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*Interpreting in*

**EXTREME  
ENVIRONMENTS**

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The Gambel's quail offers interpreters the chance to tell the story of adaptation and survival in the Sonoran Desert. Photo by Daniel Tuttle. See the story on page 18.

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A pastor in Costa Rica struggles with the challenges of interpreting the environment from within the church. See the story on page 20.

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As part of their research, members of the design team visited Mt. Washington in New Hampshire, which is known for some of the harshest weather on earth. Clockwise from top: Stuart Coppedge, Brian Calhoun, Al Ip, Alan Reed, and Eileen Kemp.



# Pushing Interpretation to NEW HEIGHTS

*Balancing Environmental Effects at Pikes Peak*

When it comes to extreme environments, there's none more so than that of Pikes Peak. Temperatures atop the peak can swing from 60 degrees to below freezing within a matter of hours—something I've had the pleasure of experiencing firsthand. Wind gusts can reach over 150 miles per hour, the solar radiation is intense, and at any given time storms can roll in producing measurable snowfall or deadly lightning strikes. And if that's not enough, the effects on the body at



ALAN REED

high altitude can make one question why over 600,000 people per year visit the summit.

One of the many things that makes Pikes Peak so special is that it truly is America's Mountain, the only 14,000-foot high mountain (known as a "fourteener") where everyone can access the summit, either by car, bicycle, cog railway, or their own two feet. Here, anyone—no matter age or fitness level—can experience the majestic views only found at this elevation and see firsthand the inspiration for *America the Beautiful*.

As such, when tasked with designing a new visitor center on top of the summit, the design team from GWWO (Design Architect) in Baltimore along with Colorado Springs' RTA (Architect of Record)

examined ways in which a new facility could negate some of the extreme conditions associated with the peak in order to provide visitors with an ideal and meaningful interpretive experience.

When creating nonpersonal interpretation in extreme environments, five factors come to mind: durability, effective orientation and wayfinding, safety and comfort, integrated interpretation, and sustainability.

When most interpreters think about extreme environments, durability is probably the first thing that comes to mind. In an environment like Pikes Peak, where it snows year round and sun exposure is extreme, the choice of materials for wayside plaques and other



Large expanses of glass frame the dynamic view to the east which inspired the words to *America the Beautiful*.



Shielded from the wind, dining terraces provide additional opportunities for outdoor interpretation.

interpretive elements is important to prevent fading and degradation. Likewise, with the extreme wind gusts experienced on Pikes Peak, it is inevitable that these materials will need to be repaired and replaced more often than their counterparts in less extreme environments—a concern that's also prevalent in other hostile settings such as hurricane or flood zones and harsh desert locations.

The necessity for durability also applies to the materials of the interpretive center itself. At Pikes Peak, large expanses of glass were an obvious choice to allow visitors the same dramatic views that inspired Katharine Lee Bates to write *America the Beautiful*, especially when the conditions outside are inhospitable. However, in a location where wind

gusts are known to pick up small pieces of gravel that can sandblast glass surfaces, extensive use of the material seemed quite impractical. To mitigate this concern, the building was nestled into the mountain with the majority of the glazed areas located on the leeward side of the building. This type of consideration and forethought must be applied when choosing all building materials to ensure the integrity and longevity of the built environment and, as a result, an enjoyable interpretive experience.

Effective orientation and wayfinding are vital in extreme locations where visitors may have limited time to experience the resource. At Pikes Peak, in addition to the cold, snow, wind, and rain,

the effect that high altitude has on the body—dizziness, nausea, and headaches—can be quite challenging to overcome, especially for those not accustomed to the conditions. At 14,000 feet, the average visitor experiences some symptoms of altitude sickness within an hour. However, Pikes Peak, like many natural venues, has the potential for a much longer visit. The question is then how to compress what could be three to four hours of interpretation into a quarter of the time? The fundamental solution is to provide effective and clear orientation from the moment a visitor reaches the site, allowing them to maximize their visit time. With this project in particular, there are four arrival sequences—by car, bicycle, foot, or cog railway—and all must present the options efficiently and equally. In addition, as with any type of interpretive facility or site, wayfinding should be easily understandable but without excessive signage that detracts from the experience.

Multiple aspects of visitor safety and resource protection come into play when interpreting in harsh environments. This is especially true for exterior exhibits where visitors desire to be as close to the resource as possible. In these conditions it's critically important to create both physically and psychologically safe conditions from which to view the resource. At Pikes Peak, that meant walkways with appropriate barriers over treacherous terrain and very near to cliff edges. Similarly, the resource—whether it's environmentally, culturally, or historically sensitive—must also be protected. Like a coral reef or the plant life of many of the earth's other biomes, the tundra vegetation that grows on the top of the peak can take years to develop, but only seconds to be destroyed by humans. The primary strategy to preserve precious resources is through education and hence the necessity for interpretation in such environments. The more visitors know and understand their impact, the more likely they will be to respect and help protect the resource for future generations. Specifically for Pikes Peak,

there are elevated grated walkways that allow visitors to traverse the summit and learn about the tundra without impacting the fragile ecosystem.

Weather conditions and exposure in extreme environments must also be considered. In many extreme locations, weather conditions can change quite swiftly, requiring visitors to seek safety in a matter of minutes. To accommodate this scenario, facilities must be designed to allow quick and easy access and comfortably accommodate large groups of visitors. In the case of Pikes Peak, there can be up to 600 people on the summit at any given time and, as such, the building must provide a safe haven for all of them in the event of a severe weather change. In other locations, such as deserts, prolonged exposure to the elements must be addressed through the use of sunshading, hydration stations, and other similar strategies.

Visitor comfort is also critical to a meaningful experience. At Pikes Peak, we challenged ourselves to create a design that would enhance visitor comfort throughout their visit. For instance, outdoor dining terraces are located in protected areas on the south side of the facility and incorporate the use of materials with high thermal capacity to provide shelter from the wind and take advantage of solar radiation to naturally warm the space. Another consideration was to design all paths with gradual elevation changes and multiple pausing/resting spaces to minimize fatigue. Each of those areas then presents the opportunity for additional interpretation.

In some cases, due to conditions beyond their control, visitors may be confined to the interior of the interpretive center for the duration of their stay. For these times it's important to consider alternative interpretive venues. As noted above, over 600 people may be in the Summit House at Pikes Peak at any given time—significantly more than can be accommodated in the formal exhibit space. Therefore, to assure a meaningful experience, every space in the building—from the dining area to the gift shop and

even the restrooms—is designed with interpretive opportunities in mind. Equally important in this scenario is an integrated and balanced approach to the interpretive plan. With visits that could take place entirely inside or outside the building, the interpretation must be able to tell the essence of the story to each visitor, regardless of the path taken. In implementing this plan, crowd dispersion was carefully considered in order to minimize crowding at any given location. Thus, each visitor can comfortably connect with the subject matter in a way that

will create a lasting impression that they will carry with them upon their departure.

And finally, as many extreme environments are home to very fragile ecosystems, the opportunity to discuss and interpret sustainability is greatly enhanced. By their very nature, facilities that interpret such environments are remotely located and many rely on costly and wasteful practices to remain operational. The current outdated Summit House at Pikes Peak is no exception. Daily, two separate tanker trucks travel over 20 miles up the



FTA & GWWO

Gradual elevation changes and resting spaces help to minimize fatigue that is common at high altitudes.



mountain to deliver water and remove waste from the facility. Further, the building was inadequately detailed, resulting in melting of the permafrost, structural problems, and excessive energy usage. To address these issues the new facility will incorporate multiple sustainable strategies in an attempt to achieve net-zero energy usage and protect the environment. Ultimately, all of these methods are being incorporated into the interpretive plan to educate visitors about their environmental impact.

Concerns related to durability,

orientation, safety, integrated interpretation, and sustainability are something that all interpreters can relate to, but in extreme environments like those found at Pikes Peak and many other locations across the country, they are drastically magnified. As long as man's pioneering spirit—the desire to experience new and remote locations in harsh environments—continues to exist, managing the interpretive experience will always be a necessary challenge. However, with a little planning, forethought, and innovative strategies, we can help

each visitor to have an enjoyable, memorable, and safe experience, no matter the conditions.

#### **ABOUT THE AUTHOR**

*Alan Reed, FAIA, LEED AP is President and Design Principal of GWWO, Inc./Architects and has spent his 30-year career designing facilities to enhance the visitor experience at culturally, environmentally, and historically significant sites nationwide, including this most recent project for Pikes Peak—America's Mountain.*