



A Publication of the
Reinforcing Steel
Institute of Ontario

RSIO



Volume 3 No. 3
Winter 1989

ARCHITECT RECOMMENDS SWITCH TO REINFORCED CONCRETE

When Paul Strain, an architect with Toronto-based Page & Steele Architects inherited the 25-storey Bloor Park Condominium project, the original design called for the use of structural steel. However, Page & Steele recommended changing the building's structural material to cast-in-place reinforced concrete.

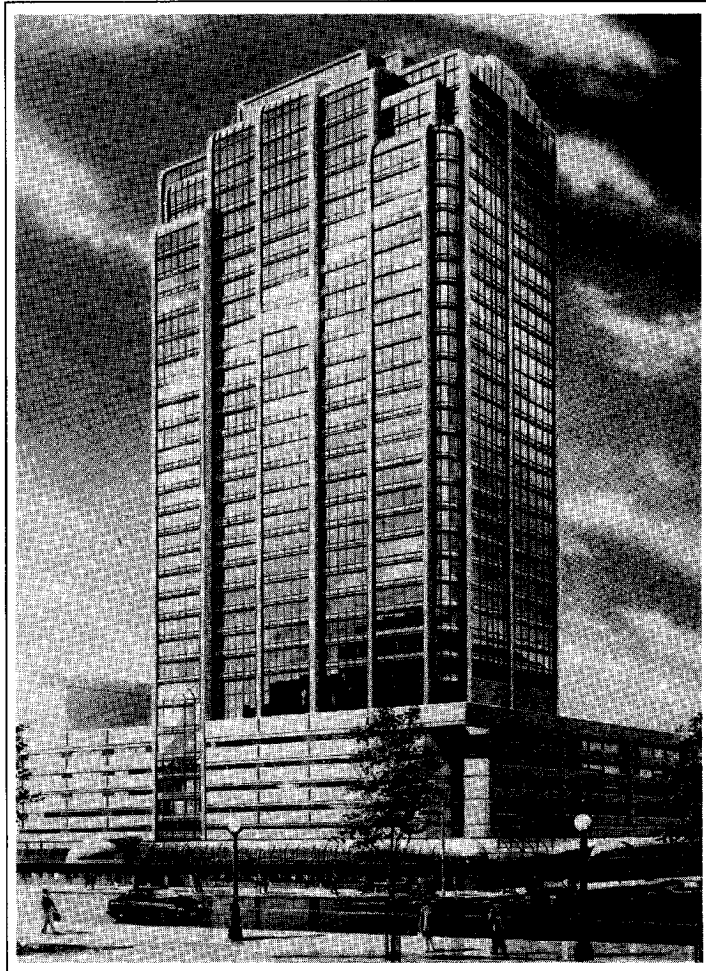
The reasons for the change to concrete were compelling says Strain. The still-under-construction residential condominium at 8 Park Road, Toronto, is actually an addition to a 4-level parking garage which sits on top of the Hudson's Bay Store. Farther below still, is a Food Court and then a further three levels of underground parking.

In the original plan, the structural grids did not align with the existing building. Moreover, when the existing parking garage was built, it was designed with only a 10-storey future addition in mind. Due to the fact that the new building was to be 25 storeys, the size of the structural columns had to be increased at every level that was affected by the weight of the new addition.

The original plan called for a structural steel truss system with a transfer bridge. Strain felt that this design might create problems and opted instead for a concrete structure!

As an alternative, Strain turned to a light weight concrete post-tensioned slab on shear walls aligned on to the existing structural grid. In addition, a commercial curtain wall was modified and adapted as a solution to a light weight exterior skin.

The choice of concrete was also based on the location and height of the building. The architects felt that the microclimate, such as wind effects, would result in building sway, that, with the use of structural steel, would produce creaks and pops suitable perhaps for an office building with the attendant environmental noise, but unacceptable for residential condominium occupancy.



Owner/Developer: Bramalea Limited
Architects: Page & Steel Architects
Engineer: Adjelian, Allen, Rubeli Ltd.



REINFORCED CONCRETE UNCOMPLICATES MEANDERING CULVERT

For the group of developers known as the Elgin East Development Group (799081) Ontario Limited), time really was of the essence in building the Elgin East Culvert. The \$1.9 million culvert is integral to the new development area known as the Elgin East Community, which stretches between Yonge Street and Bayview Avenue on the west and east, and from Gamble Sideroad and Elgin Mills Road to the north and south.

Originally tendered as an option between precast concrete and reinforced poured-in place concrete, one requirement was that the 557-metre long, 2.5 by 7-metre box culvert be operable, in other words, that the contractors have a usable outfall, within seven weeks from start of construction. This was necessary due to the channelized concentrated water flow created by newly-constructed culverts built at the north end of the site crossing the CNR tracks.

"By utilizing poured-in-place concrete, the contractor was able to complete in the required



time and, at a competitive price, the footings, base slab and 400 mm. high foundation walls that would accept normal day-to-day water flows," says Dennis Desjardins, Project Construction Manager, Cosburn Patterson Wardman Limited, consultants

for the trunk servicing as well as much of the site servicing for the community. "For the once in a hundred year flows, the contractor then continued work on the walls and roof. Scheduling on this culvert is very important, given that there are over 2,000 building

permits (mixed use) dependent on our completion. Choosing poured-in-place concrete let us proceed at the pace we had set out for ourselves."

Another reason for the choice of poured-in-place concrete concerned the culvert's five radii says Project Design Manager John Morris, also of Cosburn Patterson Wardman. "We were concerned about the integrity of alignment of other structural materials when going around curves. Poured-in-place concrete alleviated any worries we might have had. It's flexible and can accommodate curvilinear sections."

Contractor: Tacc Construction Co. Ltd.

Sub Contractor: Toronto Zenith Contracting (1982) Limited

Engineer/Consultants: Cosburn Patterson Wardman Limited

Owner: 799081 Ontario Limited. . . o/a Elgin East Development Group

Should we be looking forward to the day when computers are solely responsible for detailing rebar?

An RSIO spokesman said recently that total computer detailing has not yet become feasible in the Canadian reinforcing steel industry. So far, he said, "The pros remain outweighed by the cons." The major disadvantage at the present time is the costs which would be involved.

Very few Canadian companies have made the switch to computer-aided detailing, and the new computer technology south of the border is

advancing only at a slow pace.

In analyzing the job description of today's detailer, 25 to 30 percent of the work time is used on the actual physical drawings required. A sizeable portion of the time is applied to the task of making calculations. By feeding previously calculated numbers into the computer, results could be obtained almost instantly. The elimination of tedious calculations would be a plus, but the resulting time saved

would be only 12 to 17 percent. This is not sufficient to warrant the present high cost of computers and the training of personnel required to operate them.

These costs are being addressed by the reinforcing steel industry. As we head into the final decade of the twentieth century, computers are involved in almost every facet of life. While older detailers may resist the addition of computers in their work, the younger generation

embraces the concept eagerly. The detailers of the future have grown up with computers in the school systems.

According to our RSIO spokesman, it seems certain that computers will be involved in detailing in the next decade. Converting to computer detailing may, in the end, result in a higher level of efficiency, but a machine cannot duplicate a "hands-on" understanding of an experienced detailer.



GALLERIA London

The rapidly developing city of London, Ontario is now home to the largest mall in southwestern Ontario. Campeau Corporation's \$230 million Galleria London shopping centre sits in the centre of London.

Cast-in-place reinforced concrete played a major role in meeting the tight schedule to

ensure an August 1989 opening — in time for the Christmas rush.

The project consists of 60 840 square metres of retail space on two levels, six cinemas and a parking garage to accommodate 1525 cars.

The project involved some impressive numbers. Over 90 000 square metres of

formwork was built to support over 37 000 cubic metres of concrete which encased some 3 750 tonnes of reinforcing steel, of which, 550 tonnes were epoxy coated.

Built into the reinforced concrete design is the ability of the structure to accommodate future expansion. This will

consist of a third retail level and an office tower.

Owner: Campeau Corporation

Contractor: Ellis Don Ltd.

Architect: Crang & Roake Inc.

Engineer: Jablonski Associates



DO PLASTIC FIBERS REPLACE WIRE MESH IN A SLAB ON GRADE?

The answer to the question has to be no. The mesh is used to allow wider joint spacing than used in plain concrete. Formulas are advanced in Portland Cement Association literature and American Concrete Institute guidelines for the use of wire mesh in pavements or floors.

The cross-sectional area of wire mesh required is based on a specific joint spacing, thickness of slab, subgrade friction, and quality of steel. These conditions are currently not met by plastic fiber reinforced concrete. Plastic-fiber reinforcement has its own useful purposes. However,

when wire mesh is engineered and properly placed for a joint spacing greater than that recommended for plain concrete, plastic fibers should not be expected to replace wire mesh in a slab on grade.

This is an excerpt from article by Eugene O. Goeb, P.E., Concrete Consultant, that appeared in March 1989 issue of Concrete Products Magazine.

Recent research on concrete containing Polypropylene Fibres is available in the enclosed brochure produced by the Wire Reinforcement Institute (WRI).

RSIO 1989/90 PRESIDENT



John Harris

Mr. John Harris, Harris Rebar, Stoney Creek, was elected President of the Institute at its' 1989 Annual Meeting held recently in Niagara on the Lake.

Mr. Harris noted that rebar shipments from Institute Mill Members to fabricator Members exceeded 197 000 tonnes for the second year in a row, and he said that all factors indicate continued strong activity for the Institute's 1989 - 1990 year.

Also elected were: Vice President, Mr. George Dietrich, Dietrich Steel Ltd., London; Treasurer, Mr. Fred Gotzman, Courtice Steel, Cambridge; and Directors, Mr. Sam Costa, Jr., C & T Reinforcing Steel Co. (1989) Limited, Scarborough, Mr. Douglas Green, Nantucket Rebar Services, Scarborough, Mr. Donald MacIntyre, Lake Ontario Steel Company, Whitby, Mr. Larry Paikin, Ennis-Paikin Steel Limited, Hamilton.

WATCH FOR!

The next in the series of **RSIO Case History Reports**. This one will feature the Residences of Marian Del Rey.

Read how this award winning project benefited by using cast-in-place reinforced concrete.

RSIO PUBLICATIONS AND DESIGN AIDS

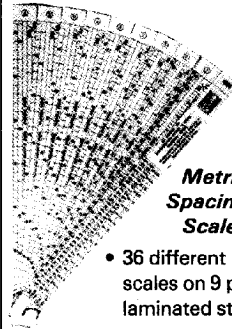
REINFORCING STEEL



MANUAL OF STANDARD PRACTICE

Manual of Standard Practice

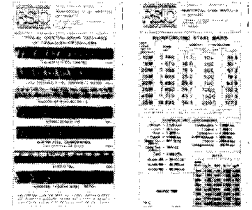
- Industry Practices for Estimating Fabricating Detailing Placing
- Nationally accepted standard



Metric Spacing Scales

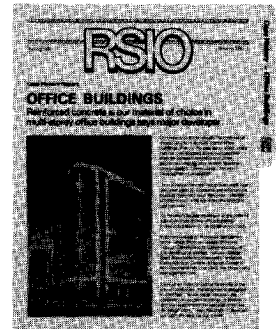
- 36 different scales on 9 plastic laminated strips

• For ordering and costs contact the Institute."



Pocket Cards

- PC 2 - Rebar Identification - Mill Markings
- PC 3 - Bar information standard hooks and laps



Case History Reports

- Shopping Mall
- Parking Structure
- Office Tower
- Office Buildings
- SkyDome



REINFORCING STEEL INSTITUTE OF ONTARIO

One Sparks Avenue
Willowdale, Ontario M2H 2W1
Tel: (416) 499-4000 / Fax: (416) 497-4143

Technical Director - J. Warren Webster, P.Eng.