

PROJECT Buckner Companies

YEAR
2010

LOCATION
Graham, NC, United States

USE
Office

CONSTRUCTION
New Construction

ARCHITECT
Weinstein Friedlein Architects

ENGINEER
Stewart Engineering, Inc.

DEVELOPER



Credit: Jim West

BUILDER

MATERIALS

Steel, Wood

SUPPLIER

Columns, Floors, Roof,
Walls, Bracing, Beams,
Balconies

SPECIALISTS

SYSTEMS

SCALE

Elemental, Subsystems

GROSS AREA
15,000 sq-ft

DfD
*Design for
Disassembly*

SCR
**Structural
Component Reuse**

DECON
Deconstruction

MEAN ROOF HEIGHT

STORIES ABOVE GRADE
2

STORIES BELOW GRADE
0

RISK CATEGORY
II (all buildings and other
structures)

COST INFORMATION
Unavailable

LCA INFORMATION
Unavailable

SUMMARY

A 15,000 sq-ft office building expansion for Buckner Companies featured reuse of materials from the “boneyard” of the crane and steel erection company.

SUSTAINABILITY GOALS

Owner-driven desire to feature reused material from the company's history. The goals expanded to include water conservation and high recycled content new materials.

CIRCULAR ECONOMY STRATEGIES

The Buckner Companies Home Office project incorporated structural material reuse by integrating over 83 tons of salvaged components—more than 40% of the building's steel structure—from the crane and erection company's own "boneyard" on site. A 58-foot long truss bridge, erected on the medical campus of UNC Chapel Hill in 1972, was repurposed to connect the new building with an existing building on the campus. The majority of the building's beams and columns were reused from the company's yard, along with corrugated metal deck supporting floors and roofs. Rigging and crane parts were reused as lobby tables, hangers for monumental stairs, and bracing elements. 15-foot deep steel plate girders from Clemson University's Littlejohn Coliseum now form the walls of the main conference room and cantilever through the envelope to support a balcony and shelter the main entrance. Glulam beams from Raleigh Durham International Airport were fitted with custom steel moment-resisting connections to serve as part of the roof framing system.

KEY FINDINGS, RECOMMENDATIONS, AND LESSONS LEARNT

The project team worked collaboratively to evaluate the existing material in the boneyard and incorporate it into the design. That the material was coming from a yard on-site enabled easier cataloguing and reuse. The owner was motivated by showcasing the history of the company, so the reused structural material was all exposed in the final condition.

FURTHER INFORMATION AND RESOURCES

<https://www.structuremag.org/article/past-in-service-of-the-future-the-buckner-companies-home-office/>

<https://www.archdaily.com/135021/buckner-companies-headquarters-weinstein-friedlein-architects>

<https://witharchitecture.com/buckner-headquarters>

AVAILABLE QUANTITATIVE DATA

83 tons of steel reused, accounting for 40% of the new structure

15-ton pedestrian bridge was reused

ABOUT THE DATABASE

This case study has been prepared by the Structural Engineering Institute Sustainability Committee Circular Economy Work Group with the goal of sharing and promoting the excellent circular economy work that project teams are working on throughout North America and the world. Often it is hard to find information on how circular economy principles are implemented in practice; these circular economy case studies aim to better share information amongst the industry.

Some case studies have been prepared directly by a project team member, while others have been prepared based on available texts and publications. In the second case, the text descriptions are a summary of information available from other sources. These sources are referenced in the *Further information and resources* section.

While reasonable efforts have been made to ensure the information is representative and accurate, we cannot guarantee there are no errors. [Please contact the case study team](#) to provide additional information, suggest updates and amendments, or with any other questions. To submit a new case study to the database, [please use this submission form](#). Thank you!