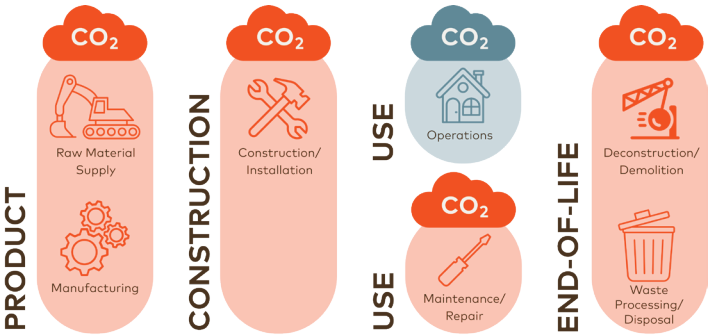
These ARE Your Grandma's Windows

When we think of historic buildings, it's often the small, charming details that hold intangible heritage — like grandma's windows — that come to mind. These windows not only add to the character of our buildings but also serve as a testament to craftsmanship and sustainability. In fact, preserving these original windows can play a crucial role in addressing the pressing environmental challenges we face today. This session investigated the sustainable benefits of retaining and restoring historic windows, strategies to improve the sustainability of historic windows, and explored previous Anderson Hallas projects that featured creative and energy efficient window restoration as a key design element.

Each year, buildings account for 39% of global energy-related carbon emissions, a staggering figure that highlights the urgency of addressing the environmental impact of the built environment. This includes not only the energy used in buildings' day-to-day operation (Operational Carbon) but also the emissions from manufacturing and transportation of materials, construction, and demolition (Embodied Carbon). By preserving and reusing existing building components—such as windows—we can significantly reduce both embodied and operational carbon emissions. Ultimately, by prioritizing these strategies, we can make a meaningful impact on mitigating climate change while enhancing the longevity and functionality of our buildings.



Existing windows are sustainable. Most historic windows were customized for the rough opening, which were not built to standard sizes. The materials of these windows most likely come from old growth wood that is more durable and resistant to rot, not to mention more fire resistant. The modern window materials such as vinyl, fiberglass, and metal are susceptible to UV damage, cracking, and can cause significant thermal bridging. The lifespan of a historic window is 50-150 years. The lifespan of a new window is 15-20 years. While modern materials may seem like a quick fix for low cost, the longevity of historic windows proves that sometimes, the best solution is the one that's been there all along.

Rock of Ages Lighthouse | Isle Royale National Park, MI

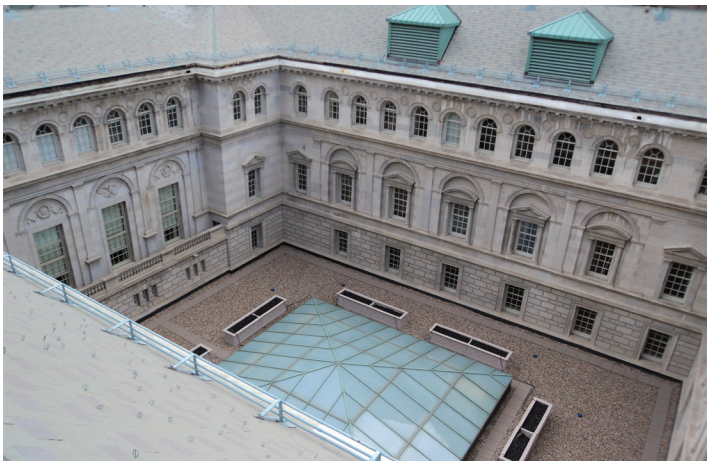
There are several strategies to improve the sustainability of historic windows and address concerns. Often, common "window woes" can be resolved in various ways without even broaching replacement of the existing window assembly. The common steps presented to address these issues was first to assess the quality of the window utilizing modern technology such as thermal imaging. Second, maintenance and restoration such as sealing, weatherstripping, sash repair, and hardware repair. Third, if the desire is to further improve the energy efficiency of the window assembly, consider the use of interior or exterior storm windows or various window films. Storm windows are highly recommended due to their flexibility to be installed inside or out, reduction in noise, ability to preserve and protect the historic window, increased energy efficiency, reversibility, reduction in air leakage, and operability. Finally, if the existing window is highly deteriorated beyond repair and replacement is a must, consider sustainable efforts such as high efficient glazing replacement, utilizing low carbon materials, and selecting low

chemical finishing products. For each potential solution, there are carbon and energy efficiency impacts alongside the impact to the historic fabric and character.

To close the presentation, our speakers discussed the real challenges they have faced at Anderson Hallas Architects through Case Studies. One being Big Springs Cabins and Lodge at Ozark National Scenic Riverways in Missouri. This project has 656 wood windows across 17 buildings, all in disrepair and vulnerable to weather. The rehabilitation of all 656 windows saved 123,000 pounds of embodied carbon. Another project, closer to home was the Byron White Courthouse in Denver, Colorado. This historic structure featured historic windows of all shapes and sizes, which had failing exterior storm windows. The solution was to design custom interior storm windows that enhanced the energy efficiency of the window assembly and restored the original expression of the exterior façade windows.

In conclusion, preserving historic windows is more than just a matter of maintaining aesthetic appeal—it's a critical strategy for sustainable design that also protects the historic fabric of the building. By retaining and restoring these windows, we not only honor the craftsmanship and history embedded in our structures but also contribute to a more sustainable future. As highlighted in our case studies, rehabilitating historic windows can yield significant environmental benefits, proving that thoughtful preservation can go hand in hand with innovation and energy efficiency. With the right strategies in place, we can extend the life of these iconic elements, ensuring they continue to serve for generations to come, while playing a pivotal role in combating climate change. Historic windows, like the ones your grandma might have had, are a sustainable solution, not just a nostalgic relic.

Big Springs Lodge | Ozark National Scenic Riverways, MO



Byron White Courthouse | Denver, CO

Laine McLaughlin, Rebecca Silva, and Noel Michel present on the sustainable benefits of retaining and restoring historic windows at the 2025 Saving Places Conference.