ST. JOSEPH SEMINARY
Edmonton, Alberta, CANADA

Team

Owner:
Catholic Archdiocese or Edmonton

Architect:
DIALOG

Engineer:
DIALOG

Contractor:
Dawson Wallace Construction Ltd

Reinforcing Bar Fabricator:
A & H Steel Ltd.

Total Project Size:
81,806 sq ft

Award:
2012 CRSI Award Winner – Education Facility Category

Photography:
Jason Ness Photography, Ten Speed Design & Development, Inc.

STRUCTURAL FRAMING SYSTEM
The St. Joseph Seminary chapel is constructed of conventionally reinforced concrete. The concrete moment frame at the chapel’s west end, includes a strut and tie model in order to allow for mechanical openings. The chapel’s walls are reinforced with #15M at 200mm on centre each way each face in order to keep cracks to a minimum. Within these walls there are 7 – 6 m x 1.5 m openings. The openings were reinforced to minimize cracking in the corners. This was done by using four 15M bars each face on the diagonal at each corner. Using small diameter reinforcement allows for the bars to be developed to arrest potential cracks, keeping them to a minimum.

The architect desired the casting of a long horizontal slot along each wall in which the Stations of the Cross are placed. The reinforcing was detailed to allow for the long slot within in the wall while at the same time, reinforcing was coordinated with the electrical consultant to also allow for lighting to be placed within the slot. During construction electrical conduit and steel reinforcing were adjusted to provide the best possible solution.

The chapel’s concrete walls were cast after the grade beams and structural slab were in place. This was done so that the large amount of formwork had a firm foundation. Tie hole locations were kept to a minimum because of strong coordination between the designers, the formwork supplier, and the concrete supplier.

UNIQUE STRUCTURAL AND/OR ARCHITECTURAL DESIGN FEATURES
• The inside face of the formwork was erected first, allowing rebar to be tied in place before “buttoning up” the outside form. During rebar placement, formply on the inside face was protected from accidental damage by full height woven geotextile fabric.

REASONS FOR CHOOSING REINFORCED CONCRETE
The Archbishop of Edmonton made one remarkably influential statement at the outset of the St. Joseph Seminary project: The Catholic Church thinks in hundreds of years. That one simple declaration helped shape the entire design, guiding the project team to create a beautiful seminary with a sense of permanence, a modern rendition of traditional church architecture with timeless elegance. Traditional forms of church architecture—arches, buttresses, and side aisles—are reinterpreted with modern materials. At the heart of the seminary, visually and spiritually, is the new chapel, a sanctuary created entirely with cast-in-place fair-faced visually exposed concrete. The concrete gives the space a character, warmth, beauty and permanence that could not possibly be duplicated by any other construction material.

Using white self-consolidating concrete cast in a single massive pour, the chapel walls are 450 m thick and 11 m high. Built with some of the most strict appearance controls imaginable, the interior surface of the concrete is the final visually exposed finish—without sandblasting, sack-rubbing or any other cosmetic treatment. The result is a stunning chapel that beautifully portrays the simplicity and elegance of concrete, framing historic French stained glass windows.