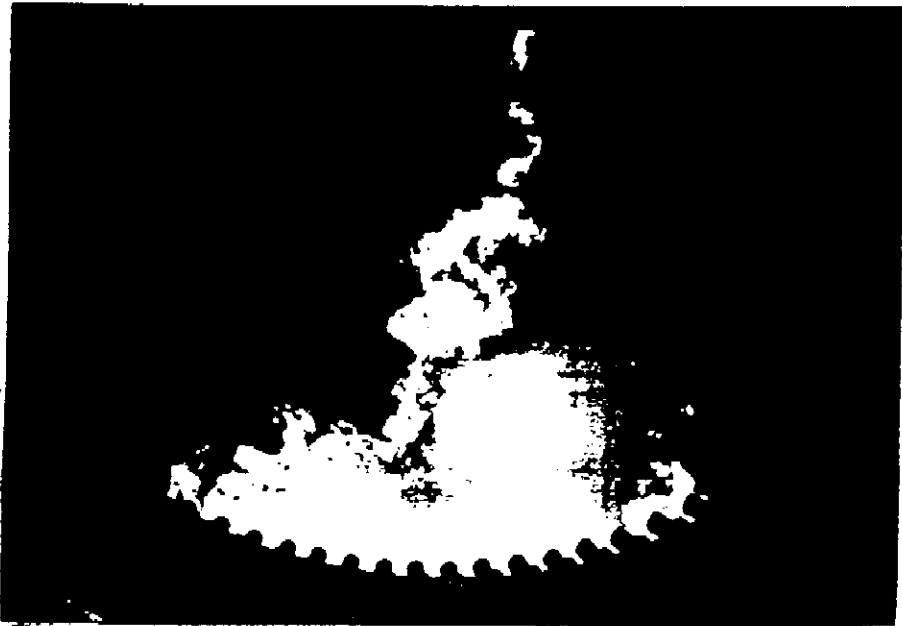


**THE STRUCTURAL STABILIZATION OF THE NEW YORK STATE PAVILION  
LOCATED IN FLUSHING MEADOW CORONA PARK, BOROUGH OF QUEENS,  
KNOWN AS CONTRACT NUMBERS Q099-1695 TO Q099-1895  
DESIGN CONTRACT NUMBER CNYG-195**



Prepared For:

**NYC DEPARTMENT OF PARKS & RECREATION**

Prepared By:

**JOHN CIARDULLO ASSOCIATES  
ARCHITECTS/PLANNERS  
41 WEST 57TH STREET  
NEW YORK, N.Y. 10019**

October 2, 1996

**Q-RE-99-11400 ✓**

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THE STRUCTURAL STABILIZATION OF THE NEW YORK STATE PAVILION LOCATED  
IN FLUSHING MEADOW CORONA PARK, BOROUGH OF QUEENS, KNOWN AS  
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Geiger Engineers Report

Underpinning & Foundation Report

USTA National Tennis Center Soil Boring Logs

**SUMMARY OF THE STRUCTURAL STABILIZATION STUDY OF THE NEW YORK STATE PAVILION WHICH IS PREPARED BY JOHN CIARDULLO ASSOCIATES**

CATED  
/N AS

The New York State Pavilion in Flushing Meadows Corona Park, Queens, was constructed for the 1964-1995 Worlds Fair. The pavilion consists of three parts; the Theaterama, the Tent of Tomorrow with indoor exhibition areas and the Observation Towers. John Ciardullo Associates (JCA) has completed an investigation that includes inspections of the "Tent of Tomorrow" and the "Towers".

2, 1996

**The Tent of Tomorrow**

The compression and tension rings are structurally sound. The concrete columns and pile caps are also structurally sound. However, the untreated wood piles have continued to deteriorate since 1992 investigation by Geiger Engineers. Due to the continued rot of the supporting wood piles immediate action must be taken to secure the Tent of Tomorrow from further deterioration and collapse. JCA recommends that in the best interest of the City, and for the safety of the general public, that an emergency contract for either stabilization or demolition of the Tent of Tomorrow be issued forthwith. The cost to stabilize the foundations of the columns by pile replacement will cost between \$2,538,496.00 and \$3,654,416.00.

**The Exhibition Space**

JCA documented the deficiencies present in the perimeter structure, its mechanical systems and the promenade. These components are distressed and an overall plan for rehabilitation and reuse must be addressed. However, for the purpose of this report they discuss demolition and reconstruction of the perimeter structure. Since the roof structure is supported on grade beams on pile caps with piles of the same untreated wood, and the walls are supported on spread footings, they recommend demolition of the structure and driving of new steel piles with concrete pile caps, should the need for the existing structure be warranted.

**The Observation Towers**

The only portion of the Observation Tower that the report investigated was the elevators. One of which appears to be in the locked position at an observation level, and the other is dismantled in its elevator pit. JCA discusses the removal of these elevators and safing off the surrounding area, and the cost is \$12,000.00. Reviewing the cost of reconstruction/stabilization and demolition, the estimates prove to be significantly more than the monies allocated for this work.

**Cost Estimate**

The cost to demolish the Tent of Tomorrow and the Exhibition Space is included in the report as \$3,654,416.00 which include the complete removal of the structure as well as the grading and seeding of the site. The cost of stabilization/Restoration the Tent of Tomorrow and the Exhibition Space is \$8,178,192.00.

## Executive Summary

JCA has completed an investigation that includes inspections of the "Tent of Tomorrow" and the "Towers" associated with the New York State Pavilion in Flushing Meadows Corona Park, with intentions of preparing the following report. The components that make up the Tent of Tomorrow includes the tension and compression rings with cables, the concrete columns, pile caps and wood piles. The exhibition space and roof promenade are constructed of non-bearing masonry walls on spread footings enclosing the one story structure, the roof deck and steel columns supported on pile caps and wood piles. The Observation Tower investigated is limited to the two elevators that once accessed three observation platforms.

### The Tent of Tomorrow

The compression and tension rings are structurally sound, requiring minor repairs and paint. The associated cables would require replacement should a roof be added. The concrete columns require minimal concrete patch, but are structurally sound. The pile caps are also structurally sound. However, the untreated wood piles have continued to deteriorate since the 1992 investigation by Geiger Engineers. The continued wood rot has reduced the solid wood diameter from 12" to 6". The reduction of the pile area due to the soft rot reduces the ability of the pile to support the existing dead load. Our calculations demonstrate that with the reduced piles' capacity, with full lateral support, it is questionable that the soft rot can laterally support the wood pile, since buckling may result in the collapse of the structure. Due to the continued rot of the supporting wood piles immediate action must be taken to secure the Tent of Tomorrow from further deterioration and collapse. Presently, the threat of collapse exists, as does damage to the Theaterama and the public. JCA recommends that in the best interest of the City, and for the safety of the general public, that an emergency contract for either stabilization or demolition of the Tent of Tomorrow be issued forthwith.

### The Exhibition Space

JCA documented the deficiencies present in the perimeter structure, its mechanical systems and the promenade. These components are distressed and an overall plan for rehabilitation and reuse must be addressed. However, for the purpose of this report we discuss demolition and reconstruction of the perimeter structure. Since the roof structure is supported on grade beams on

pile caps with piles of the same untreated wood, and the walls are supported on spread footings, we recommend demolition of the structure and driving of new steel piles with concrete pile caps. should the need for the existing structure be warranted. It is cost prohibitive to try to repair the damage that already exists and obtain a Certificate of Occupancy for the Exhibition Space, and while the condition will worsen with time, the one story structure doesn't pose the same threats that the wood piles of the ten story tent structure poses. The loading here is substantially less.

### The Observation Towers

The only portion of the Observation Towers that our report investigated was the elevators, one of which appears to be in the locked position at an observation level, and the other is dismantled in its elevator pit. JCA discusses the removal of these elevators and safing off the surrounding area.

Reviewing the costs of reconstruction/stabilization and demolition, the estimates prove to be significantly more than the monies allocated for this work. We await further direction prior to proceeding with scheduling the required meetings with the Community Boards and the Borough President, as outlined in our scope of work.

### Estimate Data

The cost to stabilize the foundations of the columns by pile replacement as indicated in this report will cost between \$2,538,496.00 and \$3,788,800.00. Contract documents for this emergency work should be prepared and a contract issued as soon as possible.

The cost to demolish the Pavilion (with the exception of the three towers) is included in this report as \$3,654,416.00. This would include the complete removal of the structure as well as the grading and seeding of the site.

The cost for the balance of the stabilization/restoration work required at the pavilion is estimated in this report to be \$4,389,392.00

All estimates exclude costs for removal of hazardous material.

