The picturesque maritime city of Halifax, N.S., has much to offer its visitors: spectacular scenery, historic sites, great seafood. And now the city offers one of Canada’s first applications of a new concept in cast-plaster ornamentation.

In an effort to attract more visitors, particularly for conventions, trade shows and business meetings, the city and the province joined forces to create the new World Trade and Convention Centre (WTCC). The WTCC combines five floors of office space with first-class meeting and banquet facilities able to accommodate groups of 2,000 people and more.

Some Unusual Challenges . . .

The architects for the centre faced some unusual challenges: a mixed-use program, the need to connect to an existing building and use some existing structural elements, all in a prominent downtown site surrounded by historical buildings. They met these challenges in high style, with the help of sound-rated and fire-rated drywall systems and dramatic cast-plaster ceiling coffers and light troughs made with lightweight, economical glass-reinforced gypsum cement (G.R.G.).

The project was planned as an extension of the Halifax Metro Centre, a 10,000-seat arena for entertainment and sporting events. Originally to be called Nova Scotia Place, the extension was to include a provincial art gallery as well as some convention facilities. Concrete had been poured for some columns, stairwells and perimeter walls when the project was halted for about three years. When the government resurrected the project, a Board of Directors was formed to oversee it. The Board called in Dumaresq & Byrne Limited of Halifax to do a new design, making use of the work that had already been started.

Michael Harvey of Dumaresq & Byrne explained: “We were requested to work with what was there and provide convention space — one large room which could seat up to 2,000 people for dinner, plus kitchens, lobbies, auxiliary spaces and smaller breakout rooms. In addition, we were to include as much office space as we thought the site could stand.

“Originally, the new convention space was to be on the same level as the existing ice rink at Metro Centre and it would all have been one connected facility. The revised program called for three floors of convention-related facilities, which we located on the lowest levels, in order to leave us with five floors for offices. It is planned that leasing the office space will help to defray the costs of running the centre.

“We took great care in designing the building exterior. The site is prominent, adjacent to the parade square.
and city hall, so we wanted the building to look as if it belonged. We hinted at traditional window shapes, brickwork and trim. We also maintained a lower height for the glazed areas and the base of the building where it meets the street.

“Our biggest structural problem was to create a largely column-free Grand Hall on the second floor of an 8-storey building. Steel girders 7-ft. deep carry columns from the third floor of the roof. Those girders were part of the reason for the coffered ceiling design in the Grand Hall. The ceiling height is about 19 ft. but drops to about 16 ft. to get below and encase the beams. The structural framing system is reinforced concrete for the first two floors where the heaviest loads will be. Above the Grand Hall floor, steel is used to reduce the weight of the structure,” Harvey said.

“Our first thought was to use drywall to form the ceiling coffers. Then it became clear that the client wanted something more decorative and finished than could easily be attained with drywall. We knew something about the capabilities of G.R.G., and this seemed a very suitable application. The cost was reasonable, and it could be installed quickly—an important factor on this project.”

Top-floor office areas feature interesting views framed by arched windows in mansard roof. Curved and angled drywall work was done by wetting and scoring backs of ½-in. SHEETROCK Gypsum Panels, then attaching them to pre shaped plywood framing and allowing them to dry in place.

The ceiling coffers were prefabricated of glass-reinforced Hydrcal FGR Gypsum Cement by Formglas, Inc. of Concord, Ont. The strong, lightweight and easy-to-install material provided good reproduction of details.

The coffers, 22 to 35 ft. on a side, were fabricated of straight sections, 6 to 8 ft. long, with separate corner sections. Each section weighs about 100 lbs. and could easily be handled by two men. Moulds were made to the desired shapes, then castings were made by saturating layers of glass-fibre matting with a slurry of Hydrcal FGR Gypsum Cement and water.

The drywall contractor for the WTCC, Tartan Drywall Ltd. of Dartmouth, N.S., was responsible for the installation of the cast-gypsum elements. After an initial training period Tartan found that the material was quite easy to work with, as Don Chisholm of that firm explained. “This was our first experience with the material and, once you work with it, you find out its idiosyncrasies. The castings came in sections, with metal channels cast in to add strength and serve as a point of attachment. Each section was suspended from the structural beams on hanger wire attached to the reinforcing channels. The sections were then braced across the back where they butt ed together, and tied back to the structure so they couldn’t move.

Early On . . .

“The curved coffer sections had to be installed at a fairly early stage, when there were still a number of other trades that had to work around them. The bracing we did kept the coffers from being knocked out of alignment by the electricians, sprinkler installers, HVAC crews, etc. Some of the castings were bumped and some were slightly damaged during the later work. They’re quite durable, though, and what little damage was done we were able to repair easily with conventional plastering materials.

“Where the curved sections come down, they meet regular drywall that we used for the flat ceiling areas. The architect had originally specified these castings for the entire ceiling, but we convinced him to change the flat areas to drywall. We were concerned about
having the whole ceiling fabricated off-site, because the tolerances would have been impossible. Using drywall for the flat areas, we could compensate for irregularities in order to make the prefabricated coffers fit.

"The prefabricated sections worked quite nicely with drywall. Because the castings are so smooth, we were rather concerned at first that a difference in surface texture would be apparent after everything was finished. But our workmen were able to blend them together quite well," Chisholm said.

There were other interesting drywall applications in the World Trade & Convention Centre, too. For instance, drywall was used for partitions on the office floors because it is light in weight, and provides the necessary fire ratings for corridor walls."

---

**The Grand Hall . . .**

A drywall system was also used to enclose the large steel columns in the Grand Hall. The column enclosures were also used to house service lines such as wiring and plumbing for fire hoses. These services are housed in recessed sections of the column surrounds.

Insulated drywall bulkheads were used to provide extra sound attenuation above the operable partitions that subdivide the Grand Hall. On each side of the operable partition track, a row of 3-5/8 in. steel studs was installed between the ceiling line and the structural deck above. Red Top Sound Attenuation Fire Blankets were installed in the stud cavities and two layers of 5/8-in. SHEETROCK FIRECODE Gypsum Panels were attached to the side of each row of studs away from the track.

Drywall was also used to provide sound-control ceilings in areas exposed to noise from mechanical equipment.

Another interesting drywall treatment was used for the facing of the exterior walls in the office areas. These walls consist of 4-in. face brick, an air space with rigid cavity insulation and concrete-block backup. On the room side of these walls, 1-5/8 in. steel studs with more insulation in the cavities and 1/2-in. gypsum panels were installed.

Many of the window openings are arched to harmonize with the historic buildings in the area. The top floor

---

Drywall used for flat areas of Grand Hall ceiling worked well with prefabricated coffers. Steel channels were suspended to frame in ceiling borders (a) then 5/8-in. SHEETROCK FIRECODE Panels were screw-attached (b). Joints between gypsum board and coffer sections (c) and between coffer sections (d) were prefilled with DURABOND 90 Joint Compound, then treated with PERF-A-TAPE Joint Reinforcement Tape and SHEETROCK Ready-Mixed Joint Compound.
Skylighted galleria area, below, contains ticket offices, reception space and dramatic rooms for smaller-scale events. Warmly attractive materials include brick, carpet, quarry tile and 5/8-in. SHEET-ROCK Gypsum Panels with texture finish for softer look.

also features a metal mansard roof, which is reflected on the inside by exterior walls that slope inward at the top. The complex, sloped and arched window openings on the top floor were framed in plywood for greater control of the curve, and the drywall was then attached to the plywood backing.

Centre provides flexible, efficient space . . .

The Halifax WTCC was designed after careful consultation with meeting planners and trade show experts to achieve maximum efficiency and flexibility. When used in combination with the adjacent Halifax Metro Centre, the facility offers over 100,000 sq. ft. of exhibition space. The lowest level contains a large registration area with teleconference facilities. This area can also be used for receptions of up to 2,000 people.

The Grand Hall is located on the second level. With an area of 20,000 sq. ft., it can accommodate up to 2,600 people for meetings. It can also be subdivided in a variety of ways to create rooms for groups of from 200 to 1,000. Elsewhere on the second and on the third level are flexible meeting spaces and a VIP lounge.