

# HOMWOOD SUITES STEAMBOAT SPRINGS, CO

Project Completion: 2015

Structural Engineer: Lochsa Engineering

Engineer of Record: Quiroga-Pfeiffer Engineering Corporation (QPEC)

Wall Panelizer: Fastwalls

General Contractor: Brown Contractors, Inc.

Architect: Gary Frank, Architectural Group III

Developers/Owners: Homewood Suites by Hilton

145,086 square feet



## CASE STUDY

# REDICOR AND ECOSPAN HELP LOCHSA BEAT SCHEDULE

When a Homewood Suites needed to hit its completion date despite using a new product, Nucor Vulcraft stepped up its cooperation. Lochsa Engineering relied on Vulcraft's exceptional collaboration to complete the project using the Ecospan® structural floor system and the (new to Lochsa) RediCor® modular steel form system. Due to Nucor Vulcraft's cooperation, this first project implementing these systems together went smoother than any project in Lochsa's 25 year history.

## BACKGROUND

Homewood Suites in Steamboat Springs, Colorado is an 87 room, four-story hotel. The building's framing system is cold formed steel (CFS) on a structural steel skeleton.

The project's EOR, Quiroga-Pfeiffer Engineering Corporation (QPEC), contracted much of the structural engineering work to Lochsa Engineering.

Lochsa is a full-service engineering company licensed in all 50 states. Its team engineered lateral wind and load bearing walls and floors, as well as worked with Vulcraft and panellizer Fastwalls to keep the project on track.

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I've travelled for years with this (my) team to talk to different contractors, and this was the first project where everything lined up perfectly. It just worked. Happy owner and happy contractor. Perfect teamwork and collaboration.

**Riley Mahaffey, P.E., Principal - Lochsa Engineering**



Using RediCor meant we framed with instead of around the foundation, so the framing was connected quicker. Everything was buttoned up and dried in very quickly, so construction in winter months wasn't exposed.

**Riley Mahaffey, P.E., Principal - Lochsa Engineering**

## REDICOR GOES UP FASTER, STRAIGHTER, AND SAFER

The RediCor building core modular steel form system is a series of prefabricated core sections that are stacked on-site like building blocks and then filled with concrete. RediCor was chosen for this project for the following reasons:

- The core erection process is significantly faster and requires less on-site labor
- Pre-installed connections for floor and roof framing means framing can be connected sooner, with no need to wait for core curing
- RediCor reduces construction coordination issues with trades, due to reliable fit-up from pre-planning and precise engineering
- Cores allow for earlier and safer upper floor access due to built-in stairs
- Finished sections are structurally equivalent to Cast-In-Place walls of similar thickness

## FASTER CONSTRUCTION WITH NO SHORING

Ecospan is a structural floor system comprised of joists, decking, and Shearflex® screws that work compositely with the concrete slab. It offered many advantages for Lochsa, including:

- Minimal or possibly no shoring is required, allowing for easier trade access and faster construction
- More open space with fewer load bearing walls, creating more flexibility in the use of the interior space
- Fewer structural pieces required to distribute the loads of across the CFS walls due to Ecospan's integrated Load Distribution Member (LDM)
- MEP can be run easily through interstitial space
- 1, 2 and 3 hour UL fire rated assemblies without sprinklers
- All parts, including closure plates, are supplied, making it easy for the contractor to get the floor in place

Nick Hrico, P.E., Senior Engineering Manager at Lochsa emphasized a key benefit of Ecospan structural flooring system is that "the overall composite design eliminates shoring and allows for open spans, all while using a thinner slab. That saves head room and makes clients happier." He also valued that fire ratings have been tested. "One, two, and three hour UL ratings without a sprinkling space makes it easier and cheaper."

The integral Load Distribution Member reduced the amount of red iron steel needed for the project and was a key point for Hrico, who said "the one thing we love is the bond beam (LDM) created over the walls - it helps to transfer loads and eliminate columns, and we don't have to line everything up directly, some variance is okay."

Riley Mahaffey, P.E., Principal at Lochsa also focused on the value of the Load Distribution Member. "The LDM is a selling point for Ecospan. Having no shoring, the day after concrete is poured above, subcontractors can start to put in mechanical and electrical because shoring won't be slowing down the overall process."



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**Nick Hrico, P.E., Senior Engineering Manager - Lochsa Engineering**

## PROJECT CHALLENGES

Although the reasons for choosing Ecospan and RediCor were clear, Lochsa couldn't help but be a bit nervous using a system new to them on a project with a tight timeline. The Homewood Suites site was about to be hit by the approaching Colorado winter.

One issue was a concern by the EOR, Quiroga-Pfeiffer Engineering Corporation, about using a "proprietary" system. Riley Mahaffey, P.E., LEED Green Associate - Principal at Lochsa said that QPEC had to be educated in why and how Ecospan was the most effective solution, but that the issue was easy to overcome. He said that "one of the hurdles is that people think Ecospan is a proprietary system, but it's not. Once they understand this, it really helps, knowing that it's all just standard construction material."

## WHAT VULCRAFT DID

Nucor Vulcraft's team worked with Lochsa throughout the design, detailing, and construction. Riley Mahaffey, Principal at Lochsa described Nucor Vulcraft as "highly collaborative and accurate." Nick Hrico, P.E., Senior Engineering Manager at Lochsa said that "one way Vulcraft helped was with virtual coordination meetings to look at the models. We were able to find problem areas and congestion, and we resolved them internally without having to involve the contractor, so there were minimal RFIs during construction."

Jeff Gowans, Senior BIM Designer at Lochsa said that "from a modelling/coordination standpoint, their team can provide a model which makes things easier because we can insert their model into ours. Coordination is much easier."



## SMOOTH COORDINATION AND EARLY COMPLETION

With the advanced planning and coordination, the construction delivery process was universally described as “very smooth.” The first RediCor module was delivered in the first week of October, and the dry shell was up in well under 3 months, with the erector off the site the week before Christmas. Mahaffey said that “using RediCor meant we framed with instead of around the foundation, so the framing was connected quicker. Everything was buttoned up and dried in very quickly, so construction in winter months wasn’t exposed.” In the end, Vulcraft’s planning, delivery, and coordination lead to the project being completed early.

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With Nucor Vulcraft’s planning, we were able to shave weeks off the project schedule. The project just clicked, it went really well.

**Riley Mahaffey, P.E., Principal - Lochsa Engineering**



## ASK AN EXPERT

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