By coupling the reuse of existing building components with the use of materials made from recycled and renewable resources, the White Stag Block facilitates sustainability. With the goal of achieving LEED™ Gold certification, the White Stag Block project has earned 7 of 13 possible scorecard points for resource-saving approaches to building materials. The building team reduced the building's environmental impact by reducing waste generated in construction and occupancy, extending the useful life of the existing buildings, conserving material resources, and retaining cultural resources.

Reusing building materials can greatly reduce the demand for virgin materials, which must be extracted, processed, transported, and installed. The energy required to bring materials from extraction to installation is referred to as that material’s embodied energy. By redirecting reusable materials that have been removed from a building to construction and architectural recycling centers, the stream of construction debris can be diverted away from landfills. In tandem, the use of recycled and recyclable materials in building construction can increase regional demand for these products, stimulating the local economy and reducing environmental impacts associated with the use of virgin materials.

**Building Reuse**

LEED Materials & Resources “Building Reuse” (MRc1.1) criteria require that at least 75% of the existing building structure and envelope be maintained. This percentage is based on the total surface area of the existing building and includes structural floor and roof decking, structural framing, excluding window frames, sashes, and non-structural roofing material. The project meets these criteria by maintaining the three historic buildings’ existing envelopes and structural systems, including the exterior skin and framing, and the interior brick walls.

**Construction Waste**

The White Stag project has exhibited exceptional waste management. Materials & Resources “Construction Waste Management” (MRc2.1 & 2.2) criteria concerns the waste produced as a byproduct of demolition and construction. This category requires the diversion of at least 75% of the waste generated in construction and demolition through the recycling and/or salvage of non-hazardous materials. Also required is the development and implementation of a construction waste management plan, which identifies the materials to be diverted from landfill disposal. The White Stag project has achieved Innovation & Design “Exemplary Performance of MRc2 (95% Diversion)” (IDc1.4) points by recycling over 98% of all materials salvaged out of the building. A warehouse across the street from the construction site held all materials removed from the buildings.
Recycled Building Materials

The Materials & Resources “Recycled Content” (MRc4.1 & 4.2) category requires the use of materials with recycled content that make up at least 20% of the total value of project materials, including materials with post-consumer and/or pre-consumer recycled content. The project not only used materials that were recycled and/or reused, but also used materials that could be recycled in the future. Timber cut from stairwells and elevator shafts were re-milled and used in interior trim and removed brick was reused to fill existing holes. Ductwork and storm water pipes made of recyclable materials are used in the rainwater reclamation system. The most personal, however, to the University of Oregon in Portland, was the reuse of the Gerlinger Annex gym floor from the University’s Eugene campus. This recycled wood floor has been installed in portions of the Architecture and Allied Arts (AAA) fourth and fifth floors of the White Stag building, as well as the Duck Store on the 1st floor of the Bickel building. The AAA studio floors in the fourth and fifth floor of the White Stag building are made from a product manufactured by Johnsonite in Riverside, California, called Replay, 85% of which is composed of post-consumer truck tires.

Erica Cedar, LEED AP
Associate
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“The majority of our recycled content comes from steel and concrete, which both have really high percentages. Steel has one of the highest percentage recycled content. Steel has always been recycled – it’s just the most economical way.”
Regional Materials

Regional materials can contribute to sustainable building by reducing transportation costs and pollution. The Materials & Resources “Regional Materials” (MRc5.1) category, addresses the extraction, processing, and manufacturing of building materials or products. At least 10% of these materials or products must be extracted, harvested, recovered, and/or manufactured within 500 miles of the project site. In addition to local concrete and steel companies, the White Stag Block used local artisans for historic restoration components. Charles Marpet Fine Woodworking, in Cottage Grove, Oregon, reproduced ten sets of historic wood doors, and Barr Casting, Inc., in Portland, Oregon, cast aluminum replicas of the damaged cast-iron, both for the façade of the Bickel Building. This restoration is particularly exciting because Portland has the second largest collection of cast-iron storefronts in the United States, second only to SoHo in New York City. The patronage of local specialists rather than the purchase of non-local materials helps to fuel the local economy.

On-site Recycling

While salvaging materials and using sustainable construction materials are important, the waste stream from ongoing operations can affect a building’s environmental impact more than its initial construction. Since this impact depends on occupants’ recycling behavior, LEED™ standards require that an easily accessible area be designated for recycling materials such as paper, cardboard, and glass. To meet this Materials & Resources
“Storage & Collection of Recyclables” (MRp1) criteria, the White Stag Block project has a basement location for on-site recycling. Building managers have made arrangements with the City of Portland Solid Waste and Recycling in which the company will enter the building to remove the recycling, due to the lack of storage space outside the buildings.

Conclusion

Demonstrating a commitment to sustainability, those involved in the White Stag Block project have coupled the reuse of existing building components with the use of new materials made from recycled and renewable resources. Reusing the historic fabric serves multiple functions including earning LEED™ certification and enriching Portland’s Old Town historic character. Sustainable historic preservation projects such as the White Stag Block reflect the City of Portland’s commitment to the protection and restoration of its cultural and environmental resources.

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