

## Lively Mall

Crescent-shaped "The Promenade", enclosing 900,000 sq. ft. of gross building area, is anchored at its ends with major Sears and Eaton's department stores. The mall itself contains about 220 shops on two different levels, and professional Health, Medical and Dental, and Administrative offices on a third. The focal point of the complex is the Centre Court, featuring a cast-in-place reinforced concrete clock tower, equipped with a computer-controlled carillon, and emerging animated figures to signal the quarter hours.

## Adaptability Eases Redesign

The original structural design of the mall was intended to make the most efficient use of a steel frame. It was not ideally suited for an optimum performance reinforced concrete structure. However, to save time by repeating its dimensions in the redesign, the engineer proved *that a concrete frame can successfully be substituted for structural steel, without altering the essential design parameters of the building.* These included building height, and structural member performance relating to loads, spans, depths of section, and the framing grid.

## Demanding Parameters No Deterrent

In the basic 20 ft. by 40 ft. bay grid, the 24 in. steel beams and the 6 in. deep steel deck and concrete floor slabs were replaced by a 30 in. deep by 40 ft. long continuous reinforced concrete beam and floor slab system spanning the 20 ft. direction. For certain repetitive long spans, the beams were haunched to provide the most efficient and economical concrete section. At the roof elevations, a total of 17 skylights were framed in conventionally reinforced beams, providing clear-spans up to 60 ft., with a maximum depth of section of 5 ft. 7 in.

## Construction Advantages Speed Work

Supplementing its wide range of design capabilities, reinforced concrete also offered a number of other construction cost and time-saving benefits. Separate fireproofing of structural steel members and placing concrete floor slabs over metal deck were eliminated. By forming and placing the concrete in tiers (*simultaneous erection of portions of two floors*), completed sections could immediately be turned over to the mechanical and finishing trades. This enabled them to make earlier work starts, and speed completion dates.



Structural completion of concrete was 3½ months faster than a comparable steel frame ensuring enclosure for winter.

Concrete was successfully substituted for structural steel without altering the design parameters. ▽

