

77145 1

New York World's Fair Gives Engineers Real Challenge

The enormous engineering problems involved in the planning and construction of the New York World's Fair were described at an Environmental Engineering Conference of the ASCE.

"Planning a major world's fair is an exercise in intangibles," William Whipple, Jr., the Fair's Chief Engineer, said. "The Fair itself is a phenomenon baffling in its origins and staggering in its complexities.

"The Fair, being constructed on 646 acres, will cost \$600 million to build, and receive an average of 200,000 people daily.

"There are many environmental problems, including the big one of building on marshy land. Typical is that of the Unisphere, a huge stainless steel armillary sphere with three satellite rings. It is the Fair symbol, representing the world in an expanding universe.

"This ornamental structure, 135 feet high, is required to be graceful yet grand, light yet massive, and pleasing to see at any hour from noon to midnight—in glaring sun, under clouds, or at night under floodlights.

"Aesthetically it must face the merciless barrage of criticism which always confronts a major sculpture or monument, yet it must be able to withstand hurricane winds while perched on its tiny base, including wind loads up to three times its 250-ton weight.

"Its three encircling satellite rings, about 150 feet in diameter, must be large enough to be seen clearly from a distance, yet must be supported invisibly from the globe, as far as spectators are concerned by fine steel wires.

"The members representing parallels of latitude and longitude must be slender, and must not apparently thicken near the base, since the sphere will be an open structure with no superfluous members to mar its form."

—Cast Iron Pipe News.



Johnson Wax Pavilion will contain a theater suspended 24 ft. off ground, it will be reached by ramp.

How do things stand today?

In April, 1964, the New York World's Fair, biggest and most advanced of any fair ever conceived, will open its gates to 75 million potential viewers.

How are things shaping up today at the site at Flushing Meadows, Long Island? Imagine you are standing in a vast field, about a 20-minute drive from mid-town Manhattan. It is studded with steel and concrete skeletons of pavilions to be. The rat-tat-tat of drills and hammers, the army of helmeted workers, the roar of heavy earth-moving machinery, the long arm of a giant crane—all enhance the aura of enterprise.

The atmosphere brings a twinge of nostalgia, because you are gazing across the same plot of ground that millions visited in 1939, when a Trylon and Perisphere dominated the landscape. This time it is the Unisphere.

If you are interested in water systems, you may wonder if the Fair is re-using the same water distribution system laid 25 years

ago. Wherever possible, they are using the Cast Iron Pipe laid for the 1938 "World of Tomorrow." All in all, they have been able to re-use about 25% of the pipe.

And it was the size of the pipe installed then—not the condition—that dictated new mains. To satisfy 1939 needs, the diameter of water mains ranged from 6 to 12 inches; the 1964 Fair requires pipe in 8 to 20 inch sizes.

One reason is that back in the late 1930's, air conditioning was the exception rather than the rule. Only the most advanced exhibits provided this luxury. Today, practically all the buildings will be cool. This demands a tremendous amount of water.

In addition, the new fair will have twice as many fountains, far more spectacular. For example, the Fountain of Planets in the Pool of Industry will be the largest water fountain ever created. It will have over 1,000 jets, some 150 feet high. Over 120 tons of water will be in the air at one time,

Continued on page 46

77145 2

World's Fair

Continued from page 44

and 3,600 KVA will be required simply to power the pumps and lights.

The fountain will feature musical sound effects, gas flames 40 feet high, pyrotechnic displays, and a brilliantly conceived lighting system—to elicit “Oohs” and “Ahs” from visitors.

The State of Florida's exhibit will be another large water user. It will sponsor a porpoise show in a 300,000 gallon tank. To keep the water fresh, 50,000 gallons must be replaced every day.

To supply water and power to this thirsty fair, 14 miles of water distribution mains, 22 miles of drainage and sewage lines, and 150 miles of underground high voltage electric distribution system have been completed. Four wells have been completed with a total capacity of six million gallons of water a day.

Although fair officials have set construction standards, they have



Pool of Industry, Fountain of Planets, one of the most spectacular at the Fair will have over 1,000 jets, some 150 feet high.

not told exhibitors what they could build, what they could exhibit, or what school, period or taste to follow. As fair president Robert Moses puts it, “All sorts of architects, engineers, designers, artists and decorators are represented at the Fair. All this will not procure

uniformity and harmony, but it will insure variety, contrast and competition.”

Then Moses added, “I believe the Fair will set a new standard in amusement which will confound the critics, if indeed they are confoundable.”