

## Composite Wall System Utilized For Washington Office Building

Utilizing Metal Stud Crete (MSC) building system technology, McBride Construction Corp. of Seattle, WA, site cast MSC panels to complete the Cascade Utilities corporate headquarters building in Redmond, WA.

The MSC building system incorporates load-bearing steel studs and thin shell concrete into a composite building panel. The two structural components—steel



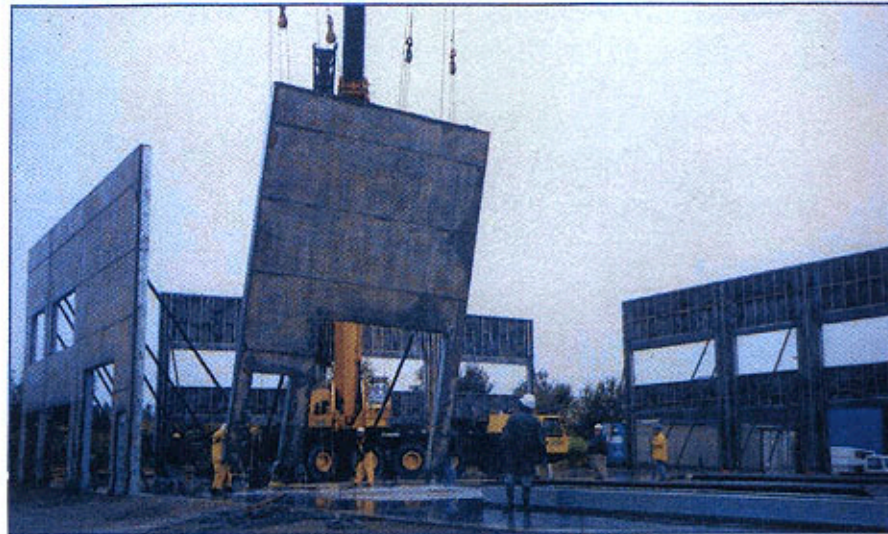
stud framing and standard hardrock concrete—are bonded together in a casting process by a proprietary MSC shear connector. A licensee, Earl Corp. of Pasadena, CA, markets the MSC system on a national and international basis. Earl Composite Systems, a wholly-owned subsidiary of Earl Corp., targets site casters and precasters, contractors, developers, architects, engineers and design builders to specify its product.

MSC panels can also be used

to enclose pre-engineered steel structures to provide an architectural concrete look. A lighter-weight version of the standard panels, weighing 35 lbs. per sq. ft., can be used with high-rise construction. Steel studs on the interior walls of MSC panels provide furring cavities for utilities, insulation and interior finishes.

The Cascade project was engineered by Anderson-Peyton & Associates of Federal Way, WA. The firm is regarded as a pioneer in the use of light-gauge steel and was among the founding members of the Light Gauge Steel Engineers Association. The firm's eight-story Holiday Inn project in Federal Way is believed to be the tallest load-bearing steel stud structure in the United States.

In the fabrication process for the Cascade project, Earl Composite Systems purchased load-bearing steel studs in 6", 8" and 10" depths, and in 14- and 16-gauge from Dietrich Industries' Colton, CA, location. Earl Composite Systems then attached its proprietary MSC shear connector strips to the framing members using No. 8 and No. 10 self-tapping screws. All the steel studs and track were precision cut to size from shop drawings. The structural members were then panelized into bundles



by panel number and shipped to the job site.

McBride Construction, an experienced tilt-up contractor, assembled the components into the specific panel configurations. MSC connectors were also attached to the tube steel frames used to fabricate the many openings in the panels for windows and overhead doors. Similar to tilt wall construction, the contractor then laid out the form work on the floor slab of the building. Next, the placement of a reinforcing mesh was chaired up in the forms. The steel stud framing assemblies were framed on top of the concrete forms due to the excess height and width of the panels. After all the panels were laid out with the steel stud frames on top of the 2-1/2"-deep concrete forms, 5,000 psi concrete was placed between the stud cav-

ities with a concrete pump, ensuring the MSC connectors were completely embedded in the wet concrete. Within 24 hours, the concrete reached the minimum pickup strength, allowing the 25'-wide x 34'-high panels to be hoisted into position. The panels carry the loads of the second story floor and wood roof trusses. The stud bays were used to run plumbing, electrical, cable wiring and insulation prior to finishing the interior with drywall.

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