Regional Climate Effects on Historic Preservation
Greening a National Historic Landmark

By Andrea McGimsey

Boulder, Colorado is a charming historic city at the foot of the Rocky Mountains near Denver, with a population of 100,000 residents. Founded in 1871 it served as a supply center for the burgeoning mountain mining communities of the 19th century. Its forward thinking leaders fought to land the University of Colorado in 1876, which placed it on the map as one of the most influential and innovative communities in the American West. In 1898, Boulder won out over other Colorado cities to found the Texas-Colorado Chautauqua.

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Chautauqua Auditorium and Boulder’s iconic Flatirons. Photo courtesy of Colorado Chautauqua Association.
Now known as the Colorado Chautauqua, this National Historic Landmark is a living reminder of the little-known but fascinating Chautauqua movement, through which culture, education, and the arts spread around the nation in the 19th and early 20th centuries. You can think of the Chautauqua circuit as the Internet of its time. It is how current thinking on hot topics such as the women’s suffrage movement and cultural offerings were shared across the vast reaches of our young and sparsely populated country.

Nestled at the foot of the Flatirons, iconic rock formations near Boulder, Chautauqua has been a private-public partnership between a nonprofit, currently known as the Colorado Chautauqua Association (CCA), and the City of Boulder since its inception in 1898. The city owns the land and built several of the most significant historic structures. The auditorium (b. 1898) in its 120th season of performances, was built in less than two months and was the center point of the opening day of the Colorado Chautauqua in July of 1898.

Academic Hall (b. 1900) was the center of education at the young Chautauqua, and now houses the administrative and lodging offices of CCA. Its simple but graceful lobby and one of the historic classrooms welcome guests who stay in the charming historic cottages available for overnight stays. CCA owns two lodges and 60 cottages; the oldest (b. 1882) — the original ranch house with foot-wide walls — houses the association’s archives chronicling the fascinating history of this national treasure. First built to replace the tents of the original summertime “Grand Assembly”, the cottages lacked insulation and heating. Over the past few decades, CCA and many of the private owners have winterized the cottages, allowing for year-round use.
SETTING GREEN GOALS

Colorado Chautauqua Association gained a strong reputation in sustainability circles for its study of three cottages which are of similar design and aligned in the same direction. This uniformity allowed Jeff Medanich, CCA’s longtime facilities and preservation lead, to test energy efficiency initiatives and measure the impact on energy use reduction. In 2008, CCA’s board of directors set the lofty goal of becoming the greenest National Historic Landmark in the country. CCA staff have fully embraced this direction and recently hired a full time sustainability coordinator to green its operations in many ways, from aspiring to achieve the City of Boulder’s goal of zero waste to carefully monitoring and purchasing of its large inventory of furniture, bedding, and cleaning products.

In spite of its relatively small population, 21st century Boulder has an international reputation for its efforts in resilience, sustainability, climate science, and clean energy. Accordingly, the city was invited to join an international alliance of large cities around the world known as the Carbon Neutral Cities Alliance (CNCA). Other alliance cities with populations in the multi-millions include: London, Sydney, Copenhagen, Yokohama, San Francisco and New York City. Boulder teamed with Seattle and Minneapolis to obtain a grant to showcase clean energy transition projects in various neighborhood types. When the city approached CCA in 2015 about taking part in an international effort to reduce carbon emissions, CCA enthusiastically stepped up to the challenge. Boulder chose the historic Chautauqua neighborhood as a pilot for modeling how we can reduce carbon emissions by 80% at a neighborhood scale. The resulting plan calls for a phased approach to reducing carbon...
emissions, beginning with electrical use and then moving on to natural gas and transportation.

The CCA staff and board worked with a consultant to identify the bottom-line electrical needs of Chautauqua, to determine what was needed to complete our energy efficiency efforts, and to figure out how the remaining energy could be produced through clean renewable energy sources, specifically solar. Boulder lies in the Front Range Urban Corridor, which consistently ranks high in the amount of sunshine it receives each year, so solar power is a perfect option for the region. The city and CCA began to explore the possibility of placing a solar array on a water reservoir with the picturesque name of Enchanted Mesa Reservoir, lying on city owned land just above Chautauqua. Tests were done on the load-bearing ability of the concrete cover, and the city found that it could hold enough solar panels to power all of Chautauqua’s needs.

However, there was a regulatory hurdle. Privately owned solar arrays are allowed to only power a single use, if not simply connected to the power grid — a Colorado Public Utilities Commission regulation. In other words, power generated by a private solar array may not be “wheeled,” or distributed to multiple buildings/users. The good news is that a full half of Chautauqua’s electricity demand comes from the historic Dining Hall (b. 1898), which welcomes almost 200,000 visitors per year. Provided CCA can make it through the permitting process and raise the needed funds, a full half of Chautauqua’s electrical needs can be transitioned to clean solar power.
But the question remains, how can 80% reduction in carbon emissions be achieved with only half of the power covered by the Enchanted Mesa solar garden? The historic preservation community has been grappling with the notion of solar panels on historic buildings and in historic districts for years. Europe has led the way; for example, the Vatican is the first country, albeit a small country, to be 100% solar powered. In the United States, the Secretary of Interior’s Guidelines for Rehabilitating Historic Buildings suggest that the solar panels be out of sight from the ground and that the installation not impact the historic character of the property.

An option identified by the CNCA consultant is to distribute solar panels around the historic landmark; indeed, Boulder’s Landmarks Board had already approved the use of solar panels in historic districts a few years ago. CCA’s next step is to fully explore the challenge of installing solar panels in the National Historic Landmark in a way that honors the Secretary of Interior’s Standards and the beautiful aesthetics of the site. So how to start the conversation?

First, CCA staff worked with local preservation architects and board members to identify the best potential sites for delivering the most power to where we needed it. The proposed sites are the 15-apartment Columbine Lodge (b.1919), the Academic Hall, and the Picnic Shelter (c.1922). The solar panels would be proposed on the back side roofs which happily face south on the first two buildings. The consultant found that the roof of the Auditorium is not strong enough to bear the solar panels; the nearby Picnic Shelter is likely the best option for a small solar array to power the needs of the Auditorium. These possibilities will be fully vetted through History Colorado, which holds a covenant on the Academic Hall and the Picnic Shelter, and the community’s strong landmark permitting process which is overseen by Boulder’s Landmarks Board. In addition to this public process, CCA staff and board will reach out to the many stakeholders of Chautauqua, the many people whose love and care have preserved this national treasure at a high level of integrity.

**WHY CONSIDER SOLAR PANELS AT A NATIONAL HISTORIC LANDMARK?**

An argument could be made that there are plenty of modern buildings and sites where solar might be more appropriate, but CCA believes that it is important to fully consider and move forward with clean energy throughout the community, including historic sites. Increasing sea level rise, more intense rain and snow storms, high winds, floods, and wildfires are damaging buildings, communities and lives around the world. Chautauqua recently faced the threat of a raging wildfire just a mountain ridge away, was severely threatened by the 2013 floods which devastated many historic properties in Boulder and other nearby communities. Climate change is not a theoretical issue here; the impacts are real and are seen on the historic landscape, in the loss of electric power with significant impacts on CCA’s business, and with the need to air condition its cottages - leading to increased financial and environmental costs.

Chautauqua is a beloved park for the Boulder community and is visited by over half a million people annually from around the world. As a leading institution in the city, we believe that we should lead by example and model sustainability for our visitors and the community. CCA’s forward-thinking board of directors has set the goal to be the greenest National Historic Landmark in America. The staff and board look forward to a rigorous and informative consideration of solar at Chautauqua and to sharing the experience with the nation. It is hoped the progress at Chautauqua will be of interest to anyone who is concerned about historic preservation and clean energy.

Learn more and follow Chautauqua’s progress at www.chautauqua.com/sustainability.