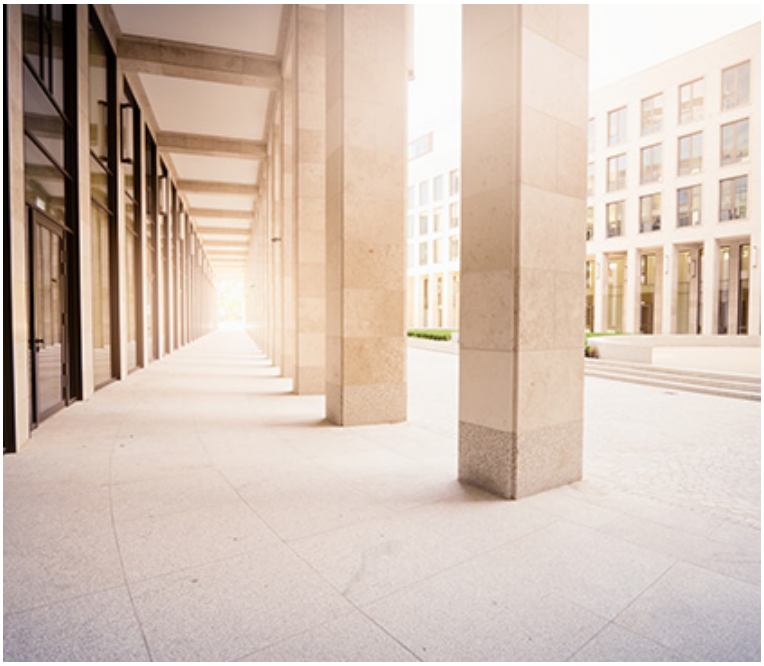
Western University of Health Sciences Health Education Centre is Built to Resist Seismic Activity

Building an earthquake-resistant building required concrete to consolidate around steel reinforcement.



Project	Western University of Health Sciences Health Education Centre, Ponoma, CA
Concrete Supplier	Robertson's Ready Mix Concrete, Inc., Corona, CA
General Contractor	DPR Construction, Inc., Pasadena, CA
Structural Engineer/Design	Perkins + Will, Los Angeles, CA
GCP Solutions	ADVA® 405 high-range water-reducing admixture

The Overview

The Project

The Western University of Health Sciences had an interesting problem. The institution planned a new four-storey, 175,000 square foot education centre, but was located in a seismically-active area of Southern California. Thus the challenge was not just to create a centre of learning for the arts and sciences, but also to provide maximum safety for the faculty and staff.

"As part of the 400 Admixture Series for Ready-Mix SCC, ADVA® 405 offers a range of valuable advantages including greater concrete stability, sustained flow retention, and with its greater consistency, reduced demand for on-site quality control."

The University specified structural walls with steel reinforcement and concrete strengths greater than 6,000 psi. The challenge was consolidating 2,000 cubic yards (1529 cubic metres) of concrete within the formwork and still meeting the impressive strength requirements.

The team at Robertson's, the leading producer of ready mixed concrete in the Southern California area, tested a number of different alternatives.

After first becoming dissatisfied with a multi-component admixture design — consisting of a conventional high-range water reducer, a viscosity modifying admixture and a retarder admixture —they eventually began to work with GCP Applied Technologies.

Demonstrating an Advantage with GCP

Starting with a mock wall, Roberton's tested their own Self-Consolidating Concrete (SCC) mix with ADVA®405 high-range water-reducing admixture. They found that it met the specific Slump Flow, VSI, J-Ring and Stability project requirements. It also met their approval in terms of flowability, consolidation and surface finish. As a result, Robertson's was awarded the responsibility of delivering SCC for the entire project.

The Results

ADVA®405 high-range water-reducing admixture enabled Robertson's SCC mix to consolidate easily around extensive steel reinforcement within the formwork while still achieving the specified 6,000 psi compressive strength. In addition, the use of SCC eliminated the need for vibration and manual compaction, reduced equipment requirements and improved job productivity with less labour required and faster, easier placement.

Lastly, ADVA®405 demonstrated an impressive ability to weather changes in construction site conditions. Although Southern California temperatures and humidity vary widely, ADVA®405 remained consistent and highly flowable from batch to batch. In the end, of the 2,000 cubic yards (1529 cubic metres) of concrete produced, not a single load was rejected due to inconsistent SCC.

Blue360℠ Total Business Advantage: The power of GCP products, performance and people.

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Last Updated: 2023-07-07

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