

PROJECT Brasada Ranch Resort

YEAR
2006

LOCATION
Powell-Butte, OR, United States

USE
Other

CONSTRUCTION
New Construction

ARCHITECT
Cottle Carr Yaw Architects

ENGINEER
KL&A Engineers and Builders

DEVELOPER
Brasada

BUILDER
Keeton-King Construction

SUPPLIER
Purchased from salvager, Northwest Containers, who purchased from mill

SPECIALISTS
0

GROSS AREA
70,000 sq-ft

MEAN ROOF HEIGHT
25 ft

STORIES ABOVE GRADE
2

STORIES BELOW GRADE
0

RISK CATEGORY
II

COST INFORMATION
Unavailable

LCA INFORMATION
Unavailable



Credit: Cottle Carr Yaw Architects

| DESIGN FOR DISASSEMBLY | Elemental Subsystems Whole-structure | Non-structural Envelope Balconies Stairs/ramps Foundations Beams Bracing Walls Roof Floors Columns | Other Earthen Wood Steel Masonry Precast concrete Insitu concrete |
|-----------------------------------|---|---|--|
| PRINCIPLE | SCALE | SYSTEMS | MATERIALS |
| STRUCTURAL COMPONENT REUSE | Whole-structure Subsystems Elemental +Deconstruction | Columns Floors Roof Walls Bracing Beams Foundations Stairs/ramps Balconies Envelope Non-structural | Insitu concrete Precast concrete Masonry Steel Wood Earthen Other |

SUMMARY

Brasada Ranch is located in Powell-Butte, Oregon and included resort infrastructure and amenities (sales office, golf course clubhouse, pro shop, recreation center and post office). This project incorporated reclaimed heavy timbers, as well as reclaimed wood siding, lava stone, board from concrete, steel and glass.

SUSTAINABILITY GOALS

All buildings were designed to LEED Gold standards, clients choose only to submit the first building (Sales Barn) to receive the LEED plaque. This was the first LEED certified resort in Oregon.

Other sustainability successes include the Lake Loop GSHP system at Ranch Headquarters, which saves 60% energy over conventional system, and has a 5-7 year payback. The project also used reclaimed lumber from client purchased lumber mill, which provided initial design inspiration.

CIRCULAR ECONOMY STRATEGIES

Reuse became an opportunity early in the project with the availability of reclaimed lumber material from the client's mill rather than a goal from the beginning of project kick-off. Once the team established a list of the available reused material, the structural engineering team discussed potential issues regarding grading and structural testing. The team decided not to test the reused timber members, but kept safely within structural limits for the sizes/assemblies created.

The project developer became aware of the opportunity to purchase the timber material after a salvager (Northwest Containers) had already purchased it, resulting in a mark-up for the developer to purchase the material before hauling it back to Washington. The age of timbers was not known, however, the source mill operated between 1938-2001.

The clients bought as much of the “Lot” of timber material as they could, and challenged the project team to use it all. The team used the majority of the timber purchased for reuse, with the re-design of the five ranch buildings and the timber flume bridge. The reclaimed materials were primarily focused on timber large beams but the team also made use of siding, and the small 1x3 “stickers” which the lumber plant used as spacers between boards in the kiln drying process. The team built a screen wall from these stickers in the Sales Barn building.

KEY FINDINGS, RECOMMENDATIONS, AND LESSONS LEARNT

The majority of the challenges the team experienced were centered around the requirements of LEED certification, and an unfamiliarity with circular economy practices. The structural engineering team had to constantly challenge the “this is how we always do it approach” with the contractor, especially when procuring and designing with reclaimed lumber from client-purchased lumber mill.

The project team embraced the reality of having to splice or use the 1-2-1 build up of trusses due to the shorter lengths of the materials and as the team reached the end of available reused material, this became critical.

FURTHER INFORMATION AND RESOURCES

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AVAILABLE QUANTITATIVE DATA

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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!