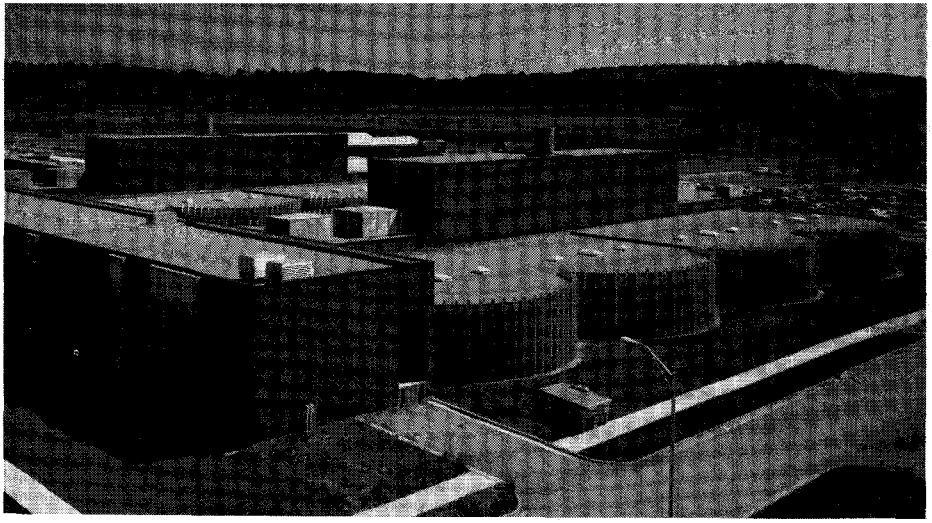
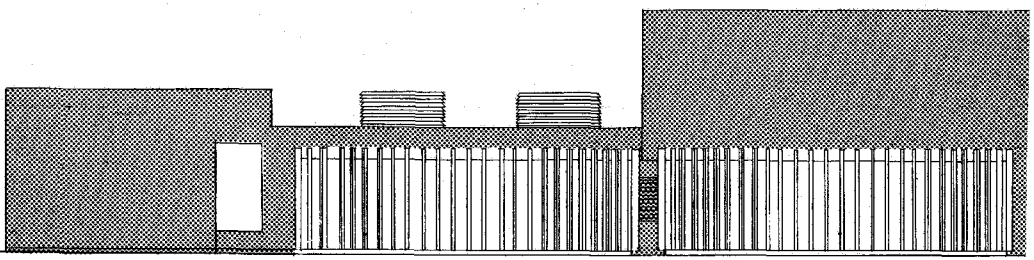


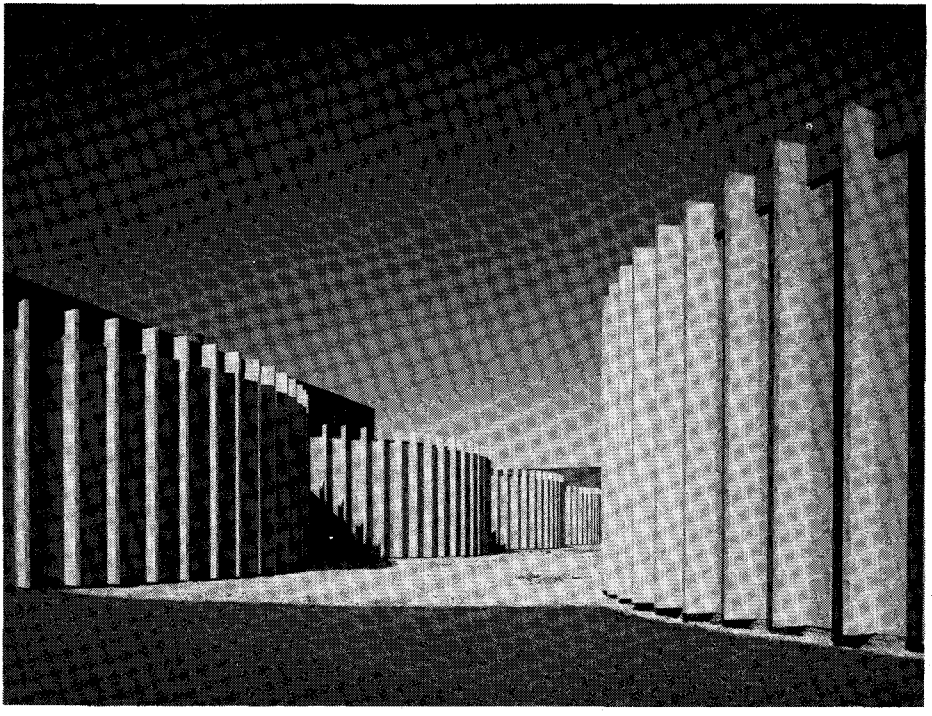
Sludge Thickening Facility Metropolitan Wastewater Treatment Plant

Precast prestressed concrete double-tees were used efficiently and economically both as the roof system and as architectural wall panels for 16 tanks of a two-level sludge thickening facility serving the Minneapolis-Saint Paul (Minnesota) area.

The project is a sludge thickening facility which accomplishes one of the many steps involved in the processing of wastewater. The facility is part of a wastewater treatment complex serving a metropolitan area with a population of over 2 million people.

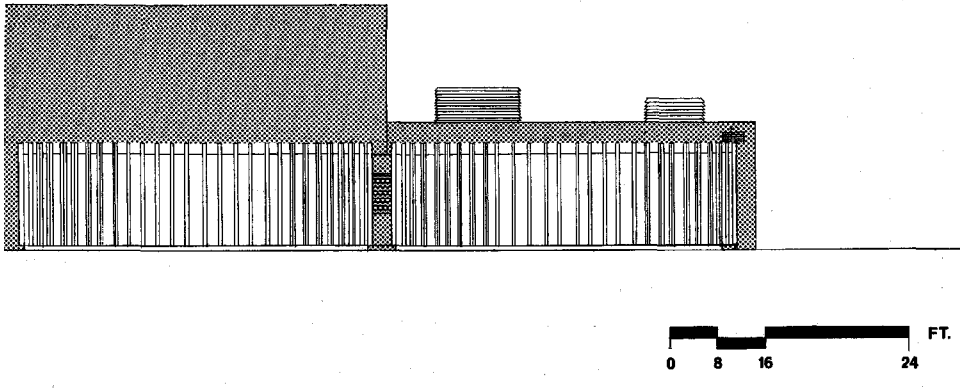


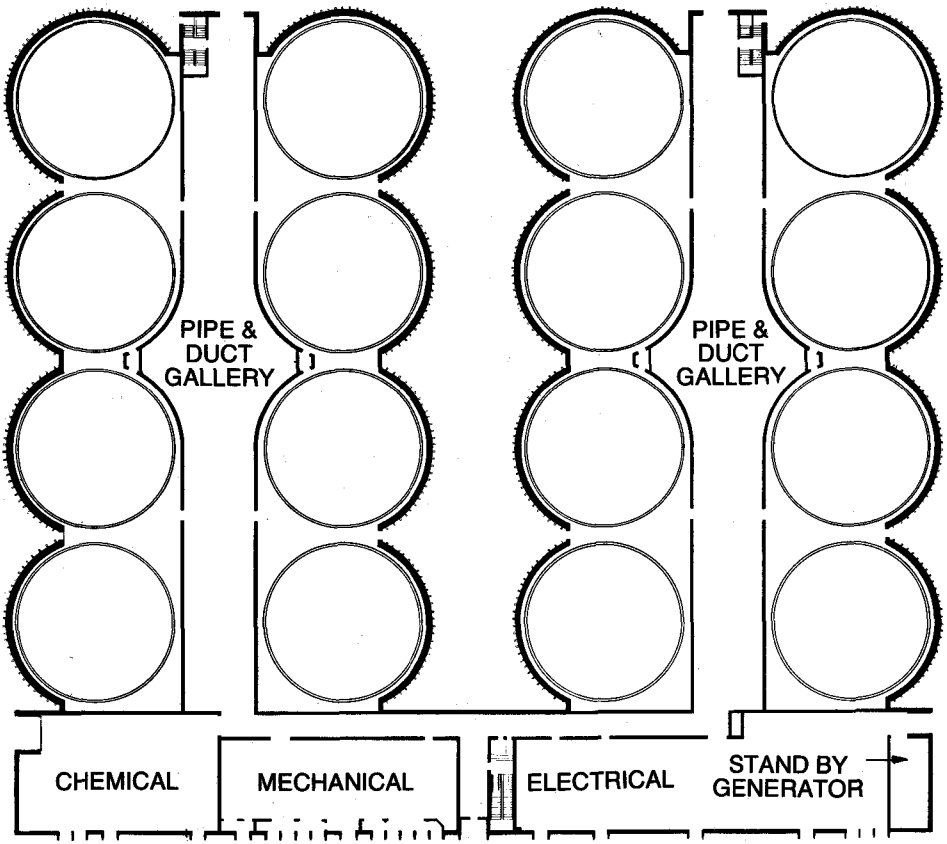
ELEVATION



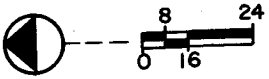
The gross area of the facility is 104,000 sq ft (9672 m^2). This area comprises 16 precast concrete clad circular tanks and includes below-grade piping and pumping galleries. The "footprint" of the two-level structure is 95,000 sq ft (8835 m^2).

The precast concrete components consist of 32-in. (813 mm) roof double-tees over the 62 ft (18.91 m) diameter thickening tanks, 24-in. (610 mm) double-tees over the gallery and equipment rooms, 26-ft (7.93 m) high trim around the windows and louvers, and a total of 264 vertical double-tees 17 ft (5.18 m) high





SLUDGE THICKENING FACILITY

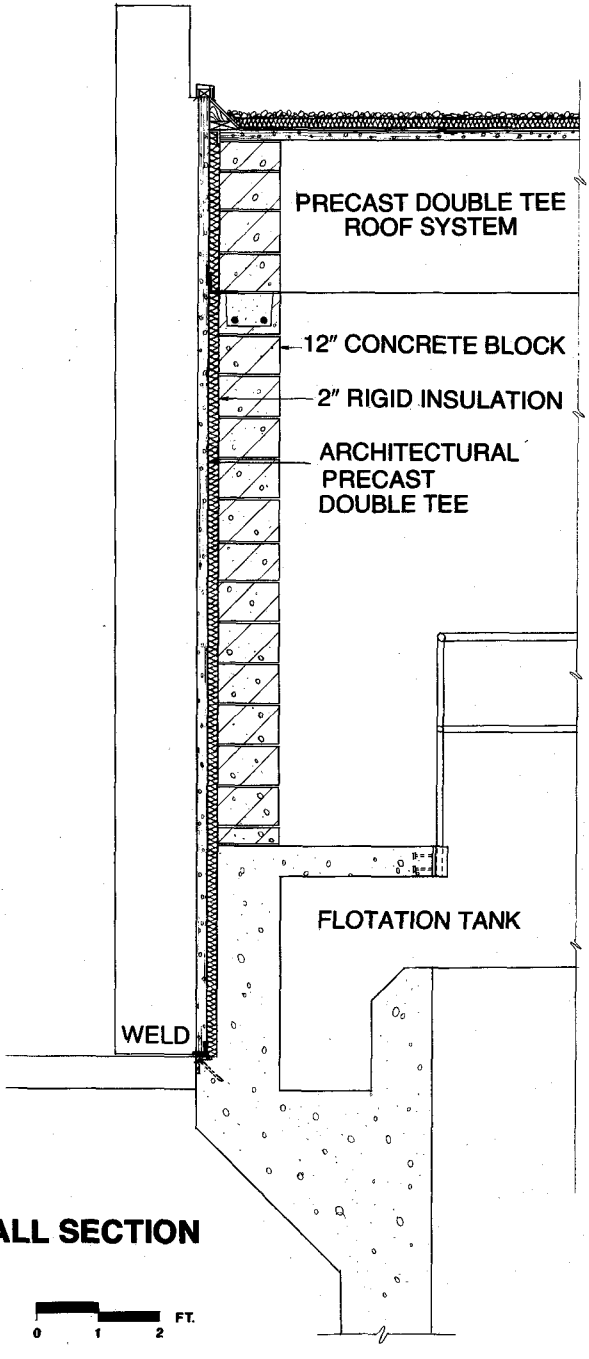


by 5 ft (1.52 m) wide used to architecturally identify the thickening tanks.

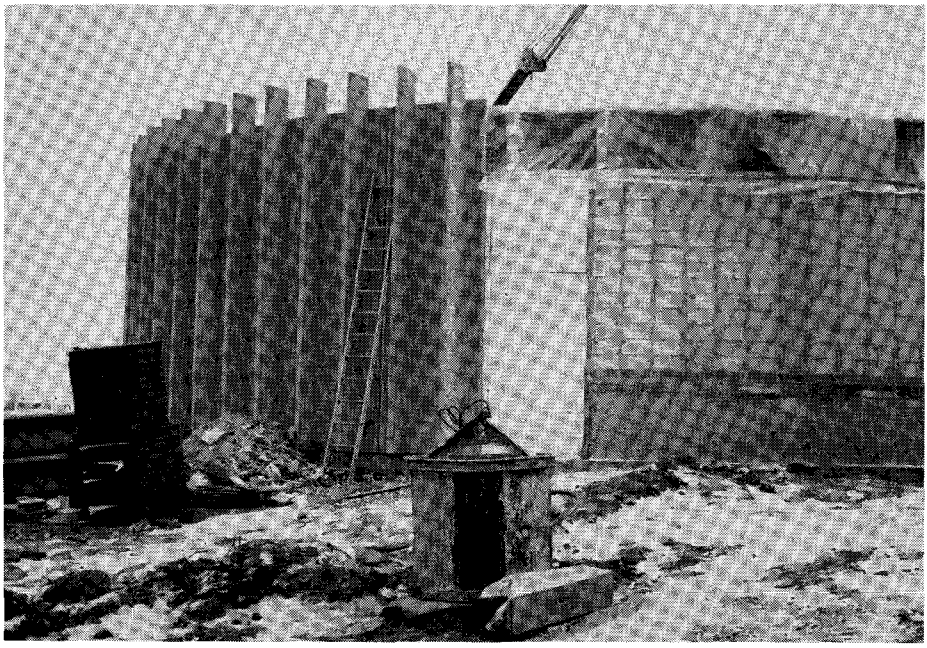
The precast architectural panels provide an efficient method of enveloping the tanks and visually articulating the sludge thickening process. In addition to their visual quality, the precast panels (structurally fastened at the top and bottom only) provide a better insulated wall than would have been possible with a typical masonry exterior envelope requiring horizontal reinforcement and ties. This is because tie backs are not required, and the insulation is not penetrated. Another advantage of the precast concrete panel was its ease of erection.

Precast double-tees were selected for the tank's roof framing because concrete is particulary well suited to the high humidity atmosphere, and the finished structures require no ceilings or interior columns. Most importantly, the precast double-tees were quite economical.

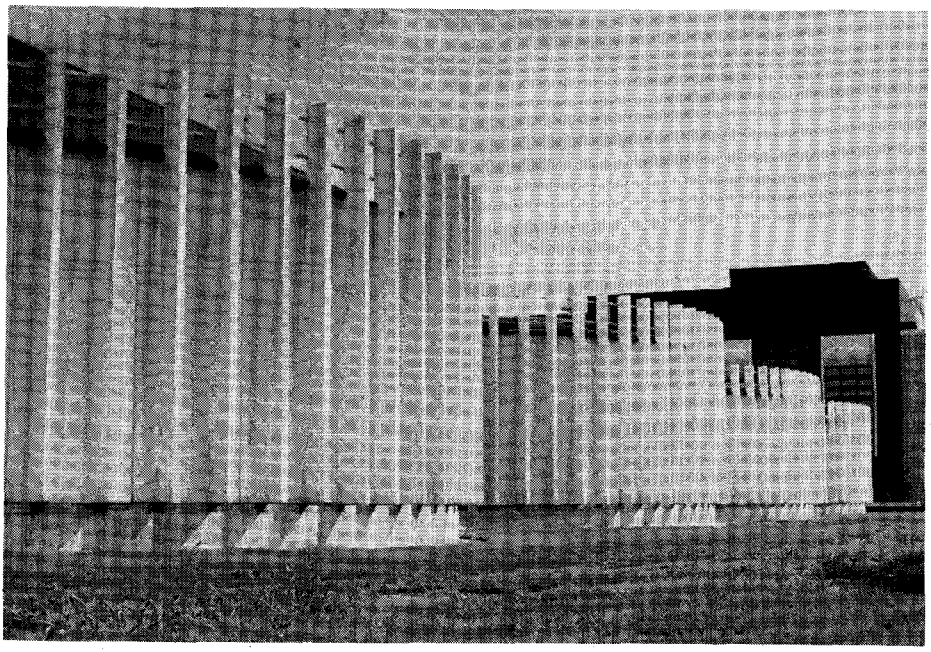
Precast concrete panels were used on the exterior of other tanks within the wastewater treatment complex providing a continuity of design.

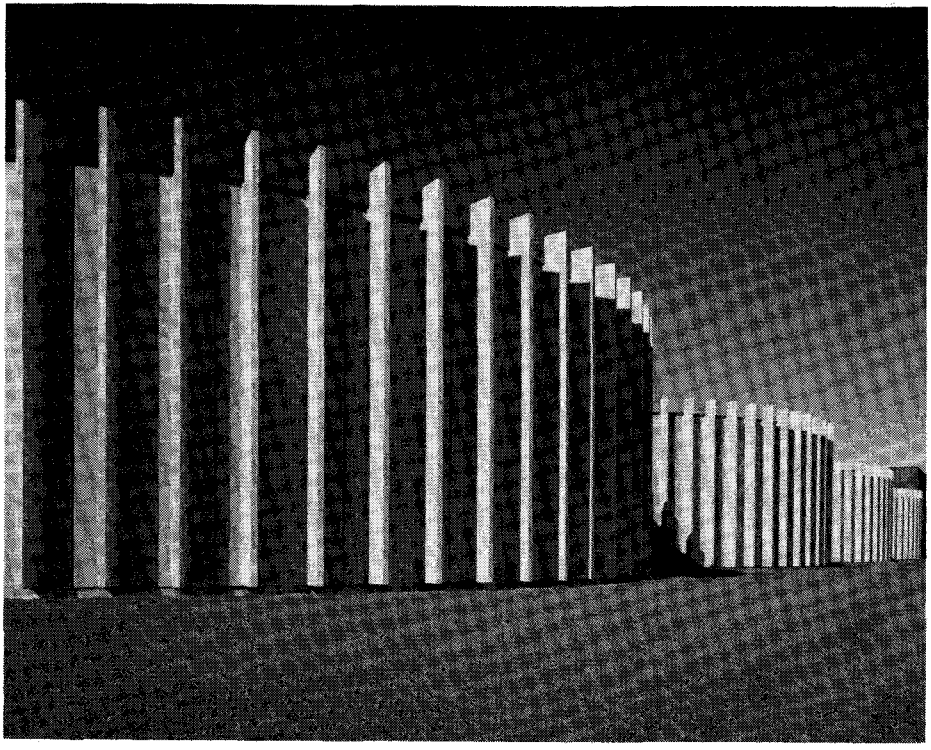


TANK WALL SECTION



Construction Progress—Sludge Thickening Facility, Metropolitan Wastewater Treatment Plant, St. Paul, Minnesota.





The total cost of the sludge thickening facility was about $21 million. Assuming that the gross area of the facility is 104,000 sq ft (9672 m^2), the unit cost was $201 per sq ft. The cost taken up by the precast prestressed work was $360,000.

The project was completed in 1980 and during the past year has been operating with total satisfaction.

* * *

Credits

Engineer/Architect: Toltz, King, Duvall, Anderson and Associates, Incorporated, St. Paul, Minnesota. (Maurice B. Johnson, Project Architect.)

Owner: Metropolitan Waste Control Commission, St. Paul, Minnesota.

General Contractor: Paul Laurence Company, Minneapolis, Minnesota.

Precast Concrete Manufacturer: Prestressed Concrete, Inc., Anoka, Minnesota.

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