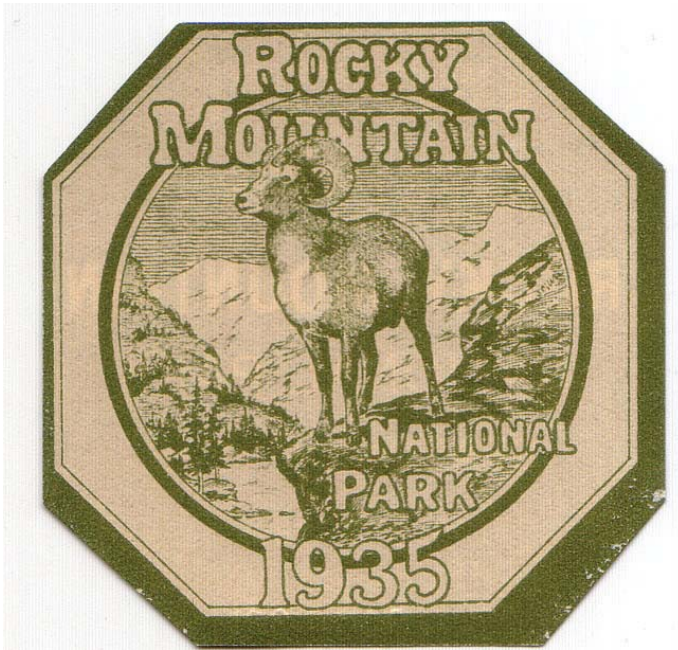




Rocky Mountain National Park Design Guidelines





1935 Season Pass (ROMO 981.1935).

These guidelines identify character-defining features of Rocky Mountain National Park. Successful use of these guidelines will encourage design decisions that maintain the integrity and consistency of the Park, inspiring a sense of stewardship in all who visit the majestic landscapes of Rocky Mountain National Park.

These guidelines are intended to direct the efforts of engineers, architects, landscape architects, planners, administrators, maintenance personnel, resource managers and design review staff.



December 21, 2010

Soon after Rocky Mountain National Park was created in 1915 early park managers sought to build facilities that would balance the dual mandates in the enabling legislation to provide for "the freest recreational purposes by the public and for the preservation of the natural conditions and scenic beauties." Early building construction was often from indigenous materials: locally harvested timbers and rock from nearby fields that blended well with the natural environment. Fall River Road and later Trail Ridge Road were built to standards that lay closely on the land.

Now, as we approach the 100th anniversary of the Park's founding, there are over 500 buildings and 120 miles of road in the park. Several "histories" of building have taken place over the years: early rustic architecture, Mission 66 architecture, and recent attempts at "Parkitecture." These Design Guidelines distill the unique historical qualities of the Park's built environment and the relevant characteristics of the natural environment and offer suggestions for how to build future facilities with sustainable materials in harmony with these precedents, opportunities and limitations.

Whether it is simply going through an entrance station and driving a road, or spending extended time in our visitor centers, all visitors encounter the Park's built environment. By building our facilities with sensitivity to the landscape and with high quality sustainable materials we are telling our visitors that Rocky Mountain National Park is a special place and that we are good stewards of the unique resources which we have been entrusted to protect. Our pride in designing and maintaining our facilities to high standards says we care and this in turn can engender respect and caretaking for the park in our visitors as well.

These Design Guidelines are intended to aid park managers, architects, builders and maintainers in their decision making process with regards to the built environment. They are not hard and fast rules to be applied blindly; rather they are intended to set sideboards within which designers can still find creative solutions while building in harmony with our natural environment and our historical precedents. With forethought and sensitivity, the built environment can enhance the visitor experience and protect the magnificent vistas and unique natural environment for which Rocky Mountain National Park was set aside.

A handwritten signature in dark ink, reading "Vaughn Baker".

Vaughn Baker
Superintendent

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FORWARD

“The environment for human behavior in natural areas is provided by plant communities. Human groups in the terrain generate behavior patterns based on individual activities. Thus, each location has its corresponding behavior pattern, which necessarily adjusts itself to the terrain. This mutual accommodation is the basic link between terrain processes and human processes in the park, wherever man is present.”

*From the Rocky Mountain National Park
Final Masterplan Jan, 1976*



Historic Photograph (ROMO EPM ET91.7).



*Longs Peak and Prospect Mountain. William H. Jackson
Photograph c. 1870.*

The mystique and lure of Rocky Mountain National Park (RMNP) may best be described as a place where dramatic mountains and weather have shaped a landscape that calls to something within us. The park's landscape includes Montane, Subalpine and Alpine Tundra ecosystems, and within each of these zones, important flora, fauna and geologic features are preserved.

Rocky Mountain National Park has been a special place for many people throughout history. Native American tribes, including the Ute, travelled throughout the park, and their ancient trails mark pilgrimages to the high alpine tundra. Today the alpine areas of Rocky Mountain National Park are recognized as an unparalleled example of the tundra ecosystem.

The sense of being in a special place is reinforced by the pristine landscapes and the historic log buildings with rustic, granite stone foundations, which blend local materials with character-defining elements of the surrounding Montane, Subalpine and Alpine tundra zones.

With the intention of maintaining integrity of the character-defining features of Rocky Mountain National Park, these guidelines have three goals:

The first goal is to guide the planning and design of new construction so that it is consistent with the rustic style existent in the park.

The second goal is to set sideboards within the rustic style that allow the use of sustainable building material, technology, and plant material in an appropriate way.

The third goal of these guidelines is to encourage designs that create a special experience for the visitor and inspire a sense of stewardship within all park users.

CONTEXT



Fire Lookout, Shadow Mountain, Rocky Mountain National Park

Image from Albert H. Good, Patterns from the Golden Age of Rustic Design, Park and Recreation Structures from the 1930s.

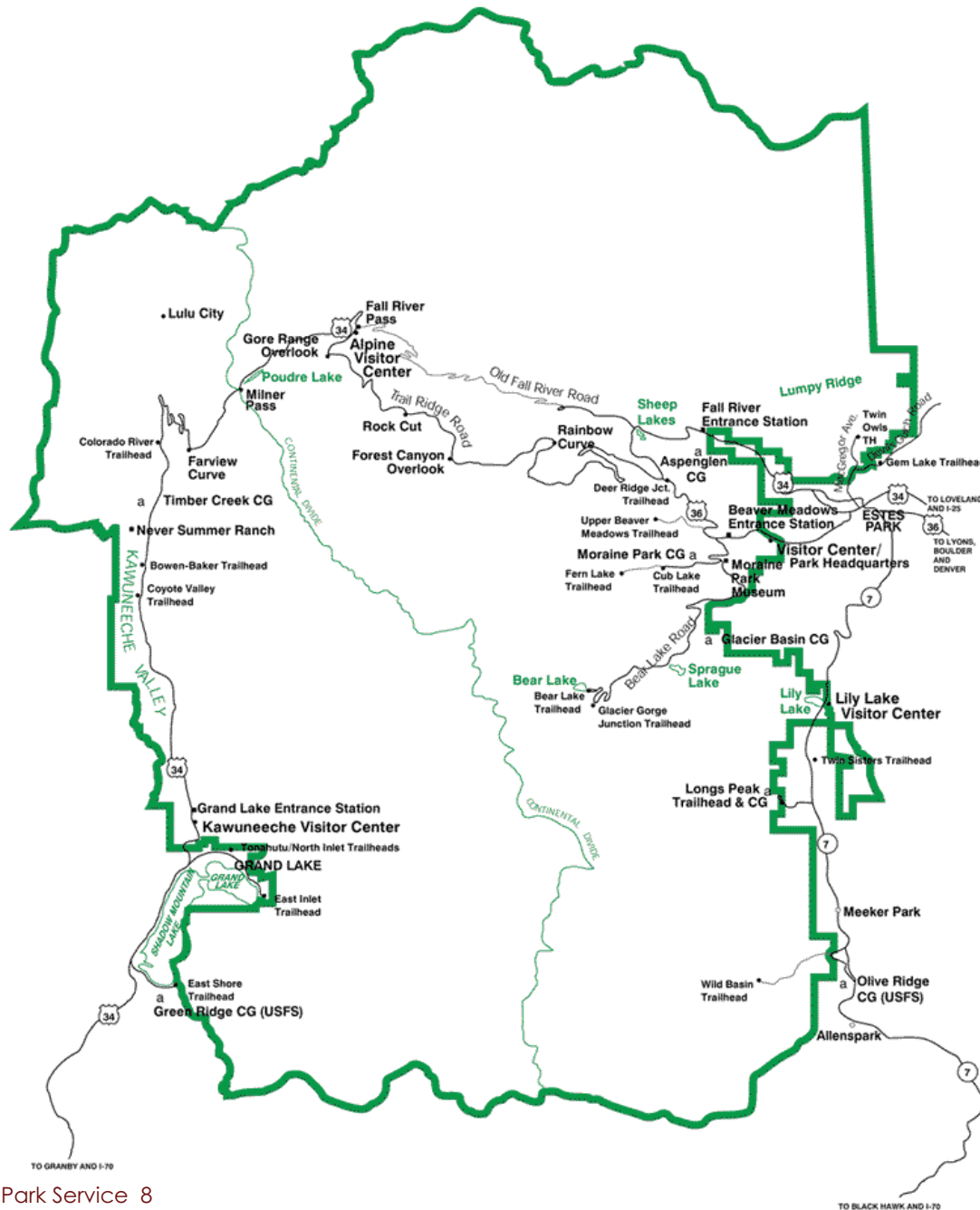
REGIONAL CONTEXT

Encompassing over 265,000 acres, Rocky Mountain National Park is situated in north-central Colorado in portions of Larimer, Boulder and Grand counties.

The park boundary includes both eastern and western watersheds along the Continental Divide, defined by the following major tributaries: the Colorado River draining west and the Big Thompson, St. Vrain, Cache La Poudre and Fall Rivers draining east. The western side of the park is more forested with higher precipitation than the eastern side of the park.

The park is divided into three ecozones including the Alpine Tundra, Subalpine and Montane zones. The park contains 113 named peaks that rise over 10,000 feet above sea level and Longs Peak at 14,259 feet is the highest peak in northern Colorado.

The Rocky Mountains in RMNP formed through a series of uplifts and erosion that exposed early metamorphic and igneous rock in large expanses of nearly horizontal surfaces. More recent glaciations have added geologic features such as terminal moraines, cirques and U-shaped glaciated valleys.

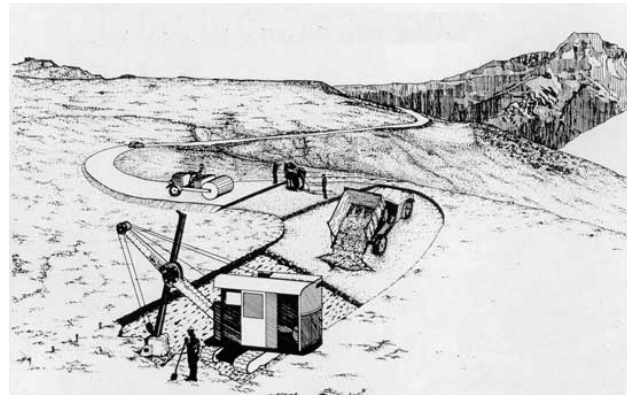


RMNP HISTORIC TIME LINE

1915	1916	1916-1940s	1929-1932	1932-1941	1956-1972	1980s-Present	2009
Led by Enos Mills RMNP Bill Signed	Organic Act signed by Congress National Park Service Formed	NPS Rustic Style construction in RMNP	Trail Ridge Road Constructed; Allows access to RMNP's Alpine Tundra	Civilian Conservation Corps work in RMNP	Mission 66 construction and development in RMNP	Rustic Revival Style construction and remodeling in RMNP	255,000 acres of RMNP designated as Wilderness



Denver Post drawing highlighting Enos Mills' efforts towards the 1915 RMNP Bill.



Drawing done in 2000 showing Trail Ridge Road Construction by historic American engineering record (HAER).



Secretary of the Interior Ken Salazar at the Wilderness Dedication of 250,000 acres of RMNP.



Rustic Fall River Pass patrol cabin built in 1922 (ROMO EPM 85.41.197).



Rustic Style Bear Lake Lodge Interior (ROMO EPM Postcard).



Rustic Fall River Pass Store (ROMO EPM Postcard).

The ideas that influenced the design ethic of the NPS began in the 19th century with the aesthetics of the English Picturesque movement and the development of public parks including Frederick Law Olmsted's Franklin Park in Boston, MA. Parks in the Picturesque Style used scenography, circuit roads and paths to guide the experience and perception of the park visitor. Additionally, the Picturesque Style guided Andrew Jackson Downing's 1875 *Treatise on the Theory and Practice of Landscape Gardening* that established design values of preservation and harmony that would "reach maturity in the work of the National Park Service in the 1920s and 1930s."¹

Another important precedent for the NPS is the Rustic Style. An important example is the Old Faithful Inn designed by Robert Reamer in 1903-04. The Rustic Style and the Arts and Crafts movement were a backlash against the decorative excesses of the Victorian Period. Designers looked to vernacular, pioneer

¹ Linda Flint McClelland. *Building the National Parks: Historic Landscape Design and Construction*, The Johns Hopkins University Press (1997) 33-34.

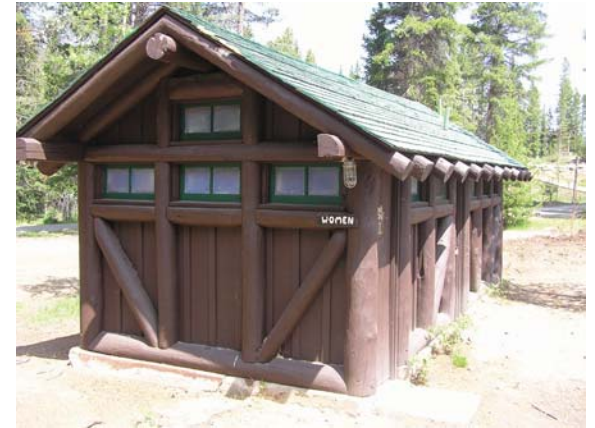
structures and construction techniques that highlighted craftsmanship and use of local materials that would harmonize a structure to its environment.

The National Park Service directed the design of buildings within parks to reflect special relationships to the visual environment. The resulting buildings of the 1920s and 1930s, used natural materials to make visual connections to the surrounding environment. From 1916-1941, the National Park Service developed a NPS Rustic Style that can be summarized by this excerpt from a 1918 Report to the Director of the National Park Service: “In the construction of roads, trails, buildings and other improvements, particular attention must be devoted always to the harmonizing of these improvements with the landscape.”² The NPS Rustic Style is an interpretation of the Rustic Style that can characterize the majority of structures built by the NPS before WWII.

² NPS Report to the Director of the National Park Service, Washington D.C. Government Printing Office, 1918, p. 274.

The interpreters of NPS Rustic style included landscape architects and engineers employed with the NPS. T.C.Vint, head landscape architect of the Western Division, San Francisco Office, visited Rocky Mountain National Park several times in the 1920-30s working with park superintendents to design roads and campgrounds. During the Great Depression, the Civilian Conservation Corps (CCC) was active in RMNP developing fire trails, combating mountain pine beetle, constructing stone guard rails on Trail Ridge Road, and building campgrounds and facilities. Because of their extensive work protecting and managing trees, locals nicknamed the CCC boys as “woodpeckers.”

Additional design influence came from the work of E.P. Meinecke who revolutionized the design ethic for National Park campgrounds in the 1930s. A plant pathologist, he was hired by NPS Director Stephen Mather to study Sequoia National Park, and he subsequently developed recommendations for campground areas in the 1932 *A Camp Ground Policy*. Meinecke’s recommendations called for



Rustic elements include the exposed timber construction, horizontal elements (windows) and brown and green colors that blend into landscape. Example of NPS Rustic Style Comfort Station in Timber Creek Campground constructed by CCC c. 1939.



Notice pre-fabricated materials including brick wall. Example of Mission 66 Comfort Station in Timber Creek Campground c. 1963.

Pitched, metal roof is a modern and sustainable variation on the Rustic Style.

Exposed timber log structure.

Accessibility element.

Randomly patterned moss rock wall.



Appropriately pitched roof and dark color that blends in with landscape.

Glu-Lams instead of timber logs is acceptable.

“Lick-n-Stick” 1-inch thick rock wainscot walls are in the tradition of rustic stone foundations. The rocks are also struck back enough to create some shadow and the mortar is an appropriate color. A battered wall could help it fit in even more with the rustic park style.



Top: Example of Rustic Revival Vault Toilet in Timber Creek Campground.
Bottom: Example of a rustically remodeled Mission 66 Comfort Station in Glacier Basin Campground.

naturalistic landscape design and site planning. Campground designers should consider suitability of soils and vegetation, practices of delineating auto and pedestrian circulation by using rocks and logs to avoid soil compaction, plus the inclusion of campground furnishings (fire pits, tent pads, and picnic tables).

The next significant construction style occurred during the Mission 66 Era (1956-1972 in RMNP). The NPS director and landscape architect, Conrad Wirth largely conceived the program in order to modernize the National Parks’ facilities, accommodating the boom of post-WWII visitors and their attendant automobiles. A ten-year project slated to end in 1966 (the fifty-year anniversary of the National Park Service) the plan aimed to improve, develop and reinvigorate the parks and park service. Stylistically, designers rejected the NPS Rustic Style in favor of the International Style, which used more modern materials including glass, concrete and steel to construct boxy, functional structures. In the move towards

modern design, Mission 66 projects were often controversial and critics charged that the buildings were too standardized and plain. Additional criticism came from conservationists who argued that Mission 66 planning and development (roads, trails, campgrounds, recreational facilities) allowed for too much public use, threatening the very ecosystems the NPS was trying to preserve. Mission 66 planners did however succeed in “their goal of shoring up infrastructure and radically altering the orientation of interpretation programs and patterns of visitor use in the parks.”³

From about the mid-1980s to present, RMNP construction has favored a Rustic Revival Style that looks back to the design principles of NPS Rustic Style. For example, several Mission 66 comfort stations in the park have been remodeled in a more rustic style. Rustic Revival design principals favor

the use of pioneer-like craftsmanship and the use of surrounding materials including timber and stone, while incorporating sustainable materials (such as appropriately designed metal roofs) that harmonize with the surrounding environment.



Historic buildings like McLaren Hall are important cultural resources for the park.

³ Maren Thompson Bzdek, [DRAFT] *Context Report: Mission 66 Development at Rocky Mountain National Park, 1945-1972*. Center for Public History and Archaeology, Colorado State University (2009).

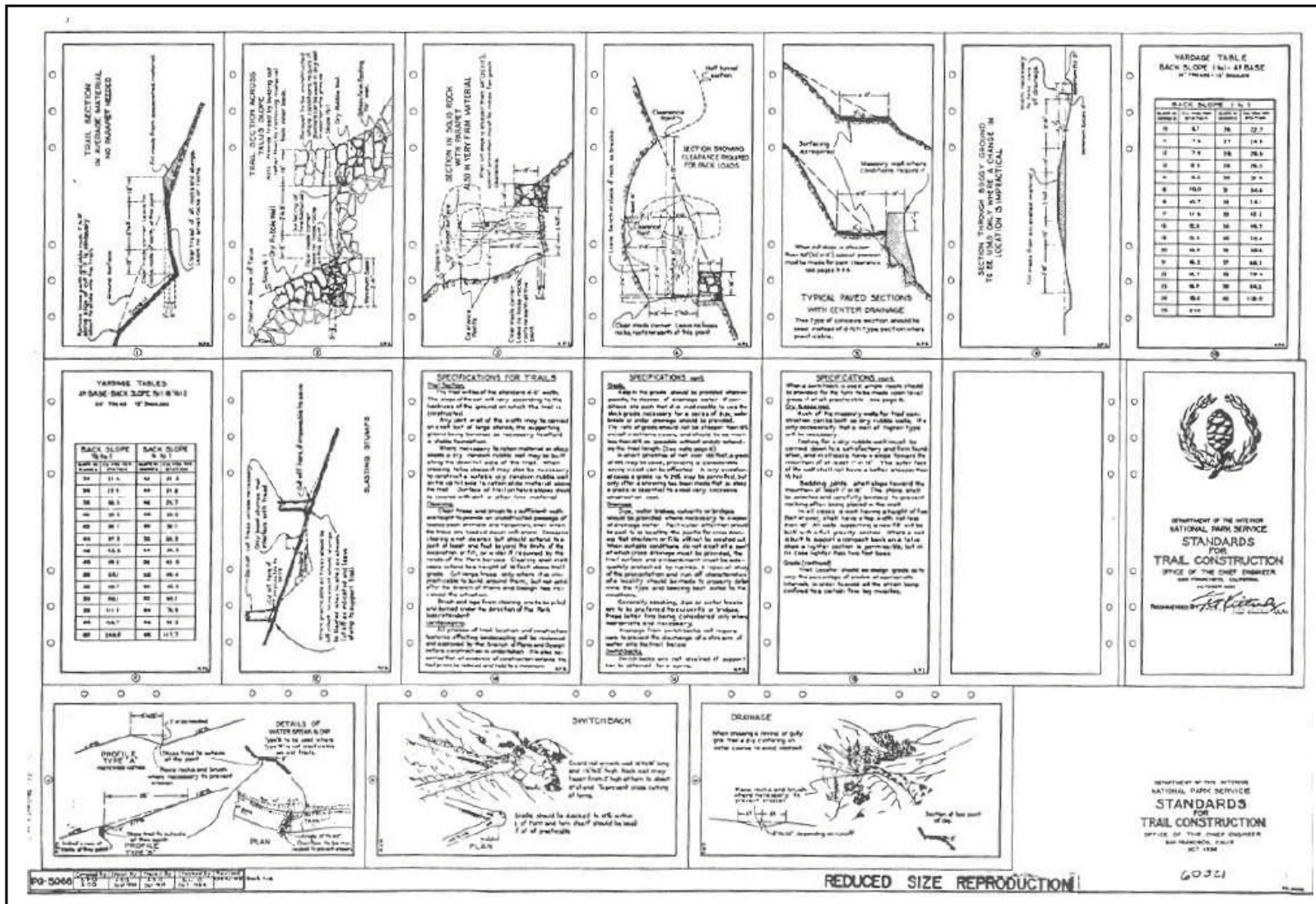
NATIONAL PARK SERVICE CONSIDERATIONS

Rocky Mountain National Park is federally owned and managed by the National Park Service. The park's cultural and natural resources are subject to federal laws and regulations. Internally, several divisions oversee the facilities management, resource management and design development of the park. Additionally, in 2009 most of the park became designated wilderness.

See APPENDIX A for more information on several additional guidelines that may be useful.



DESIGN GUIDELINES



Standards For Trail Construction, 1934 Courtesy of National Park Service Technical Information Center Denver, Colorado.

CHARACTER DEFINING FEATURES

RMNP ECOSYSTEM MAP

Rocky Mountain National Park includes Montane, Subalpine and Alpine Tundra ecosystems, and within each of these zones, important flora, fauna and geologic features are preserved. Elevation information from *Plants of Rocky Mountain National Park* (Beidleman, Beidleman and Willard).



MONTANE ZONE

Elevation: 7,500 TO 9,500 feet



SUBALPINE ZONE

Elevation: 9,500 feet to 11,500



ALPINE ZONE

Elevation: Above Treeline
11,500 feet to Mountain
Summits

Drawings by Amanda Jeter



Rocky Mountain National Park Zone Map.



CHARACTER DEFINING FEATURES



Alpine Visitor Center in the Alpine Zone



Bear Lake Bus Shelter in the Subalpine Zone



Moraine Park Museum in the Montane Zone

CHARACTER DEFINING FEATURES



MONTANE ZONE (7,500-9,500 Feet)

- Montane Zone is bisected by the Continental Divide. The Western Slope receives more summer rain and winter snow. The Eastern Slope is windier. Average annual precipitation varies from 13-20 inches throughout RMNP.
- Dominant visual element is the Ponderosa Pine (*Pinus ponderosa* ssp. *scopulorum*) forests in sunny, south-facing slopes.
- Vegetation varies based on slope and aspect. The Ponderosa Pine Ecosystem includes Golden Banner (*Thermopsis divaricarpa*), Antelope Bitterbrush (*Purshia tridentata*), Mountain-mahogany (*Cercocarpus montanus*), and Mountain Iris (*Iris missouriensis*). The shadier, north facing slopes support Douglas Fir (*Pseudotsuga menziesii*) and Lodgepole Pine (*Pinus contorta* var. *latifolia*) forests with limited understory that includes Mountain Ninebark (*Physocarpus monogynus*). Montane vegetation can also include Quaking Aspen (*Populus tremuloides*).
- Soils and rock features vary from well-developed valleys, glaciated areas and terminal moraines, to unglaciated areas with granite cliffs, domes and rock figurines.
- The Montane Zone includes the majority of built structures including Beaver Meadows Visitor Center and Moraine Park Museum.
- Building Styles: NPS Rustic, Rustic Revival.
- Architectural Details: Pitched roofs, timber construction, battered stone walls, appropriate massing and scale, colors and elements inspired by Ponderosa Pine.



Ponderosa Pine Bark



Golden Banner



Antelope Bitterbrush



Lodgepole Pine

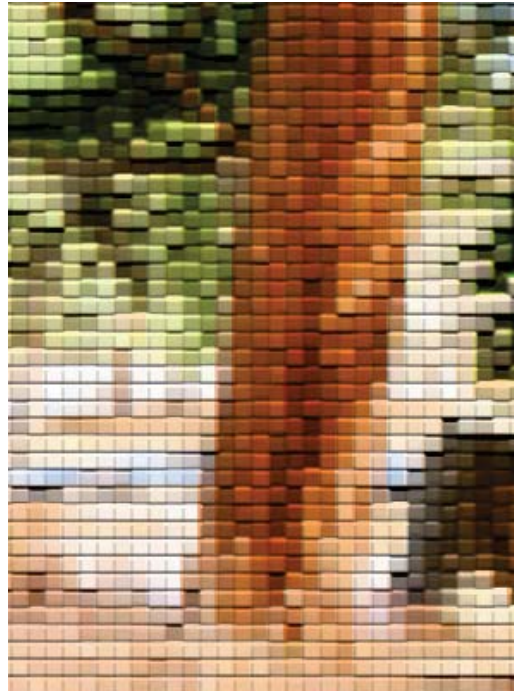
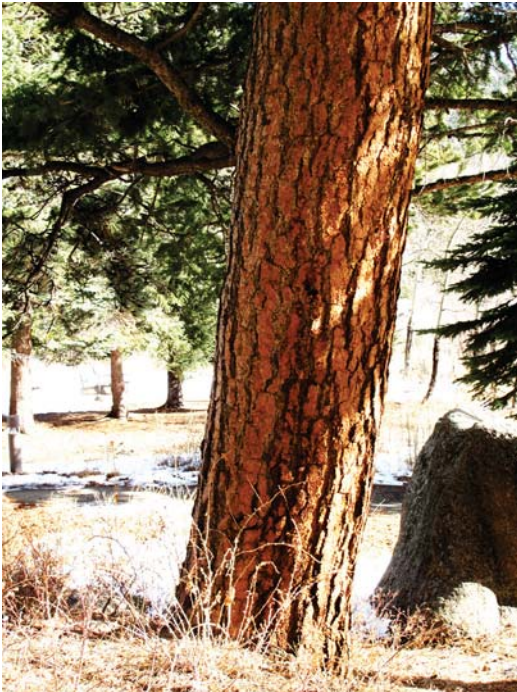


Quaking Aspen

MONTANE ZONE

SUGGESTED PANTONE COLOR PALETTE

This color palette represents suggested colors taken from the dominant feature of the Montane Zone--the Ponderosa Pine. The image on the left was taken in to Photoshop, reduced to blocks of color (right) and then five signature colors were chosen to give a sense of the dominant colors in this zone.



Good Roof Color

Good Roof Color



Pantone 168 C

Pantone 1535 C

Pantone 723 C

Pantone 5743 C

Pantone 5753 C

For all swatches, C after the number means use the Pantone Coated color guide.



Pantone 476 Uncoated

DARK BROWN BUILDING STAIN CURRENTLY USED IN PARK:

- Diamond Vogel brand black base (BT-9502).
- Additive color code (F17Y4) for five gallons.
- Equivalent to PANTONE 476 U (U means uncoated in the Pantone color swatch guide).
- In general, avoid creating reflective, glossy surfaces in park to minimize sun glare.

CHARACTER DEFINING FEATURES



SUBALPINE ZONE (9,500 to 11,500 Feet)

- The Subalpine Zone receives the heaviest precipitation, mostly as snow. Spruce-Fir forests are characterized by cool, shady and moist conditions.
- Dominant visual element is the dark green expansive forest of Engelmann Spruce (*Picea engelmannii*) and Subalpine Fir (*Abies bifolia*).
- Vegetation varies based on slope and aspect. Spruce-Fir forest understory includes Twinflower (*Linnaea borealis*), Heartleaf Arnica (*Arnica cordifolia*), and Rams-horn (*Pedicularis racemosa* ssp. *alba*). Limber Pines (*Pinus flexilis*) grow on windy, rocky ridges within the Subalpine Zone.
- The Subalpine Zone has less built structures than Montane Zone. This zone includes the Bear Lake structures.
- Building Styles: NPS Rustic, Rustic Revival.
- Architectural Details: Pitched roofs, dark colors, timber construction.



Engelmann Spruce



Engelmann Spruce Cone



Subalpine Fir



Twinflower



Heartleaf Arnica

SUBALPINE ZONE

SUGGESTED PANTONE COLOR PALETTE

The Subalpine dominant color palette is taken from the dense Subalpine Fir and Engelmann Spruce forests that feature dark black-greens with grey accents from the bark. The dark brown color used in siding and logs of existing buildings.



Good Roof Color



Pantone 5605 C



Pantone 5743 C



Pantone 7533 C



Pantone 410 C

For all swatches, C after the number means use the Pantone Coated color guide.



SUBALPINE ROOF COLOR

- Metal roof colors include Hartford Green (right) and lighter greens (left).
- Hartford green should be used in Subalpine Zone, NOT lighter green.
- Lighter green is appropriate for Montane Zone roofs.

CHARACTER DEFINING FEATURES



ALPINE TUNDRA ZONE (Above Timberline; 11,500 to Mountain Summits)

- The Alpine Tundra Zone is marked by very windy conditions, limited moisture and short, cool growing seasons favoring low-growing plants. The peak of Alpine Tundra growth occurs in July.
- The dominant visual element is the low-lying, dry and wet tundra that feature a variety of summer-blooming flowers including Alpine Sunflower (*Rydbergia grandiflora*) plus grass-like plants, mosses and lichens.
- Additional characteristic plants include Alpine Avens (*Acomastylis rossi* ssp. *turbinata*), Alpine Bistort (*Bistorta vivipara*), Alpine Clover (*Trifolium dasphyllum*), Alpine Forget-me-not (*Eritrichum aretioides*), Arctic Gentian (*Gentianodes algida*), Snow Buttercup (*Ranunculus adoneus*), Nelson Willow (*Salix planifolia*) and Arctic Willow (*Salix arctica* ssp. *petraea*).
- Winter low temperatures average around -20 to -30 degrees; July averages between 47 to 55 degrees. Average Snowfall is 250" taken from Niwot Ridge Station, Indian Peaks.
- Fellfields, boulderfields, and talus rock are common.
- Limited built structures; most notable structures are the Alpine Visitor Center and Trail Ridge Road.
- Building Styles: NPS Rustic, Rustic Revival.
- Architectural Details: Low buildings--no more than one story--made with timber and stone construction.



Arctic Gentian



Alpine Forget-me-not



Alpine Sunflower



Alpine Bistort

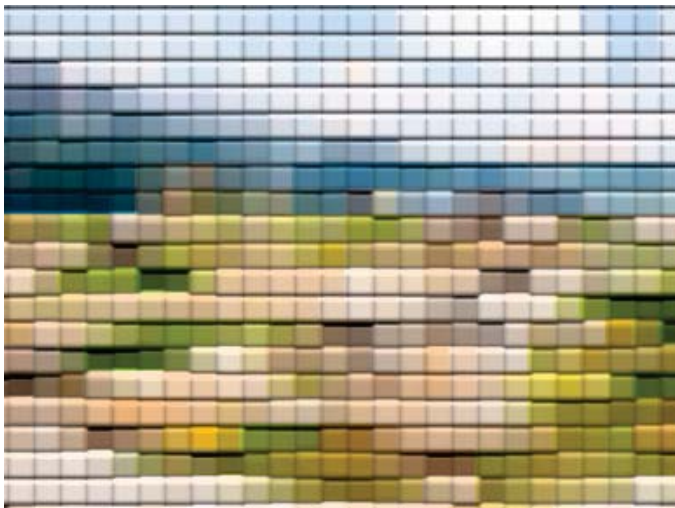


Nelson Willow

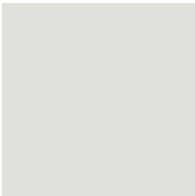
ALPINE ZONE

SUGGESTED PANTONE COLOR PALETTE

The Alpine Tundra Zone palette varies throughout the season (winter snow, midsummer wildflower bloom to fall russets), but the foundational colors are muted browns, greys, and greens.



Good Roof Color



Pantone Cool Grey 1 C



Pantone 466 C



Pantone 451 C



Pantone 5787 C

Fall Russet Color
Pantone 876 C

For all swatches, C after the number means use the Pantone Coated color guide.



*TOP: Fencing used to protect aspens from grazing disturbance.
BOTTOM: Historic Moraine Park Amphitheater is an excellent example of a cultural resource in the Rustic Style.*

RMNP has subject matter specialists in charge of taking care of natural and cultural resources. Consultation with subject matter specialists is strongly encouraged.

RESOURCE MANAGEMENT

RMNP Resource Managers classify sites into one of three disturbances: Natural Areas (Class I), High Use Areas (Class II), and Heavily Impacted Areas (Class III). Restoration objectives, standards and policies are defined for each category, and these serve as guidelines for restoration efforts throughout the Park. For additional details please refer to the RMNP Vegetation Restoration Management Plan Version 2 (July 2006).

CULTURAL RESOURCES

Cultural resources in RMNP include historic structures, roads, trails, plaques and ditches as well as archeological sites, museum objects and cultural landscapes.

Specific examples include the Ute Trail and the CCC built, naturalistic-style East Inlet Trail. These resources are guided by the National Historic Preservation Act and the Historic American Landscape Survey guidelines.

Any development could contain a possible cultural resource. Designation is based on historic context, integrity of the site and features, and historical significance. The general rule of thumb for cultural resources are those items that are more than 50 years old. However, consult the subject matter expert in cultural resources during project planning to ensure proper assessment.

WILDERNESS DESIGNATION

On March 30, 2009, President Obama signed the Omnibus Public Lands Management Act that designated nearly 250,000 acres of RMNP as wilderness to be permanently protected.

Many of the existing high use areas including campgrounds, welcome centers, and trails are outside of the wilderness boundary, but their adjacency should influence design decisions that will affect the character and experience of the wilderness.

The 1964 Wilderness Act describes wilderness as a place “retaining its primeval character and influence” where there are “outstanding opportunities for solitude.” Approaches to managing the use of wilderness include the *Leave No Trace* program that promotes the protection of wilderness through education, research and partnerships. Additionally, the National Wilderness Steering Committee and the National Park Service have also produced “White Paper” guidelines to direct management of human use in wilderness areas.

CLIMATE CHANGE

Climate change and regional pollution have affected the park. The higher winter temperatures have partially led to the mountain pine beetle infestation of Lodgepole pines within the region. Campsites like Timber Creek Campground have had all the Lodgepole Pines removed to ensure the safety of campers.

Ozone concentrations increased between 1990 and 1999 within the park, and particulates from as far away as China have been found within the park. More regionally, winds from the south and east sweep nitrates and ammonium from car exhaust, factories, and agricultural activity up into the mountains and have changed to the park’s soil and water chemistry.

Design of alternative transportation methods will be important for the future of the park in reducing air pollution, noise pollution, congestion and the Park’s carbon footprint.



TOP: Clear-cut of Lodgepole Pines in Timber Creek Campground. BOTTOM: 2008 Aerial showing beetle-kill trees (red) in Timber Creek Campground.

SITE ANALYSIS



Site analysis is used to understand the relationships between the desired program and the surrounding environment. Topography, soils, aspect, siting, existing vegetation, views and climate are all important considerations.

TOPOGRAPHY

Steep slopes are more difficult and expensive to build on and should be avoided for buildings. Park Service Rustic buildings will often use a stone base to accommodate grade change rather than modifying the landform. The wooden log walls float on top of the stone base as illustrated in the Moraine Park Museum photo to the left.

SOILS

RMNP has igneous, metamorphic and glacial till rocks and boulders. Some soils in the park are highly erodible.

- Foundation walls and retaining walls are effective way to manage grade changes with minimal disturbance.
- Topsoil shall be salvaged on site and

redistributed on all ground-disturbing projects.

- Salvaged topsoil will be separated from the subsoil and stockpiled in wind rowed piles no higher than three feet and no wider than 3 feet.
- Salvaged topsoil shall be spread at a minimum of 2 inches in depth over all disturbed areas.
- Topsoil is to be replaced without compacting the soil.

ASPECT or SOLAR ORIENTATION

Aspect refers to what direction landforms or building walls face. North facing slopes or walls will receive less sun than south facing.

- Situate buildings on an east-west axis to maximize winter solar gain.
- For outdoor program elements like amphitheaters minimize intense southwestern exposure to avoid sun glare for the audience.



Moraine Park Museum is set on the edge of a meadow with rolling landforms behind that help merge the structure into the setting.

SITE ANALYSIS

SITING

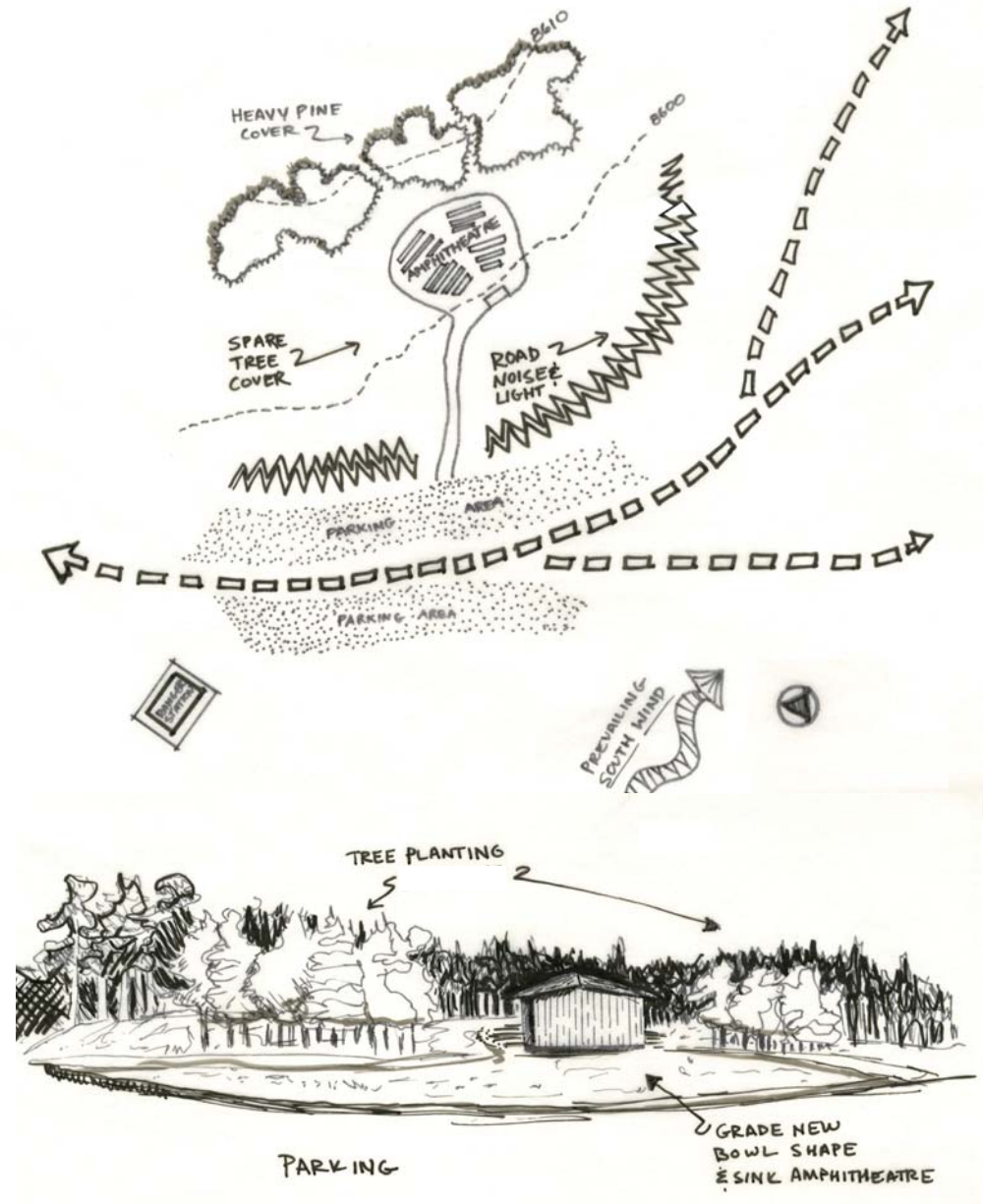
- Site buildings on the edges between flat meadows, rolling landforms and riparian areas. Use building compounds to create protective enclosure from wind and sun and to provide human scale. Ideally, set structures against or into landforms to merge structural mass with the horizontal setting.
- Single, consolidated structures should be set back from major roads.
- Minimize soil disturbances to preserve existing vegetation for wildlife and scenic value.
- Plan for proper drainage during spring melt and high precipitation events.

VIEWS

- Enframe good views and use natural elements to screen bad views or utility features.

CLIMATIC CONSIDERATIONS

- Identify prevailing winds and precipitation patterns that might interfere with a program element.
- Be aware of micro-climates. Angle roofs so that snow melts on sides of buildings rather than on entrance, or use gabled dormers, porch roofs or porte cocheres.



TOP: Example of site analysis plan of existing conditions at Glacier Basin Amphitheater.

BOTTOM: Example of conceptual site development perspective informed from site analysis
(Drawings by Amanda Jeter).

SITE USER CONSIDERATIONS



Over three million visitors use Rocky Mountain National Park annually. These visitors have a variety of needs that should be considered to ensure a positive experience.

PROGRAM TYPES

The park offers a variety of experiences and interpretive opportunities at campground amphitheaters, visitor centers and museums. Additionally, as visitor use increases, shuttle bus stops and routes have been added to the park. Good design should take into account these uses and user group needs that include:

- PURPOSE
- SIZE
- SEQUENCE
- SAFETY
- UNIVERSAL ACCESSIBILITY
- GROWTH
- PARKING/ACCESS
- UTILITIES
- ENERGY
- SUSTAINABLE MATERIALS



TOP: Hikers on Long's Peak Trail. BOTTOM: Crowds of visitors in Estes Park, near the eastern entrance to the park.

In general, the park experience can be divided into three types of use:

1) SCENIC VIEWING USE

- Scenic viewing or scenic drive-through use is experienced by visitors who experience the park 10 feet from the car.
- Trail Ridge Road, Fall River Road and Bear Lake Road are heavily used corridors that need sustainable, long-lasting materials (minimum 50-years).

2) DAY-USE

- Visitors who hike away from the road, but not far. Accelerated demand for this type of land use competes with overnight vehicle camping.
- Day-use activities include picnicking, hiking, climbing, horseback riding, cross-country skiing, wildlife observation and interpretive activities.
- This type of use also relies on the existing framework of roads, but at a slower pace. Visitors also travel on trails.

SITE USER CONSIDERATIONS

- The built environment should use rustic elements and natural materials.

3) WILDERNESS/BACKCOUNTRY USE

- Wilderness use ranges from total isolation in trail-less areas to a walk-in experience ranging from a day to overnight stays.
- Activities include hiking, backpacking, rock climbing, cross-country skiing, snow shoeing, horseback riding and overnight tent camping.
- Backcountry permits are necessary for overnight stays in this zone to limit and control the impact of use.
- This area is the most pristine in the park. In 2009, President Obama designated over 250,000 acres of the park as Wilderness.
- Due to this designation, certain construction methods and uses are limited (refer to National Wilderness Steering Committee and NPS Wilderness White Papers).

- The greatest effort should be made to blend any man-made improvements into the natural landscape.

UNIVERSAL ACCESSIBILITY

Universal design is an approach that tries to incorporate design features that can be used by everyone. User groups could include individuals with perceptual, cognitive, literacy or mobility impairment. RMNP is also guided by the American Disabilities Act and the Architectural Barriers Act. General guidelines for retrofitting for access are:

- Identify physical obstacles
- Describe in detail the method of repair
- Specify schedule and steps
- Identify person (or group) responsible for doing repairs

As a guide, it is recommended that the park provide accommodation so that at least one of each type of use be fully accessible.



An accessible picnic table allows for inclusion of all visitors; a visitor using a wheelchair can comfortably fit at the end of the table. Also, the integral concrete color requires less maintenance-no painting.



Montane Zone-dominant horizontal massing with vertical sub-elements that mimic the vertical trunks of Ponderosa Pine trees.



Subalpine Zone-dominant horizontal massing with vertical sub-elements that mimic the vertical trunks of Douglas Fir and Engelmann Spruce.



Alpine Zone-dominant horizontal massing with buildings no more than one story tall.

MASSING FOR ZONES

Massing, or a building's three dimensional form, should relate to its surrounding and to the building's sub-parts. The Montane, Subalpine and Alpine zones have dominant landscape qualities that should be reflected in building massing.

MASSING AND SCALE

- Emphasize the horizontal in rustic style both in shape and vocabulary of the structure.
- Broad overhangs create a strong horizontal shadow on the face of a building.
- Vertical elements like chimneys and structural log supports can offer a nice counterpoint to the horizontal.
- Use naturalistic planting techniques to blend elements into the landscape. These techniques include varying planting patterns, species and ages. Use adjacent natural colors and textures.
- Use of large stone or boulders in the

foundation can help reduce the visual impact of larger buildings.

- Structures grouped close together should be consistent with each other.
- Elements such as porches help articulate the mass in buildings.
- Within a landscape of large trees or geologic features, building elements should be over-scaled.
- In landscapes such as the forest, building elements should be reduced to blend with the setting.
- Cluster or group structures to fit into the landscape.

ROOF

- Roofs and gables should contain a high pitch to shed snow.
- Simple forms with continuous horizontal lines should prevail.
- Roofs should appear solidly connected to the structure.
- Roof colors should correspond to color palette for each zone: Montane-copper or coffee brown; Subalpine-Hartford

BUILDING CONSIDERATIONS

Green; Alpine-cool grey (see Pantone color palette).

- Moderate overhangs provide shade and allow passive solar heating.
- Pitched roofs should be metal for sustainability; fiberglass/asphalt shingles can be considered in utility areas.
- Materials should reflect heat without creating glare.
- Roofs must be shaped to withstand high winds.
- If extended rafter ends are considered necessary to mirror the historic feature, they should be treated with borate preservative and coated epoxy paint on the top surface. Where appropriate, the practice of extending rafter tails should be avoided so as to improve sustainability.

BASE/WALLS

- Walls should be straight and made from a single material with a strongly articulated, separate base.
- Battered stone walls are also appropriate.
- Heavy frame walls are predominant.
- Walls should appear anchored to the

land through methods such as change of plane, change of material and a uniform windowsill height.

- Wall colors should take cue from the site's setting (see paint appendix).

WINDOWS/DOORS

- Make windows more extensive on south-facing sides.
- Align windows to create a horizontal line; no random placements.
- Clerestory windows allow solar light to illuminate interiors.
- Windows shall be energy-efficient through the use of Low-E and inert gas filled glass or triple glazed.
- Consider the use of sola-tube skylighting to illuminate interior spaces.
- Windows should open to provide natural ventilation.
- Doors must be “centered” (no closer than 1/3 of the distance to the ends of building).
- Exterior doors must include lites (windows); preferably true divided lites.



TOP: Large-scaled entry is obvious to first-time visitors and interior doubles as interpretive space.

BOTTOM: Windows are horizontally aligned. Shingles of roof are doubled-up every 5th row to accentuate horizontal line of building.

BUILDING CONSIDERATIONS



TOP: Subalpine Zone roof uses appropriate Hartford Green color (right); color at left is too light for Subalpine zone.

BOTTOM: Porch overhang shelters visitors while adding mass to structure.

- For fully glazed doors, use 9 panes per door, all taller than wide.
- Utility chase doors do not need lites.
- Windows and doors should be recessed 4-8" into the wall.
- All windows and doors are to be trimmed with 1x4.
- Take into consideration glare from south or west facing windows.
- Restore historic wooden windows and add compatible storm windows instead of replacing with new.

ENTRIES

- Entries should be obvious to first-time visitors. They should be sheltered by a large porch with downward, night sky-friendly lighting, which can also double as interpretive space or outdoor work and meeting space.
- Entries should include vestibules, mudrooms or "air locks" for energy efficiency.

STRUCTURE

- Construct buildings that are well insulated and energy efficient.
- Meet LEED Silver Criteria at a minimum.

MATERIALS

- Siding. In general horizontal siding is ship lapped whereas board and batten is vertical. Both are found in the Montane Zone. In general, use horizontal lines above treeline. Horizontal siding is also being used in the Montane and Subalpine Zones.
- Granite rock and boulders should be used where possible. Regionally available, Lyons sandstone and moss rock can be substituted if necessary, but mimic rustic craftsmanship.
- Timber logs.
- Metal roof.

BUILDING CONSIDERATIONS

PAINT & STAINS

- Refer to the suggested Pantone Color Palette sections for Montane, Alpine and Sub-Alpine zones discussed earlier in the guidelines.
- Glossy, reflective surfaces should be avoided to minimize sun being reflected into visitors' eyes over short and long distances.
- Dark brown building stain currently used in park: Diamond Vogel brand black base (BT-9502). Additive color code (F17Y4) for five gallons. Equivalent to PANTONE 476 U (U means uncoated in the Pantone color swatch guide).

INTERIORS

- Clear, safe and accessible layout and logical flow of spaces.
- Separation of public use and limited access spaces.
- Natural and artificial lighting design important. Use lots of natural light and strive for windows on two different walls

in each room.

- Some repetition of exterior site and architectural elements on interior.
- Natural-looking materials.
- Ceiling height 9' minimum in public spaces, 8' minimum in private spaces.
- Windows should open to provide natural ventilation.

DRAINAGE

RMNP experiences high melt events during the spring or strong storm events that can cause drainage problems.

- Grade roads, trails, sidewalks and sites for high runoff events
- Pitch roofs and guide runoff away from visitor entries.

VISITOR EXPERIENCE

- Above all, structures, furnishings and amenities should take into account the visitor experience. Take time to imagine uses in different times of year and in



Alpine Visitor Center.

BUILDING CONSIDERATIONS



New and old construction in Rocky Mountain National Park that creates a unified design experience while using sustainable building methods.

different times of weather. Reflect on the wide range of user abilities and ages. Create spaces that allow visitors to enjoy their experience at Rocky Mountain National Park.

SUSTAINABILITY

Sustainability is an important component in good design, however it should not transcend the design guidelines. Both considerations should work together to create an integrated design.

The U.N. World Commission on Environment and Development defines sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.”

LEED is an internationally recognized green building certification system, providing third-party verification that a building or community was designed and built using strategies aimed at improving performance

across all the metrics that matter most: energy savings, water efficiency, CO₂ emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts.

New buildings should be LEED Silver Criteria and designers should aim to be sustainable on three levels: environmental, economic and social. A few examples:

- Situate buildings on an east-west axis to maximize winter solar gain.
- Minimize soil disturbances to preserve existing vegetation for wildlife and scenic value.
- Windows shall be energy-efficient through the use of Low-E and inert gas filled glass or triple glazed.
- If extended rafter ends are considered necessary to mirror the historic feature, they should be treated with borate preservative and coated epoxy paint on the top surface for sustainability.
- For more information refer to RMNP Sustainable Building Guidelines.

BUILDING CONSIDERATIONS

SUSTAINABLE MATERIALS

Notes: LEFT-This bench is created out of FSC-certified (Forest Stewardship Council) lpe wood, a material with a long life-span, and is an alternative to timber or stone benches. BOTTOM RIGHT-Metal roofs used in high-use area are built to last at least 50 years. TOP RIGHT-Concrete picnic tables are replacing older wooden tables throughout the park. These are more substantial, will last longer, and the color works with the surrounding environment.



BUILDING TYPES: VISITOR CENTER

FALL RIVER VISITOR CENTER



An example of Rustic Revival style, the Fall River Visitor Center is a newer building that was given to the park. It is a larger scale project than most of what RMNP would be constructing, and some of the design features like the fiberglass roof shingles fit more into the context of the surrounding stores rather than RMNP style.

The battered stone wall at the base of the building is characteristic of RMNP architecture. The indigenous rock in RMNP is typically granite, but Lyons sandstone is used here and throughout the region and is locally available. The design uses moss rock in a random pattern; ashlar pattern or even random ashlar pattern would not be appropriate.

The doors are more modern but a dark, anodized bronze that works within color palette of building. The lighting fixtures are night sky-friendly, and although a modern design, they are subdued compared with the rest of the structure.

SUCCESSFUL FEATURES

SITE:

Overall, this building is well designed and fits into the character defining features of the Montane Zone including color and materials.

BUILDING:

Massing

- The pitched roof, massive fascia and exposed timbers create a strong presence within the surrounding landscape.

Form

- The entry to this building is marked by a high gabled roof with massive log pillars.
- Gabled roofs shed snow and water.
- Rustic Revival.

Materials and Details

- Green gabled roof color.
- Horizontal lap siding.
- Trussed rafter with exposed timber logs.

BUILDING TYPES: VISITOR CENTERS

FALL RIVER VISITOR CENTER

- Battered stone wall/random pattern.
- Stone foundation.

Landscape

- Native species, naturalized plantings and boulders.
- Buried granite boulders fit into landscape.
- Stamped, colored concrete sidewalks.

INAPPROPRIATE FEATURES

Materials and Details

- Metal roof is preferred because of long-term sustainability. Asphalt/fiberglass shingles can be used, but use metal roofs in high-use areas.



Metal roof is more sustainable than fiberglass/asphalt shingles. Green color is appropriate.

Landscape planting is naturalized with native species plantings and boulders.



Vertical window works next to vertical column.

BUILDING TYPES: VISITOR CENTERS

FALL RIVER VISITOR CENTER

Hooded, night-friendly light fixture;
dark color works too.

Battered stone moss rock wall with
appropriate random pattern with
recessed mortar.

Rustic-style, hand hewn timber bench.

Stamped colored concrete is Yosemite Brown
and blends well with native landscape.



BUILDING TYPES: VISITOR CENTER

FALL RIVER VISITOR CENTER



Exposed timber truss work with appropriate Montane Zone color stain. Southern windows allows natural light to stream into interior.

Tops of doors, windows and lighting fixtures creates horizontal symmetry to building elements.

Porch articulates mass of building and emphasizes horizontality.

Notice ABAAS required 1 - 1/2" rail on top of rustic timber logs.



Characteristic use of timber logs and with exposed ends and massive columns.

Colored concrete works well with stonework.

Stamped concrete texture blends well with native landscape.

BUILDING TYPES: ENTRANCE STATIONS

FALL RIVER ENTRANCE STATION



Small kiosks seem lost and unimportant in the grander scale of the park. Mission 66 standard design does not distinguish RMNP from other places.



Fall River Entrance Station (2009).



Historic Fall River Entrance Station (c. 1920-30s).

Covered entrance creates a grand gateway that sets the tone for visitor's experience of the park. Also uses native materials

Entrance Stations should be the threshold into the special place called Rocky Mountain National Park. The entrance stations should mimic the historic Fall River Entrance station with grand gateway features. The Beaver Meadows Entrance Kiosks are a good example of rustic revival style with nice use of landscape materials.

SUCCESSFUL FEATURES

BUILDING:

Massing

- Sturdy massing.
- Repeated kiosk structures linked with landscape ties elements together for larger impact.
- High clearance entry ways are needed to accommodate large RV's.

Form

- Pitched roof with massive log pillars.

Materials and Details

- Brown metal roof.
- Stone foundation.
- Exposed timber.

BUILDING TYPES: ENTRANCE STATIONS

BEAVER MEADOWS ENTRANCE STATION

- Battered stone wall/random pattern.

Landscape

- Native species, naturalized plantings and boulders.

INAPPROPRIATE FEATURES

Massing

- Under-scaled kiosks don't create grand sense of entry.

Materials and Details

- Utility boxes located in view of entrance create awkward clutter.



These modern utility fixtures stand out against the rustic architecture and natural scenery.



Gabled roof extends past kiosk to create entrance porch and give structures larger scale.

Native plant materials help blend the facility into the natural landscape.

BUILDING TYPES: COMFORT STATIONS



Exposed Timber structure mimics vertical elements of the lodge pole forest in this Timber Creek Campground facility. Good color on roof and walls.



Light fixture is OK, not ideal because of its contemporary design, but acceptable and night sky-friendly. Glacier Basin Comfort Station.



Comfort stations are typically located within campground sites or along scenic roads like Trail Ridge Road. Structures should blend into surrounding landscape zones (Montane, Subalpine or Alpine Tundra) while offering accessibility for all users.

SUCCESSFUL FEATURES

BUILDING:

Accessibility

- Use of rails is important for disabled and elderly.
- Sinks are open below basin to allow for wheelchair access.

Materials and Details

- Construction details take cues from natural environment.
- Lighting fixtures are night sky-friendly.
- Gabled roof with clearstory windows allow natural light illuminate interior.

INAPPROPRIATE FEATURES

Accessibility

- Faucets, soap dispensers and other amenities should be in reach for children and wheelchair patrons.

Materials and Details

- Shiny materials should not be used on window frames, light fixtures or other elements.
- Use of non-rustic materials (bricks instead of stone).



Anodized aluminum frame stands out. Alternatives could include brown aluminum frames or painting frames appropriate color. Timber Creek Campground.

Use of brick instead of stone.



Soap Dispenser is too high for wheelchair access. However there is space under the sink for a wheelchair to access the faucet.

BUILDING TYPES: RANGER STATIONS

ASPENGLER RANGER STATION



Use of rustic shutters is preferred over plywood panels.



Exposed rafters and pitched roof with cedar shingles. The cedar shingles are not as sustainable as the metal roofs used in newer park construction.

Aspenglen campground has a rustic revival style ranger/information center as well as older CCC rustic construction buildings. This ranger station is a good example of rustic details.

SUCCESSFUL FEATURES

BUILDING:

Materials and Details

- Exposed rafters and pitched roof.
- Rustic shutters.
- Mortar on stonework is set back to add defining shadows.
- Walls are dark color.
- Massive post base grounds the building.
- Overhang protects visitors seeking information.

Roads and Paths

- Rocks are used to differentiate the edge of sidewalk from asphalt road.

BUILDING TYPES: RANGER STATIONS

ASPENGLÉN RANGER STATION



Open rafter ends. If extended rafter ends are considered necessary to mirror the historic feature, they should be treated with borate preservative and coated epoxy paint on the top surface. Where appropriate, the practice of extending rafter tails should be avoided so as to improve sustainability.



Use of timber columns mimics the vertical elements of Ponderosa Pine trunks.

Rocks used to differentiate edge of sidewalk from asphalt. Tops of stone curb should be smooth and flush with walkway.



Mortar is set back 1"-2" to create strong shadow line and help define sandstone stonework.



BUILDING TYPES: CAMPFIRE & AMPHITHEATERS

MORaine PARK AMPHITHEATER



Moraine Park Amphitheater is an exquisite historic amphitheater. Stone stairs blend into the natural landscape and lead the visitor to the amphitheater.



The design weaves natural elements into the amphitheater experience. The seats are set into the site's natural topography.

Stone seating and retaining walls work well with the surrounding landscape.

Amphitheaters are an important element in campgrounds. They are used heavily for interpretive lectures and cultural programs.

SUCCESSFUL FEATURES

Siting

- Amphitheaters should blend into the natural landscape.
- Natural hollows or graded bowls are traditionally used to create an enclosed area within the landscape.
- Trees and other natural screens should be used to minimize sound and light disturbances.

Materials and Details

- Wood, stone and other natural materials help features blend into the environment.
- Every detail works, even the drainage structures are stone.

Accessibility

- Ramps, rails and accessible seating should be included in all amphitheaters.

BUILDING TYPES: CAMPFIRE & AMPHITHEATERS

GLACIER BASIN AMPHITHEATER



Tree plantings should be used to screen the amphitheater from the lights of the parking lot and road.

TIMBER CREEK AMPHITHEATER



Natural materials including wood and rock are used successfully, however the stain is too light (should be dark as the trees).

BUILDING TYPES: UTILITIES

Inappropriate utility placement can make an otherwise attractive building an eye-sore.



Solar panels and large antenna are inappropriate to the park experience. A less obtrusive solution would be to screen these fixtures within the landscape. Materials need to be sustainable, but they must also work with natural environment. If the utility boxes were painted to match the exterior or placed on a side not facing entrance/exit ways, it would be less obtrusive.

INAPPROPRIATE FEATURES

Placement

- Modern utility features should be placed out of view. These eyesores detract from the naturalistic experience RMNP is preserving for park visitors.

Materials and Details

- Modern utilities and furnishings can benefit from screening or appropriately colored paint.

These bear boxes and waste containers stand out in the landscape and are arranged in a scattered way. A wooden screen would help hide these structures while allowing utility trucks and campers to still access these campground amenities.



BUILDING TYPES: UTILITIES



These modern utility fixtures stand out against the rustic architecture and natural scenery. The Estes Park YMCA uses small screens on top of lodges to hide vents, stacks and other roof-top utilities from the viewshed.



BUILDING TYPES: BUS SHELTERS

MORaine PARK BUS SHELTER



Use of laminated beams acceptable as long as scale is appropriate.

Use of round, dark-colored, weathering steel columns is acceptable alternative to logs as long as scale and color are appropriate.

Colored concrete is Yosemite Brown and blends well with native soil.

Weathering steel sign posts are appropriate color, texture and scale, matching montane setting. Sign is good height for accessibility.

Battered flagstone (locally available) is an appropriate choice although the grout is too light and the mortar is not struck back to add shadow and definition to the stonework.

These structures maintain rustic style using more modern materials including metal roofs, weathering steel sign posts, and metal columns. As high use structures, these designs are successful variations on the rustic theme, using more modern materials that will last longer than some traditional materials.

SUCCESSFUL FEATURES

Materials and Details

- Use of appropriately scaled materials.
- Rustic styling of sustainable materials like weathering steel.
- Proper color choices that blend with natural elements.

INAPPROPRIATE FEATURES

Materials and Details

- Grout and other aspects of craftsmanship are slightly off and cause the detail to stand out too much.

BUILDING TYPES: BUS SHELTERS

BEAR LAKE BUS SHELTER



Gable in center of roof.

Dark green metal roof works with dark values of the Subalpine setting. It's important that colors blend into the surroundings.

Weathering steel columns could be bigger for the size of this shelter to help ground the roof.

CAMPGROUND FURNISHINGS

Notes: Common features to National Park Campgrounds include a tent pad, picnic table and fire pit. E.P. Meinecke developed guidelines for campgrounds in the 1930s that included these elements and recommended that they be delineated by rocks and trees. Today these elements are still there but guided by ABAAS accessibility standards.

Tent pads are elevated above ground to help keep campers high and dry in a rain event. Wood log border is appropriate, do not use dimensional lumber.



Double-walled fire pit protects users from hot surfaces--especially for visitors who have limited sense of touch.



LANDSCAPE ELEMENTS: FURNISHINGS

FURNISHINGS

Notes: LEFT-This bench is created out of FSC-certified (Forest Stewardship Council) Ipe wood, a material with a long life-span, and is an alternative to timber or stone benches. BOTTOM RIGHT-Stone bench fits wonderfully into landscape, but may be cold to sit on during winter months. TOP RIGHT-Concrete picnic tables are replacing older wooden tables throughout the park. These are more substantial, will last longer, and the color works with the surrounding environment.



Integral colored concrete picnic table won't need repainting maintenance. Is also accessible.



TRAFFIC CONTROL

Notes: LEFT-Timber barriers are rustically constructed and create a solid boundary for cars. These should remain unpainted. RIGHT-Buck and rail fence (using logs not dimensional lumber) is used throughout the park to discourage visitors from trespassing or driving on landscape. Buck and rail fencing has added advantage of flexibility--it can be moved as restoration is completed or landuse changes and is constructed with out posts that damage plants or cultural sites.



EDGE TREATMENT

Notes: TOP RIGHT Night-friendly ground light provides illumination to distinguish between the path edge and the landscape edge on a sidewalk to evening campfire activities. BOTTOM RIGHT-Sidewalk includes an aggregate finish and the color matches surrounding soil. A transition between sidewalk and street is marked with a darker colored concrete that still blends with the surrounding colors. LEFT-Random stone pattern is imprinted into concrete to create boundary between bus drop-off area, street, and sidewalk.



In general for stamped concrete, do not use brick or regular cobblestone patterns; instead use irregular fieldstone patterns.

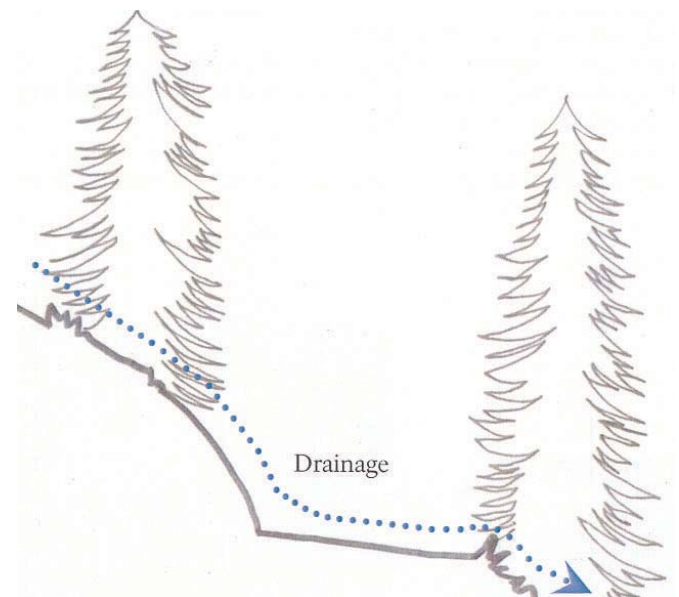
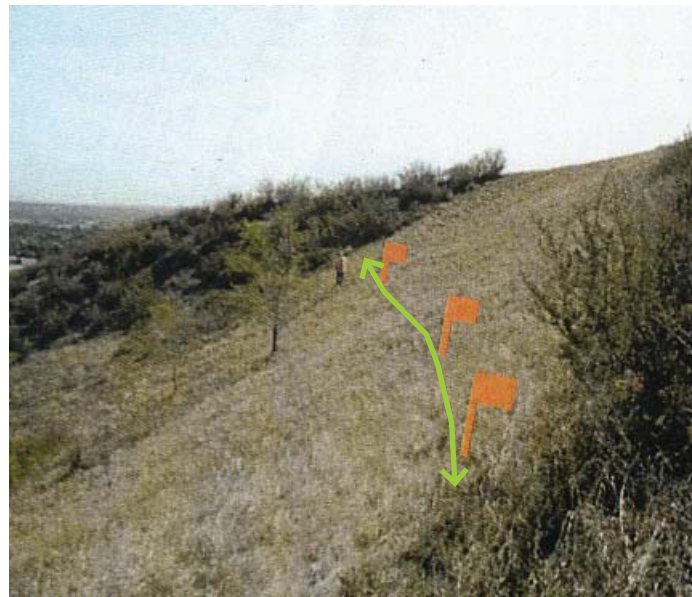


Darker brown (Davis Color Value 677) on curb edge is used to create visual contrast next to standard Yosemite Brown (Davis Color Value 641). This helps the curb stand out to the public and to people with visual impairments.

TRAILS

Notes: RMNP has subtly designed trails whose scope goes beyond this document. An excellent resource for trail design is the National Park Service's *Guide to Sustainable Mountain Trails: Trail Assessment, Planning & Design Sketchbook* (2007 Edition). A typical trail will impact 1.5 to 2 times the trail width. Other considerations for sustainable trail development include trail profile grades, prevailing cross slopes, tread width and natural surface versus armor improvements. Design considerations include light and shadow, textures, distant views, close-up views and aspect. Additional considerations include the upcoming finalization of new Outdoor Developed Areas standards from the United States Access Board.

From the 2007 NPS Guide to Sustainable Mountain Trails. LEFT: Optimum prevailing cross slopes grades are evident for a trail connection. RIGHT: Tread Cut with Ditch Cross Section.



LANDSCAPE ELEMENTS: TRAILS & BIKE PATHS

BIKE PATHS

Notes: LEFT-This image from EDAW Bike trail Feasibility Plan shows a road bed converted into a bike trail. RIGHT-This bike path near Fish Creek in Estes Park is nicely laid into the hillside and moves around existing ponderosa pine.



LANDSCAPE ELEMENTS: ROADWAYS & PARKING LOTS

ROAD CUTS & CULVERTS

Notes: *Scenic Byways: A Design Guide for Roadside Improvements* is an excellent guide for roadside design. LEFT- A road cut restoration effort involved collecting site-specific seeds for revegetation, regrading the cut to manage erosion, and placing logs and buried boulders in a random pattern to help control erosion and create a natural effect. TOP RIGHT- A rock culvert headwall near Timber Creek Campground. Culverts can also be constructed from metal with appropriate vegetation cover. BOTTOM RIGHT- A recently built rock retaining wall on downslope side of cut. If possible, a retaining wall should be avoided and a more naturalized technique like the restored road cut on the left should be used.

Random logs and boulders were used in restoration efforts of this road cut. These elements create a natural effect while helping to control erosion. The undulating forest edge also creates a natural-looking forest edge.



LANDSCAPE ELEMENTS: ROADWAYS & PARKING LOTS

GUARD RAILS & PARKING LOTS

Notes: Historically, RMNP has used rustic rock work to define road edges and guard rails as in the Trail Ridge Road photo (BOTTOM RIGHT). TOP RIGHT- Lumpy Ridge parking lot uses rock work and naturalistic planting beds to blend in with surrounding environment. LEFT- Park and Ride Lot accommodates 835 visitors. Wood poles are used to define the edges of the planting islands for snow plows and are used throughout the park including Trail Ridge Road. Ample accessible parking is located adjacent to the vault toilets.



PLANTING GUIDELINES

Notes: Reference *Rocky Mountain National Park Vegetation Restoration Management Plan* (Version 2, 2006) for planning and planting guidelines. Also view *Construction Stipulations for Natural Resource Preservation Rocky Mountain National Park, Colorado* (Revised May 7, 2003) for specific checklist.

The guidelines referenced above address plant salvage, seed collection, planting seasons, equipment requirements, boulder placement, grubbing of stumps, excavation, topsoil salvage, grading, importing soil requirements, erosion control, and mulching. Plant materials should not be moved across the Continental Divide.

The Construction Stipulations for Natural Resource Preservation offer valuable guidelines on planning and construction of sites. Boulders should be replaced in their natural position, partially buried with lichen facing up. In these developed areas, salvaged site vegetation and native material grown in the park and under contract were used in post-construction plantings.



PLANTING GUIDELINES

Notes: The use of nursery material grown from seed or propagules not collected in RMNP or in immediately adjacent drainages will not be planted in the park unless approved on a case by case basis. In historical landscapes or highly developed areas (park housing) some historically ornamental or erosion-controlling exceptions may be used but is not recommended. In the Alpine zone, the goal is not to build anything that requires revegetation. Consult the resource specialists for more detail and see APPENDIX for Bear Lake and Trail Ridge Road plant examples.



*To protect genetic integrity, no plant material will be moved across the Continental Divide and no material will be planted higher or lower than 1,500 feet in elevation from their point of origin. IMAGE-Red elderberry (*Sambucus microbotrys*) and various willow species on the West side of the Continental Divide (See Appendix for Examples).*

SIGNAGE GUIDELINES

Notes: Refer to the Sign Plan for Rocky Mountain National Park for information on appropriate sign design that includes information on sign size, font, location and interpretation. LEFT-This Moraine Park Visitor Center Sign is in large clear font. The colors reflect the colors of the surrounding environment, so the sign blends into the natural setting. RIGHT- Campground signs often use brown wood posts with adjacent boulders to help emphasize the signs placement while blending in with the natural environment.



INTERPRETATION GUIDELINES

Notes: Interpretive signs should be accessible. A good rule of thumb is to design signs that could be read by elderly and children. Using a large font and placing signs to be read from a variety of heights is important. For people with visual impairments, braille, audio tours or tactile maps can help ensure an equal experience for all. Additionally, welcome staff should be trained to anticipate different user needs and be able to offer information on how visitors with perception, cognitive or mobility disabilities can experience the park.



Examples of interpretive signage in RMNP, specifically Hidden Valley on the left and the Moraine Park Museum on the right.

Building Codes (latest editions)

- International Building Code
- International Electrical Code
- International Mechanical Code
- International Plumbing Code
- International Fire Code

NPS Guidelines

- NPS-10: Drafting Guidelines
- Denver Service Center Guiding Principles to Sustainable Design
- NPS-28: Cultural Resource Management Guidelines
- NPS-76: Housing Design and Rehabilitation Guidelines
- NPS-70: Design Process Guidelines
- ABAAS Accessibility Standards
- Draft Final Accessibility Guidelines for Outdoor Developed Areas

- National Wilderness Steering Committee and NPS Wilderness “White Papers
- NPS Guide to Sustainable Mountain Trials: Trail Assessment, Planning & Design Sketchbook (2007 Edition)

RMNP Guidelines

- RMNP Design Guidelines
- RMNP Vegetation Restoration Management Plan (Version 2-July 2006)
- RMNP Backcountry/Wilderness Management Plan and Environmental Assessment (July 2001)
- Sign Plan for RMNP

RMNP Design and Review Paperwork

- Project Proposal Clearance Form
- Construction Stipulations for Natural Resource Preservation RMNP (Revised May 7, 2003)

Design and Review Process

1. Predesign Meeting

- a. Discuss scope of project
- b. Site Visit
- c. ID cultural & resource needs
- d. Schedule, permits

2. Design Alternatives

- a. Identify several alternatives
- b. Compliance procedures

3. Design Development

- a. Submit designs to NPS for review at 50% stage
- b. Submit Historic Structures or Restoration Plan

4. Final Submittal

- a. Review 100% final construction documents
- b. Division submits a Project Proposal Clearance Form to Management
- c. After approval, clearance and funding, submit acquisition Plan to Procurement
- d. Provide COTR services to contracting officer. Inspect construction

USING NATIVE PLANT MATERIALS

When designing a landscape, first consult with resource specialists in the Park. They will do an assessment of plant material in the area and provide a list of acceptable species for planting. The resource specialists need to be consulted prior to any disturbance in order to give them the opportunity to salvage plant materials for later replanting. Be advised that for large projects (e.g. BLR Phase II) the resources division needs to be informed at least three to five years ahead about plant needs in time to grow the necessary number of plants. For example a plant list may involve seed collection for growing plants and salvage of plants to be held in the nursery or other locations.

Below is an example list of plants for improvements on Bear Lake road after roadwork was done on several miles of road. Some of the plants are grown under contract, some of the plants are grown in the greenhouse in the park and some are grown by cooperative agreement with the Upper Colorado Environmental Plant Center (UCEPC) and USDA Natural Resources Conservation Service (NRCS).

ROCKY MOUNTAIN NATIONAL PARK Bear Lake Road Plants – FY2010 1) NRCS Seed Needed

Grasses

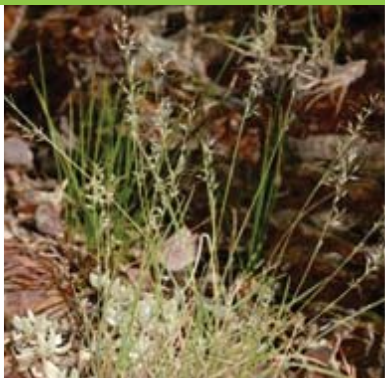
Bouteloua gracilis



Hesperostipa comata



Muhlenbergia montana



Koeleria macrantha



Elymus elymoides



Bromus anomalus



Forbs

Artemisia frigida



Heterotheca villosa



Thermopsis divaricarpa



Oxytropis sericea



***Antennaria* spp.**



Artemisia ludoviciana



2) RMNP Seed Collections

Trees

Pinus contorta var.
Latifolia



Pinus ponderosa ssp.
Scopulorum



Pinus flexilis



Pseudotsuga menziesii



Shrubs

Artemisia tridentata ssp.
Vaseyana



Purshia tridentata



Ribes cereum



Potentilla fruticosa



Vaccinium scoparium



Rosa woodsii



Forbs

***Fragaria virginiana* ssp.
*glauca***



Solidago spp.



Antennaria spp.



Artemisia ludoviciana



Geranium fremontii



Grasses and Grasslike Plants

Trisetum spicatum



Oryzopsis hymenoides



Koeleria macrantha



Muhlenbergia montana



Carex geyeri



3) Contractor Propagation Needs

Trees

Pinus contorta var.
Latifolia



Pinus ponderosa ssp.
Scopulorum



Pinus flexilis



Pseudotsuga menziesii



Shrubs

Artemisia tridentata var.
Vaseyana



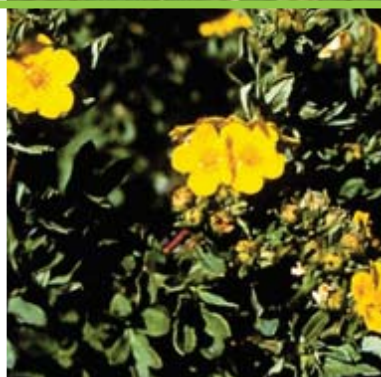
Purshia tridentata



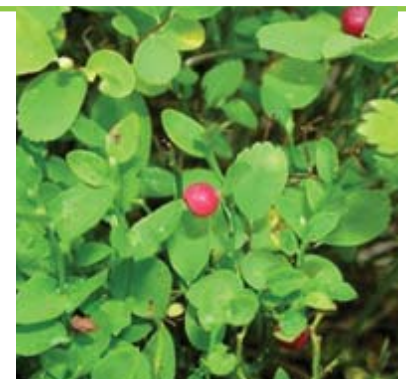
Ribes cereum



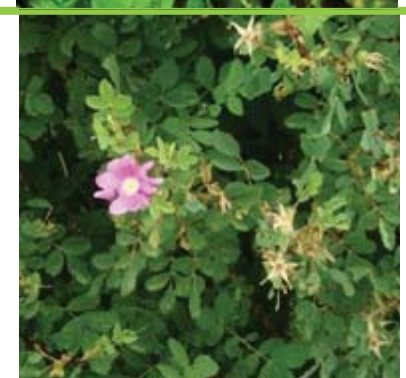
Potentilla fruticosa



Vaccinium scoparium



Rosa woodsii



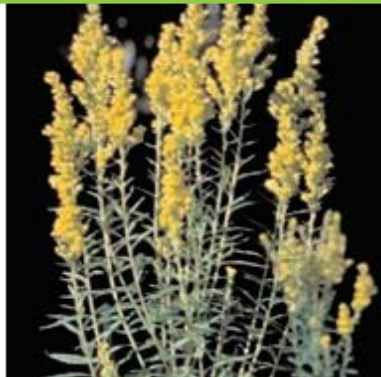
4) RMNP GH Propagation Needs

Forbs

Fragaria virginiana ssp.
glauca



Solidago spp.



Antennaria spp.



Artemisia ludoviciana



Geranium fremontii



Grasses and Grasslike Plants

Trisetum spicatum



Oryzopsis hymenoides



Koeleria macrantha



Muhlenbergia montana



Carex geyeri





Pantone 476 Uncoated

PAINT & STAINS

Refer to the suggested Pantone Color Palette sections for Montane, Alpine and Sub-Alpine zones discussed earlier in the guidelines. Glossy, reflective surfaces should be avoided to minimize sun being reflected into visitors' eyes over short and long distances.

Dark brown building stain currently used in park:

- Diamond Vogel brand black base (BT-9502).
- Additive color code (F17Y4) for five gallons.
- Equivalent to PANTONE 476 U (U means uncoated in the Pantone color swatch guide).

REFERENCES & CO-AUTHORS

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RMNP Design Guideline Co-Authors

These guidelines were developed from 2009-2010 using field visits, research and inspiration from existing RMNP design draft guidelines dating from 1986. Additional inspiration came from the design guidelines for Grand Canyon National Park and Sequoia National Park.

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