

# ENGINEERING Colorado

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The Voice of Colorado's Engineering Industry

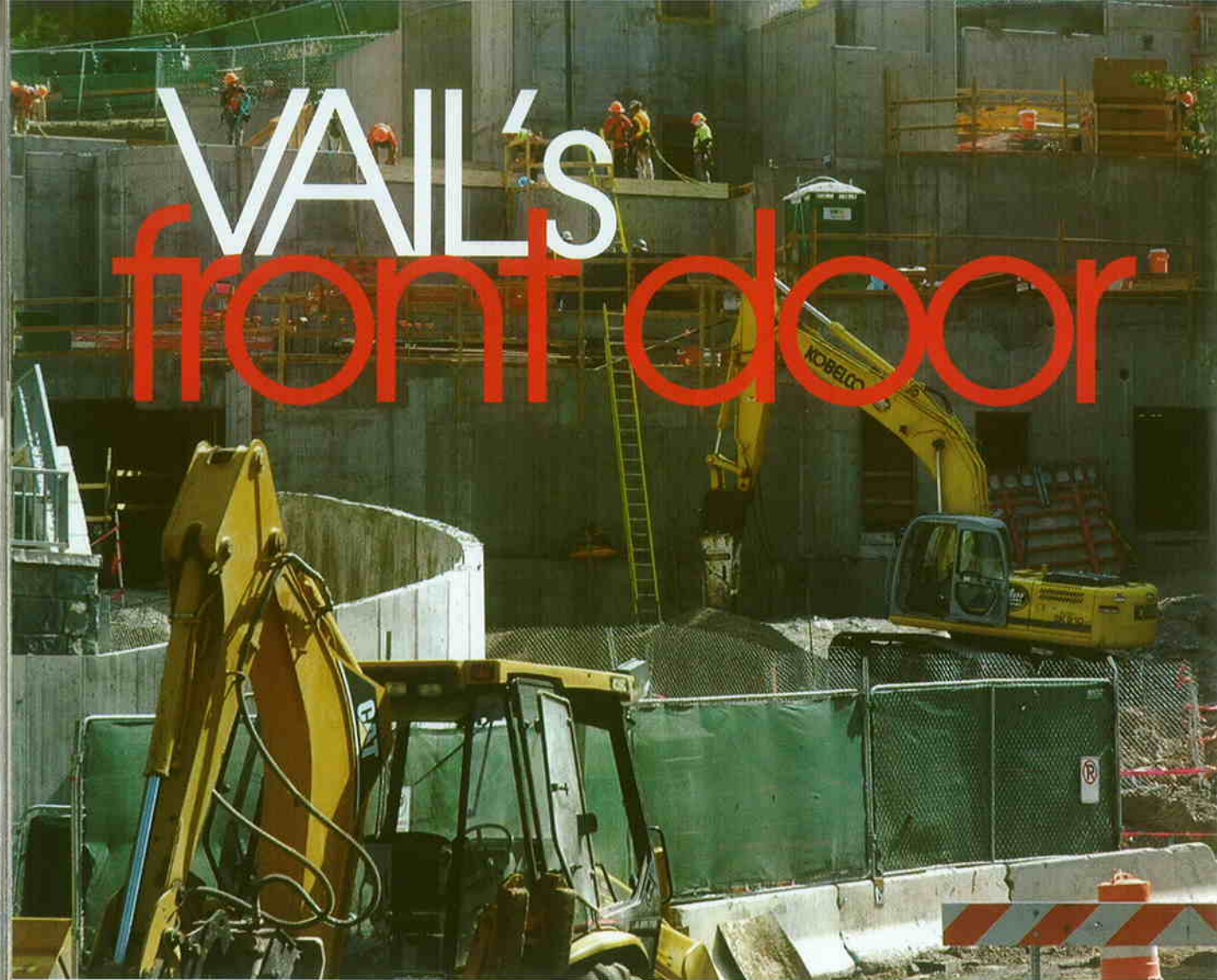
## Engineering the Vision

*Gov. Ritter on the Issues  
Facing the Industry and the State*

*Plus an in-depth look at  
Engineering Colorado*

## ACEC

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## A New Beach

Creating a new beach for Vail's front door was an extraordinary experience for structural engineers Monroe & Newell Engineers, Inc., and whether at sea or in the mountains, the objectives are the same.

When staying at an oceanfront resort one of the most important amenities that will affect the pleasure and memories of a vacation is the beach. The same thing is true when on vacation in a mountain resort.

At the mountain resort, the beach is the location at the base of the chair that the guests use to access the mountain. It is the location where lift tickets are purchased, ski school lessons arranged, the forgotten Chap Stick bought, and friends and family meet. A pleasurable experience at the beach will brighten the mood for the whole day that follows.

Although the original gondola had been replaced many years ago and minor remodeling done, the beach at Vail Village was essentially unchanged since the mountain first began

accepting skiers in 1962. The Vail Front Door was envisioned as the project that would completely update the Vail Village Beach and continue its status as marquee access to Vail Mountain. While updating the beach could have been accomplished by adding relatively simple skier service facilities, there were other village-wide issues to be addressed, namely delivery of goods and services and parking. Also, there needed to be a financial driver for the project. The result became a mixed-use mega-project of seven parts.

The first part of the project is on a site approximately a block away from the main project site. The site contained two parcels and was unimproved surface parking. A three-level below-grade, cast-in-place concrete parking structure provided 116 parking spaces with a pocket park on top, turning an underutilized and unattractive area into a community amenity.

The second and third portions of the project are the loading dock and parking garage. This 105,000-square-foot structure began by taking out the mountain down to depths of 40 feet. The 14-berth loading dock with semi-truck maneuvering capabilities required 60-foot clear spans, and the entire



## Western Slope: Energy

Western Slope energy development has been at the forefront of interest by the public, government and consultants. The public glamour is the drill rigs or complex plants that make the raw material useful – contributing to the development of self-sustaining resource opportunities. Western Colorado presents construction challenges with soil conditions, geology and mountain terrain. H-P Geotech's involvement with energy projects has included roads, pipelines, gas plants, electrical power supplies, evaporation ponds, large pads for multiple research facilities and warehouses/office buildings for clients who are extremely conscience of environmental concerns and issues. Spill prevention and containment are paramount to good land stewardship. HP provides services for EnCana, Exxon, Shell, Marathon Oil, Bill Barrett, Chevron and others who are actively helping to provide the nation's energy needs.

structure is below-grade, allowing the mountain to be reinstalled on top. Adding to the complexity of this structure was a roadway tunnel for summer mountain access, connections to three buildings, and support of three new buildings plus a roadway and swimming pool above. The complex geometry and elevation requirements and heavy loading dictated a cast-in-place concrete structure. The long clear spans were accomplished with wall beams that are a full story deep.

The 11,000-square-foot addition to the Lodge at Vail provided one of Vail's oldest and most prestigious hotels with a luxurious spa and additional rooms plus remodeled and expanded back-of-house facilities.

The Vail Mountain Club is located above the center of the loading dock and parking structure and adjacent to the new Lodge at Vail spa. It will provide members with a lounge and bar, concierge service, lockers, valet, ski storage and reserved underground parking. This building is classic mountain architecture with heavy timber roof framing and stone exterior.

The economic generator for the project is the 13 ski-in/ski out chalets of approximately 5,000 square feet each. The stand-alone parking structure below these residences required the deepest excavation of approximately 50 feet into bedrock. In order to provide unobstructed views of the fabulous Gore Range from each of the residences, their lower levels are up to 18 feet above the roof of the cast-in-place parking structure. Structural foam blocks stacked up to 25 feet high minimize the weight on the parking garage roof while allowing the mountain grades to be put back largely to the original contours.

The 20,000-square-foot Mountain Plaza Skier Services Building provides both front-of-house and back-of-house skier related functions. The new ticketing, ski school, retail, restroom, valet ski storage and coffee house make the new beach and the Vail experience much more memorable current and future visions.

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