-height basement.

There is a cast-in-place concrete chimney serving a fireplace on the ground floor. The fireplace and chimney are supported on several concrete piers extending through the basement. The fireplace face and the chimney above the roof line are clad with natural stone.

The north and south sides of the building have entry porches with wood deck and shed roofs. These porches are framed with a line of log posts and beam supporting log rafters which span from the exterior building wall.

Lateral Force Resisting System

Like many buildings of this age and type the construction features traditional- or prescriptive-type practices rather than an intentional design of elements resisting lateral seismic and wind forces. The building features lumber sheathed diaphragms at the roof, second, and ground floor levels. Sheathed light-frame walls at the perimeter resist lateral loads at the upper level while log walls resist lateral load at the ground floor. The concrete foundation walls transmit loads to the foundations.

While the structure is comprised of identifiable lateral load resisting elements, connections between each of the elements were not verified. It is unknown whether blocking and fasteners adequately link the diaphragms to the walls or to what extent the ground floor and log walls are anchored to the foundation. There is likely no means of transmitting overturning loads from the upper floors through the log walls to the foundation.

CONDITIONS

The condition assessments in this report are based on a visual observation of construction readily accessible to view and on review of available historic documentation. Concealed conditions and items which were not described in this report are not included in this review.

Exterior Structure

Conditions:

S
Good

Exposed Log Rafters

Exposed portions of log rafters framing the main and porch roofs appear to be in good condition, with no visible signs of decay or deterioration.

S
Good

Log Walls at Ground Floor

Log walls at the ground level appear to be in good condition throughout. The lower layer of logs on the north side features weathered paint in need of regular maintenance. Resistograph borings of several logs did not indicate decay.



Image 40: Exposed log rafters at eaves.



Image 41: Weathered paint at base log on north elevation.



Image 42: Decayed decking at rear entry porch.



Image 43: Decayed post at rear entry porch.

S
Fair

East Porch

Elevated framing for the entry porches is in good condition.

C
Fair-Poor

West Porch

Some of the decking on the rear porch is showing initial signs of decay. Some of the posts supporting the rear entry porch are beginning to decay at the bases. The second post from the south is in poor condition and exhibits significant loss of structural integrity.

NC
Poor

Stabilization Beam

In the northwest corner of the building there is a built-up beam comprised of (6) 2”x 12” which projects from the west exterior wall just above grade. This beam continues west in the basement and provides supplemental support for the floor joists framing into the north wall. The exterior portion of the beam is significantly decayed.



Image 44: Decayed lifting beam at nw corner.

Interior Structure

Conditions:

C
Good

Roof Framing

Log rafters and roof sheathing in the attic appeared in good condition and no signs of distress or deterioration were evident.



Image 45: Typical attic framing.

C
Good -Poor

Wood Floor Framing

In general, the floor framing throughout the building was observed to be in good condition. One area of the ground floor framing appears to have been exposed to fire in the past. There is a significant amount of char evident of the floor joists so while this area of floor appears serviceable, we recommend addressing the condition as part of any rehabilitation project affecting either the basement or ground floor in this area. This area is rated in poor condition.



Image 46: Charred ground floor joist observed in basement.

C
Poor

Foundations

The foundation wall exhibits significant cracking and displacement in the northwest corner. Due to the gaping nature of the crack and lack of visible reinforcement crossing the gap we expect that the wall is unreinforced. Supplemental support for the floor joists framing into the north wall has been provided by a built-up dimensional lumber beam and a series of support posts in the basement. This beam extends through the foundation wall to the west and is exposed on the exterior. The exposed portion of the beam is significantly deteriorated. Based on our review of past reports on the structure it appears that this foundation has been in poor condition for many years, with deterioration recorded as early as 1950. We understand that plans to replace the concrete foundation were developed around 1951 however this work was not carried out. NPS staff report that the foundations are currently stable with no evidence of recent movement.



Image 47: Charred ground floor joists and decking observed in basement.



Image 48: Gaping crack in north basement wall.



Image 49: Built-up lumber beam and post along north wall of basement.

Mechanical, Electrical, and Plumbing Systems

DESCRIPTION

The building is heated utilizing a high efficiency propane gas fired boiler which feeds hydronic (heating water supply and return piping) to a fan coil for warm air supply to the ducted air distribution system. The hydronic system is also provided with a glycol feed unit and has two circulation pumps that appear to be redundant. This system is a modern revision to the building system. It is in very good condition and includes commercial grade equipment, devices, and appurtenances.

The building domestic hot water is heated utilizing an electric resistance storage type water heater. The domestic hot water piping is a combination of various materials including cross-linked polyethylene (PEX), copper, and galvanized steel. The sanitary drain-waste-vent (DWV) piping is predominantly hub and spigot cast iron with some newer connections in polyvinyl chloride (PVC)/ acrylonitrile butadiene styrene (ABS) plastic piping. Most of the plumbing fixtures date from the late 1980s.

Electrical service includes three panels located in the basement. IT equipment is also located in the basement of this building. The building is not sprinklered but has a smoke detection and fire alarm system. Both interior and exterior lighting has been replaced over time. Interior lighting is entirely fluorescent integrated into the suspended ceiling grid.

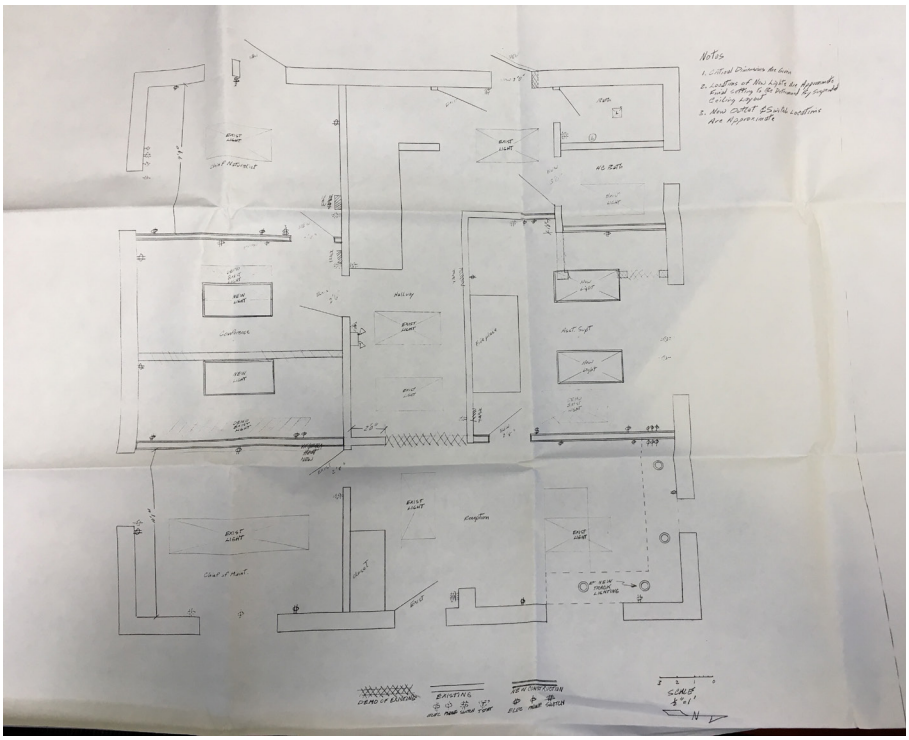


Image 50: Lighting and renovation plan, c.1989-90 (from DENA maintenance files)

CONDITIONS

The condition assessment of mechanical, electrical, plumbing, and fire life safety systems in this report is based on review of drawings provided by NPS and photographs taken by HEA and KPFF. These systems were not observed on site by Interface Engineering.



Image 52: Heating water boiler.

NC
Good

Heating, Ventilating, and Air Conditioning (HVAC)

Conditions:

NC
Fair

Fan Coil (for air distribution)

The HVAC system fan coil is approximately 4 years old and in good condition.

NC
Fair

Heating Water Boiler

The boiler is a commercial unit, +95% thermal efficiency and provides for a 5 to 1 turndown . This allows the 300,000 btu/h unit to vary its firing rate in 20% increments. Eg: 20% = 60,000 btu/h, 40% = 120,000 btu/h etc. The unit appears to be approximately 4 years old and in good condition.



Image 53: Emergency disconnect – boiler.

NC
Fair

Glycol Feed System

The HVAC system glycol feed is also approximately 4 years old and in good condition.

NC
Fair

Circulation Pump - Hydronic

Redundant circulation pumps for the heating water (hydronic) system, with valved bypass. The system



Image 51: Fan coil for air distribution.



Image 54: Glycol feed system.

appears to be in good condition and no immediate replacement is anticipated.

NC
Fair

Radon Ventilation System

The building is also provided with a radon mitigation system ducted to outside with mechanical inline exhaust fan. The system appears to be in good condition and no immediate replacement is anticipated.



Image 56: Radon ventilation system.

Point of Use Electric Wall Heater

There are a couple of electric heaters being used including wired wall heaters and a couple of plug-in heaters. Permanently installed wall heaters are acceptable by code. No specific code exceptions are noted for space heaters that are plugged directly into a wall socket or with a power strip, however they do pose an elevated fire hazard in combustible framed and log construction. Use of extension cords is not code compliant.



Image 57: Point of use electric wall heater.

NC
Fair

Fixed Diffusers/Grilles

There are a variety of fixed wall and floor grilles/ diffusers.



Image 58: Point of use electric wall heater.

NC
Fair

Thermostat

The existing thermostat serving the building is a basic mechanical unit.



Image 55: Circulation pumps-hydronic.



Image 59: Thermostat.

Plumbing

Conditions:

NC
Fair

Electric Resistance Storage Type Water Heater

The existing water heater is an electric resistance storage type heater. It appears to be in fair condition and is approximately 7-8 years old.

The heater does show some signs of corrosion at the bottom plate. This may be galvanic corrosion.

The unit currently sits directly on the concrete slab.

NC
Fair

Domestic Water Piping

The domestic water piping is a combination of various materials including PEX, copper and galvanized steel.

NC
Poor

Sanitary Drainage Pipe

The sanitary (DWV) piping is predominantly hub and spigot cast iron with some newer connections in PVC/ABS plastic piping. The cast iron piping shows substantial amounts of deterioration.

NC
Fair

Plumbing Fixtures

Existing fixtures are older and nearing the end of their usable life.



Image 61: Domestic water piping.



Image 62: Sanitary drainage piping.



Image 60: Electric resistance storage type water heater.



Image 63: Plumbing fixtures.

NC
Fair

Electrical

Conditions:

NC
Fair

Electrical

The electrical service of Building 21 consists of the following (3) panels:

- (1) 100A, 120/240V, single phase, three wire, main circuit breaker (26 ckt.) panelboard
- (1) 100A, 120/240V, single phase, three wire, (16 ckt.) load center with 80-amp main breaker
- (1) 100A, 120/240V, single phase, three wire, (24 ckt.) load center

All three electrical panels are located in the basement of the building. General receptacle coverage looks adequate for the building, including Ground Fault Circuit Interrupter (GFCI) receptacles where appropriate. There is one wall mounted Sola Electric voltage regulator located in the basement.



Image 65: Second load center.



Image 66: Sola electric voltage regulator.



Image 64: Panelboard (right) and load center (left).

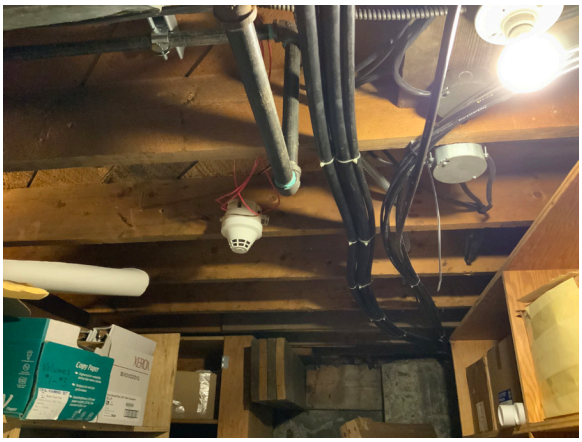


Image 67: Basement light.

NC
Fair

Lighting

Interior lighting is composed of fluorescent and incandescent luminaires. Basement lighting consists of exposed bulbs. First and second floor lighting is primarily recessed 2”x4” fixtures with smaller surface mounted fixtures in the restroom areas. The building mounted exterior lighting consists of one bulb over the entry way and is controlled via motion sensor.

Lighting controls are basic on/off toggle switching with no dimming or functional occupancy/vacancy controls.



Image 69: Exterior light with motion sensor.

NC
Fair

Life Safety - Backup Power

There is no existing emergency back-up power system that serves the building. Emergency egress lighting consist of wall mounted, battery powered LED fixtures. No illuminated exit signs exist in the facility; only non-illuminated signage is present at doorways.



Image 70: Emergency light fixture.



Image 68: Recessed fluorescent 2x4.



Image 71: Non-illuminated exit sign.

NC

Fair

Fire Alarm

Wall mounted fire alarm panel located in basement. Fire alarm pull stations, extinguishers, and strobes exist throughout the building and are compliant with current code.



Image 72: Fire alarm control panel.



Image 73: Fire alarm pull station.

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PART 2

TREATMENT & USE

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Image 74: Headquarters Access Road looking south, c.1940-41, Rangers' Dormitory is second building on the right (DENA-3-7.7, Denali National Park and Preserve Museum Collection).

OVERVIEW

All recommendations within this HSR follow *The Secretary of the Interior's Standards for the Treatment of Historic Properties*. Taken from the National Park Service's Technical Preservation Services, the four treatment approaches are defined as:

"Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

Reconstruction is defined as the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location."

The following recommendations for overall treatment approach, appropriate uses, and alternative treatments are based on these four approaches.

CURRENT USE

The Rangers' Dormitory is now used as administrative offices for the park superintendent, deputy superintendent, and other administrative and support staff. The building provides eight private offices, a reception desk, and a shared copy/mail/file room, as well as two restrooms. The building is staffed year round.

FUTURE GOALS

It is the park's goal to continue the building's current use as the administrative headquarters. It is assumed that the building should continue to support the same number of staff and remain occupied year round.

Future goals expressed by current park staff during the 2019 site visit include restoration of historic character including windows and interior finishes, accessibility improvements such as compliant restroom(s), path of travel, and entrance, and exploration into an accessible second floor. Improvements to fire life safety should also be considered.

PREFERRED TREATMENT & USE

The most appropriate treatment, based on continued use of the building as critical administrative office space, is rehabilitation. A rehabilitation approach to future repairs and alterations will prioritize retention and restoration of historic character-defining features while allowing changes necessary to function as office space.

Key aspects of the approach include:

- Repair and restoration of extant historic features including the fireplace and exterior materials and features
- Restoration of missing character-defining features and finishes to the extent possible and where documentation exists
- Continue use as administrative offices
- Improvements to building and occupant safety, as well as accessibility
- Modernization of building envelope and mechanical, electrical, and plumbing (MEP) systems to improve occupant comfort and energy efficiency
- Future alterations that support and improve conditions for current and future uses without damaging integrity and character-defining features

The individual component recommendations in this report will focus on strategies aimed at maintaining and repairing existing historic fabric, restoring character-defining features that have been lost where practical, adapting features where feasible without negative impact to historic character, and increasing occupant comfort and management efficiency.

POTENTIAL ALTERNATIVE TREATMENTS & USES

Rehabilitation allows for flexibility to adapt for continued use within the parameters of the building's historic character. Alternatively, a preservation approach would include maintenance and repair of existing conditions, such as replacement of the deteriorated wood components in kind and maintenance of protective coating, but would not allow for restoration of missing features or improvements for contemporary use. A restoration approach would involve returning the building to residential use and restoring the layout, function, and finishes of all spaces to an identified period in time. Restoration is not a feasible approach if the building is to continue in use as the park's administrative headquarters, a function it has served for decades.

Specific alternative approaches may include:

- Selective restoration of key interior spaces and features may be desirable to the park in the future, specifically restoration of the living room area partially as a communal space for meetings/ conference room. This might include maintenance of the extant historic fireplace and restoration of ceiling, wall, and floor finishes and period lighting, integrated with modern technologies for meeting and conference spaces.

PRESERVATION ZONING

To guide future rehabilitation projects the building's interior and exterior spaces have been assigned preservation zones. These zones delineate the flexibility allowed in maintaining, repairing, and altering features within the spaces and are defined as follows:

- *Zone 1: Restoration* - The character and qualities should be maintained and preserved as a highest priority. These are areas of architectural and/or historical importance and are recommended for restoration.
- *Zone 2: Rehabilitation–Primary* - Spaces may be rehabilitated, but every effort should be made to identify and retain original material where possible, such as original partitions and finishes.
- *Zone 3: Rehabilitation–Secondary* - Treatments may incorporate extensive change and/or introduction of contemporary materials that are sympathetic to the original fabric.

The building exterior and key historic interior features have been zoned for restoration (Zone 1) as these aspects are critical to the building's interpretation and significance. Spaces that have been altered but have potential to be improved both in historic integrity and function have been zoned for primary rehabilitation (Zone 2). Areas that are not important to the building's interpretation, such the basement or closets, can be sensitively modified without impact to the building's overall integrity and have been zoned secondary rehabilitation (Zone 3). These spaces could be acceptable concealed locations to run MEP piping, wiring, and ducting.

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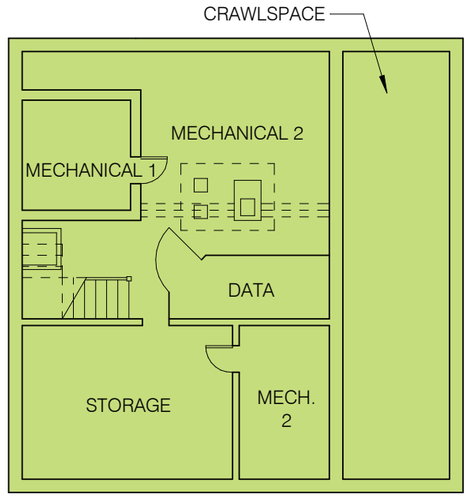
Preservation Zoning Diagrams - Rangers' Dormitory #21

ZONE 1 RESTORATION
High integrity, maintain and restore existing features

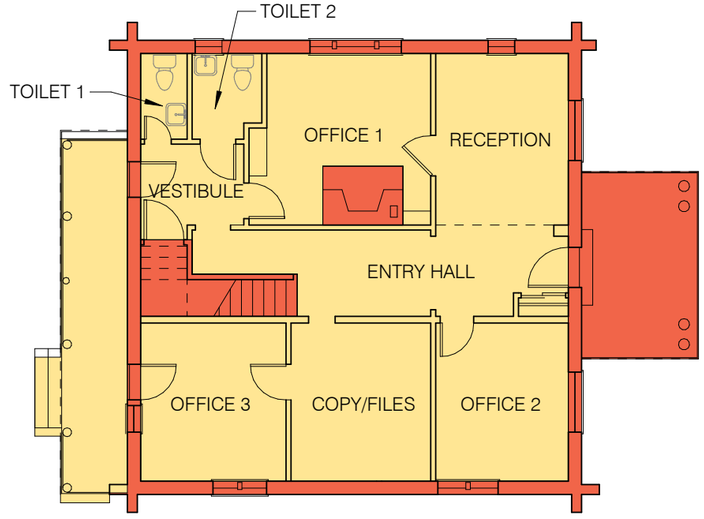
ZONE 2 REHABILITATION–PRIMARY*
Moderate integrity or potential to restore historic character. See diagram page 81 for recommended restoration layout.

ZONE 3 REHABILITATION–SECONDARY*
Does not contribute to historic character, offers greater degree of flexibility.

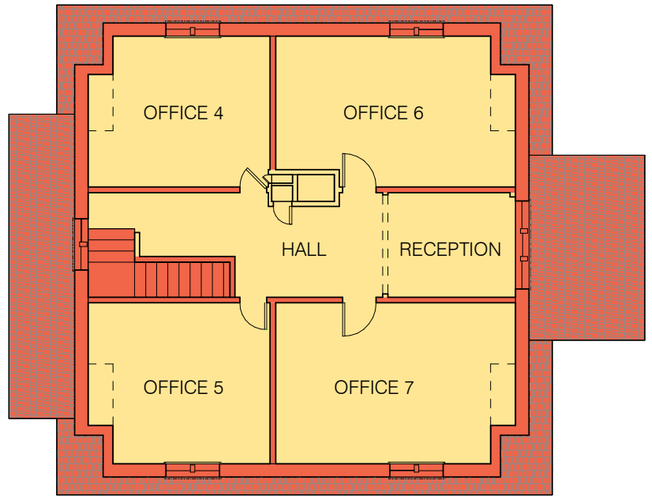
**All character defining features should be given priority for retention regardless of preservation zone. See Character-Defining Features (CDF) Diagrams in Part 1 for identification.*



1 BASEMENT FLOOR PLAN
3/32" = 1'-0"



2 FIRST FLOOR PLAN
3/32" = 1'-0"



3 SECOND FLOOR PLAN
3/32" = 1'-0"

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Image 75: Rangers' Dormitory west elevation (current Headquarters Building) and relocated original headquarters Building 22.

REGULATIONS AND GUIDANCE

Requirements for treatment currently include laws, regulations, and standards as outlined by NPS in NPS-28: Cultural Resource Management (Chapter 8). The following are laws and regulations applicable to this building and site. Specific attention should be given to issues of human safety, fire protection, energy conservation, abatement of hazardous materials, and physical and programmatic accessibility for people with disabilities.

Legal Mandates & Policy Directives

- Section 106 of the National Historic Preservation Act (NHPA)
- NPS Cultural Resources Management Guidelines (Director's Order 28)
- Review of all proposed work by NPS Park and Regional cultural resources staff
- NPS Night Sky Initiative
- Design Guidelines, Mt. McKinley Headquarters Historic District, June 1, 1985 and 2016
- NPS Reference Reference Manual 58: Structural Fire Management

The Secretary of the Interior's Standards for the Treatment of Historic Properties

- Standards and Guidelines for Rehabilitation

Applicable Building Codes

(Code versions should be verified at time of project design)

- International Building Code (IBC)
- International Existing Building Code (IEBC)
- International Energy Conservation Code (IECC)
- International Fuel Gas Code (IFGC)
- International Mechanical Code (IMC)
- National Electrical Code (NEC)
- Uniform Mechanical Code (UMC)
- Uniform Plumbing Code (UPC)

Accessibility

- Americans with Disabilities Act (ADAAG)
- Architectural Barriers Act (ABA)

Hazardous Materials

- Environmental Protection Agency (EPA)
- Clean Air Act (CAA)
- Occupational Safety and Health Administration (OSHA)

Applicable NPS Preservation Briefs

02: Repointing Mortar Joints in Historic Masonry Buildings

03: Improving Energy Efficiency in Historic Buildings

09: The Repair of Historic Wood Windows

10: Exterior Paint Problems on Historic Woodwork

14: New Exterior Additions to Historic Buildings: Preservation Concerns

15: Preservation of Historic Concrete

16: The Use of Substitute Materials on Historic Building Exteriors

24: Heating, Ventilating, and Cooling Historic Buildings: Problems and Recommended Approaches

26: The Preservation and Repair of Historic Log Buildings

32: Making Historic Properties Accessible

36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes

39: Holding the Line: Controlling Unwanted Moisture in Historic Buildings

41: The Seismic Rehabilitation of Historic Buildings

45: Preserving Historic Wooden Porches

47: Maintaining the Exterior of Small and Medium Size Historic Buildings

BUILDING CODE ANALYSIS

The State of Alaska and NPS follow the International Building Codes, including the International Existing Building Code (IEBC). It is recommended that the most current IEBC be applied when consideration is given to making alterations to this building. As an existing building, without a substantial change in occupancy, not all clauses of the International Building Code apply. However, the building should be made as safe as possible, within the parameters of its historic character, use, and specific location.

The IEBC defines increasing levels of alterations that in turn trigger increasing levels of code compliance for existing buildings. These levels are defined as follows:

Alteration - Level 1: alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose.

Alteration - Level 2: alterations include the reconfiguration of space, the addition or elimination of any door or window, or the installation of any additional equipment.

Alteration - Level 3: where the work area exceeds 50% of the building area.

When planning to undertake future projects the level of alteration should be identified in order to meet the required level of compliance with the IBC.

Code Analysis Factors	
Date of Construction	1934-35
Construction Type	Type V
Occupancy Type	B - Business
Sprinklered	No

Accessibility

Accessibility requirements include an accessible entrance, access to primary function areas, an accessible restroom, and an accessible path of travel. These issues need to addressed at the Rangers' Dormitory, particularly in its function as the park headquarters. These basic requirements can be achieved through an exterior ramp to the primary

east entrance, restoration of the former living room for meeting space by removing non-original partition walls at the first floor, and reconfiguration of the west entry vestibule to restore original wall locations, create a compliant path of travel, maintain a secure area, and create an accessible restroom that is compliant with current code.

Structural

A future rehabilitation or addition of this structure would be governed by the International Building Code and International Existing Building Code In general, the IEBC allows for minor changes and alterations to the structure without upgrading the gravity and lateral systems to current-day code standards. These allowances are in place to recognize that the building has served its purpose for a similar use and occupancy and performed well in the past. However, there are specific triggers in the IEBC that require a building to be brought up to current-day IBC standards. These triggers can include additions, change of use or occupancy, or alterations of space. The upgrades required by the IEBC are intended to increase life-safety and limit structural and architectural damage to the building in the event of a design-level earthquake. These include upgrades for both gravity loads (dead, live, and snow) as well as lateral loads (wind and seismic). If triggered by an alteration or change of use, the existing building will need to be analyzed with the new work to determine the necessary upgrades.

Summary of Code Required Upgrades

- Accessibility upgrades. Improvements should be made to provide an accessible route from the parking area, an accessible entry, equivalent access to primary function areas, compliant signage, and an accessible restroom.
- Structural repairs and improvements. In general, the recommended treatments discussed in this report would not typically trigger mandatory building-wide improvements or upgrades.

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Treatment Recommendations 2.03



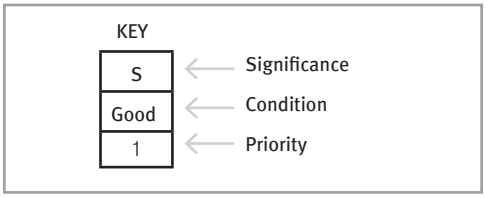
Image 76: Rangers' Dormitory primary/east and north elevations, (NPS, 2014).

OVERVIEW

The following treatment recommendations are guided by *The Secretary of the Interior's Standards for Rehabilitation* and general preservation best practices. Recommendations are provided for each assembly/component. The *Recommended Treatment* represents the best practices for the preservation of the building and its historic integrity. Alternatives to the recommended treatment are identified where they exist, including a no action alternative. *Recommended* and *Alternative Treatments* are further analyzed in the Assessment of Effect Section 2.04.

Significance, Condition, and Priority Key

All building assembly/components in Part 1 and Part 2 are categorized by the significance of the feature and severity of condition. Each component has an associated key identifying these characteristics. Treatment priorities are included in this section, Part 2 - Treatment and Use.



Treatment Priorities

Treatments are prioritized based on the severity of the condition and urgency of repair. The priorities are defined as:

- *Priority 1 - Critical:* (Immediate - Year Two) Items in this category require immediate action within two years.
- *Priority 2 - Necessary:* (Year Two - Year Five) Items in this category are not yet critical but require prompt attention.
- *Priority 3 - Recommended:* (Year Five - Year Ten) Items in this category represent a necessary but longer-term improvement to restore original conditions.

Building Exterior

S
Fair
2

Roof

Recommended Treatment:

- Resecure fasteners that have disengaged from the roof surface. Inspect for sound substrate and secure connection. Monitor yearly for recurrence.
- At the end of the roof's service life, replace in kind matching material, finish, corrugation dimensions, eave, and ridge conditions.
- Replace broken fascia trim in kind matching dimensions, profile, and finish.
- Gutters are not original but are necessary to divert water from pedestrian walkways and are a reversible intervention. Monitor yearly for structural stability of the gutter and secure attachment to the building. When replacing gutters, include downspouts and consider a half-round profile and a dark brown factory finish to better integrate with the roof structure. Downspouts should be located at column locations.
- See Assessment of Effect action #1 for analysis.

Alternative Treatment:

No alternatives recommended. A no action alternative will result in continued deterioration and eventual material failure.

S
Fair
2

Log Components

Recommended Treatment:

- Blow out large checks with an air compressor to keep debris from collecting in checks and maintaining moisture. It is not necessary to patch or seal checks. Monitor and clean out yearly.
- Repair any loose or missing mortar chinking with in kind material.
- Cut out section of log rot at west porch column and Dutchman repair with a replacement log section matching the diameter of the log. Fit should be tight. Use adhesive and/or dowel rods to secure Dutchman in place. Alternatively, replace entire log column in kind.
- Clean, prepare, and paint all exterior log components after repairs are complete. Match existing paint color and finish.
- Apply a borate treatment to log materials in contact with the ground prior to painting, such as the half-log skirting around the west porch. Verify compatibility of the borate treatment with paint.
- See Assessment of Effect action #1 for analysis.

Alternative Treatment:

No alternatives recommended. A no action alternative will result in continued deterioration and eventual material failure.

C
Fair
2

Foundation

Recommended Treatment:

- Install crack guage to monitor movement at northwest corner crack, Humboldt concrete crack gauge or similar.
- Repair cracks greater than 1/16" in width to prevent water infiltration. Repair with injection grout formulated for concrete repair. Match existing concrete color and finish texture.
- Prepare and paint foundation after completion of repairs.
- Remove rot and seal stabilization beam or replace north foundation wall and remove stabilization beam. See Structural recommendations.
- See Assessment of Effect action #1 for analysis.

Alternative Treatment:

No alternatives recommended. A no action alternative will result in continued deterioration and eventual material failure.

S
Fair
2

Original Windows

Recommended Treatment:

- Repair surface deterioration at window sills by sanding and painting.
- Replace damaged glazing compound with traditional glazing compound (oil-based glazing putty, manufacturers include Abatron, UGL, and Sarco). Allow to adequately dry before painting.
- Replace missing or damaged hardware including sash lock and lifts at first floor bathroom window.
- Repair windows to be operable.
- Prepare and paint exterior surfaces.
- Replicate existing storm windows at two windows on east elevation without storms. Install and remove storm windows seasonally.
- See Assessment of Effect action #2 for analysis.

Alternative Treatment:

Alternative 1 - Interior Storms: Consider Indow Window (R) (a custom sized acrylic window held into the existing interior jamb by a compression tube) or similar. They are light weight and easy to install, remove, and store. However, they do not provide weather protection to the historic window. See cutsheet #01, Appendix D. See Assessment of Effect action #2.1 for analysis.

Alternative 2 - SLIPs: Consider installation of Slim Line Insulating Pane system on existing wood windows. This system adds a pane of glass to the outside of each existing sash, maintaining operability, upgrading performance, and providing reversibly. See cutsheet #02, Appendix D. See Assessment of Effect action #2.2 for analysis.

No Action Alternative: A no action alternative will result in continued deterioration and eventual material failure.

NC
Fair
3

Replacement Windows

Recommended Treatment:

- Consider restoring original window configuration and type of operation per historic photographs and remaining historic windows. Windows should be wood matching dimensions, profiles, and operation of original windows. Insulated glazing can be used in place of plate glass for improved thermal comfort and energy performance. Storm windows matching existing should also be considered as a protective measure.
    - Compatible example: Marvin Ultimate Wood Double-hung Window, Authentic Divided Lite (ADL) or Simulated Divided Lite (SDL) with spacer bars, clear glazing, muntin and sash sticking to match extant historic windows. Also available as tilt or casement if larger opening is required for egress (can simulate meeting rail with thicker dimension horizontal muntin.
- See Assessment of Effect action #3 for analysis.

Alternative Treatment:

Alternative 1: Maintain existing fixed and casement windows. Repair window sills and repair windows to achieve smooth operation.

No Action Alternative: A no action alternative will result in continued deterioration.

C/NC
Fair
3

Exterior Doors

Recommended Treatment:

- Clean and repair surface damage. Prepare and paint exterior face of doors.
- Repair storm door, prepare, and paint.
- Consider replacing west exterior door (south) with consistent period compatible half-glazed paneled door. Doors should Be weatherstripped. Storm/screen combination doors may also be desirable.
- See Assessment of Effect action #1 for analysis.

Alternative Treatment:

Alternative 1: Maintain existing doors and storm/screen doors. Clean and repair surface damage. Prepare and paint exterior face of door. Repair storm door, prepare, and paint.



Image 77: Marvin Ultimate Wood Double-hung Window, custom dividing muntin patterns and profiles available.

S
Fair
2

East Porch

Recommended Treatment:

- Blow out large checks with an air compressor to keep debris from collecting in checks and maintaining moisture. It is not necessary to patch or seal checks. Monitor and clean out yearly.
- Clean, prepare, and paint all exterior log components after repairs are complete. Match existing paint color and finish.
- See Assessment of Effect action #1 for analysis.

Alternative Treatment:

No alternatives recommended. A no action alternative will result in continued deterioration and eventual material failure and hazardous conditions.

C
Fair - Poor
2

West Porch

Recommended Treatment:

- Blow out large checks with an air compressor to keep debris from collecting in checks and maintaining moisture. It is not necessary to patch or seal checks. Monitor and clean out yearly.
- Replace or Dutchman repair deteriorated porch column with in kind material matching log species, dimensions, and connections.
- Replace existing porch decking in its entirety or replace individual decking boards that have significant deterioration. Match existing material and dimensions.
- Extend log handrails at both sides of the stair.
- Clean, prepare, and paint all exterior log components after repairs are complete. Match existing paint color and finish.
- See Assessment of Effect action #1 for analysis.

Alternative Treatment:

No alternatives recommended. A no action alternative will result in continued deterioration and eventual material failure and hazardous conditions.

S
Good
3

Chimney

Recommended Treatment:

- Clean stone surfaces with low pressure water.
- Consider the addition of a cap and spark arrestor if the fireplace is used for wood burning fires. If the fireplace hasn't been used for a while it should be swept and capped with Rockford's Bolt On Single Flue Stainless Steel Chimney Cap with Flat Lid or similar.
- When the roof is replaced in the future consider extending the chimney flashing higher than 4".
- See Assessment of Effect action #1 for analysis.

Alternative Treatment:

No alternatives recommended. A no action alternative will result in continued deterioration and eventual material failure.

NC
Fair
3

Exterior Lighting

Recommended Treatment:

- Clean existing fixtures.
- Consider internalizing exterior mounted conduit within rehabilitated wall and ceiling finishes as part of a future interior project.
- Straighten east porch light or relocate to original location south of the door.
- See Assessment of Effect action #9 for analysis.

Alternative Treatment:

No alternatives recommended.

S
Good
3

Immediate Site & Landscaping

Recommended Treatment:

- See grading recommendations for an accessible walkway under East Porch recommendations.
- Maintain positive drainage away from the building and keep vegetation and trees from encroaching on building elevation and roof.
- See Assessment of Effect action #21for analysis.

Alternative Treatment:

No alternatives recommended.

Building Interior

NC
Fair
3

Flooring

Recommended Treatment:

- Perform selective destructive investigation to verify the existence and condition of original wood flooring in locations where restoration of wood flooring is being considered. Flooring in the former kitchen, pantry, and restroom locations may not have originally been wood. Also due to the apparent application of composite tile in the 1950s, adhesives may have damaged original flooring beyond repair. See previous hazardous materials reports prior to investigating.
- Consider future restoration of wood flooring. Restoration may include wood floor replacement pending results of destructive investigation.
- Refinish wood floors.
- Wood flooring requires ongoing maintenance including regular cleaning and refinishing every 7 to 10 years. This can be extended with the use of area rugs and runners in high traffic locations.
- See Assessment of Effect action #6 for analysis.

Alternative Treatment:

Alternative 1: Replace carpet throughout when it reaches the end of its service life.

NC
Good
3

Wall Finishes

Recommended Treatment:

- Retain all original wall locations as identified in the diagram on page 81.
- Perform selective destructive investigations to verify wall finish assembly. Celotex may be extant under wood paneling. Confirm condition, dimensions, and finish appearance of Celotex paneling if extant.
- Consider future removal of wood paneling and original fiberboard (which likely contains asbestos) and restoration of a panel and batten type system. This appearance can be achieved with a variety of materials including plywood and drywall with wood battens applied matching typical spacing patterns shown in the Celotex product literature below. Using drywall would achieve greater fire resistance ratings. This would also provide an opportunity to upgrade electrical wiring and devices and improve the exterior wall assembly from the interior.
- See Assessment of Effect action #6 for analysis.

Alternative Treatment:

No Action Alternative: Maintain existing wall finishes.

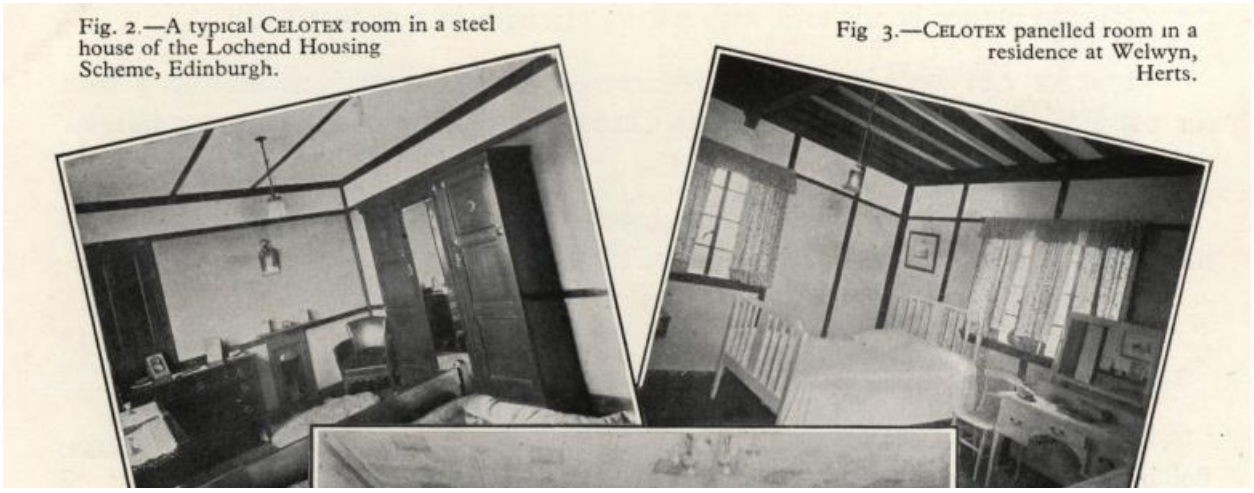


Image 78: Clippings from 1933 Celotex Corporation product specification/sales brochure.

NC
Fair
3

Ceilings

Recommended Treatment:

- Consider future removal of the suspended ceiling grid system and original fiberboard if it exists (which likely contains asbestos) and replacement with either a gypsum board ceiling or a paneling with battens type system aligning with the wall treatment. A gypsum board ceiling would achieve higher fire resistance ratings. Work should be executed in conjunction with fire suppression upgrades to conceal the new system.
- See Assessment of Effect action #6 for analysis.

Alternative Treatment:

No Action Alternative: Maintain the existing suspended ceiling system. Replace broken acoustic tiles in kind.

NC
Good
3

Interior Doors

Recommended Treatment:

- Consider future replacement of flush doors with period compatible half-glazed panel doors. Hardware to remain lockable and lever type.
- Doors on the first floor can be adapted to meet required opening width for accessibility when replaced or existing doors can be retrofitted with offset hinges to allow for widest opening possible.
- See Assessment of Effect action #1 for analysis.

Alternative Treatment:

No Action Alternative: Maintain existing doors.



Image 79: Examples of compatible wood interior doors manufactured by Simpson Door Company.

S
Good
3

Fireplace, Mantle, and Hearth

Recommended Treatment:

- Maintain historic character defining feature.
- Clean stone using Prosoco Limestone & Marble Poultice (for interior applications).
- See Assessment of Effect action #6 for analysis.
- Consider opening the living room back up for communal use/conference and reorganizing office staff. Relocating meeting space to the ground floor will aid in providing equivalent access to primary function areas. See Assessment of Effect action #7 for analysis.

Alternative Treatment:

No Action Alternative: Maintain existing conditions.

C
Good
3

Stairs

Recommended Treatment:

- The stairs should remain in their original location.
- Consider future removal of carpet and wood panel in conjunction with floor and wall finish replacement project.
- See Assessment of Effect action #6 for analysis.

Alternative Treatment:

No Action Alternative: Maintain existing conditions.

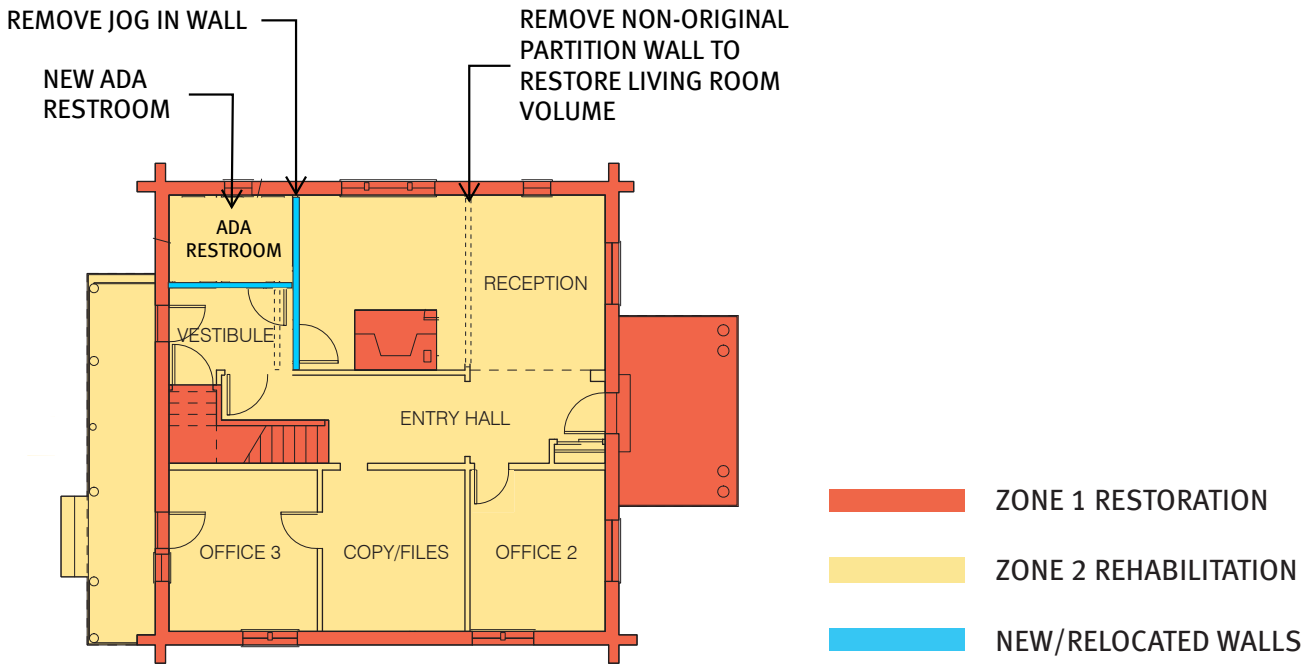


Image 80: Sketch of potential restoration of first floor living room for conference/meeting space (concept only, requires further study and field verification).

NC
Fair
2

Restrooms

Recommended Treatment:

- Restrooms require a new layout to achieve code required clearances and create a compliant accessible restroom. See diagrams, next page.
- See Assessment of Effect action #8 for analysis.

Alternative Treatment:

No alternatives recommended. A no action alternative will result in non-compliant facilities.

NC
Fair
3

Interior Lighting

Recommended Treatment:

- If the suspended ceiling is removed in the future, replacement of the lighting will be required. At that time consider a combination of period compatible ceiling mounted fixtures and wall mounted sconces, indirect modern lighting, and task lighting. Original wall sconces may be replicated based upon historic images with LED lamps to meet UL rating. See cutsheet #14-#17 for sconces, #18 for ceiling mount, and #19 for vanity lights, Appendix D. See Image 81 for inspiration.
- See Assessment of Effect action #9 for analysis.

Alternative Treatment:

No Action Alternative: Maintain existing conditions.

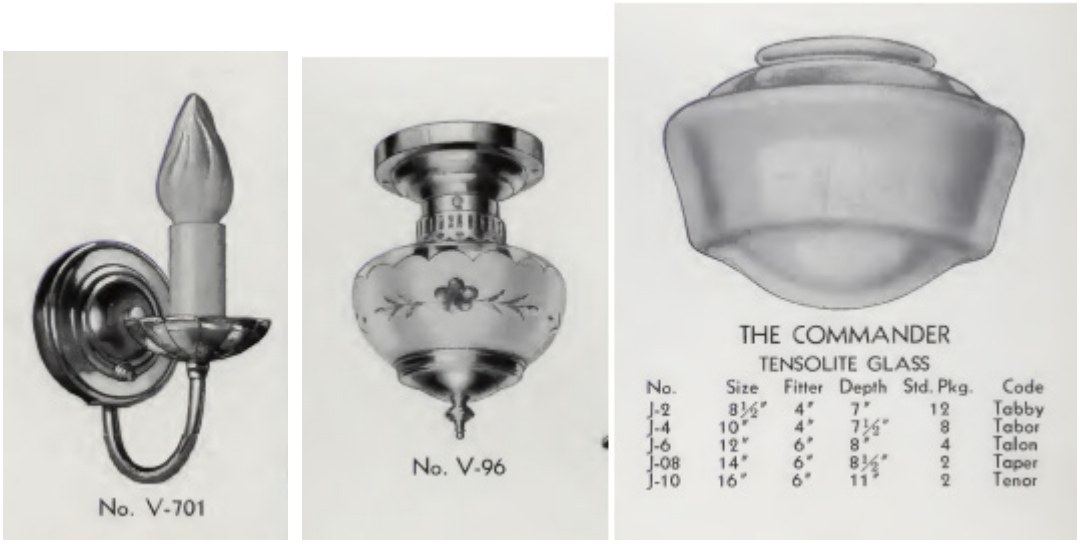


Image 81: Clippings from a Decorative Lighting catalog from 1941 portraying fixtures typical of the time period.

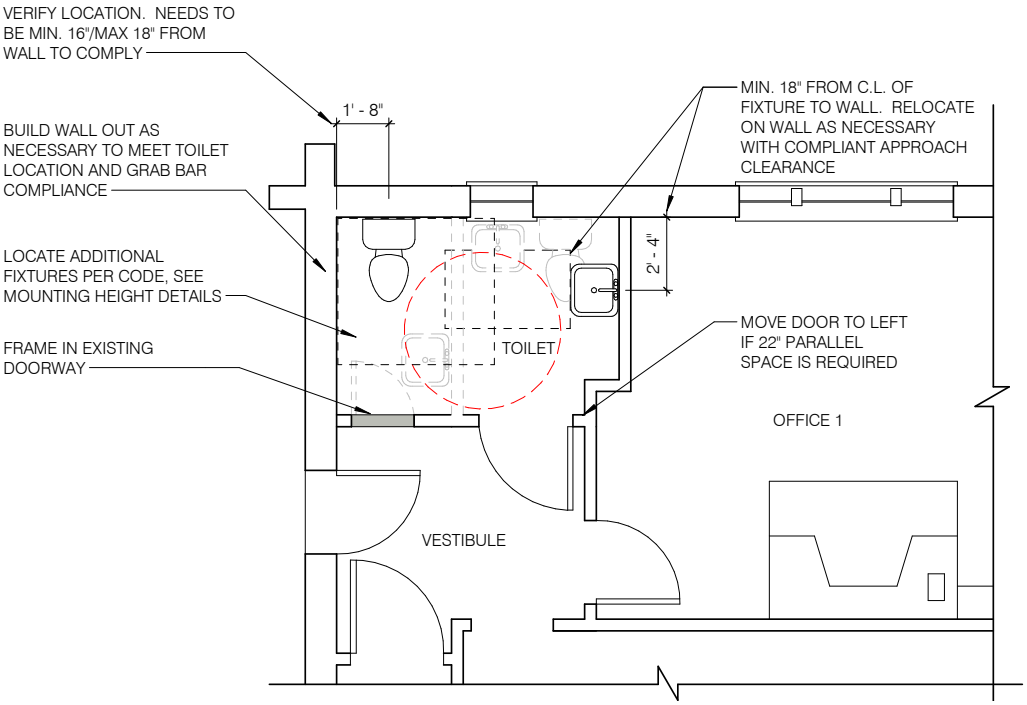


Image 82: Sketch of alternative first floor restroom to meet current ADA requirements for accessibility.

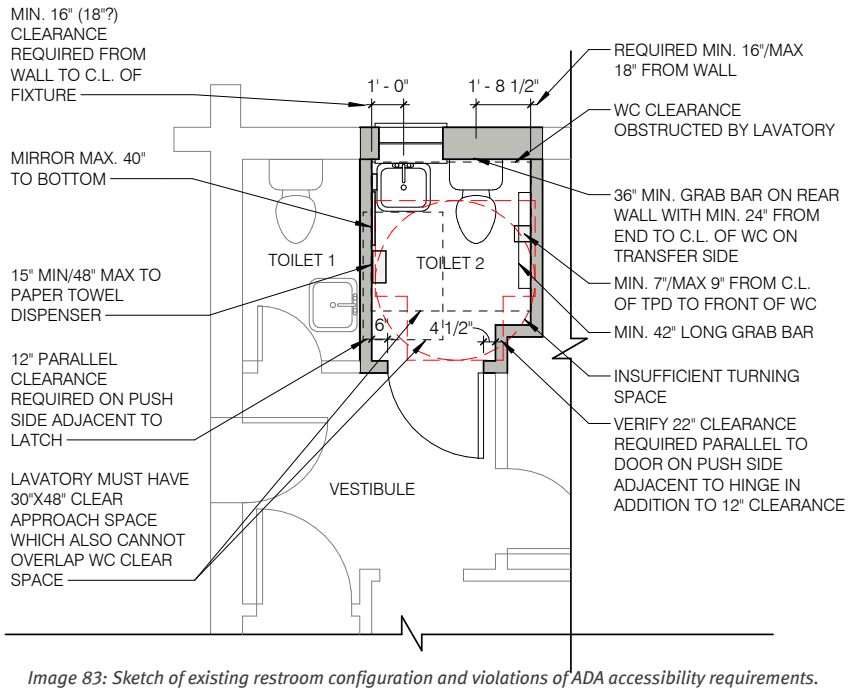


Image 83: Sketch of existing restroom configuration and violations of ADA accessibility requirements.

NC
-
2

Building Entrance + Accessible Floors

Recommended Treatment:

- Consider using grading to create a gradually sloped accessible walkway, that does not require handrails, to a portion of the west porch that is elevated to the first floor level.
- See Assessment of Effect action #4 for analysis.
- If equivalent access to primary function areas is provided on the ground floor, ADA access to the second floor is not necessary. We recommend prioritizing providing an accessible entrance, restroom, and meeting and office space on the first floor over the construction of a Limited Use/ Limited Application (LULA) elevator that would have substantial impacts to usable square footage and exterior character.

Alternative Treatment:

Alternative 1 - Entrance: Install a traditional wood ramp with log handrails as previously explored in sketches. See Assessment of Effect action #4.1 for analysis.

Alternative 2 - Entrance: Consider using grading to create a gradually sloped accessible walkway, that does not require handrails, to a portion of the east porch slab that is elevated to the first floor level. This will require removal of the two existing log slab steps to the first floor and would alter the primary elevation of the building, which is not preferred. See Assessment of Effect action #4.2 for analysis.

Alternative 3 - Entrance: Install an ADA lift at the west elevation entrance. This would introduce an additional feature at the west elevation porch, altering the exterior, and is not preferred. See Assessment of Effect action #4.3 for analysis.

Alternative 4 - Interior Elevator: To make the second floor accessible an elevator is required. A Limited Use/Limited Application (LULA) elevator would be adequate for the scale and use of the building. See Appendix D, cutsheet #3 for manufacturer's information and diagram at adjacent page for feasible locations. LULAs require maintenance by an elevator specialist every 6 months. See Assessment of Effect action #5 for analysis.

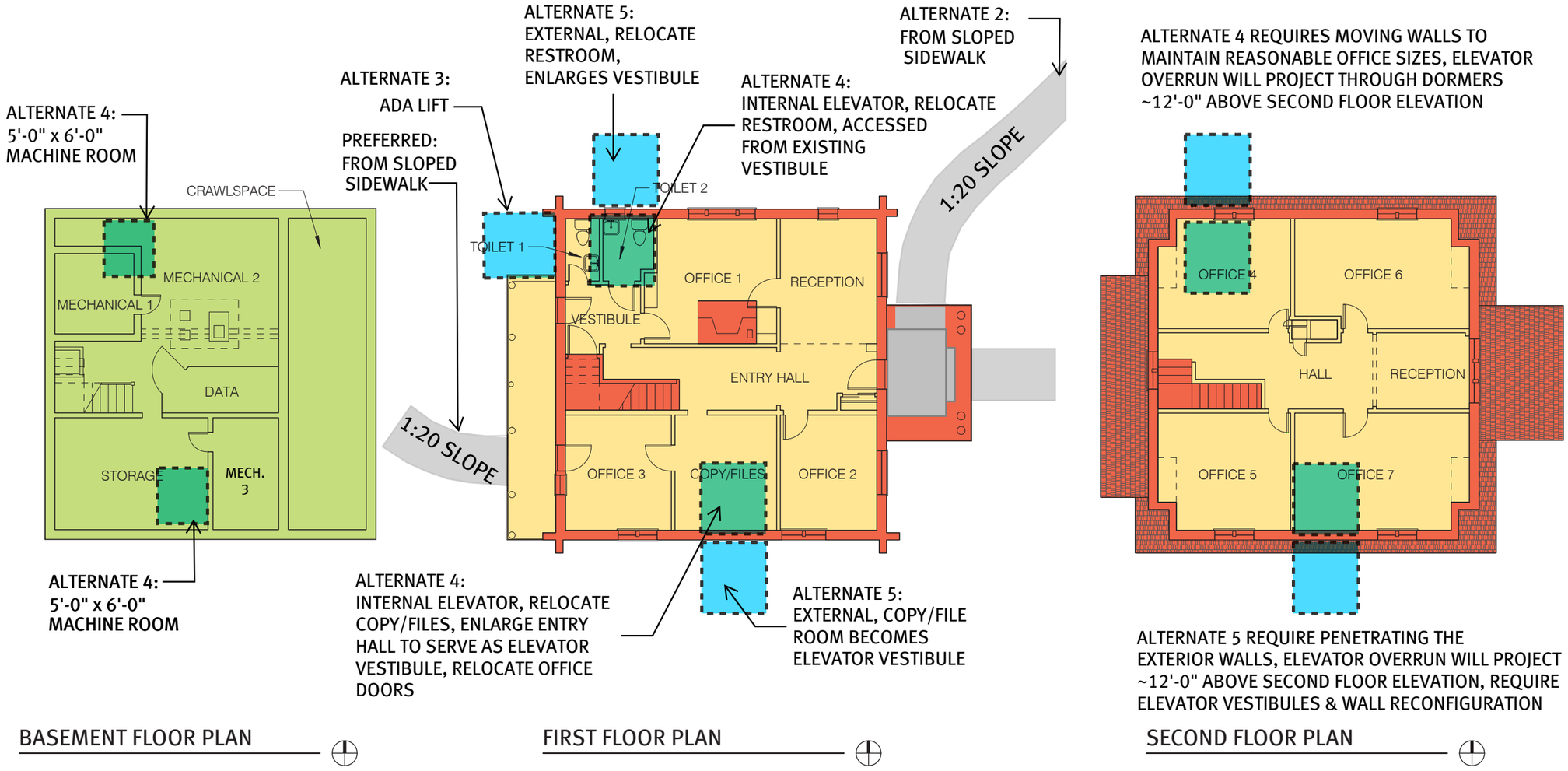
Alternative 5 - Exterior Elevator: To make the second floor accessible an elevator is required. A Limited Use/Limited Application (LULA) elevator would be adequate for the scale and use of the building. See Appendix D, cutsheet #3 for manufacturer's information and diagram at adjacent page for feasible locations. LULAs require maintenance by an elevator specialist every 6 months. See Assessment of Effect action #5.1 for analysis.

No Action Alternative: No action will leave the building entrance non-accessible.



Image 84: Strand Agriculture Hall at Oregon State University, illustrating use of gradually sloped grade to create an accessible walkway instead of traditional ramp.

BUILDING ENTRANCE & ACCESSIBLE FLOOR ALTERNATES



BASEMENT FLOOR PLAN

FIRST FLOOR PLAN

SECOND FLOOR PLAN

Image 85: Sketch showing potential LULA elevator and entrance ramp locations. These locations are subject to further study and field verification.

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Structural System

S
Fair - Poor
1

Exterior Structure

Recommended Treatment:

- At the west porch replace decking and support posts that are rotted at the base.
- The stabilization beams which extends out of the basement in the northwest corner should be cut flush to the face of the building to remove the rotted portion, arresting its progression. If deterioration is evident within the depth of the foundation wall, the beam could be further removed and the exterior 3-1/2" repalced with new solid blocking. The end should be sealed to prevent further decay. Without treatment decay of the member will propagate to the interior, eventually compromising the exterior building envelope and joist support on the interior.
- See Assessment of Effect action #1 for analysis.

Alternative Treatment:

No alternatives recommended. A no action alternative will result in continued deterioration and eventual material failure.

C
Fair
2

Interior Structure

Recommended Treatment:

- Prior to conducting any comprehensive rehabilitation project we recommend an engineering investigation of the structural capacity of the existing floor joists which have experienced section loss due to fire damage/charring. Based on the results of this investigation, detailed repair recommendations can be developed to repair or replace the joists if necessary. In lieu of an engineering investigation the existing joists could be sistered with new joists matching the existing joist dimensions.
- While the foundation appears to be stable in its current state, we recommend replacement of the west portion of the north foundation wall. This new wall would provide permanent support of floor joists that are currently carried by the built-up lumber beam. The beam could then be removed and the west wall repaired.
- Prior to conducting any comprehensive rehabilitation project we recommend an engineering investigation of the current structural connections between diaphragms, walls, roof, and foundation. Based on the results of this investigation detailed recommendations for ensuring an adequate load path can be developed and incorporated into the project.
- See Assessment of Effect action #10 for analysis.

Alternative Treatment:

Alternative 1 - Foundation: Maintain and monitor existing foundation conditions. The current condition is reportedly stable over a long period. Maintaining the existing condition may result in greater water/moisture ingress and is less capable of providing support in case of large transient environmental loading such as extreme snow loads or seismic ground accelerations.

No Action Alternative: A no action alternative may result in water/moisture ingress at the foundation and hazardous conditions and failure during a seismic event.

Mechanical, Electrical, and Plumbing Systems

NC
Good -Fair
3

Heating, Ventilating, and Air Conditioning (HVAC)

Recommended Treatment:

- Install an emergency boiler disconnect at the exit of the boiler area to allow shutdown.
- At the first floor spaces where point of use electric wall heaters have been utilized, consideration should be given to extending the existing central forced air system to provide additional heat to these spaces.
    - The ductwork could be extended from the existing duct system in the basement to floor (or low wall diffusers and provided with balancing dampers/grilles for control. This would limit the impact to the building.
    - No modifications to existing wall and floor grilles/diffusers are required but replacing these with adjustable blades would allow individual areas to have greater control over the amount of heating.
- Replace the thermostat with a programmable unit to allow greater energy savings in off use hours.
    - Recommended brands: Honeywell, Schneider Electric, Lennox. The units should have a minimum 7-day time clock and an overnight setback option.
- See Assessment of Effect action #9 for analysis.

Alternative Treatment:

No alternatives recommended. A no action alternative will result in continued inefficiencies and diminished occupant comfort.

NC
Fair - Poor
2

Plumbing

Recommended Treatment:

- For energy conservation the electric resistance storage type water heater should be set on an insulation pad to isolate it from the concrete floor. Priority: Low.
- All galvanized water piping should be removed from operation in the domestic/ potable water system and replaced with code compliant “Lead-Free” materials. The recommended materials would be PEX (type A) and/or copper with no-lead solder. Priority: High.
- Replace any exiting hub and spigot cast-iron piping that remains in service with new no-hub cast-iron piping. Priority: Medium.
- Most of the plumbing fixtures are in fair to poor condition and are nearing the end of their usable life span. Replacement of fixtures with modern devices and fittings is recommended. See cutsheets #04-#11, Appendix D, for mounting heights and recommended fixtures. Priority: medium for fixtures.
- Recommended fixture flush/flow rates:
    - Water closets - 1.28GPF.
    - Lavatories – 0.5 gpm for general use toilet rooms, 1.5 gpm for bathing areas.
    - Kitchen sinks – 1.5 gpm.
    - Work sinks – 2.2 gpm.
    - Shower heads – 1.75 gpm.
- Recommend replacing all faucets, hose bibbs installed after 2014 with new “No-lead” compliant devices as soon as possible to protect users. Priority: High.
- See Assessment of Effect action #9 for analysis.

Alternative Treatment:

No alternatives recommended. A no action alternative will result in continued inefficiencies and system deterioration.

NC
Fair
3

Electrical

Recommended Treatment:

- All electrical panelboards/breakers manufactured prior to 1990 (30 years is an industry standard life expectancy) should be replaced to ensure that equipment will function correctly in the event of an electrical fault in the system. Severe climate may accelerate aging of equipment and can result in dangerous conditions. Sola Electric voltage regulator appears to be beyond end of service life; we recommend it be replaced with a solid-state based voltage regulator for better protection of power supplies in downstream equipment. Given the remote location, add a surge protective device to each of the three load centers to extend the life of connected electrical equipment.
- Update lighting to improve energy efficiency. Provide LED bulbs and fixtures in all spaces. Replace fluorescent bulbs in basement with LED equivalents. Use LED retrofit kits to update existing 2x4 troffers. If existing ceiling is to be replaced, follow the general recommendations below in order in ensure satisfactory light quality is achieved:
    - Interior: Recommend providing LED fixtures with 3500k color temperature for optimal visual comfort unless NPS directs otherwise. Care should be taken to provide a luminaire layout that produces a uniform lighting level of 30 foot-candles (fc) on the horizontal surface of work plane (2'6" A.F.F.) – supplemented with task lighting as needed.
    - Exterior: Recommend providing LED luminaire that meets dark sky compliance with a color temperature of 3000K or less to produce a warmer light output that is less disturbing to wildlife. Light output should be selected to maintain an average of 0.5 fc on walking surface. Controls as specified by NPS.
    - If additional energy savings is preferred, add ceiling occupancy sensors to control lighting in office areas, and timer switches for lighting in basement area.
- All existing and future electrical wiring and conduit should be concealed where possible to maintain historic qualities of building. This applies to interior and exterior work.
- See Assessment of Effect action #9 for analysis.

Alternative Treatment:

No alternatives recommended. A no action alternative will result in continued inefficiencies.

NC
Fair
2

Fire Life Safety

Recommended Treatment:

- Confirm that emergency light fixtures are in good working order and provide adequate light levels to meet NFPA standards, such that emergency illumination is no less than an average of 1 footcandle (10 lx) and a minimum of 0.1 footcandle (1 lx) at any point measured along the path of egress at floor level. A maximum to minimum illumination uniformity ratio of 40 to 1 shall not be exceeded. Replace batteries in these fixtures one-for-one. See cutsheet #12, Appendix D, for recommended fixtures.
- Recommend replacing exit signs with internally illuminated exit signs, or else use photometer to verify there is five footcandles illumination on exit sign from only emergency lighting sources per NFPA 101, Section 7.10.6.3. If exit signs are replaced with an illuminated model, verify that the illuminated model is order with battery back-up option for continued functionality during building power loss. See cutsheet #13, Appendix D, for recommended fixture.
- Fire alarm system should be tested but appears to be in good condition, suitable for use as is.
- Fire extinguishers are required, one at each floor, located along the normal path of travel, visible, and easily accessible. Mounted on a wall hanger, the top of the extinguisher shall not be greater than 5'-0" above the floor. Check that existing extinguishers are less than 10 years old and are correctly located and mounted.
- Add fire sprinklers for resource protection and as required by NPS Structural Fire Management (RM-58).
- See Assessment of Effect action #11 for analysis.

Alternative Treatment:

No alternatives recommended.

Assessment of Effect for Recommended Treatments 2.04



Image 86: Rangers' Dormitory east elevation with the Headquarters Access Road in the foreground, c.1935-40 (DENA 10485, Denali National Park and Preserve Museum Collection).

COMPLIANCE

Section 106 of the National Historic Preservation Act of 1966 mandates that every federal undertaking or federally funded undertaking must determine what effects, if any, it will have on historic resources, and take appropriate measures to mitigate any adverse effects.

Degree of Effect

The effect of a recommended treatment or action on an historic resource is defined by the degree of impact to the resource's character-defining features. The Advisory Council on Historic Preservation's (ACHP) assessment criteria ask "Does the undertaking have the potential to alter characteristics of historic properties such as location, design, setting, workmanship, materials, feeling, and association? Will it cause visual, audible, or atmospheric intrusions not in keeping with a property or its setting, or change the use of the property?"

As defined by NPS-28: Cultural Resources Management Guidelines, the degree of effect is measured as one of the following three findings:

- *No Effect:* An action will not impact any historic resources.
- *No Adverse Effect:* An action will have an impact on the historic resource but not an adverse impact.
- *Adverse Effect:* An action that alters the characteristics that qualify a property for inclusion in the National Register in a manner that would diminish the integrity of the property. Adverse effects can be direct or indirect. They include reasonably foreseeable impacts that may occur later in time, be farther removed in distance, or be cumulative.

The Secretary of the Interior's Standards

An established pathway to assuring treatments will not result in an adverse effect is to adhere to *The Secretary of the Interior's Standards* for the treatment approach determined applicable to the project.

Rehabilitation has been determined the appropriate approach for the Rangers' Dormitory in order to restore missing character defining features while continuing use as the administrative headquarters for the park.

The Secretary of the Interior's Standards for Rehabilitation

The Standards pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and the interior of historic buildings. *The Standards* also encompass related landscape features and the building's site and environment, as well as attached, adjacent, or related new construction. *The Standards* for rehabilitation are as follows:

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.

3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.

6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Parameters for Compliance

Where there is potential to have adverse effect if *The Secretary of the Interior's Standards* are *not* followed, guidelines are provided that if followed will result in compliance design or treatment.

Assessment of Effect

BUILDING: RANGERS' DORMITORY (BUILDING 21)
AREA OF POTENTIAL EFFECT: BUILDING & IMMEDIATE SITE, HEADQUARTERS HISTORIC DISTRICT

#	RECOMMENDED TREATMENT / ACTION	Meets Secretary of the Interior's Standards	Determination of Effect	Analysis	Parameters for Compliance	Action Alternatives	No Action Alternative
1	Maintain, repair, and replace historic materials and features in kind.	Yes	No adverse effect	Standard preservation practice.		N/A	Features and materials continue to deteriorate and ultimately fail.
2	Repair (2) existing window locations and continue to install/remove exterior wood storm windows seasonally.	Yes	No adverse effect	Retains historic windows, continues historic practice, most labor intensive, protects windows from weather.		2.1, 2.2, 2.3	Features and materials continue to deteriorate and ultimately fail.
3	Replace existing non-historic wood windows with new insulated wood windows.	Yes	No adverse effect	Replaces non-historic non-compatible windows with double-hung wood windows matching historic images and extant historic windows. Restores character defining feature and improves exterior integrity. Also improves occupant comfort and energy performance.	Compatible windows can be selected that match all dimensions, divisions, and operation.	N/A	Non-compatible windows remain in place.
4	Construct accessible ramp at secondary west entrance. Manipulate grade for concrete ramp without rails.	Yes	No adverse effect	Potentially least visually impactful approach to accessible ramp design. Minimal components in rear of the building. Requires regrading the site in back of the building, alteration to the porch allow for turning radius, and a lengthy approach from the sidewalk.	Designed per code at 1:20 slope. Hand rail required at transition to 1:12 if needed.	4.1	Building remains inaccessible.
5	Install interior LULA elevator	Yes	Adverse effect	Requires moving interior walls to reconfigure offices and create elevator lobby. Elevator overrun would project above the roofline approximately 12'.	Design per building code.	5.1	Second floor remains inaccessible.
6	Restore interior floors, walls, ceiling, and features.	Yes	No adverse effect	Improves interior character and integrity. Some features are undocumented.	Restore per original drawings, historic images, and physical evidence.	N/A	Maintain finishes and features as they currently are.
7	Restore first floor living room configuration as conference/meeting space. Remove non-original walls.	Yes	No adverse effect	Removal of non-original partition walls adjacent to the fireplace would restore the living room and visibility of the stone fireplace. Requires relocation of existing office and reconfiguration of reception.	Restore per historic documentation and physical evidence.	N/A	Maintain first floor configuration that currently exists.
8	Reconfigure (2) existing restrooms into (1) restroom that is compliant with current ADA requirements.	Yes	No adverse effect	Existing accessible restroom does not meet current ADA requirements. Combining into one unisex restroom allows for a code compliant restroom but a reduction in fixture counts.	Maintain historic wall locations and original window. Design per current code.	N/A	Building remains without an accessible restroom that meets current code.

BUILDING: RANGERS' DORMITORY (BUILDING 21) AREA OF POTENTIAL EFFECT: BUILDING & IMMEDIATE SITE, HEADQUARTERS HISTORIC DISTRICT							
#	RECOMMENDED TREATMENT / ACTION	**Meets Secretary of the Interior's Standards**	**Determination of Effect**	**Analysis**	**Parameters for Compliance**	**Action Alternatives**	**No Action Alternative**
9	Upgrade mechanical, electrical, and plumbing systems including replacement of fixtures in kitchen and bathrooms.	Yes	No adverse effect	Improves occupant comfort and energy performance with minimal impact to historic character.	Sensitive selection and location of MEP systems, compatible fixtures.	N/A	Maintain existing systems including fixtures that are past their service life.
10	Structurally reinforce basement foundation and existing first floor joists	Yes	No adverse effect	Improves structurally compromised concrete foundation and damaged wood floor joists.		N/A	Maintain and monitor existing foundation and floor joists conditions, potentially leading to water intrusion at the foundation.
11	Install a residential fire sprinkler system.	Yes	No adverse effect	Upgrades fire life safety for occupants and improves resource protection.	Sensitive installation, concealed system, selection of low impact sprinkler head.	N/A	Maintain existing unsprinklered condition.

Assessment of Effect

BUILDING: RANGERS' DORMITORY (BUILDING 21)
AREA OF POTENTIAL EFFECT: BUILDING & IMMEDIATE SITE, HEADQUARTERS HISTORIC DISTRICT

#	ALTERNATIVE ACTIONS	Meets Secretary of the Interior's Standards	Determination of Effect	Analysis	Parameters for Compliance	Action Alternatives	No Action Alternative
2.1	Removable interior storm windows instead of exterior wood storm windows at (2) original window locations.	Yes	No adverse effect	No impact to historic windows, easier to install, remove, and store than exterior storms, improved occupant comfort and energy performance, no visual impact to exterior, but no weather protection for historic windows.		2, 2.2	
2.2	Retrofit wood windows with Slim Line Insulating Panes at (2) original window locations.	Yes	No adverse effect	Historic windows and operability retained, attached to windows but removable, improved occupant comfort and energy performance, no seasonal installation, removal, and storage, minimal visual impact.		2, 2.1	
4.1	Accessible ramp at east entrance of wood construction with log guard and hand rails.	Yes	Adverse effect	This option requires more components in front of the building that may obscure the primary elevation, but achieves the desired outcome of an accessible main entrance.	Ramp designed per code and of as few members as possible.	4.2, 4.3	Building remains inaccessible.
4.2	Construct accessible ramp at primary east entrance. Manipulate grade for concrete ramp without rails.	Yes	Adverse effect	A more impactful approach to accessible ramp design than the west entrance. Requires minimal components in front of the building. Requires regrading the site in front of the building, alteration to the porch slab to bring height to first floor, removal of existing log steps at entrance, and a lengthy approach from the sidewalk.	Designed per code at 1:20 slope. Hand rail required at transition to 1:12 if needed.	4.1, 4.3	Building remains inaccessible.
4.3	Install ADA lift at west elevation entrance.	Yes	Adverse Effect	A lift would introduce a more visually impactful feature at the west elevation, altering the exterior, but it would be a reversible addition.	Must meet ADA standards	4.1, 4.2	
5.1	Install exterior LULA elevator	Yes	Adverse effect	Requires penetrating exterior walls, with elevator overrun projecting 12' aboe the second floor, and reconfiguring interior walls for vestibule	Design per building code.		Second floor remains inaccessible.

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Appendix

Relevant Historical Drawings *A*

Field Forms - Windows and Doors *B*

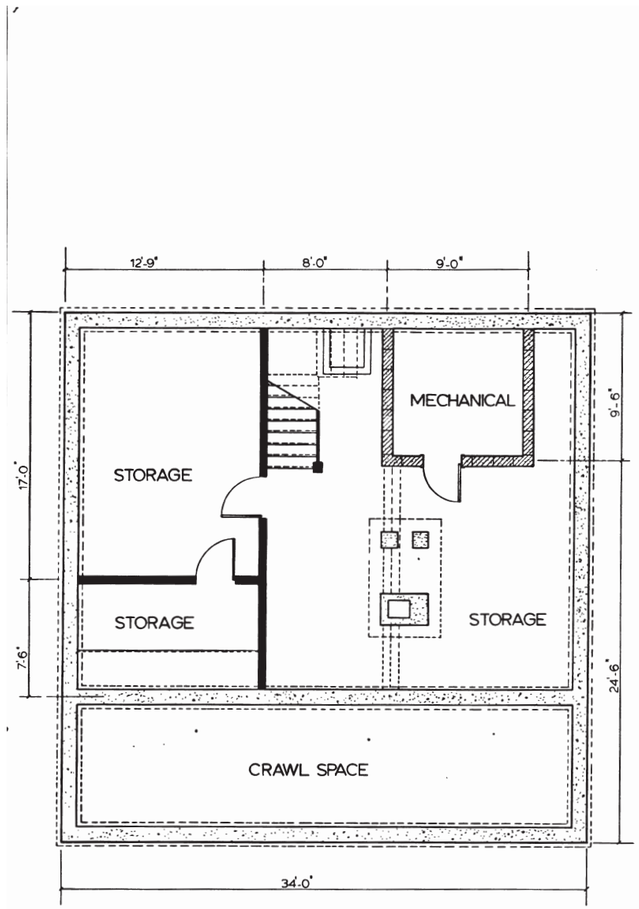
Resistance Drill Graphs *C*

Recommended Products / Cutsheets *D*

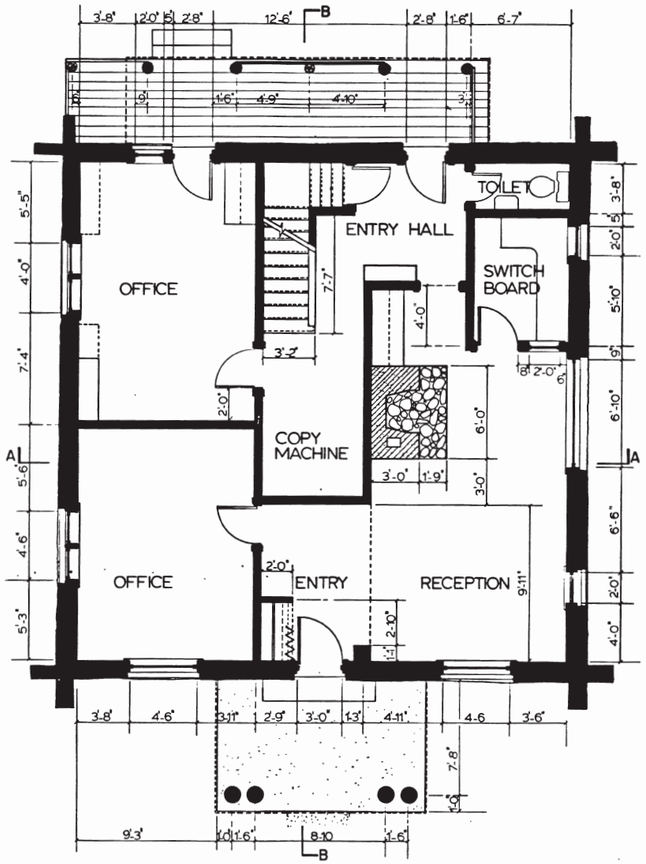
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Appendix A - Relevant Historical Drawings

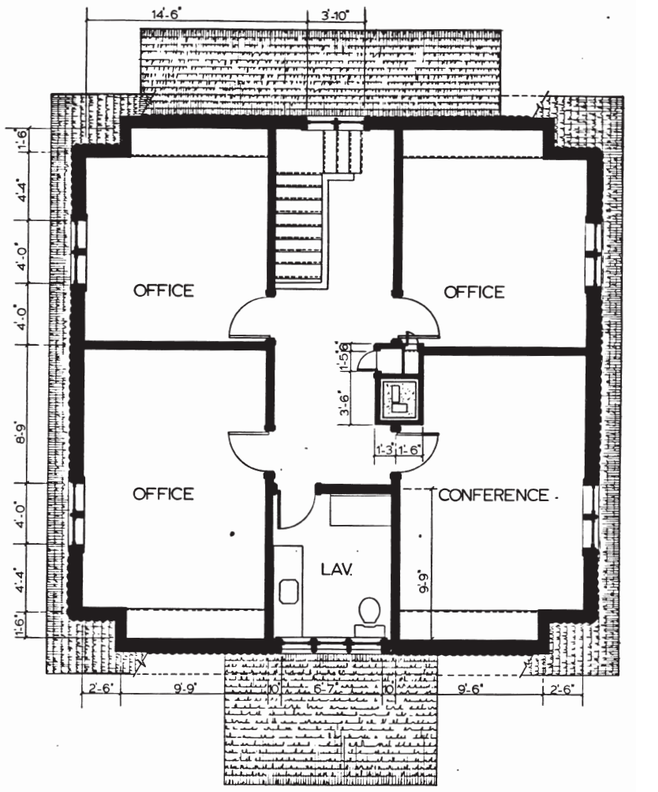
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BASEMENT FLOOR PLAN
NOT TO SCALE



FIRST FLOOR PLAN
NOT TO SCALE

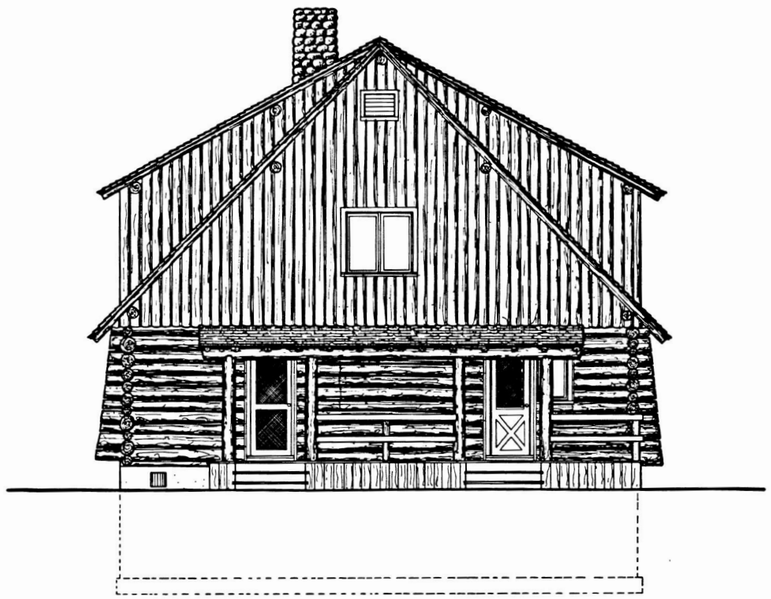


SECOND FLOOR PLAN
NOT TO SCALE

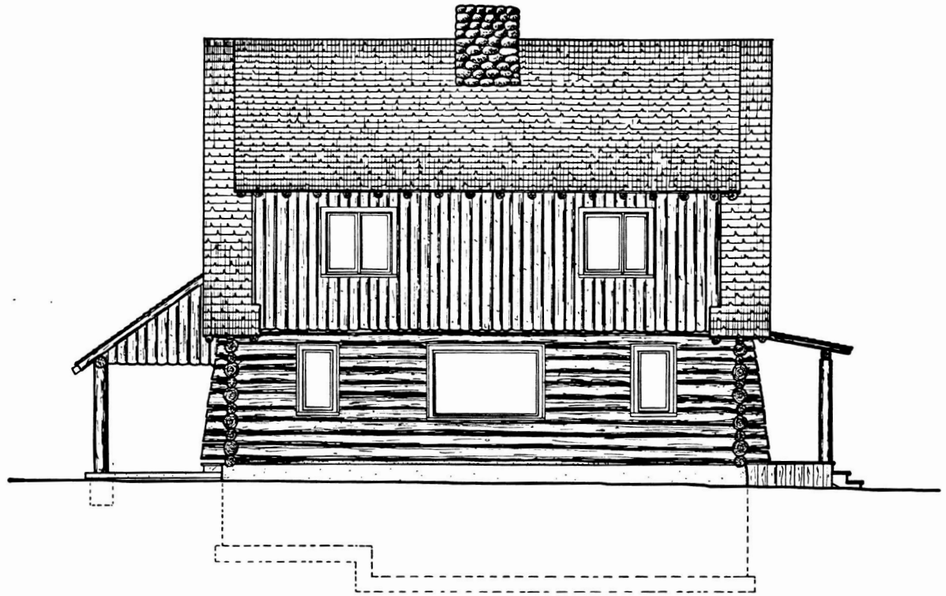
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1987 Historic American Building Survey Drawings - Rangers' Dormitory #21

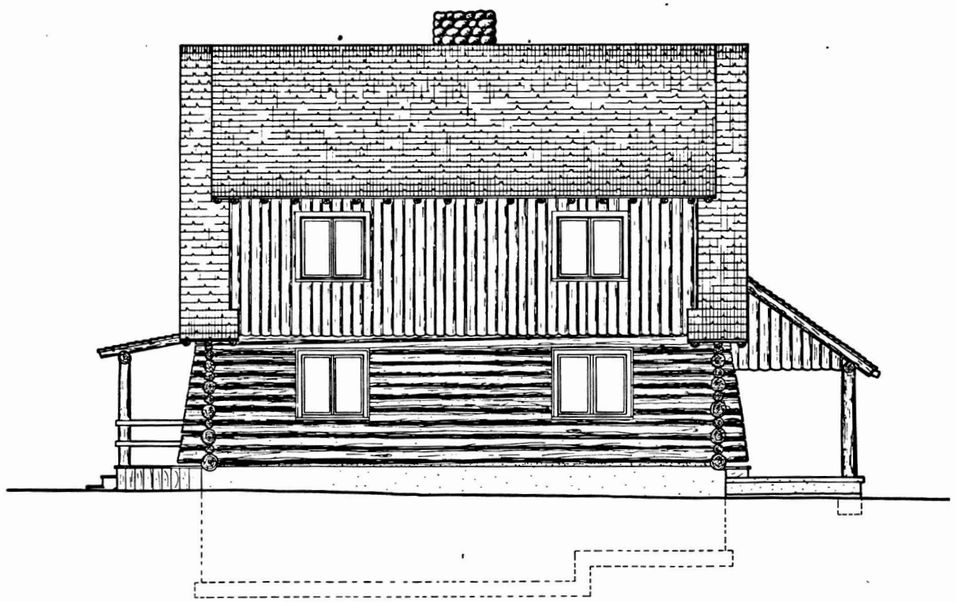
DOCUMENTING CONVERSION TO ADMINISTRATIVE OFFICES



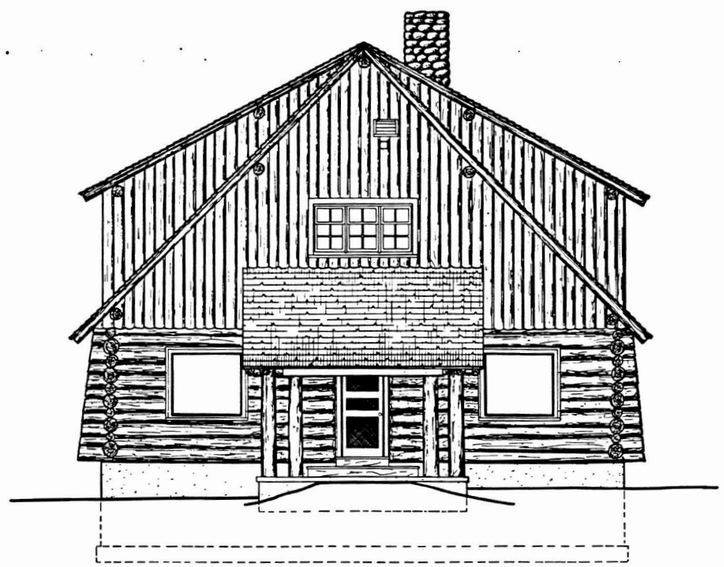
WEST ELEVATION
NOT TO SCALE



NORTH ELEVATION
NOT TO SCALE

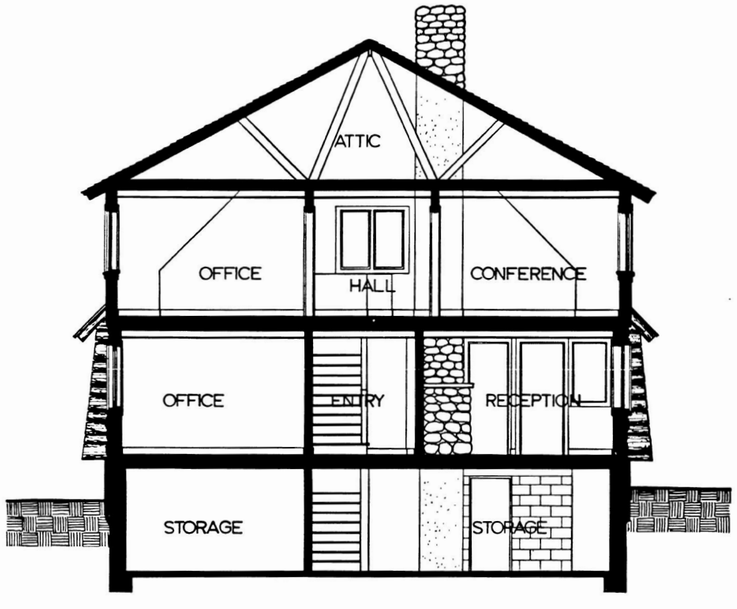


SOUTH ELEVATION
NOT TO SCALE



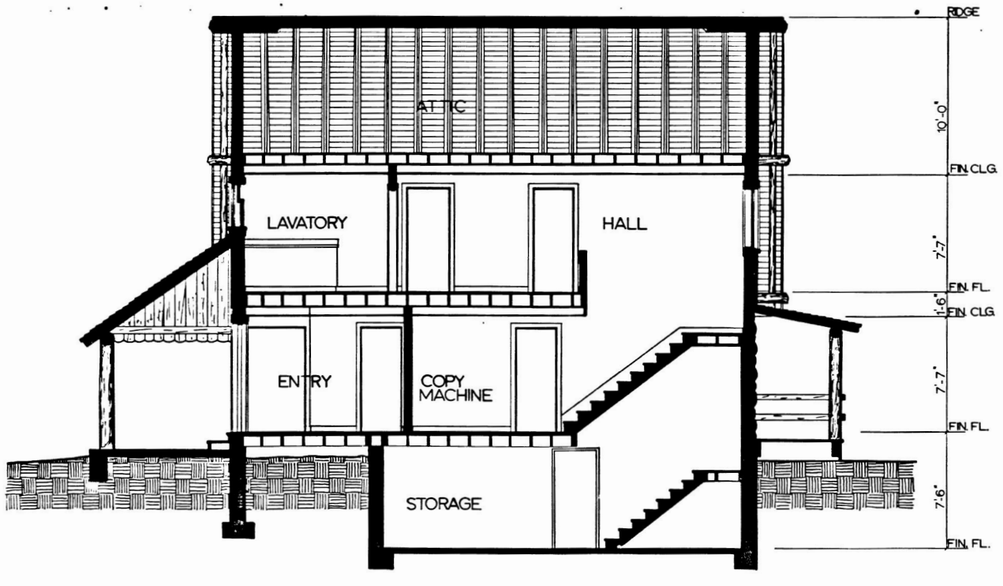
EAST ELEVATION
NOT TO SCALE

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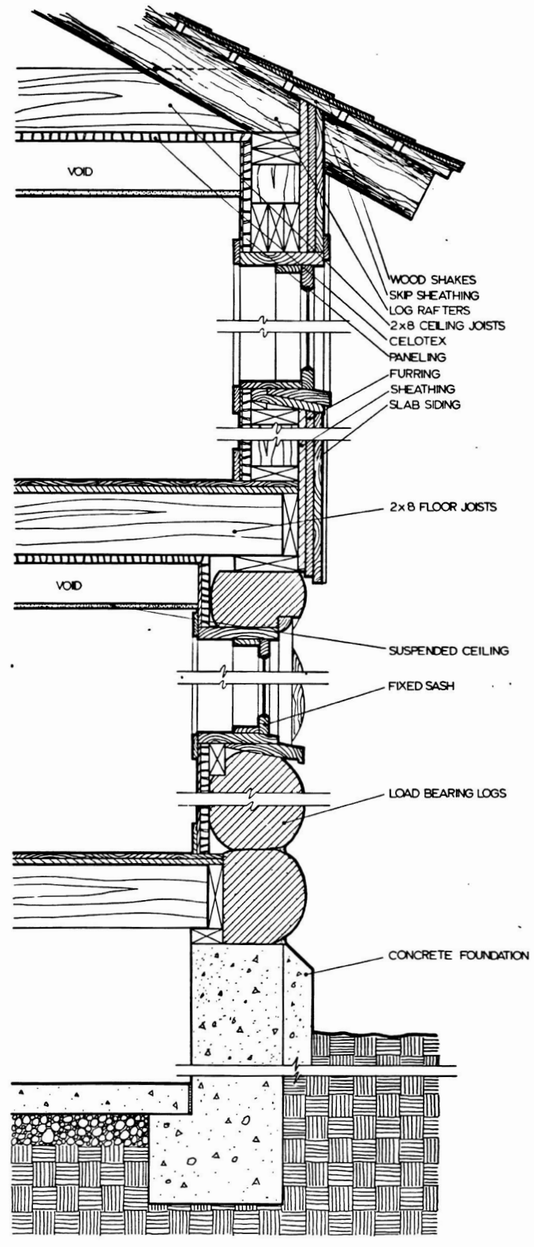
SECTION A-A

FEET 1/4"=1'-0" 0 1 3 5
METERS 1:48 0 0.5 1 1.5



SECTION B-B

FEET 1/4"=1'-0" 0 1 3 5
METERS 1:48 0 0.5 1 1.5



WALL SECTION

FEET 1 1/2"=1'-0" 0 1/4 1/2
CENTIMETERS 1:8 0 10 20 30

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Appendix B - Field Forms

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DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 1 ID: DR-1

☐ WINDOW Opening: ☑ DOOR Opening: 36"x80"

Type 1: — Lites: Type: Paneled Panels: 4

Type 2: — ☐ Not Operable Material: Wood - stile/rail ☐ Not Operable

Material: — Glazing: Half Lites: 9





HARDWARE: 3 hinges, 1 locking lever set

☑ Good ☐ Damaged ☐ Missing

☑ Storm ☐ Screen ☐ Weatherstripped

Jamb: Finish failure

Head: Good

Sill/Threshold: Finish failure

Exterior Trim: Finish failure

Sash/Leaf 1: Finish failure

Sash/Leaf 2: Finish failure

Sash/Leaf 3: —

Glass Type: Clear Broken:

☑ Single ☐ Double ☐ Triple

Putty: —

Interior Trim: Minor deterioration

Interior Sill: —

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 1 ID: DR-2

☐ WINDOW Opening: ☑ DOOR Opening: 32"x79.5"

Type 1: — Lites: Type: Glazed Panels: 1

Type 2: — ☐ Not Operable Material: Wood - slab ☐ Not Operable

Material: — Glazing: Half Lites: 1





HARDWARE: 3 hinges, 1 locking lever set

☑ Good ☐ Damaged ☐ Missing

☐ Storm ☑ Screen ☑ Weatherstripped

Jamb: Finish failure

Head: Good

Sill/Threshold: Minor deterioration

Exterior Trim: Finish failure

Sash/Leaf 1: Finish failure

Sash/Leaf 2: —

Sash/Leaf 3: —

Glass Type: Clear Broken:

☐ Single ☑ Double ☐ Triple

Putty: —

Interior Trim: Minor deterioration

Interior Sill: —

Weatherstrip failing

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 1 ID: DR-3

☐ WINDOW Opening: ☑ DOOR Opening: 32"x79.5"

Type 1: — Lites: Type: Glazed Panels: 0

Type 2: — ☐ Not Operable Material: Wood - slab ☐ Not Operable

Material: — Glazing: Half Lites: 1





HARDWARE: 3 hinges, 1 locking lever set

☑ Good ☐ Damaged ☐ Missing

☐ Storm ☑ Screen ☑ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Finish failure

Exterior Trim: Good

Sash/Leaf 1: Finish failure

Sash/Leaf 2: —

Sash/Leaf 3: —

Glass Type: Clear Broken:

☐ Single ☑ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: Good

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 1 ID: E1-1

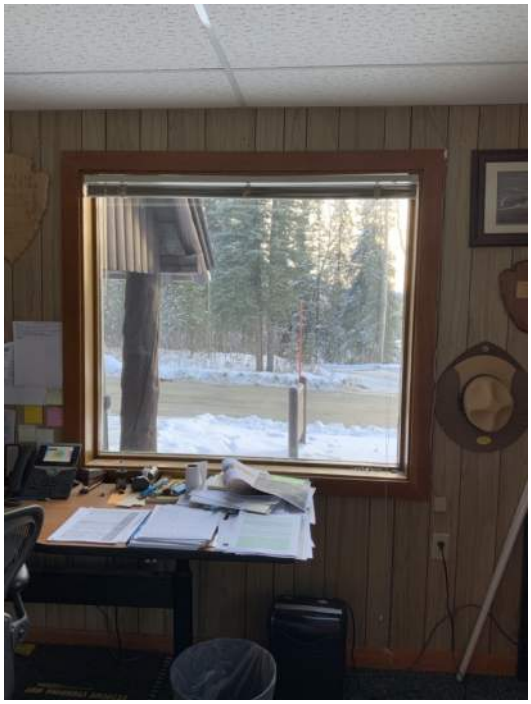
☑ WINDOW Opening: 53.5"x48.5" ☐ DOOR Opening:

Type 1: Fixed Lites: 1 Type: — Panels:

Type 2: — ☐ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE:

☐ Good ☐ Damaged ☐ Missing
☐ Storm ☐ Screen ☐ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Good

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: —

Sash/Leaf 3: —

Glass Type: Clear Broken:

☐ Single ☑ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: Good

Sealant at interior missing in select areas

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 1 ID: E1-2

☑ WINDOW Opening: 53"x49" ☐ DOOR Opening:

Type 1: Fixed Lites: 1 Type: — Panels:

Type 2: — ☐ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE:

☐ Good ☐ Damaged ☐ Missing
☐ Storm ☐ Screen ☐ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Good

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: —

Sash/Leaf 3: —

Glass Type: Clear Broken:

☐ Single ☑ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: Finish failure

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 2 ID: E2-1

☑ WINDOW Opening: 79"x34.5" ☐ DOOR Opening:

Type 1: Dbl-hung Lites: 2/4 Type: — Panels:

Type 2: - ☑ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE: Pin holes, no pins
Fixed shut with wood stops

☐ Good ☐ Damaged ☑ Missing
☑ Storm ☐ Screen ☐ Weatherstripped

Jamb: Minor deterioration

Head: Good

Sill/Threshold: Finish failure

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: Good

Sash/Leaf 3: —

Glass Type: Clear Broken:

☑ Single ☐ Double ☐ Triple

Putty: Intact

Interior Trim: Good

Interior Sill: Good

Triple double hung assembly with mullions
Cracked jamb at interior.
Header flashed

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 2 ID: E2-2

☑ WINDOW Opening: 79"x34.5" ☐ DOOR Opening:

Type 1: Dbl-hung Lites: 2/4 Type: — Panels:

Type 2: — ☑ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE: Pin holes, no pins
Fixed shut with wood stops

☐ Good ☐ Damaged ☐ Missing
☐ Storm ☑ Screen ☑ Weatherstripped

Jamb: Minor deterioration

Head: Good

Sill/Threshold: Finish failure

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: Good

Sash/Leaf 3: —

Glass Type: Clear Broken: 2

☑ Single ☐ Double ☐ Triple

Putty: Intact

Interior Trim: Good

Interior Sill: —

Triple double hung assembly with mullions
Cracked jamb at interior.
Header flashed

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 2 ID: E2-3

☑ WINDOW Opening: 79"x34.5" ☐ DOOR Opening:

Type 1: Dbl-hung Lites: 2/4 Type: — Panels:

Type 2: — ☑ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE: Pin holes, no pins
Fixed shut with wood stops

☐ Good ☐ Damaged ☑ Missing
☑ Storm ☐ Screen ☐ Weatherstripped

Jamb: Minor deterioration

Head: Good

Sill/Threshold: Finish failure

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: Good

Sash/Leaf 3: —

Glass Type: Clear Broken:

☑ Single ☐ Double ☐ Triple

Putty: Intact

Interior Trim: Good

Interior Sill: —

Triple double hung assembly with mullions
Cracked jamb at interior.
Header flashed

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: B ID: N0-1

☑ WINDOW Opening: 36"x18" ☐ DOOR Opening:

Type 1: Hopper Lites: 3 Type: — Panels:

Type 2: — ☑ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:

HARDWARE:

☐ Good ☐ Damaged ☑ Missing

☐ Storm ☐ Screen ☐ Weatherstripped

Jamb: —

Head: —

Sill/Threshold: —

Exterior Trim: —

Sash/Leaf 1: Minor deterioration

Sash/Leaf 2: —

Sash/Leaf 3: —

Glass Type: Clear Broken: 1

☑ Single ☐ Double ☐ Triple

Putty: —

Interior Trim: Minor deterioration

Interior Sill: Moderate deterioration

Painted black glass
Exterior not visible, conc, below grade



DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: B ID: N0-2

☑ WINDOW Opening: 36"x18" ☐ DOOR Opening:

Type 1: Hopper Lites: 3 Type: — Panels:

Type 2: — ☑ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:

HARDWARE:

☐ Good ☐ Damaged ☐ Missing

☐ Storm ☐ Screen ☐ Weatherstripped

Jamb: Moderate deterioration

Head: —

Sill/Threshold: —

Exterior Trim: —

Sash/Leaf 1: Missing component

Sash/Leaf 2: —

Sash/Leaf 3: —

Glass Type: — Broken:

☐ Single ☐ Double ☐ Triple

Putty: —

Interior Trim: —

Interior Sill: Moderate deterioration

Window missing/boarded
Ext not visible, concrete below grade



DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 1 ID: N1-1

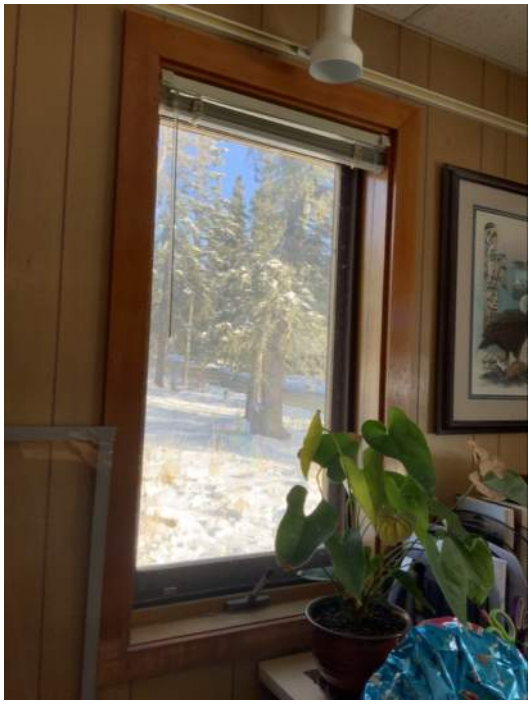
☑ WINDOW Opening: 24"x47" ☐ DOOR Opening:

Type 1: Casement Lites: 1 Type: — Panels:

Type 2: — ☐ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE: Crank stuck, ext has hopper hinges, painted shut

☐ Good ☐ Damaged ☐ Missing

☐ Storm ☑ Screen ☐ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Good

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: —

Sash/Leaf 3: —

Glass Type: Clear Broken:

☐ Single ☑ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: Finish failure

Screen replacement

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 1 ID: N1-2

☑ WINDOW Opening: 81.5"x45.5" ☐ DOOR Opening:

Type 1: Casement Lites: 1 Type: — Panels:

Type 2: - ☐ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE: Crank

☐ Good ☐ Damaged ☐ Missing

☐ Storm ☑ Screen ☐ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Moderate deterioration

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: -

Sash/Leaf 3: —

Glass Type: Clear Broken:

☐ Single ☑ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: Good

Cracked ext sill

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 1 ID: N1-3

☑ WINDOW Opening: ☐ DOOR Opening:

Type 1: Fixed Lites: 11 Type: — Panels:

Type 2: — ☐ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:

HARDWARE:

☐ Good ☐ Damaged ☐ Missing

☐ Storm ☐ Screen ☐ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Moderate deterioration

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: —

Sash/Leaf 3: —

Glass Type: Clear Broken:

☐ Single ☑ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: —

Cracked ext sill

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 1 ID: N1-4

☑ WINDOW Opening: ☐ DOOR Opening:

Type 1: Casement Lites: 1 Type: — Panels:

Type 2: — ☑ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:

HARDWARE: Left casement sash inoperable.

☐ Good ☐ Damaged ☐ Missing

☐ Storm ☑ Screen ☐ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Moderate deterioration

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: —

Sash/Leaf 3: —

Glass Type: Clear Broken:

☐ Single ☑ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: —

Cracked ext sill

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 1 ID: N1-5

☑ WINDOW Opening: 24"x47" ☐ DOOR Opening:

Type 1: Dbl-hung Lites: 8 Type: — Panels:

Type 2: — ☐ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE: Sash lock, pulleys/weights/ropes missing

☐ Good ☐ Damaged ☑ Missing

☑ Storm ☐ Screen ☐ Weatherstripped

Jamb: Missing component

Head: Good

Sill/Threshold: Finish failure

Exterior Trim: Good

Sash/Leaf 1: Finish failure

Sash/Leaf 2: Finish failure

Sash/Leaf 3: —

Glass Type: Clear Broken:

☑ Single ☐ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: Finish failure

Missing bottom stop

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 2 ID: N2-1

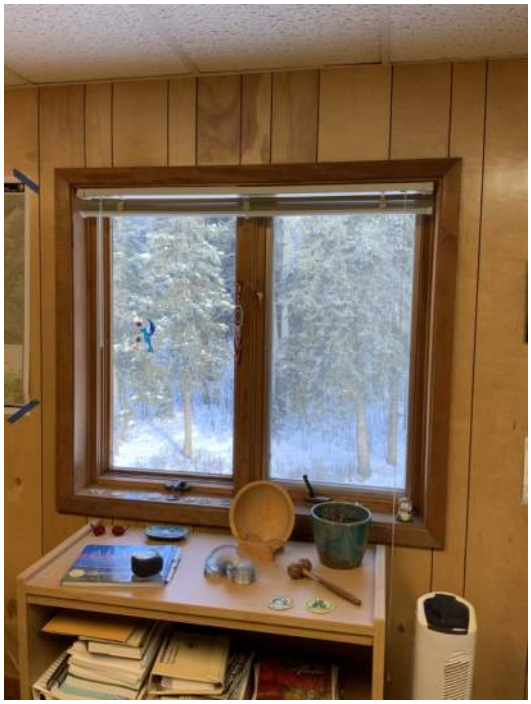
☑ WINDOW Opening: 49"x44" ☐ DOOR Opening:

Type 1: Casement Lites: 2 Type: — Panels:

Type 2: Casement ☐ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE: Crank, latch

☑ Good ☐ Damaged ☐ Missing

☑ Storm ☑ Screen ☐ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Good

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: Good

Sash/Leaf 3: —

Glass Type: Clear Broken:

☑ Single ☐ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: Good

Right screen and storm missing

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 2 ID: N2-2

☑ WINDOW Opening: 52"x44" ☐ DOOR Opening:

Type 1: Fixed Lites: 2 Type: — Panels:

Type 2: Casement ☐ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE: Crank, latch

☑ Good ☐ Damaged ☐ Missing

☐ Storm ☑ Screen ☐ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Good

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: Good

Sash/Leaf 3: —

Glass Type: Clear Broken:

☐ Single ☑ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: Good

Off center mullion.

DENA Mt. McKinley HQ District

Hennebery Eddy Architects

Window & Door Assessment

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 1 ID: S1-1

☑ WINDOW Opening: 48"x43" ☐ DOOR Opening:

Type 1: Casement Lites: 2 Type: — Panels:

Type 2: Casement ☐ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:



HARDWARE: Right sash missing crank handle

☐ Good ☐ Damaged ☑ Missing

☐ Storm ☑ Screen ☐ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Good

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: Good

Sash/Leaf 3: —



Glass Type: Clear Broken: 1

☑ Single ☐ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: Good

Interior storms intact.

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 1 ID: S1-2

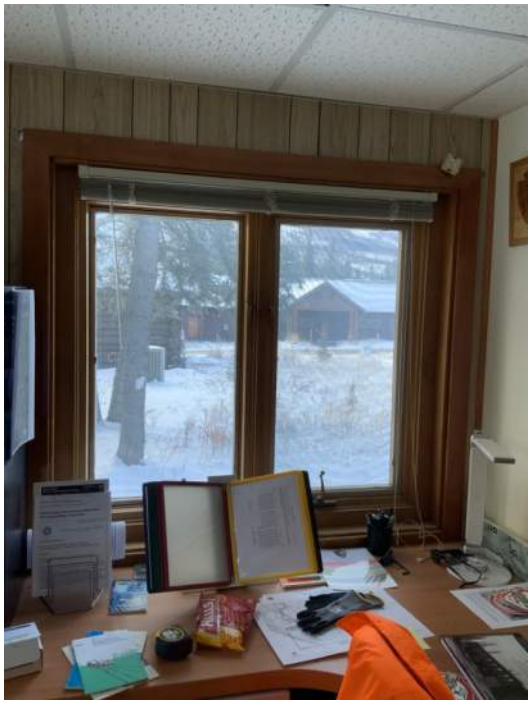
☑ WINDOW Opening: 53.5"x48.5" ☐ DOOR Opening:

Type 1: Casement Lites: 2 Type: — Panels:

Type 2: Casement ☐ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE:

☐ Good ☐ Damaged ☐ Missing

☑ Storm ☑ Screen ☐ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Good

Exterior Trim: Good

Sash/Leaf 1: Minor deterioration

Sash/Leaf 2: Minor deterioration

Sash/Leaf 3: —

Glass Type: Clear Broken:

☑ Single ☐ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: Good

Dual casement infil at original opening. Interior storms intact.
1 screen missing.

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 2 ID: S2-1

☑ WINDOW Opening: 48.5"x44" ☐ DOOR Opening:

Type 1: Casement Lites: 2 Type: — Panels:

Type 2: Casement ☐ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE:

☑ Good ☐ Damaged ☐ Missing

☑ Storm ☑ Screen ☐ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Good

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: Good

Sash/Leaf 3: —

Glass Type: Clear Broken:

☑ Single ☐ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: Finish failure

1 missing screen

DENA Mt. McKinley HQ District

Hennebery Eddy Architects

Window & Door Assessment

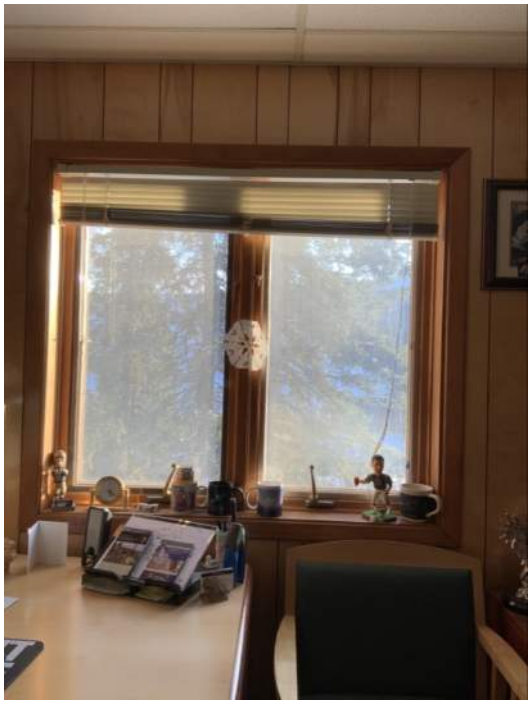
BUILDING: Building 21 - Rangers' Dormitory LEVEL: 2 ID: S2-2

☑ WINDOW Opening: 48.5"x44" ☐ DOOR Opening:

Type 1: Casement Lites: 2 Type: — Panels:

Type 2: Casement ☐ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE:

☑ Good ☐ Damaged ☐ Missing

☑ Storm ☑ Screen ☐ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Good

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: Good

Sash/Leaf 3: —

Glass Type: Clear Broken:

☑ Single ☐ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: Good

Interior storms and screens

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 1 ID: W1-1

☑ WINDOW Opening: 24"x35" ☐ DOOR Opening:

Type 1: Fixed Lites: 1 Type: — Panels:

Type 2: — ☑ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE:

☐ Good ☐ Damaged ☐ Missing

☐ Storm ☐ Screen ☐ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Finish failure

Exterior Trim: Finish failure

Sash/Leaf 1: Good

Sash/Leaf 2: —

Sash/Leaf 3: —

Glass Type: Clear Broken:

☐ Single ☑ Double ☐ Triple

Putty: —

Interior Trim: Good

Interior Sill: Good

DENA Mt. McKinley HQ District

Window & Door Assessment

Hennebery Eddy Architects

October 15, 2019

BUILDING: Building 21 - Rangers' Dormitory LEVEL: 2 ID: W2-1

☑ WINDOW Opening: 48"x44" ☐ DOOR Opening:

Type 1: Casement Lites: 2 Type: — Panels:

Type 2: Casement ☐ Not Operable Material: — ☐ Not Operable

Material: Wood Glazing: — Lites:





HARDWARE: Missing right crank

☑ Good ☐ Damaged ☐ Missing

☑ Storm ☑ Screen ☐ Weatherstripped

Jamb: Good

Head: Good

Sill/Threshold: Good

Exterior Trim: Good

Sash/Leaf 1: Good

Sash/Leaf 2: Good

Sash/Leaf 3: —

Glass Type: Clear Broken:

☑ Single ☐ Double ☐ Triple

Putty: —

Interior Trim: Good

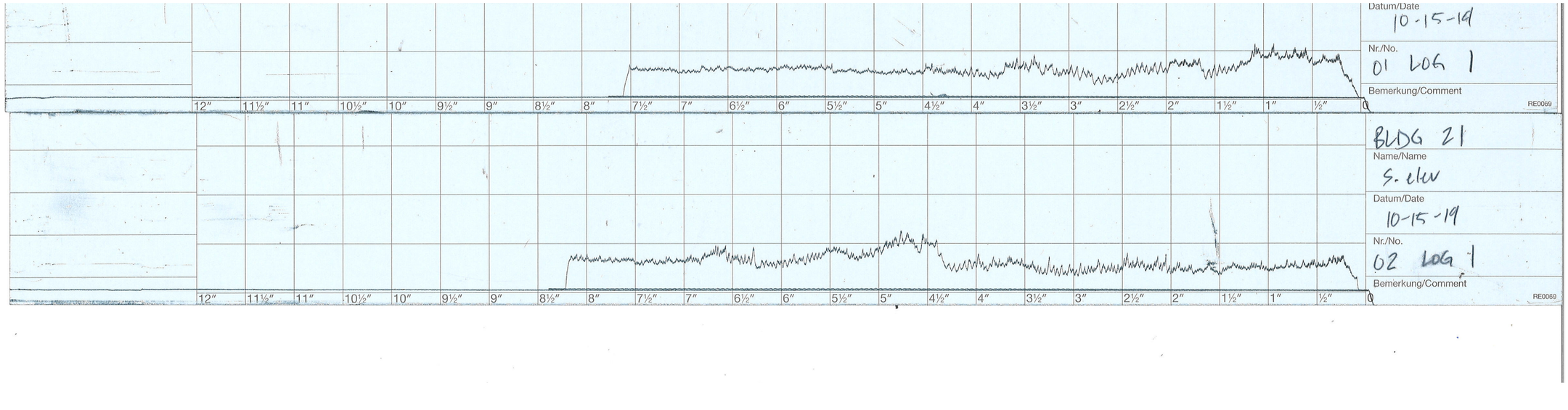
Interior Sill: Good

Pella

Appendix C - Resistance Drill Graphs

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Resistance Drill Graphs - Building 21



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Appendix D - Recommended Products / Cutsheets

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Installation Guide

PRE-INSTALLATION: UNPACK YOUR INDOW INSERTS

CUTTING THE PACKAGING

Carefully cut the cardboard and plastic edging from your Indow inserts, making sure to not cut into the cardboard itself or jab or slice the acrylic. Use scissors, not box cutters or blades.

NOTE: All cardboard packaging can be recycled -- see picture for example of how to collapse a crate.



YES



NO!



NO!

HANDLING ONCE UNPACKED

A. Make sure the Indow insert stays mostly straight, and does not bend or bow. If carrying with two people, hold the insert vertically, perpendicular to floor so panel does not bend/bow.

B. If larger than 12 sq. ft. it is best to stagger your grip on either side of the panel or carry with two people.

C. If one person can't get his or her arms around the Indow insert, it needs two people to carry.

D. Do not place hands directly across from each other on a rectangular insert, especially not at the points where clips are located, or carry by holding the compression tube only.



YES



YES



NO!



NO!

Indow® 2267 N. Interstate Avenue Portland, OR 97227 **E:** comfort@indowwindows.com **T:** 503.284.2260

PRE-INSTALLATION: **TEST FIT AND INSTALL HARDWARE**



1. Ensure the Indow insert is paired with the correct opening.
   - **A.** You can find the location on the product label AND/OR etched into the back side of the Compression Tube in the lower left-hand corner.

2. Determine the 'Frame Step' for the Indow insert within the frame, as noted on the product label.
   - **A.** Frame Steps are flat edges within your frame where the insert will be installed. The count starts at the ledge closest to your window then moves in toward the room.



3. Test fit the Indow insert to ensure proper fit **BEFORE PEELING FILM.**
   - **A.** Refer to **STEPS 9, 11 & 12** below for how to properly place the insert within the frame to test the fit.

   NOTE: The insert will be slightly larger than the opening at the measured location.



4. Install the safety chain frame brackets in frames when necessary.
   - **A.** If frame brackets are required
     - i. Find the small package with an orange label that says **"HARDWARE ENCLOSED"**.
     - ii. Bracket location is noted on the product label in inches.
     - iii. You will be installing **TWO** brackets – one on each side of the frame.
   - **B.** If frame brackets **ARE NOT** required, 'Bracket Loc' will say **'N/A'**.

   NOTE: If window frames are more than 3" deep, it will be difficult to reach behind the insert to attach the safety chain to the bracket. Try reaching around the insert (as in step #10) before drilling, and if it is not possible, do not install the bracket and skip to step #7.



5. Measure the noted distance from the top of the frame down and mark location with pencil.

   NOTE: The bracket should be installed immediately behind where the Indow insert will sit in the frame so that it is hidden behind the insert.

6. Pre-drill, then install bracket with screw provided.
   - **A.** We suggest using a 1/16” drill bit.
   - **B.** See image at right for correct bracket orientation. The bracket should be installed so that the compression tube will sit atop the screw.



INSTALL THE INDOW WINDOW

7. Remove the film from the **BACKSIDE** (i.e., the side facing toward the existing window).
   - **A.** Wipe down the backside with the microfiber cloth included in the Indow cleaning kit.

   NOTE: When cleaning your Indow inserts, **DO NOT USE ANY** ammonia, alcohol, or bleach-based cleaners such as Windex, Clorox or 409**.** Do not use lemon juice or vinegar. Do not use paper towels, newspapers or rough cloths. Use only microfiber cleaning cloths (See Indow Care Guide for more information).



8. If your Indow inserts meet any of the following conditions, please see “Alternative Installation Methods” below (if not, proceed to step 9):
   - **A.** If your inserts are extra wide they require two people to carry them.
   - **B.** If your inserts are extra tall they require two people to carry them.



9. Place the bottom of the insert on your window sill and within the desired frame step. Nudge the bottom of the insert into place and make sure the bottom corners are evenly compressed (i.e. not shoved too far over to the right or left).



10. If you installed frame brackets, reach around both sides of the Indow inserts and attach the safety chains to the brackets. Place the last ball of the ball-chain into the bracket.



11. With the Indow insert tilting slightly toward you, grab sides of the insert and gently bend the top of the insert toward the frame and press the top edge into the frame.

12. Work your way down the sides, pressing the compression tube into place. If there is no stop right behind the compression tube, make sure the sides are straight and not wavy.



13. Check your work.
    - **A.** Make sure the Indow insert is straight and not tilting vertically or skewed horizontally in the frame.
    - **B.** Ensure the insert is sitting well in the frame – not overly compressed, nor any gaps or loose fitting areas.
    - **C.** If you notice any gaps or overly compressed areas, remove the insert and repeat steps #9-12.



14. Peel remaining film from the front side of the insert and wipe clean with microfiber cleaning cloth (see cleaning note in step #7, or review Indow Care Guide).

15. Visually check all Indow inserts for any defects – any defects should be reported to us immediately (see the Receiving & Handling Guide for what to look for, and how to report damage).



ALTERNATIVE INSTALLATION METHODS

1. Indow inserts are extra wide (more than 4' wide): **USE TWO PEOPLE** to install
   - **A.** Have one person holding the insert on either side.
   - **B.** Together, lift the insert so it's sitting on the sill.
   - **C.** Taking turns, each person can connect one side of the safety hardware to the bracket.
   - **D.** Continue with steps #12-15 above.





2. Indow inserts are extra tall (more than 4' tall): **USE TWO PEOPLE** and a ladder to install
   - **A.** Have one person hold the top of the insert, standing on a ladder. Person #2 will hold bottom standing on the floor.
   - **B.** While first person is holding and guiding the top into place, the second person pushes **UP** from the bottom.
   - **C.** While second person holds the bottom of the insert, the first person attaches one side of the safety hardware, then moves ladder to attach the other side.
   - **D.** Once the insert is fully compressed at the top and in the correct position, the second person (with help from the first) pushes bottom of the Indow insert into place.
   - **E.** Continue with steps #12-15 above.









If you have vintage windows and are looking to...

- Increase the energy efficiency of your home
- Reduce outside sounds
- Maintain the original beauty and charm of your existing windows
- Keep your structure architecturally accurate & increase its value
- Protect your glazing from outside elements
- Regain smooth operation
- Add insulation to stained/leaded glass

We have a solution for you!





SLIP™
Slim Line Insulating Pane

"Based on the energy modeling that we did for the building, including live mock-ups, the study showed that the SLIPs were very close to the energy performance of the IGU option, and given the lower cost the decision was made to go with the SLIP system. We are now three years into occupancy and have had no issues with the windows. The SLIPs are unobtrusive, allowing us to save hundreds of historic windows and still meet our stringent standards of energy performance that exceed Oregon State Code."

- George Bleekman
Owner's Representative, U of O
Capital Design & Facilities Management

For a simple, yet powerful, way to modernize and retain the charm and value of your vintage windows, SLIP is the perfect product.
Visit our website at
www.windowslip.com

#02

SLIP™
Slim Line Insulating Pane



A REVOLUTION

IN STORM TYPE INSULATION



Are you a homeowner with old vintage windows? Are you tired of high heating and cooling costs because of drafty windows but don't want to replace your windows?

Good news, you don't have to!

We understand how important it is to not only keep your vintage windows, but also be as energy efficient as possible. With this in mind, we have developed an innovative and cost-efficient way to retain your original wood windows while making them more efficient, operational, and save you money.

Value of Older Windows

Vintage windows are made of long-lasting, quality materials that — with the right upkeep — add value and charm to the home and will last another lifetime. These wood windows are constructed of old growth timber. The wood is much denser and more weather resistant than today's tree farmed softwoods.



New vs Old.
There are very few natural old growth forests left in the world

Before



After



Slips are a sleek, low profile addition

SLIPs, unlike conventional storm windows, are practically invisible. They have a sleek look and feel with a low profile, allowing for no loss in outside viewing space. You'll also retain full functionality. Installing a SLIP can be done very quickly with minimal to-no disturbance.

With our SLIP product, an additional tempered glass pane is added to the sash, without replacing or altering your original glass. It will protect and preserve the original glass and the glazing of your windows.

Energy testing shows that the insulation rivals the performance of modern insulated glass units. However, a benefit of SLIPs is that they won't fail requiring periodic glass replacement. This means lower future maintenance cost.





Great solution for leaded or stained glass windows



Window Operation

When going with the SLIP, not only can the function be restored to operating casements but if you're a homeowner with vintage single or double hung windows, you'll benefit from our unique SLIP System. This system enables the sash to be adapted for a hidden balance system which will support the extra weight on your windows while they operate. As a result, you'll get smooth and seamless function from your window.

Weatherstripping

Quality Kerf-in weatherstripping is also added to operational windows. This prevents unwanted air leaks and drafts and will also tighten up loose sash.



SLIPs are a proven product and have been used on large projects such as Fort Vancouver, U of O Gerlinger Hall, and many more. The results of using the product have been outstanding.

#03

Schumacher

LIMITED USE LIMITED APPLICATION ELEVATOR

Schumacher
Elevator Company



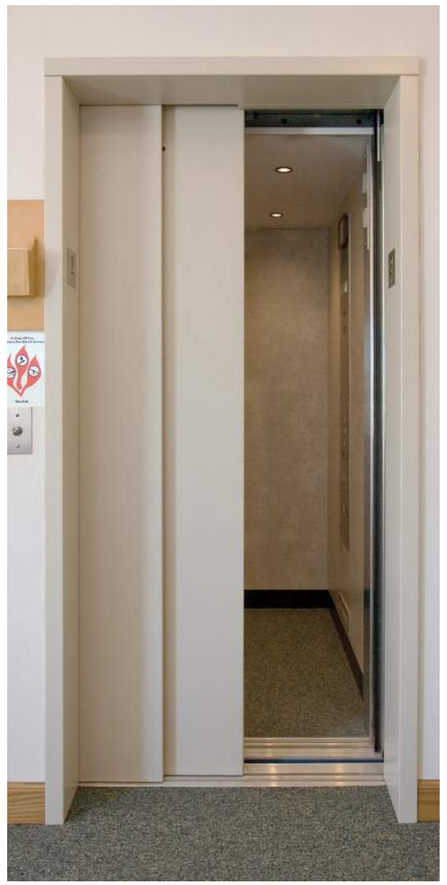
One Schumacher Way,
Denver, IA 50622
(800) 779–LIFT (5438)
fax **(319) 406–1270**

Elevators@Schumacher Elevator.com
www.**Schumacher**Elevator.com

1400 SERIES LIMITED USE LIMITED APPLICATION ELEVATOR

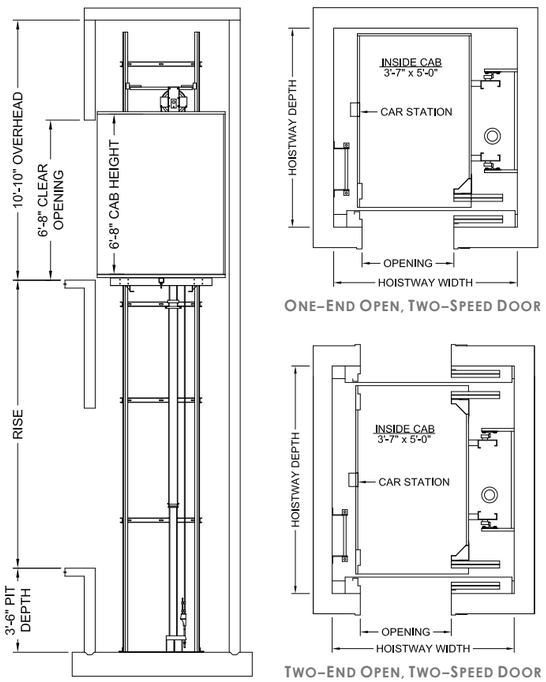
Schumacher Elevator Company

Today's growing awareness of the need for greater accessibility, as well as legislation such as the Americans with Disabilities Act, has created a growing demand for functional, convenient, and affordable elevator systems. Schumacher Elevator Company designs and builds Limited Use Limited Application (LULA) Elevators that can be integrated into new or existing architecture. LULA Elevators offer the quality and style only Schumacher can provide.





The Schumacher 1400 Series Limited Use Limited Application Elevator can be used in churches, schools, libraries, small businesses, multi–family housing, and other buildings, where permitted by state and local code. The LULA Elevator channels extensive experience and research to provide clients with an affordable solution to their accessibility needs.



ONE–END OPEN, TWO–SPEED DOOR

TWO–END OPEN, TWO–SPEED DOOR

- Commercial grade components and fixtures are used to ensure quality and performance.
- Standard or customized cab interiors will complement any decor.
- Rigid frame and car construction provide excellent safety and stability.
- The computer controlled operation creates a smooth ride.
- Engineered safety and emergency features include battery backup to ensure riders' safety.
- The "holeless" design does not require excavation for the hydraulic cylinder, lowering construction time and cost.
- Two–speed automatic car doors come standard on each unit.
- Hoistway doors and frames are included.
- Electromechanical interlocks prevent elevator movement while doors are open and also prevent hallway doors from opening while the car is not at a landing.
- A battery powered safety descent system lowers the car in the event of a power failure to prevent entrapment.
- The motor and operating mechanism are located out of the way on the lower level.
- Car fixtures are located in the side wall.







LULA Elevators are adaptable to existing conditions in most locations. The standard car size is 18 square feet, 3'7" wide by 5'0" deep; custom car sizes are available.

The Schumacher Limited Use Limited Application Elevator exceeds safety codes as established by The American Society of Mechanical Engineers (ASME A17.1, Part XXV). This elevator carries a full one–year warranty on materials and workmanship. Schumacher elevators have displayed quality, reliability, and durability for over 75 years in the commercial elevator industry. Schumacher LULA Elevators are built to last a lifetime.

We invite you to compare the Schumacher Limited Use Limited Application Elevator to any competitor; you will find this elevator superior in design, quality, and workmanship.

CAPACITY	HOISTWAY		PLATFORM		INSIDE CAB			DOOR SIZE	OPENING
(LBS.)	WIDTH	DEPTH	WIDTH	DEPTH	WIDTH	DEPTH	HEIGHT		
1,400	6'0"	6'6"	3'8 ⅝"	5'8 1/16"	3'7"	5'0"	6'8"	3'0"	1–End
1,400	6'0"	7'6"	3'8 ⅝"	6'2 ½"	3'7"	5'0"	6'8"	3'0"	2–End
Custom Applications Available					Machine Room Dimensions: 5'0" x 7'0"				
Minimum Pit Depth: 3'6"					Minimum Overhead: 10'10"				

specifications

Permits and Inspection

The work required under these specifications is limited to furnishing and installing a complete direct acting hydraulic or roped oil–hydraulic passenger elevator system which meets or exceeds the safety standards set by the American Society of Mechanical Engineers (ASME) A17.1, Part XXV, for Limited Use Limited Application Elevators. The elevator contractor shall obtain and pay for necessary municipal or state inspections and permits, as required, and make tests as called for by the regulation of such authorities.

1400 Series Standard Systems and Machinery

- Speed: 30 feet per minute
- Travel: Up to 25'*
- Stops: Up to five stops
- Openings: Front, rear, or side
- Machine Type: Roped hydraulic
- Machine Location: Adjacent lowest level
- Power Supply: 220 volts 1–phase 60 cycle
- Car Design: Model 700 Plastic Laminate Cab
- Car Door: Two–speed automatic
- Control System: One button collective
- Hoistway Doors: 3'0" wide x 6'8" high, electromechanical interlocks
- *Travel to 45' where local codes allow

Power Unit

- Self–contained within a structural steel outer shell
- Inner base for mounting motor and pump assembly
- Oil reservoir
- Oil hydraulic pump
- Electric motor
- Oil control unit
- Tank shut–off valve mounted on the tank

Roped Hydraulic Jack Unit

- Sufficient size to lift the gross load to the height specified
- Factory tested for strength and freedom from leakage
- Plunger made of turned and polished heavy steel tubing
- Stop ring welded to plunger
- Internal guide bearing
- Packing
- Drip ring
- Outer casing made of steel tubing
- 1:2 roping arrangement
- Mechanically actuated safeties provided to positively stop the car if rope tension is lost

Microprocessor Elevator Logic Control

- Control program contained in nonvolatile, programmable, read–only memory
- Safety circuits monitored and controlled by the programmable logic control

One Button Collective Operation

- Elevator operated by appropriately labeled push buttons
- Pressing the car operating station or hall station button brings the car to the desired landing

Guide Rails

- 8 lb. t–rail, erected plumb, and securely fastened

Landing System

- Tape selector landing system
- Leveling and slowdown within ¼" of the landing
- Mounted in hoistway

Cable

- ⅜" 8x19 Seale (pre–formed) traction steel rope with minimum breaking strength of 8,200 lbs. each

Car Frame and Platform

- Car frame made of 7 gauge formed steel members
- Platform made of 1½" wood core construction, with fire retardant paint

Car Enclosure

- Walls made of ¾" wood core construction, faced with plastic laminate, and backed with fire retardant laminate
- Car ceiling made of 1" wood core construction equipped with proper lighting
- Car operating panel mounted in side wall
- One stainless steel handrail provided
- Provided fixtures include: car station, emergency light, and ADA telephone
- Fixtures come standard with #4 stainless steel finish

Hoistway Doors and Frames

- 1½ hour fire rating
- Include integral electromechanical interlocks
- Hall stations provided for each landing

Emergency Provisions

- Emergency stop switch
- Alarm bell with an alarm button
- Emergency lighting
- Sealed nickel cadmium battery with automatic solid state charging
- Battery powered safety descent system to lower the car in the event of a power failure
- Hands–free ADA phone with wiring to machine area

Warranty

- Elevator contractor will replace any part found to be defective during the first year, beginning with the date of final acceptance.
- Damage caused by improper use or due to improper care is not warranted.

Obligations of Owner

- Suitable fire rated hoistway conforming to local building code and ASME A17.1
- Suitable guide rail mounting supports
- A 5'x6' fire rated machine room with 7' overhead and 3'x6'8" B–rated self–closing, self–locking access door
- Fire extinguisher in machine room
- 220 volt, single phase 60 hertz power supply terminated in a
- 3–poll fused disconnect switch located adjacent to the elevator controller
- 115 volt light and outlet in the hoistway and machine room
- Telephone line to machine room and telephone in the car
- All cutting, patching, finishing, and finished flooring
- All work by others must comply with applicable codes.

Manufacturers dimensions are subject to change. Before beginning construction, please contact Schumacher Elevator Company or your Schumacher distributor.

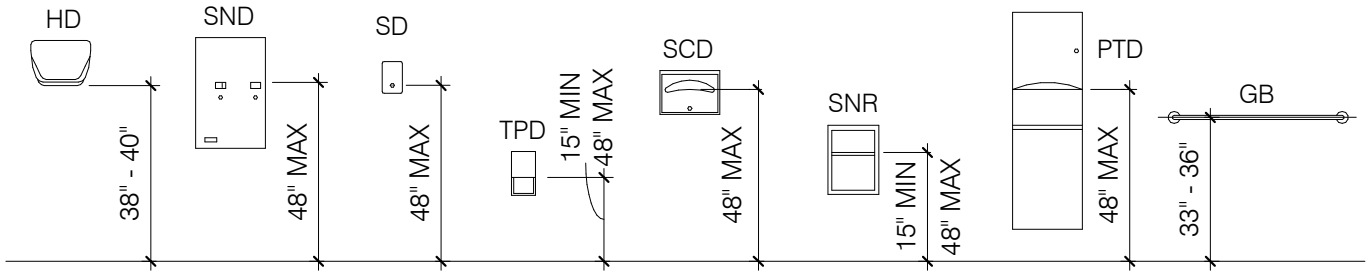
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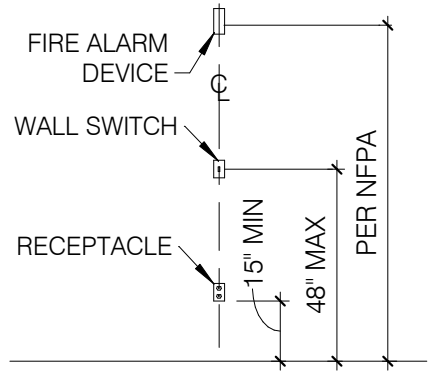
TYPICAL MOUNTING HEIGHTS

NOTE: DIMENSIONS NOTED ARE BASED ON UNOBSTRUCTED REACH RANGES DESCRIBED IN ICC A117.1-2009 SECTION 308. IF AN ELEMENT FALLS WITHIN AN OBSTRUCTED AREA, DIMENSIONS MAY VARY AND SHOULD BE VERIFIED WITH OBSTRUCTED REACH RANGE REQUIREMENTS.

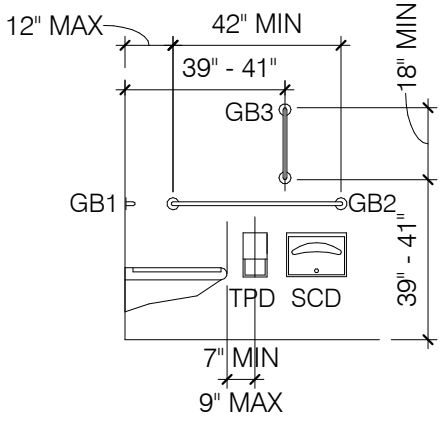
ACCESSORIES ABBREVIATIONS:

DCS	DIAPER CHANGING STATION
DF	DRINKING FOUNTAIN
FEC	FIRE EXTINGUISHER CABINET
HD	HAND DRYER
GB	GRAB BAR
M	MIRROR
PTD	PAPER TOWEL DISPENSER
SCD	SEAT COVER DISPENSER
SD	SOAP DISPENSER
SND	SANITARY NAPKIN DISPENSER
SNR	SANITARY NAPKIN RECEPTACLE
TPD	TOILET PAPER DISPENSER
WR	WASTE RECEPTACLE

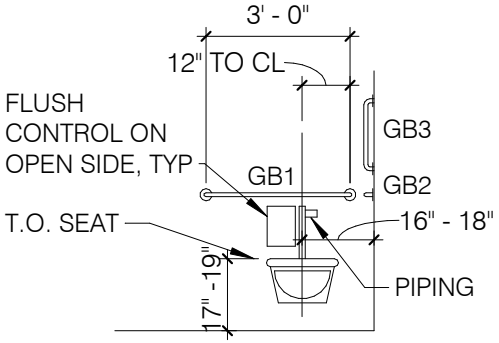




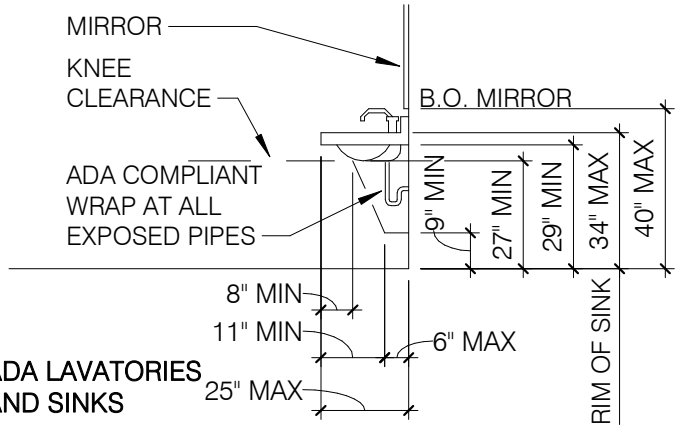
ELECTRICAL CONTROLS



ADA WATER CLOSET



ADA WATER CLOSET



ADA LAVATORIES AND SINKS

Hennebery Eddy Architects
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KOHLER. Faucets

#05

July™

Single-hole Bathroom Sink Faucet

K-98146-4

Features

- Single lever handle allows for both volume and temperature control.
- Temperature memory allows faucet to be turned on and off at any temperature setting.
- Inlcudes metal pop-up drain with 1-1/4" tailpiece.
- KOHLER ceramic disc valves exceed industry longevity standards for a lifetime of durable performance.
- 4-3/8" (111 mm) spout reach.
- Single control bathroom sink faucet with 6" optional escutcheon plate included.
- 1.2 gal/min (4.5 l/min) maximum flow rate [max at 60 psi (4.14 bar)].

Material

- Premium metal construction.
- KOHLER finishes resist corrosion and tarnishing.

Installation

- For single-hole installation or 4-inch centers with escutcheon plate.
- Pre-attached flexible supply lines simplify installation.

Recommended Products/Accessories

K-23726 Drain treatment
K-23723 Faucet cleaner



WaterSense Meets EPA Criteria Certified by IAPMO R&T

ADA | CSA B651 | OBC

Codes/Standards

ASME A112.18.1/CSA B125.1
NSF/ANSI 61
NSF/ANSI 372
All applicable US Federal and State material regulations
DOE - Energy Policy Act 1992
EPA WaterSense®
California Energy Commission (CEC)
ADA
ICC/ANSI A117.1
CSA B651
OBC

KOHLER® Faucet Lifetime Limited Warranty

See website for detailed warranty information.

Available Colors/Finishes

Color tiles intended for reference only.

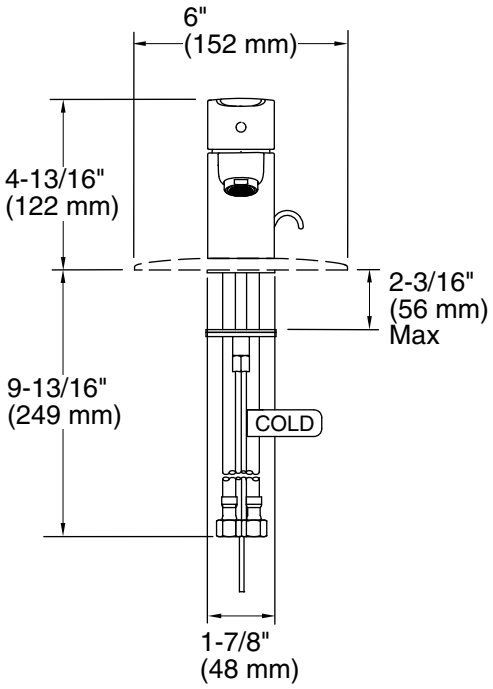
Color	Code	Description
	CP	Polished Chrome
	G	Brushed Chrome

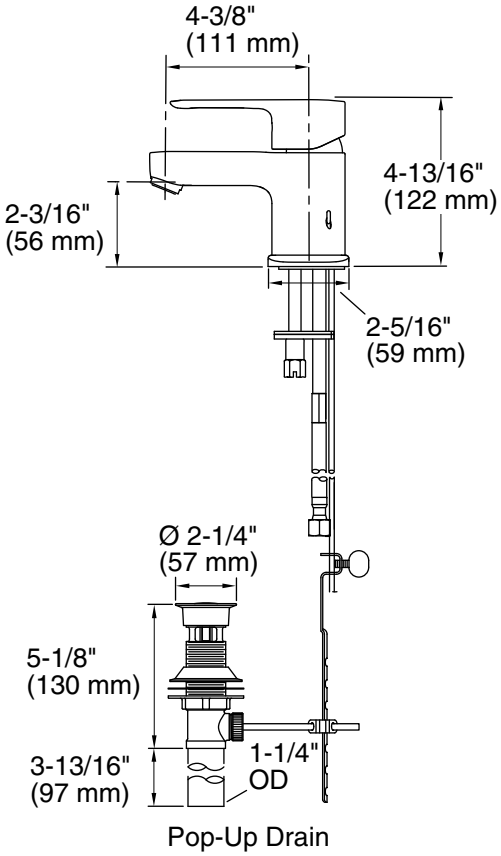
KOHLER. Faucets

July™

Single-hole Bathroom Sink Faucet

K-98146-4





Pop-Up Drain

Technical Information

All product dimensions are nominal.

Faucet:

Flow rate:	1.2 gal/min (4.5 l/min)
Pressure:	60 psi (4.1 bar)
Drain included:	Yes
Drain tailpiece included:	Yes

Spout:

Spout reach:	4-3/8" (111 mm)

Notes

Install this product according to the installation guide.

ADA, OBC, CSA B651 compliant when installed to the specific requirements of these regulations.

KOHLER. Faucets

#06 Coralais®

Centerset Bathroom Sink Faucet

K-15198-4RA

Features

- One-piece, self-contained ceramic disc valve allows both volume and temperature control.
- Temperature memory allows faucet to be turned on and off at any temperature setting.
- 4-3/16" (107 mm) spout reach.
- Stationary spout.
- Metal throat plate.
- Grid drain with tailpiece.
- For 4" (102 mm) centers.
- Flexible connections.
- Red/blue indexing.
- Vandal-resistant aerator.
- 0.5 gal/min (1.9 l/min) maximum flow rate [max at 60 psi (4.14 bar)].

Material

- Metal construction.

Recommended Products/Accessories

K-23726 Drain treatment
K-23723 Faucet cleaner

Optional Products/Accessories

1160594 .35 gpm Aerator, Large



ADA | **CSA B651** | **OBC**

Codes/Standards

ASME A112.18.1/CSA B125.1
NSF/ANSI 61
NSF/ANSI 372
All applicable US Federal and State material regulations
DOE - Energy Policy Act 1992
California Energy Commission (CEC)
ADA
ICC/ANSI A117.1
CSA B651
OBC

KOHLER® One-Year Limited Warranty

See website for detailed warranty information.

Available Colors/Finishes

Color tiles intended for reference only.

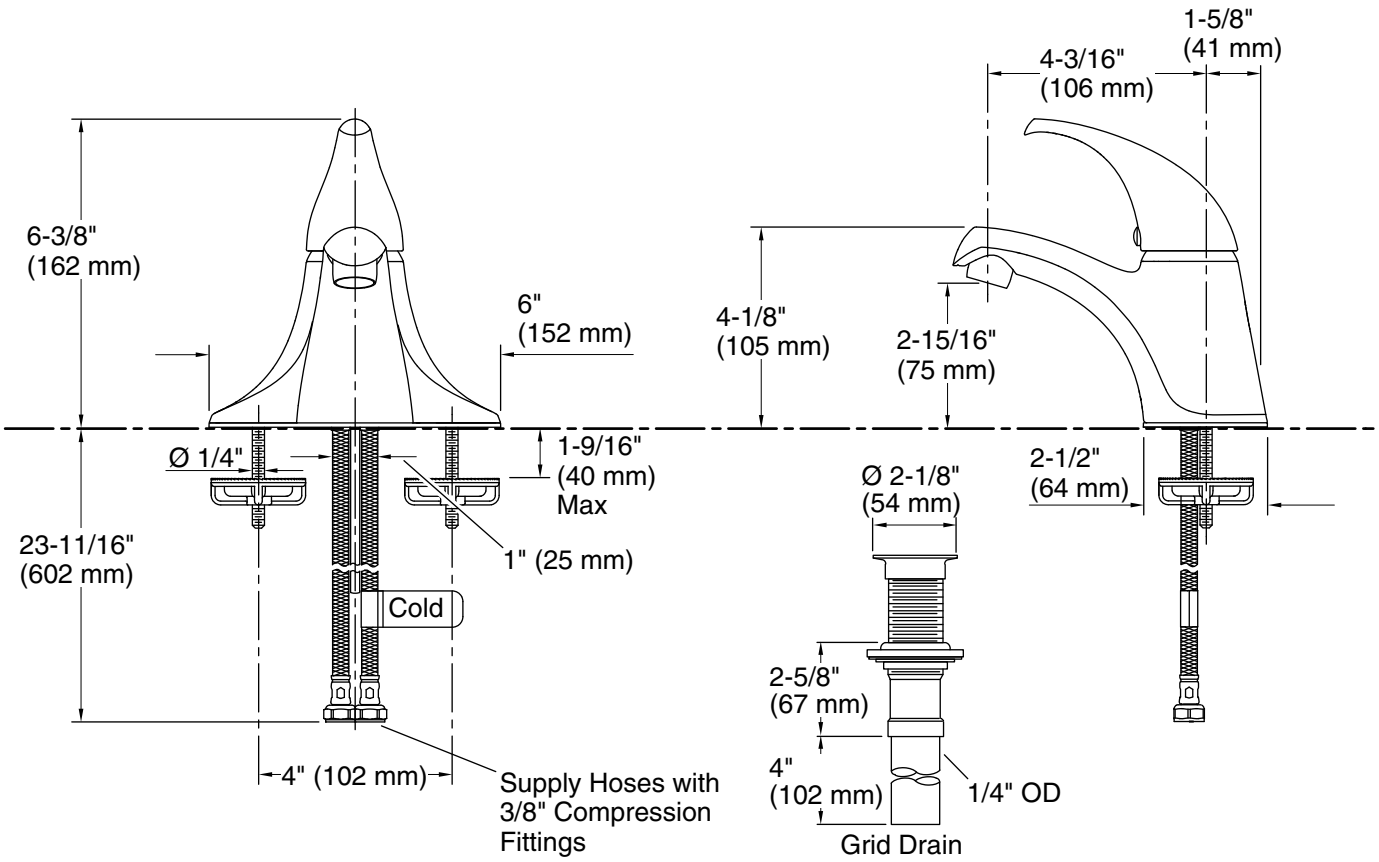
Color	Code	Description
	CP	Polished Chrome

KOHLER. Faucets

Coralais®

Centerset Bathroom Sink Faucet

K-15198-4RA



Technical Information

All product dimensions are nominal.

Faucet:

Flow rate:	0.5 gal/min (1.9 l/min)
Pressure:	60 psi (4.1 bar)
Valve body:	Plastic
Drain included:	Yes
Drain with overflow:	Yes
Drain tailpiece included:	Yes

Spout:

Spout reach:	4-3/16" (107 mm)

Notes

Install this product according to the installation guide.

ADA, OBC, CSA B651 compliant when installed to the specific requirements of these regulations.

KOHLER. Faucets

#07

Alteo®

Single-handle Bathroom Sink Faucet

K-45800-4

Features

- Metal construction.
- One-piece, self-contained ceramic disc valve allows both volume and temperature control.
- Temperature memory allows faucet to be turned on and off at any temperature setting.
- Pop-up drain with lift rod and tailpiece.
- 5" (127 mm) spout reach.
- Stationary spout.
- Lever handle.
- Includes a 6-1/4" (159 mm) escutcheon plate for three-hole bathroom sinks.
- Single-hole installation.
- 1.2 gal/min (4.5 l/min) maximum flow rate [max at 60 psi (4.14 bar)].

Recommended Products/Accessories

K-23726 Drain treatment
K-23723 Faucet cleaner



WaterSense Meets EPA Criteria Certified by IAPMO R&T

ADA | **CSA B651** | **OBC**

Codes/Standards

ASME A112.18.1/CSA B125.1
NSF/ANSI 61
NSF/ANSI 372
All applicable US Federal and State material regulations
DOE - Energy Policy Act 1992
EPA WaterSense®
California Energy Commission (CEC)
ADA
ICC/ANSI A117.1
CSA B651
OBC

KOHLER® Faucet Lifetime Limited Warranty

See website for detailed warranty information.

Available Colors/Finishes

Color tiles intended for reference only.

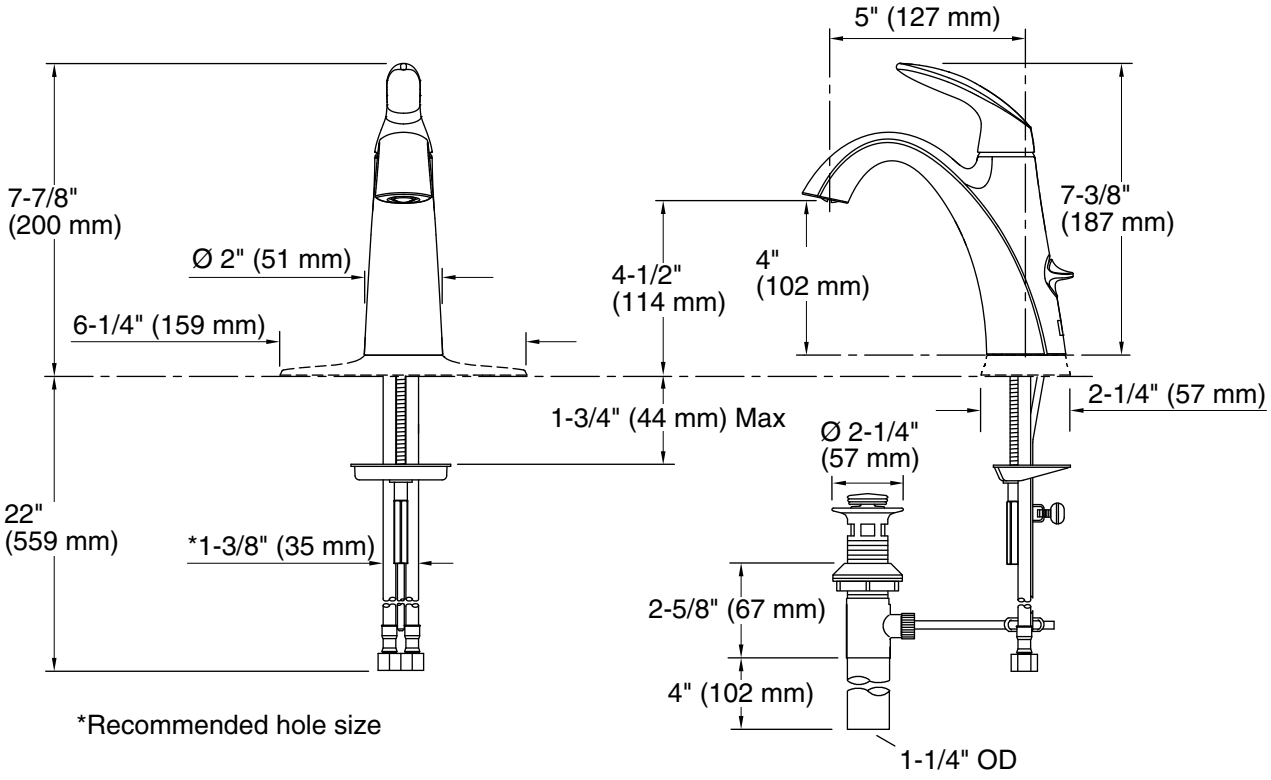
Color	Code	Description
	CP	Polished Chrome
	BN	Vibrant® Brushed Nickel
	2BZ	Oil-Rubbed Bronze

KOHLER. Faucets

Alteo®

Single-handle Bathroom Sink Faucet

K-45800-4



*Recommended hole size

Pop-Up Drain

Technical Information

All product dimensions are nominal.

Faucet:

Flow rate:	1.2 gal/min (4.5 l/min)
Pressure:	60 psi (4.1 bar)
Drain included:	Yes
Drain tailpiece included:	Yes

Spout:

Spout reach:	5" (127 mm)

Notes

Install this product according to the installation guide.

If possible, install the faucet and drain to the bathroom sink before installing the sink.

ADA, OBC, CSA B651 compliant when installed to the specific requirements of these regulations.

KOHLER®

#08 Pinoir®

Wall-mount Bathroom Sink

K-2028-1

Features

- Single faucet hole.
- Oval basin.
- Overflow drain.
- Combines with K-2057 shroud to create K-2035-1 Pinoir wall-mount lavatory.

Material

- Vitreous china.

Required Products/Accessories

For wall-mount installation

K-2057 Bathroom Sink Shroud

Recommended Products/Accessories

K-23726 Drain treatment

K-23725 Cast iron cleaner



ADA | **CSA B651** | **OBC**

Codes/Standards

ASME A112.19.2/CSA B45.1

ADA

ICC/ANSI A117.1

CSA B651

OBC

KOHLER® One-Year Limited Warranty

See website for detailed warranty information.

Available Colors/Finishes

Color tiles intended for reference only.

Color	Code	Description
	0	White
	96	Biscuit
	47	Almond

Pinoir®

Wall-mount Bathroom Sink

K-2028-1

No image available.
This product is a component and not intended to be a standalone installation.

Technical Information

All product dimensions are nominal.

Bowl configuration:	Single
Installation:	Wall-mount
Bowl area:	Length: 18" (457 mm) Width: 12" (305 mm) With overflow: Yes Water depth: 4" (102 mm)
Number of deck holes:	1
Faucet hole(s):	1-3/8" (35 mm)
Drain hole:	1-3/4" (44 mm)

Notes

Install this product according to the installation instructions.

ADA, OBC, CSA B651 compliant when installed to the specific requirements of these regulations.

#09

Pinoir®

Wall-mount Bathroom Sink

K-2035-1

Features

- Single faucet hole.
- Oval basin.
- Overflow drain.
- Combination consists of the K-2028-1 basin and the K-2057 shroud.

Material

- Vitreous china.

Installation

- Wall-mount.

Recommended Products/Accessories

K-7605-P Angle Supply with Stop (pair)
K-8998 P-Trap
K-23726 Drain treatment
K-23725 Cast iron cleaner

Included Components

Product consists of:
K-2028-1 Wall-mount Bathroom Sink
K-2057 Bathroom Sink Shroud
Additional Components:
Hanger(s)
Rubber pads
shroud accessory pack



ADA

Codes/Standards

ASME A112.19.2/CSA B45.1
ADA
ICC/ANSI A117.1

KOHLER® One-Year Limited Warranty

See website for detailed warranty information.

Available Colors/Finishes

Color tiles intended for reference only.

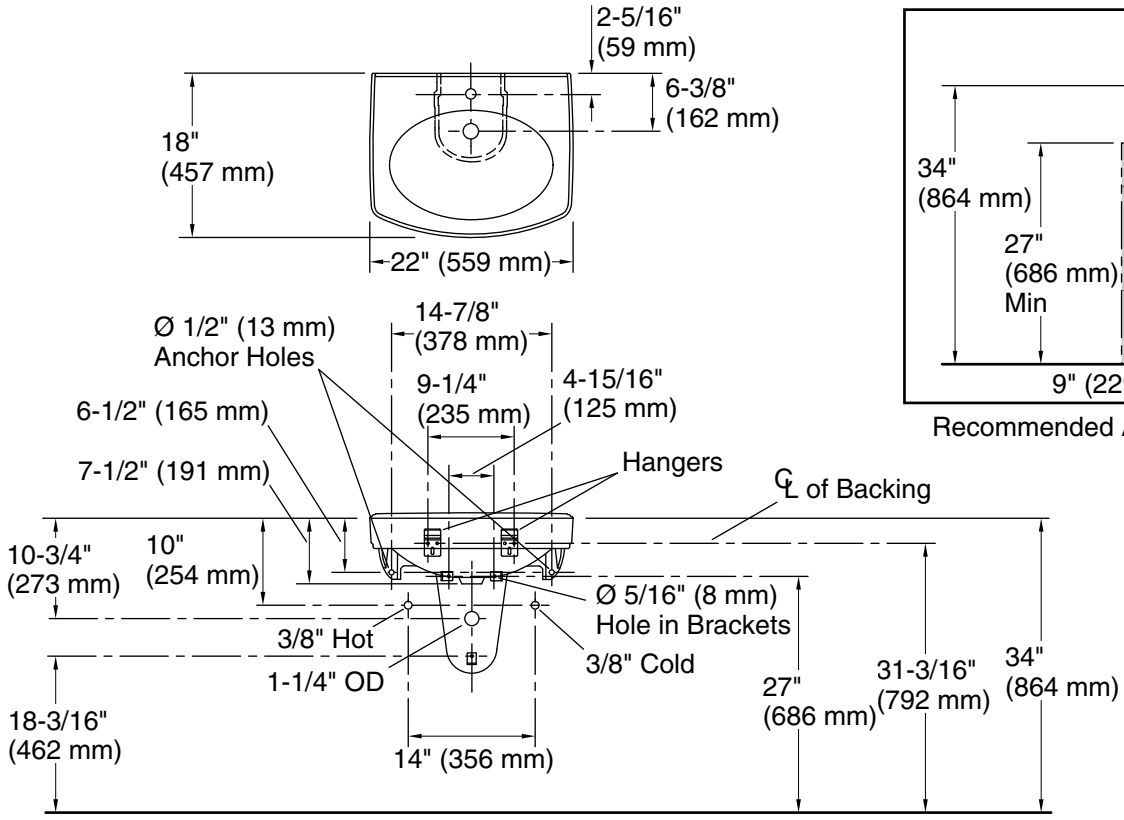
Color	Code	Description
	0	White
	96	Biscuit
	47	Almond

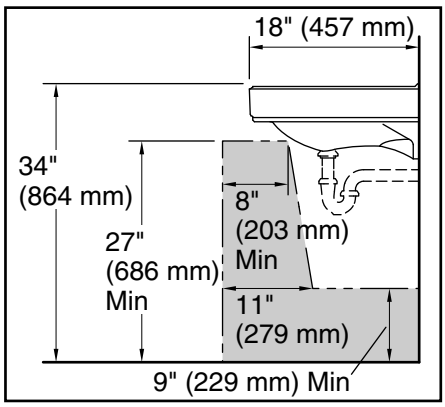
KOHLER®

Pinoir®

Wall-mount Bathroom Sink

K-2035-1





Recommended ADA Installation

Technical Information

All product dimensions are nominal.

Bowl configuration:	Single
Installation:	Wall-mount
Bowl area (Only):	Length: 18" (457 mm) Width: 12" (305 mm) Water depth: 4" (102 mm)
Number of deck holes:	1
Faucet hole(s):	1-3/8" (35 mm)
Drain hole:	1-3/4" (44 mm)

Notes

Install this product according to the installation instructions.

ADA compliant when installed to the specific requirements of these regulations.

#10

KOHLER®

Cimarron® Comfort Height®

two-piece elongated 1.28 gpf toilet

K-3609

Features

- Two-piece toilet.
- Elongated bowl offers added room and comfort.
- Comfort Height® feature offers chair-height seating that makes sitting down and standing up easier for most adults.
- 1.28 gallons per flush (gpf).
- Left-hand Polished Chrome trip lever included.
- Combination consists of the K-4309 bowl and the K-4421 tank.
- Coordinates with other products in the Cimarron collection.

Technology

- Single-flush gravity uses the force of gravity and a precision-engineered tank, bowl, and trapway to create a strong siphon during flushing.
- AquaPiston canister allows water to flow into the bowl from all sides (360 degrees), increasing the power and effectiveness of the flush.
- Durable canister design has 90% less exposed seal material than a 3-inch flapper, for leak-free performance.
- Light-touch canister flush requires a lower actuation force than a flapper.
- AquaPiston canister flush valve optimizes flush performance and resists warping and deterioration.

Installation

- Standard 12-inch rough-in.
- DryLock™ System saves installation time and helps prevent water leakage.
- Seat and supply line not included.

Water Conservation & Rebates

- Eligible for consumer rebates in some municipalities.

Recommended Products/Accessories

K-4636 Cachet® Quiet-Close™ Elongated Toilet Seat
K-5588 Purefresh® Elongated Toilet Seat
K-4108 C³®-230 Elongated cleansing toilet seat
K-5420 Low-Profile Bolt Caps
K-9466-L Left-Hand Trip Lever
K-9470-L Left-Hand Trip Lever
1023457 Wax Ring/Hardware Kit
1265114 Connector Hose
K-23726 Drain treatment
K-23734 Toilet bowl cleaner & disinfectant
K-23724 Toilet cleaner & disinfectant



WaterSense Meets EPA Criteria Certified by IAPMO R&T

ADA	CSA B651	OBC

Codes/Standards

ASME A112.19.2/CSA B45.1
DOE - Energy Policy Act 1992
EPA WaterSense®
California Energy Commission (CEC)
ADA
ICC/ANSI A117.1
CSA B651
OBC

KOHLER® One-Year Limited Warranty

See website for detailed warranty information.

Available Colors/Finishes

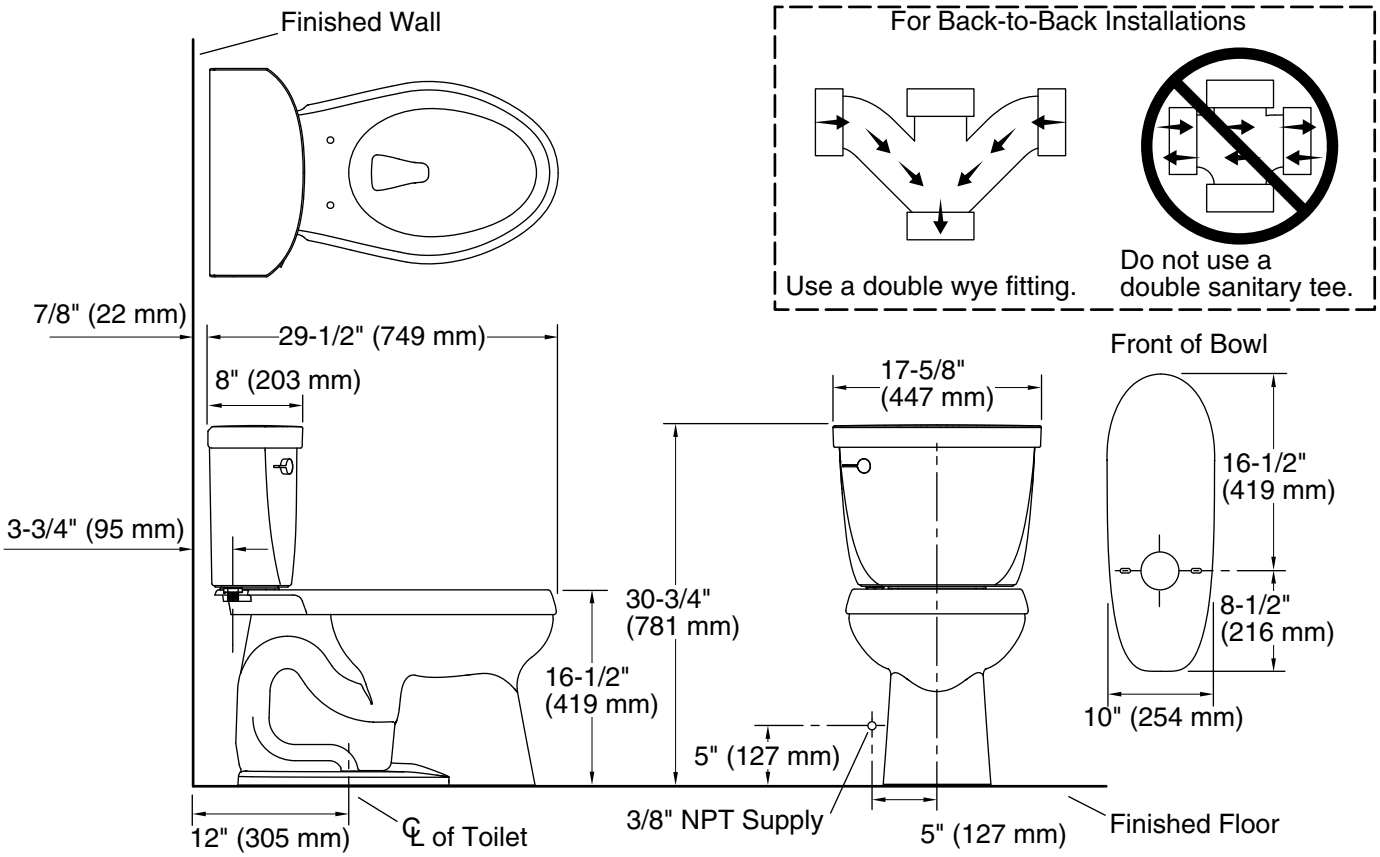
Color tiles intended for reference only.

Color	Code	Description
	0	White
	96	Biscuit
	47	Almond
	NY	Dune
	95	Ice™ Grey
	G9	Sandbar

Cimarron® Comfort Height®

two-piece elongated 1.28 gpf toilet

K-3609



Technical Information

All product dimensions are nominal.

Toilet type:	Two-piece, Floor-mount
Waste Outlet:	Floor
Bowl shape:	Elongated
Flush type:	AquaPiston®
Trap passageway:	2-1/8" (54 mm)
Water Consumption Full:	1.28 gpf (4.8 lpf)
Water surface size:	10-1/2" x 7-7/8" (267 mm x 200 mm)
Rim to water surface:	6-3/8" (162 mm)
Rough-in:	12" (305 mm)
Seat-mounting holes:	5-1/2" (140 mm)

Notes

Install this product according to the installation instructions.

For back-to-back toilet installations: Use only a 45° double wye fitting.

ADA, OBC, CSA B651 compliant when installed to the specific requirements of these regulations.

Plumbing codes may require elongated toilets and elongated, open-front seats in public bathrooms.

Accessibility standards may require controls to be located on the open side of the toilet.

KOHLER®

Highline® Comfort Height®

elongated dual-flush toilet

K-3989

Features

- Two-piece toilet.
- Elongated bowl offers added room and comfort.
- Comfort Height® feature offers chair-height seating that makes sitting down and standing up easier for most adults.
- Left-hand nested trip lever offers a choice of 1.1 or 1.6 gallons per flush (gpf).
- 2-1/8-inch glazed trapway.
- Combination consists of the the K-4199 bowl and the K-4458 tank.
- Seat not included.

Technology

- Dual-flush technology allows you to choose between a full- or partial-flush.

Installation

- Standard 12-inch rough-in.
- Three-bolt installation.

Water Conservation & Rebates

- Eligible for consumer rebates in some municipalities.

Recommended Products/Accessories

K-4636 Cachet® Quiet-Close™ Elongated Toilet Seat
K-5588 Purefresh® Elongated Toilet Seat
K-4108 C³®-230 Elongated cleansing toilet seat
K-5420 Low-Profile Bolt Caps
K-9237 Dual-flush Trip Lever
1023457 Wax Ring/Hardware Kit
1265114 Connector Hose
K-23726 Drain treatment
K-23734 Toilet bowl cleaner & disinfectant
K-23724 Toilet cleaner & disinfectant

Included Components

Product consists of:
K-4458 Toilet tank, dual-flush
K-4199 Two-piece elongated chair height toilet bowl
K-9237 Dual-flush Trip Lever
Additional Components:
Bolt cap accessory pack
Bowl
Tank
Tank cover
Trip lever



WaterSense Meets EPA Criteria Certified by IAPMO R&T

ADA	CSA B651	OBC

Codes/Standards

ASME A112.19.2/CSA B45.1
EPA WaterSense®
ADA
ICC/ANSI A117.1
CSA B651
OBC

KOHLER® One-Year Limited Warranty

See website for detailed warranty information.

Available Colors/Finishes

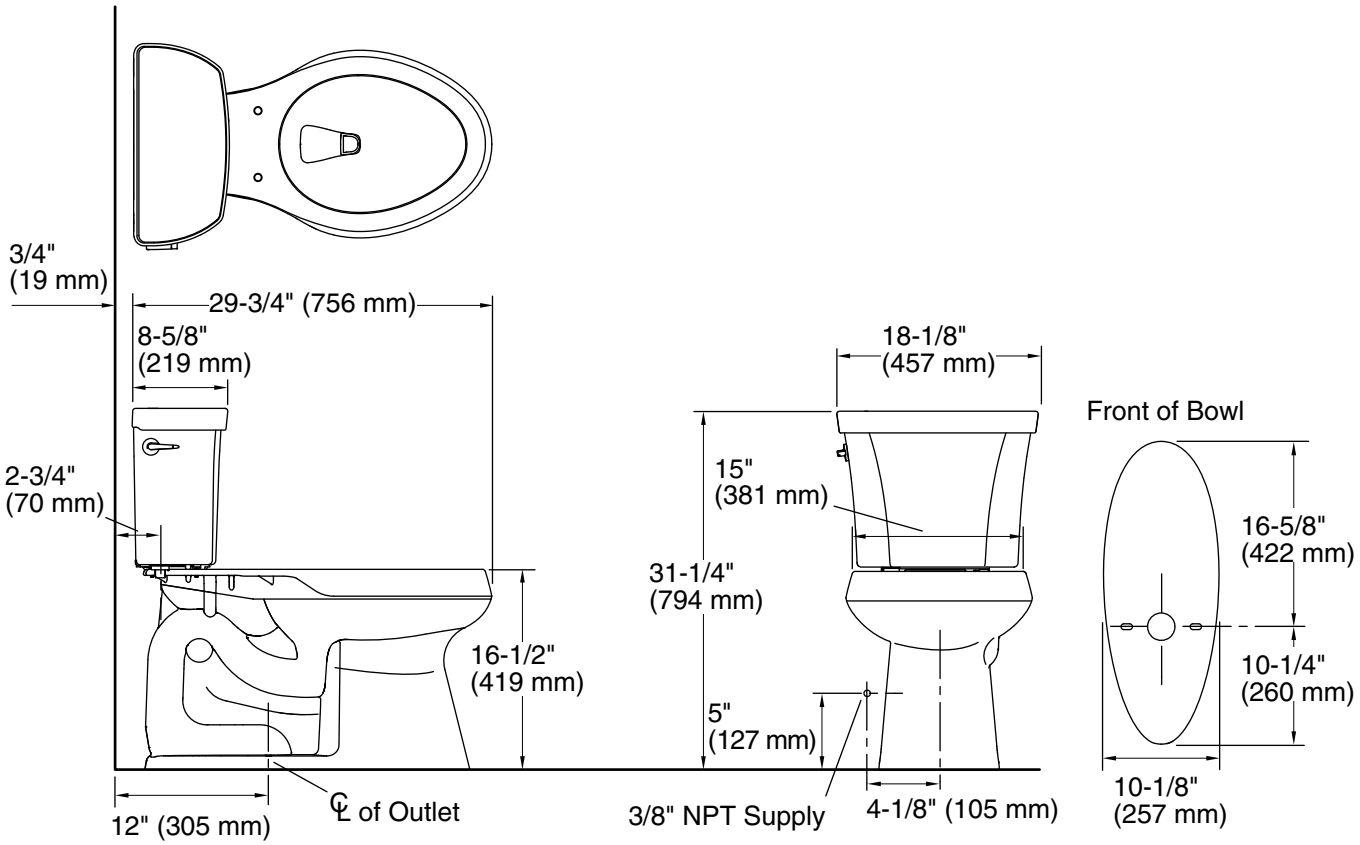
Color tiles intended for reference only.

Color	Code	Description
	0	White
	96	Biscuit
	47	Almond
	7	Black Black™

Highline® Comfort Height®

elongated dual-flush toilet

K-3989



Technical Information

All product dimensions are nominal.

Toilet type:	Two-piece, Floor-mount
Waste Outlet:	Floor
Bowl shape:	Elongated
Flush type:	Class Five®
Trap passageway:	2-1/8" (54 mm)
Water Consumption	
Full:	1.6 gpf (6 lpf)
Reduced:	1.1 gpf (4.3 lpf)
Water surface size:	11-3/8" x 8" (289 mm x 203 mm)
Rim to water surface:	5-3/8" (137 mm)
Rough-in:	12" (305 mm)
Seat-mounting holes:	5-1/2" (140 mm)

Notes

Install this product according to the installation instructions.

The Model Plumbing Codes require the installation of elongated open-front toilet seats in public bathrooms.

ADA, OBC, CSA B651 compliant when installed to the specific requirements of these regulations.

Plumbing codes may require elongated toilets and elongated, open-front seats in public bathrooms.

Accessibility standards may require controls to be located on the open side of the toilet.

DESCRIPTION

The Sure-Lites Architectural emergency series (SELA) is a UL924 code compliant solution with a superior aesthetic that eliminates the traditional "bug eye" emergency look. The system features a customizable shroud that can be field painted or covered with wall treatment to allow the fixture to blend into the space. An LED source, nickel cadmium battery and self-diagnostics create 29 feet of emergency egress coverage, eliminate maintenance and reduce the labor required to perform NFPA required monthly testing. The LED heads are adjustable with a patented forward throw optic.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

ELECTRICAL

- Dual Voltage Input 120/277 VAC, 60Hz
- External Battery Disconnect
- Brownout circuit detection
- Low-voltage disconnect
- Overload / Short Circuit protection
- 4.8V Battery back-up
- Self-diagnostic with Laser test capability

HOUSING CONSTRUCTION

- Injection molded, color stable, high impact polycarbonate
- White or black textured finish
- Suitable for recessed wall mount applications
- Halo hangar bars for recessed mounting
- J-box included

BATTERY

- Sealed Nickel Cadmium
- Full Recharge Time, 24 hours (max.)
- 0°C to 40°C (32°F to 104°F)

WARRANTY

- Five-year warranty
- Prorated seven-year battery warranty

CODE COMPLIANCE

- UL924 Listed
- Damp Location
- Life Safety NFPA 101
- NEC/OSHA
- Most State & Local Codes
- California Energy Code

Feature	Benefit
Custom cover	Superior aesthetic by eliminating unsightly "bug eye"
Base unit recesses into the wall	Minimal presence; only the shroud is visible
Field paintable polycarbonate housing	Shroud can be customized to blend into the space
LED source with nickel cadmium battery	No maintenance required
Self-diagnostics	Eliminate labor to perform required NFPA testing
Adjustable optic with forward throw	Maximum design flexibility

EMERGENCY LIGHT COVERS



ARC



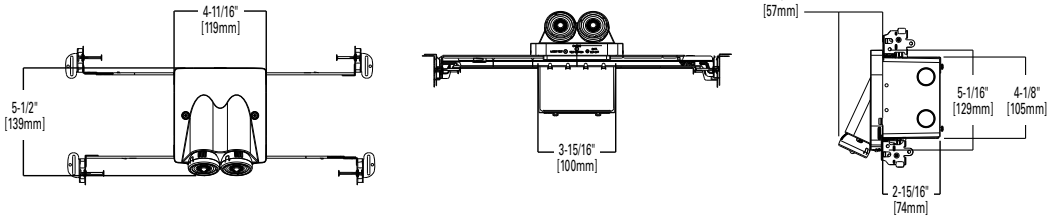
BARREL



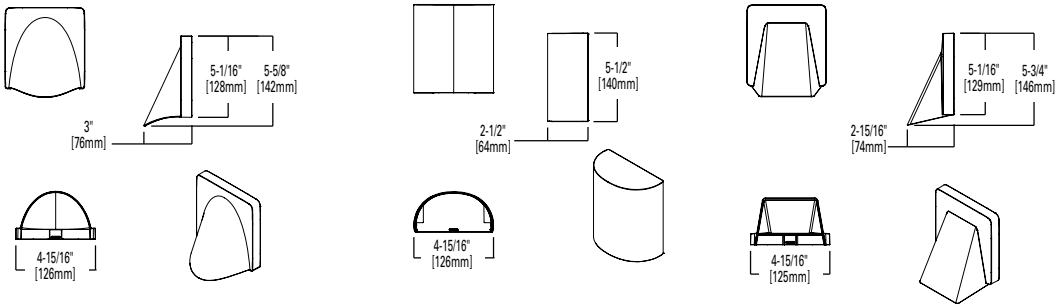
EDGE

DIMENSIONS

EMERGENCY LIGHT



EMERGENCY LIGHT COVERS





SELA Emergency Light

LED Emergency Light

Custom aesthetic covers

Adjustable Optic

Self-Diagnostics

SEL

EZ key external battery disconnect

UL LISTED

NFPA

T20 Certified to California Title 20 Appliance Database

0°to 40°C operating temperature range

ENERGY DATA

Voltage	Power	Current	PF
120V	0.6W	0.07 A	0.07
277V	0.7W	0.07 A	0.03

CATALOG LOGIC

SAMPLE NUMBER: SELA29SD, SELA29BKSD

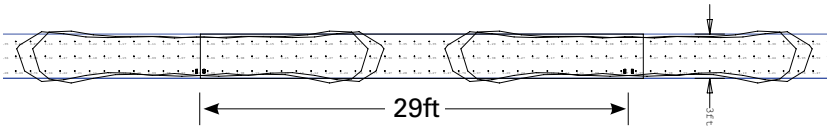
Series	Egress Coverage	Color	Self-Diagnostic	Catalog
SELA	**29** = 29 feet of coverage	__ = white	**SD** = Self-Diagnostic (standard)	**SELA29SD**
		BK = black		**SELA29BKSD**

Custom Cover - Ordered Separately

Series	Cover	Style	Color	Catalog	Geometry
SELA	**C**	**1**	__ = White	**SELAC1**	**Arc**
SELA	**C**	**2**	__ = White	**SELAC2**	**Barrel**
SELA	**C**	**3**	__ = White	**SELAC3**	**Edge**
SELA	**C**	**1**	**BK** = Black	**SELAC1BK**	**Arc**
SELA	**C**	**2**	**BK** = Black	**SELAC2BK**	**Barrel**
SELA	**C**	**3**	**BK** = Black	**SELAC3BK**	**Edge**

PHOTOMETRY

SELA29 ALL MODELS



X	Y	Z	Orient	Tilt	Roll
-0.25	0.5	7.5	90	7	1
0.25	0.5	7.5	90	7	-1
28.75	0.5	7.5	90	7	1
29.25	0.5	7.5	90	7	-1
57.75	0.5	7.5	90	7	1
58.25	0.5	7.5	90	7	-1
-29.25	0.5	7.5	90	7	1
-28.75	0.5	7.5	90	7	-1

TECHNICAL DATA

Mechanical Housing
All components are injection molded with a color stable, high impact thermoplastic resin. The surface is textured to improve aesthetic appearance. Housings and covers are available in white or black. All surfaces are field paintable and can accept wall treatment.

EZ Key – External Power Disconnect
Prevents the battery from cycling during the construction phase and ensures battery is not drained from power cycling.

Self-Diagnostics
The self-diagnostic software will automatically perform all tests required by UL924, and NFPA101 will systematically calibrate itself in the field; thus reducing installation labor and eliminating manual calibration errors. The system indicates the status of the emergency light at all times using the LED indicator. A 90 minute battery power (emergency mode) simulation test will occur once every 12 months. A 30 second battery power simulation test will occur every 30 days.
The Solid-State microprocessor based system has the ability to accurately detect and warn of system failures, plus it incorporates all of the standard electronic features that sets Sure-Lites apart from its competition.

Low-Voltage Disconnect
The low-voltage circuitry disconnects the lighting load to protect the battery after run times in excess of the 90-minute UL limit. The disconnect remains in effect until normal utility power is restored preventing deep battery discharge.

Brownout Circuit Detection
The brownout circuit detection on the SELA emergency light monitors the flow of AC current to the unit and activates the emergency light heads when a predetermined reduction of AC power occurs.

Warranty
SELA units are backed by a five-year warranty on the fixtures and seven-year prorated warranty on the battery.



EZ Key



Laser tester

Part Number = LASER
(sold separately)

SELF-DIAGNOSTIC TESTING OPERATIONS

The Sure-Lites Self-diagnostics is continuously monitoring your emergency fixture, and will signal any failure through the 3 color indicator LED.

Initial Operation:
When the unit is first powered up it will go into a 24 hour fast charge and the indicator LED will pulse green. Once the unit has fully charged it will perform a self-calibration. After self-calibration, the LED will change to steady green indicating the unit is fully charged and float charging the battery to maintain readiness.

Automatic Testing:
The unit will perform a battery capacity, lamp/LED, and charge circuit test every 30 days for 30 seconds. During this time, the indicator LED will change to a steady yellow. It will perform a full battery capacity (90 minute) test once per year. During this time, the indicator LED will change to a blinking yellow.

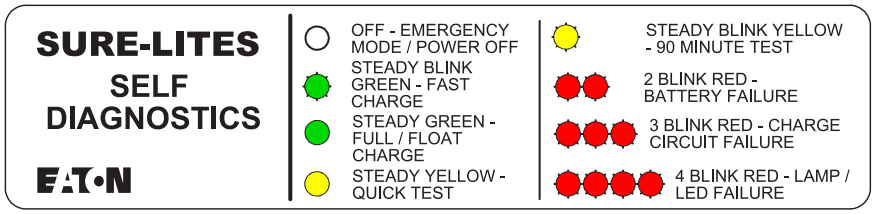
Manual Testing:
- 10 Second "Installation" test – Press and release the test button once during fast charge (blinking green) to initiate a 10 second quick test. The sign will switch to emergency mode for 10 seconds allowing the installer to verify proper installation of the unit, and the LED indicator will turn solid yellow.
- 30 Second Test - Press and release the test button once during float charge (steady green). The indicator LED will turn steady yellow to indicate the unit is performing a 30 second test of the batteries and lamps/LEDs.
- 90 Minute Test - Press and release the test button a second time during a 30 second test (steady yellow) to change to a 90 minute test. During this test, the LED indicator will change to blinking yellow, and the circuit will perform a full battery capacity, charge circuit, and LED test.
- Canceling Test – Press and release the test button during the 90 minute test (flashing yellow) to return the fixture to its original state (fast charge or float charge)

Laser Test:
The SEL SD products are equipped with a Laser Test function that allows the unit to be manually tested without the need to physically press the test button. Shining a laser pointer in the hole marked "LASER TEST" on the bottom of the unit has the same effect as a press and release of the test button.

Clearing Failure Codes:
- A battery failure (LED two blink red) can be cleared by replacing the battery. Disconnecting the battery and AC power, or performing a full 90 minute discharge will reset the error code, however, it will return if the battery is faulty
- Charge Circuit (LED three blink red) and lamp/LED failure (LED four blink red) will clear when the unit successfully passes a manual or automatic 30 second test.

Indicators:
- LED Off - No power to unit, emergency mode.
- LED Steady Green - Unit is fully charged and is float charging the battery to maintain readiness.
- LED Green Pulse - Unit is in a 24 hour fast charge of the battery.
- LED Two Blink Red - Battery has failed a capacity test, or the battery is disconnected. See "Clearing Failure Codes" above.
- LED Three Blink Red - Battery charge circuit has failed. See "Clearing Failure Codes" above.
- LED Four Blink Red - Lamps have burned out, or on an EXIT/Combo, 50% or more of the LEDs have failed. See "Clearing Failure Codes" above.
- LED Steady Yellow - 30 second test or 10 second quick test (Fast Charge only).
- LED Blinking Yellow - 90 minute test.

Maintenance:
None required. Replace the batteries as needed according to ambient conditions. However, we recommend that the equipment be tested regularly in accordance with local codes.



Eaton
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.eaton.com/lighting

Specifications and dimensions subject to change without notice.

Sovereign

Architectural Edgelit

LED Exit Signs #13



Recessed Ceiling Mount



Surface Wall Mount



Surface Ceiling Mount



New Flat Trim for Recessed Ceiling Mount



Surface End Mount

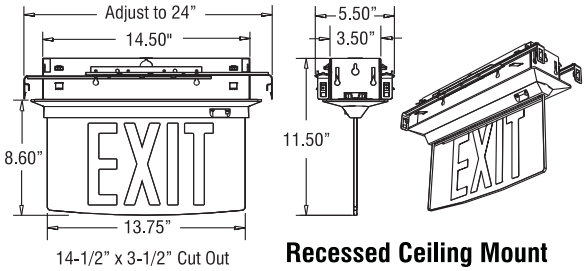
EYE APPEAL

Sovereign LED edgelit exit signs set the standard for architectural appeal; always enhancing their surroundings and pleasing even the most discerning eye.

Subtle lines and soft curves create a distinctive “floating” edgelit look. Quality construction includes precision die cast aluminum housings with a unique, crystal clear, laser-formed thin acrylic legend.

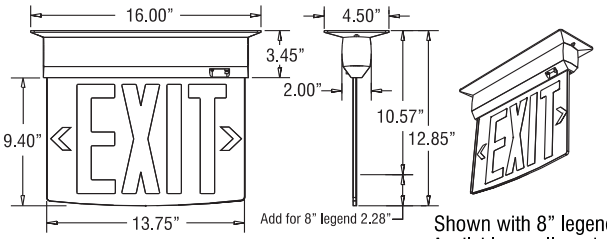
The Sovereign has been designed with the latest high efficiency LED light sources to provide vivid pronouncement of its exit legend with exceptional uniformity and luminance levels – 4X the UL requirement.

Engineered for reliability and ease of installation, Sovereign comes in many cost-effective configurations offering superlative quality, performance, and aesthetics.



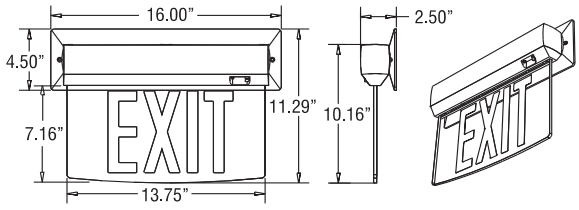
14-1/2” x 3-1/2” Cut Out

Recessed Ceiling Mount

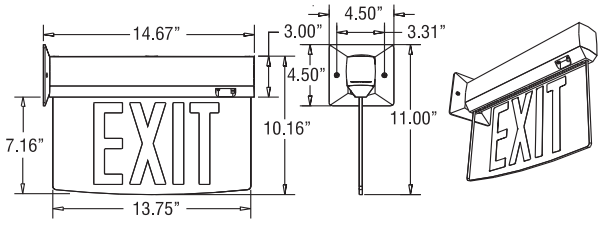


Surface Ceiling Mount

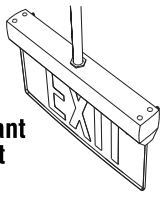
Shown with 8” legend Available on all models



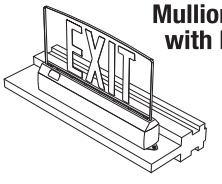
Surface Wall Mount



Surface End Mount



Pendant Mount



Mullion Mount with Inverted Legend

Power Consumption				
Type		Volts	Max Watts	Power Factor
RED	AC Only	120 / 277	1.5	.70
RED	Battery Backup	120 / 277	2.5	.70
RED	Battery Backup with Remote	120 / 277	3.0	.73
GREEN	AC Only	120 / 277	2.3	.70
GREEN	Battery Backup	120 / 277	3.0	.76
GREEN	Battery Backup with Remote	120 / 277	4.0	.81

UL LISTED

CEC Title 20 Compliant

EVENLITE
LIFE SAFETY LIGHTING SOLUTIONS

2575 Metropolitan Drive, Trevose, PA 19053 • USA
TEL: (800) 872 0879 • FAX:(215) 244 4208 • www.evenlite.com

Project name:	*Approved By:*
Catalog No:	*Type No:*

Sovereign LED Exit Signs

FEATURES

- Diagnostic Battery Monitoring on all "EM" models
- Maintenance free LED Light source with 25+ years life expectancy
- Contoured crystal clear laser formed edgelit lens
- Refractive light guide engineered to optimize LED utilization and illumination uniformity
- Lens Panel is "Last-to-Assemble" snap-in for versatility and ease of installation
- Full size universal, self-adhesive Chevron arrows with template enable on-site configuration
- Available with a range of information signage or custom graphics to order
- Custom legends with white LED light source available to order
- Precision pressure die cast aluminum legend holder, trim and surface mount housing
- Quality brushed aluminum sealed finish is standard, optional White, Black, brushed painted Brass finishes available. Consult factory for custom finishes.
- Hinged retaining springs eliminate exposed mounting hardware on recessed model
- Modular design provides ease of installation and matching configurations
- Low profile recessed housing is suitable for old or new work installations and is Type IC Rated
- Recessed ceiling back box features universal adjustable mounting brackets with quick-fit retaining clips to suit most ceiling types
- Slimline low profile surface mount housing eliminates need for recessing box in wall mount applications
- Available with Master/Remote combinations
- Battery Diagnostic Circuit monitors battery status, detects cell failure and issues alert of reduced capacity and the need to replace battery
- Unique electronic driver circuit provides current control and protection ensuring optimum LED efficiency and life
- Universal 120/277 VAC field selectable input. All versions feature fully integral electronic components
- Premium long life high temperature rated, fused Nickel Cadmium battery, operating temperature 10º to 40ºC
- Recessed AC Indicator and Test Switch
- Brownout sensing assures emergency illumination during periods of low line voltage
- Self-compensating solid state Constant Current Charger provides extended float life and rapid recharge
- Zero current LVCO ensures positive charge acceptance following extended discharge
- Approved for use in New York City calendar #48851
- UL Listed 3 hour emergency duration standard
- UL 924 Listed by Underwriters Laboratories and meets or exceeds all performance standards as required by NFPA 101, NFPA 70-NEC and OSHA
- California Energy Commission (CEC) Title 20 Compliant
- 5 year limited warranty

ORDERING GUIDE

SOV							
Model	**Operation**	**Legend Size/ Letter Color**	**Faces/ Background**	**Trim/ Housing Color**	**Mounting**	**Chevron Direction**	**Options**
SOV	**AC** AC Only 120/277 VAC **EM** Battery Backup Emergency	**R** RED Standard 6" EXIT **G** GREEN Standard 6" EXIT **NR** RED 8" EXIT **NG** GREEN 8" EXIT	**1C** Single Face, Clear Background (standard) **1M** Single Face, Mirror Background **2M** Double Face, Mirror Background (Mirror simulates clear background for double face exits) **1W** Single Face, White Background **2W** Double Face, White Background	**BA** Brushed Aluminum (standard) **WH** White Finish **BK** Black Finish **BR** Brushed Brass Painted Finish **CC** Custom Color (specify)	**Standard Mounting** **RC** Recessed Ceiling **SC** Surface Ceiling **SW** Surface Wall **SE** Surface End **Optional Mounting** **MM** Mullion Mount **PA** 12 " Swivel Pendant Mount **PB** 24" Swivel Pendant Mount **PC** 36" Swivel Pendant Mount **PD** 48" Swivel Pendant Mount	**UC** Field Installed Adhesive Chevron Indicators **AR** Arrow Right EXIT> **AL** Arrow Left <EXIT **AA** Double Arrow <EXIT> **LR** Arrow Left/ Arrow Right <EXIT/EXIT> (Double Face units only) *Factory installation of Chevrons is recommended for Double Face Signs*	**DK** Two Circuit Input –Specify Input Voltage (AC Models only) **DL** Damp location listed **EU** Euro Legends (Consult factory for full range) **F** Flash in Emergency Mode (EM Models) or continuous Flash in AC models **FA** Flash in AC and Emergency mode on 12-24V (AC or DC) normally-off fire alarm signal (Available for AC and EM models) **FB** FA Option including Buzzer **FZ** F Option including Buzzer **FP** Flat Panel (no curve on panel bottom) **FT** Flat Trim for Recessed Ceiling Mount **IN** Inverted Legend – Use with Mullion Mount **IR** Self-Diagnostics with Infrared remote Testing (EM models only) **TLRT** Infrared hand held Transmitter (order separately) **LL** High/Low Level Master and Remote (available for AC and EM Models-Remote is Die Cast Exit Razor to match master) **SD** Self-Test / Self-Diagnostic(EM models Only) **VA** Other Input Supply Voltage (Consult Factory)

Example: SOV-EM-R-1C-BA-RC-AR-SD-FT

EVENLITE
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PRINTED ON RECYCLED PAPER



Abrams Double Sconce 2.25″

Shown in Natural Brass with Clear Straight Bell Shades and A19 Gold Tip Bulbs

Application: Wall Sconce

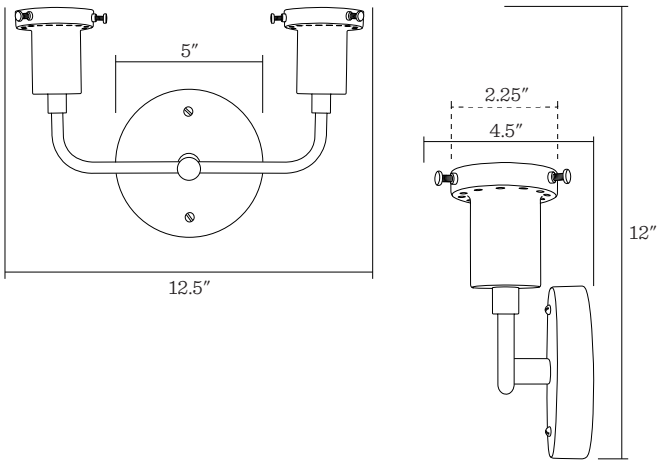
Product origin: USA

UL listed:

Wattage:
Incandescent, Medium Base Socket
Max wattage: 60W per socket

Voltage: 120/220V

Dimensions:
Projection: 4.5″ with shades
Canopy Width: 5″
Height: 12″ with shades
Width: 12.5″ with shades



Finish: TB, NB, or PN

Details:
- Damp rated
- May be mounted with socket facing up or down
- Also available in a plug-in version with twisted cloth cord including in-line rocker switch and plug
- Plug-in version is not UL listed
- Due to the minimal projection from the wall, shades wider than 4.75″ will not fit this fixture
- Shades sold separately

One year warranty.

Finish Options



True Black (TB) | Natural Brass (NB) | Polished Nickel (PN)

Portland Flagship
2181 NW Nicolai Street, Portland, OR 97210
503-230-7113

New York
27 Vestry Street, New York, NY 10013
212-226-6113

Trade Sales
trade@schoolhouse.com
1-844-209-7735

Zander Wall Light



Description:
Zander Wall Light features tall candle plates within the geometric frame. Available in Brushed Nickel or Bronze finishes in 1 and 2 light options. Bronze comes with bronze or gold candle sleeves which can be changed to suit your taste. 60 watt 120 volt B10 candelabra base bulbs are required, but not included. 1 Light: 4.75 inch width x 13 inch height x 4.75 inch depth. 2 Light: 7.9 inch width x 13 inch height x 4.75 inch depth.

Shown in: Bronze

Price: $160.00

Shade Color: N/A
Body Finish: Bronze
Lamp: 2 x B10/Candelabra (E12)/60W/120V Incandescent
Wattage: 120W
Dimmer: Incandescent
Dimensions: 7.9"W x 13"H x 4.75"D

Product Number: **ZLT597411**				
Company:		Fixture Type:		Apr 24, 2020
Project:		Approved By:		

www.Lightology.com Address: 1718 W. Fullerton Ave. Chicago IL 60614 Phone: 866-954-4489 Fax: 773-883-6131

Tenor Wall Light



Shown in: Earth Black / Clear Seedy

Description:
The Tenor Wall Light is a true style crescendo, the drama builds as your eye follows the lines of this beautifully modern design. Tiered sockets and petite candle sleeves are finished in a painted brass that pops against the Earth Black frame, while cylindrical Seedy glass shades reflect the soft glow of the golden accents. ETL listed for damp locations.

Price: $119.99

Shade Color: Clear Seedy
Body Finish: Earth Black
Lamp: 2 x B10/Candelabra (E12)/60W/120V Incandescent
Wattage: 120W
Dimmer: Incandescent
Dimensions: 9"W x 12"H x 4"D

Product Number: **QZL609590**				
Company:		Fixture Type:		Apr 24, 2020
Project:		Approved By:		

Address: 1718 W. Fullerton Ave. Chicago IL 60614 Phone: 866-954-4489 Fax: 773-883-6131 www.Lightology.com

#17

REJUVENATION



Millard Oil-Rubbed Bronze Barebulb Double Wall Sconce

Item #A2848

http://www.rejuvenation.com/s/1961z

Specification	Detail
Item #	A2848
Width	9.2"
Height	6.3"
Depth	6.7"
Weight	1.47lb
Sockets	2
Maximum Wattage per Socket	60 watt

Price as shown*: $209.00

*Shipping and handling fees apply

#18

REJUVENATION



Thurman 6"

Item #A5162

http://www.rejuvenation.com/s/196fz

Specification	Detail
Item #	A5162
Finish	Oil-Rubbed Bronze
Socket type	E26
Switch type	None
Shade	B0472
Shade SKU	B0472
Max Wattage per Socket	100 W
UL Listing	UL Listed Damp
Canopy width	8-3/4"
Overall Width	11-1/2"
Overall length	9"
Shade height	7"

Base price: $119.00

Selected options total: $70.00

Total price as shown*: $189.00

*Shipping and handling fees apply

Sage Bathroom Vanity Light

Lightology #19



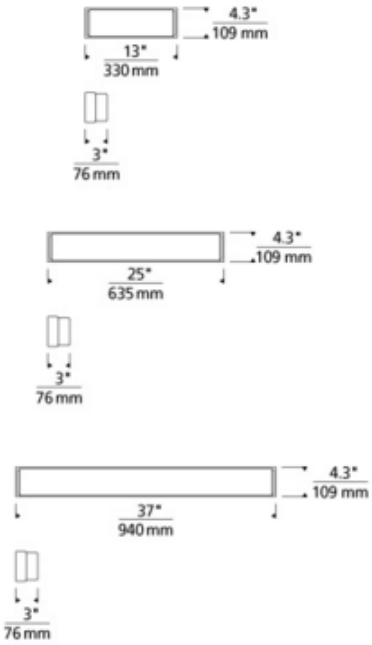
Description:
The Sage Bathroom Vanity Light is purpose-built to provide a beautifully diffused wash of LED illumination perfect for vanity light applications. Pairing its ultra-slim, full length backplate with its uninterrupted linear diffuser creates a sophisticated, clean, modern aesthetic. Finish available in Satin Nickel or Chrome. Available in three sizes with choice of 2700K or 3000K color temperature, 90CRI. Small: Includes 25 watt LED module, 1334 lumens. 13 inch width x 4.3 inch height x 3 inch depth. Medium: Includes 35 watt LED module, 2210 lumens. Large: Includes 46 watt LED module, 3427 lumens. 37 inch width x 4.3 inch height x 3 inch depth. Can be mounted vertically or horizontally. ADA compliant. ETL listed. Dimmable with an electronic low voltage dimmer, sold separately.

Shown in: Chrome

Price: $204.80

Shade Color: N/A
Body Finish: Chrome
Lamp: 1 x LED/25W/120V LED
Wattage: 25W
Dimmer: Low Voltage Electronic
Dimensions: 13"W x 4.3"H x 3"D

Technical Information
Luminous Flux: 1334 lumens
Lumens/Watt: 53.36
Lamp Color: 2700 K
Color Rendering: 90 CRI
Lamp Life: 25000 hours



Product Number: **TLG494840**				
Company:		Fixture Type:		Apr 24, 2020
Project:		Approved By:		

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