



1871: The Great Fire destroyed a quarter of Chicago, but rebuilding gave birth to the skyscraper.

# **HISTORIC CHICAGO**

**1885-1974**

**ARCHITECTURE AND ENGINEERING**

**BRIAN ROBERTS**



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## CARBIDE & CARBON BUILDING 1929



37 floors, 503 ft. Architect: Burnham Brothers. Converted to hotel 2004.

# FEDERAL PLAZA THREE BUILDINGS 1974



## CONTENTS

Why Chicago? In the 1970s and early 1980s, a small number of "skyscraper" air conditioned office blocks in the UK were topped out at around 400 ft. Nearly fifty years ago, as an air conditioning engineer, I visited the United States to look at their latest air conditioned skyscrapers including the 1973 (later ill-fated twin towers) New York World Trade Centre and the 1974 Chicago Sears Tower. At 1368 ft and 1451 ft respectively they were then, in turn, the tallest buildings in the world. The 1930s famous Chrysler and Empire State buildings were not initially air conditioned. Now there are even taller skyscrapers in many countries around the world. The first skyscraper was built in Chicago in 1885. Others followed. This was possible because Chicago also pioneered the building structural steel frame. I was fortunate to have long-standing friends in Chicago who took me around many other historic buildings, some of which are shown in the following pages.

### THE EARLY SKYSCRAPERS 1885-1929

Auditorium: 12, Carbide: 2, Chamber Commerce: 7, Chicago Savings: 16, Fisher: 6, Home Insurance: 4, Manhattan: 14, Masonic: 8, Medina: 17, Monadnock: 9, Old Colony: 15, Reliance: 5, Rookery: 10, Palmolive: 21, Pittsfield: 20, Tribune: 18, Wrigley: 19

### THE LATER SKYSCRAPERS 1964-1974

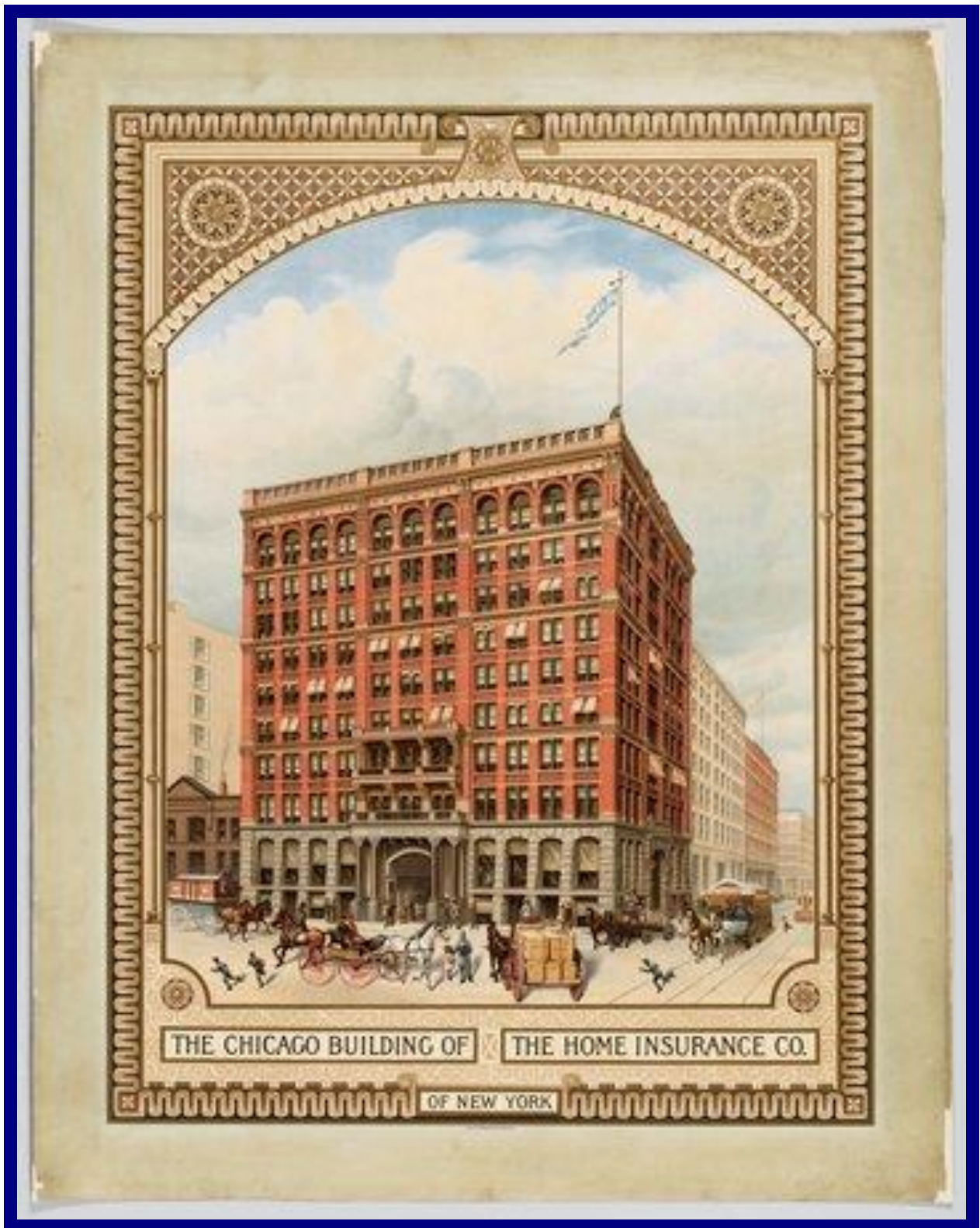
Chase: 24, Federal: 3, Hancock: 25, Lake Point 23, Marina City: 22, Sears Tower: 27, Standard Oil: 26

### OTHER HISTORIC BUILDINGS 1883-1953

Churches: 28-33, Department Stores: 34-37, Museums: 38-39, Stadium: 40, Frank Loyd Wright Houses: 41-43



# THE HOME INSURANCE COMPANY 1885



12 floors, 180 ft, the first skyscraper, demolished 1931.  
Architect: William Le Baron Jenney. Provided with steam radiators for heating.  
One report states also mechanical ventilation with ice-block cooling in summer.



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## RELIANCE BUILDING 1894



15 floors, 202 ft. Architect: Burnham and Company.  
Became Burnham Hotel in 1999.



## FISHER BUILDING 1896



18 floors, 275 ft. Architect: Burnham and Company.  
Increased to 20 storeys in 1906.

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## CHAMBER OF COMMERCE 1890



13 floors, 155 ft. Architect: Baumann & Huehl. 8 elevators. Demolished 1923.



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## MASONIC TEMPLE 1892

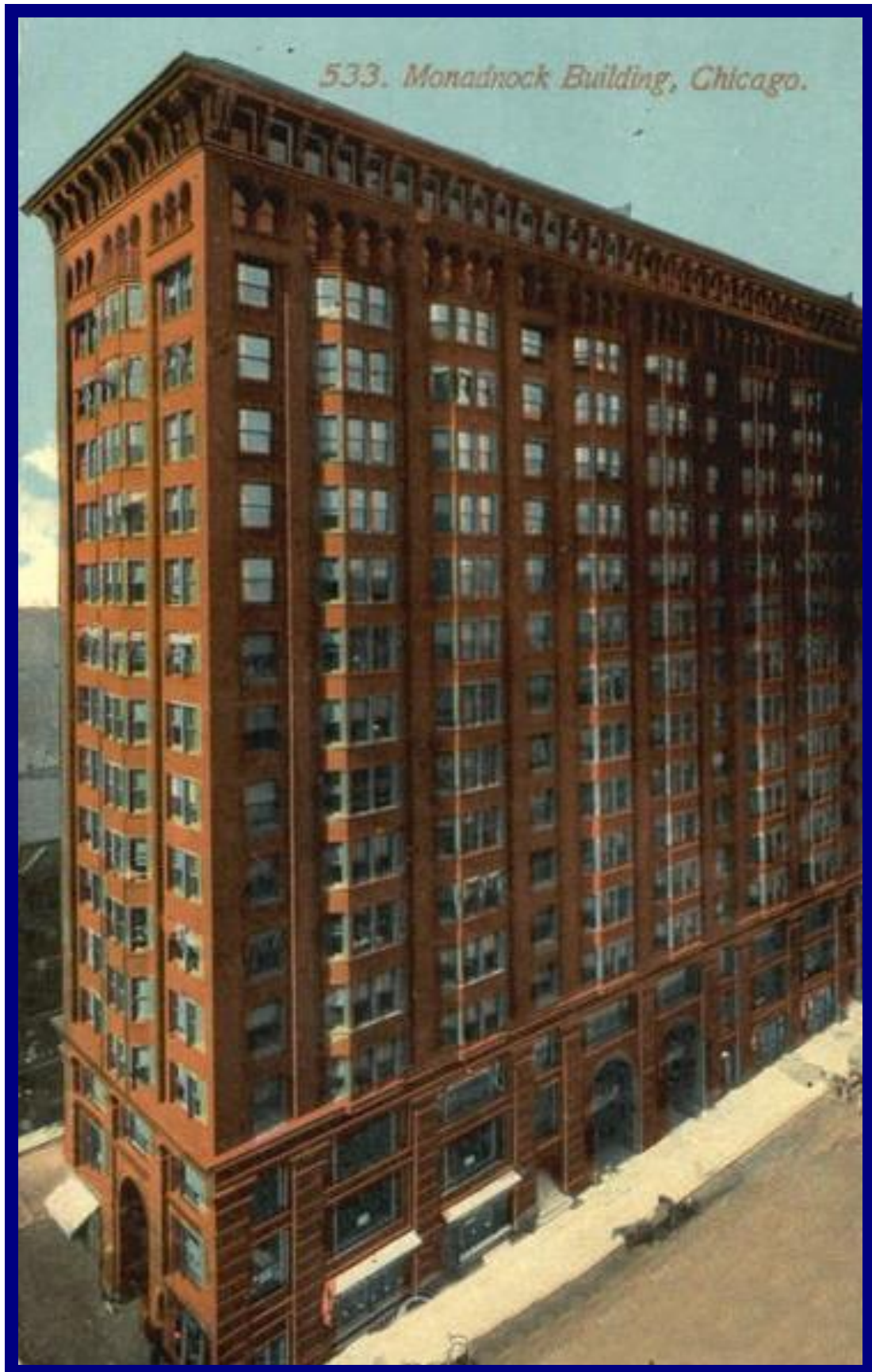


21 floors, 302 ft. Architect: Burnham & Root. Demolished 1919 (elevators proved inadequate).



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## MONADNOCK BUILDING 1893



17 floors, 215 ft. Architect: Burnham & Root.  
Probably tallest building ever relying on load-bearing brick walls



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## **ROOKERY BUILDING 1888**



12 floors, 181 ft. Architect: Burnham & Root.



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## ROOKERY BUILDING LOBBY 1905

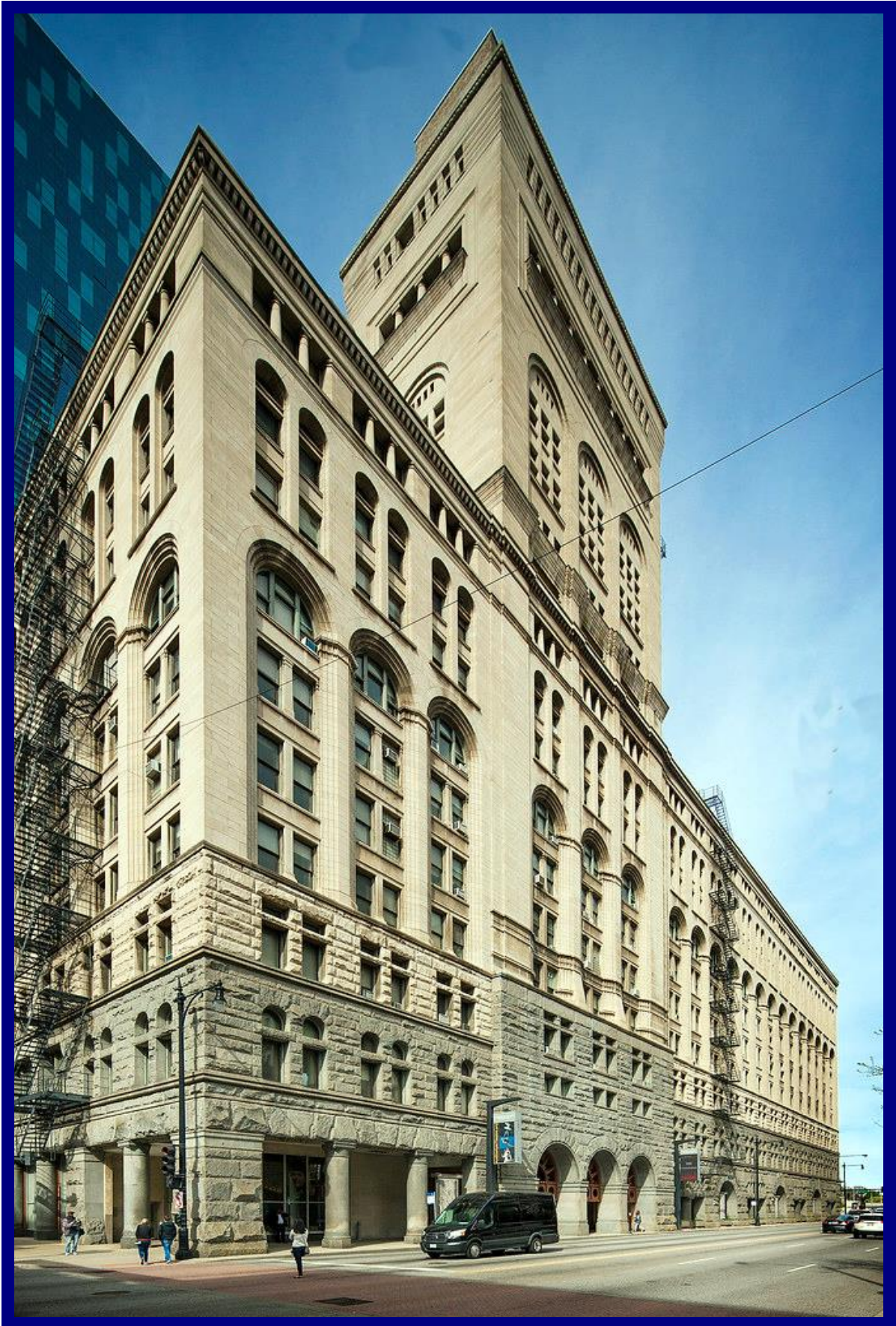


Lobby remodelled by Frank Lloyd Wright in 1905.



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## AUDITORIUM BUILDING 1889



32 floors. Architect: Sullivan & Adler. Included a 10-storey 400-bedroom hotel.



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## AUDITORIUM BUILDING 1889



1000-bed hotel (later Congress Hotel) added 1907. Part air conditioned (Kroeschell 140 TR).



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## MANHATTAN BUILDING 1889



16 floors. Architect: William Le Baron Jenney.  
Oldest skyscraper with "purely skeletal structural system."



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## **OLD COLONY BUILDING 1894**



17 floors, 215 ft. Architect: Holabird & Roche. Converted to apartments 2015.



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## CHICAGO SAVINGS BANK BUILDING 1905



Architect: Holabird & Roche. Converted to Art Institute Dormitory in 1997.



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## MEDINA ATHLETIC CLUB 1929



42 floors, 471 ft. Architect: W.W. Ahlschlager.



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## TRIBUNE TOWER 1925



34 floors, 462 ft. Architect: John Howells & Raymond Hood.  
Fully air conditioned 1933 (600 TR steam-jet refrigeration), 400 Westinghouse fan-coil units.  
Air conditioning 1927 in a few special offices (CO<sub>2</sub> refrigeration Wittenmeier Machine).



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## WRIGLEY BUILDING 1924



438 ft (spire), 30 floors (North Tower), 20 floors (South Tower).

Architect: Graham, Anderson, Probst & White.

Air conditioning 1927 in a few special offices (CO<sub>2</sub> refrigeration Wittenmeier Machine).



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## PITTSFIELD BUILDING 1927

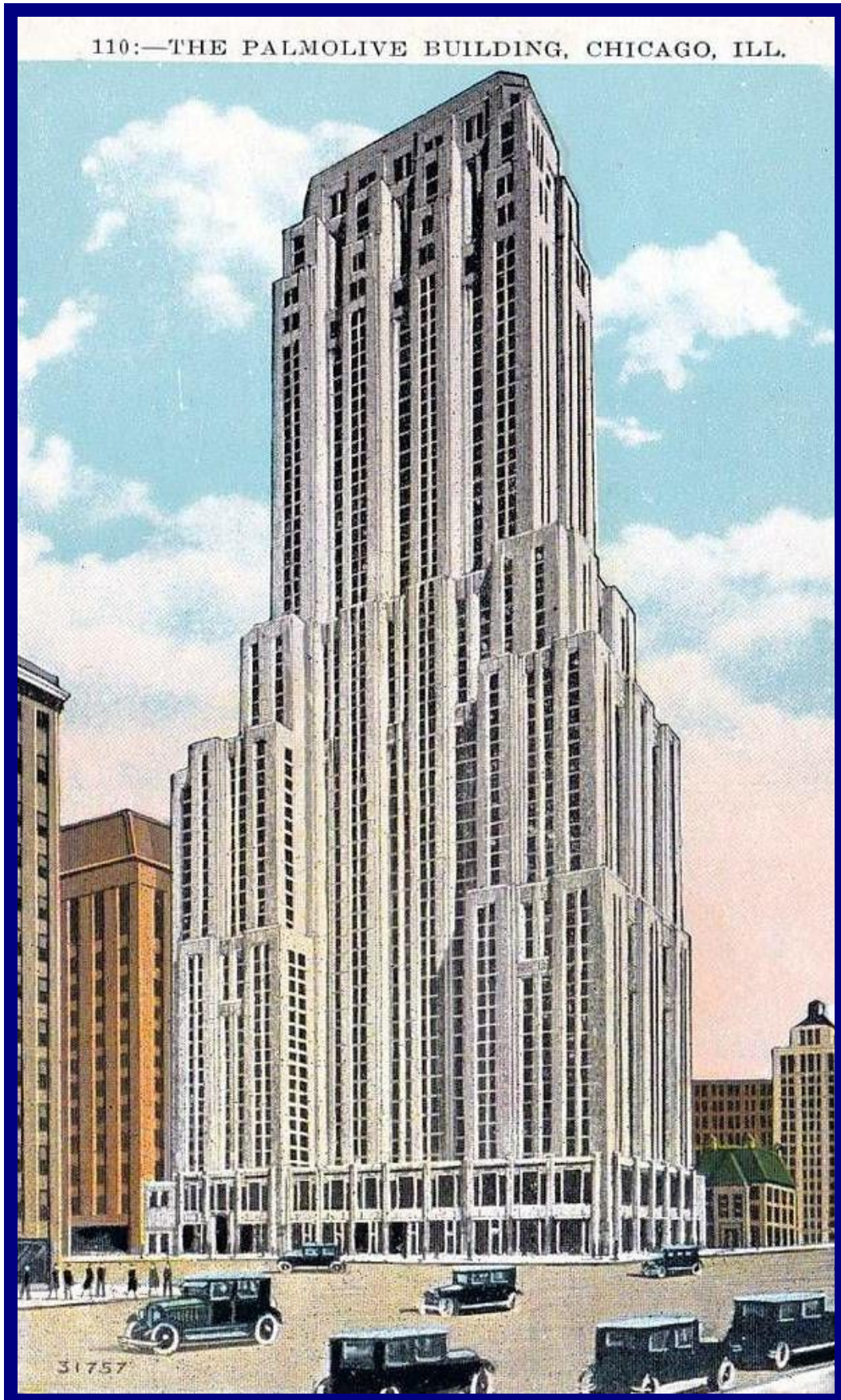


38 floors, 551 ft. Architect: Graham, Anderson, Probst & White.  
Tallest building in Chicago at time of completion.



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## PALMOLIVE BUILDING 1929

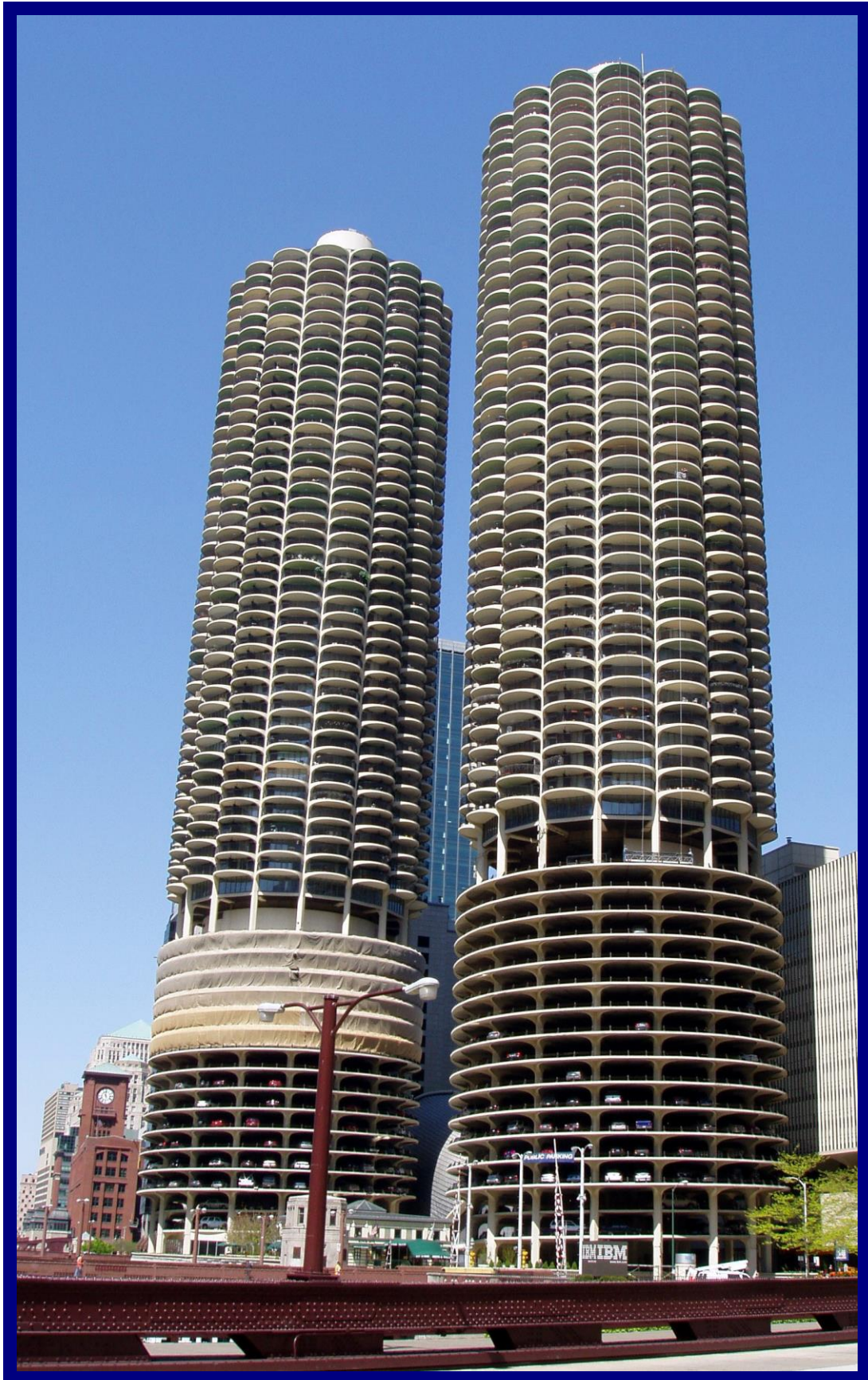


37 floors, 565 ft. Architect: Graham, Anderson, Probst & White.  
Renamed Playboy Building in 1965.



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## MARINA CITY 1964

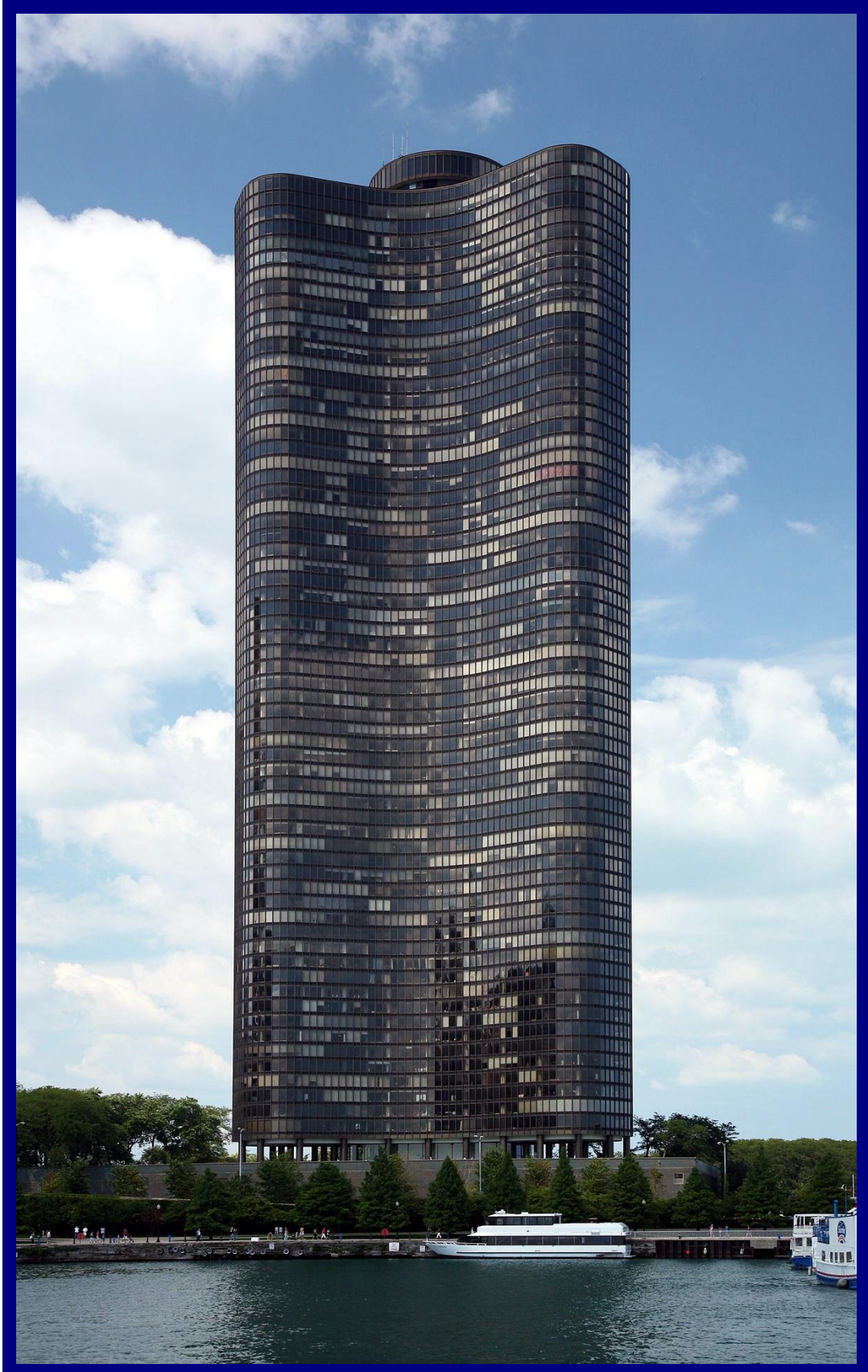


61 floors, 588 ft. Architect: Bertrand Goldberg. Lower 18 floors car parking. Apartments had own heating and cooling units (no central plant).



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## LAKE POINT 1988



70 floors, 645 ft. Architect: Schipporeit-Heinrich Associates.  
When completed it was the tallest Apartment Block in the world.  
" Air conditioning provided by wall units."



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## CHASE TOWER 1969



60 floors, 869 ft. Architect: C.F. Murphy Associates, Perkins & Will.  
Known for its distinctive curved shape.



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## JOHN HANCOCK 1969



100 floors, 1127 ft. Architect: Skidmore, Owings & Merrill.  
Perimeter induction (changeover) air conditioning with interior zone constant volume reheat system. Refrigeration 6900 TR. Interior changed to VAV without reheat.



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## STANDARD OIL 1973



83 floors, 1136 ft. Architect: Edward Durell Stone. Renamed Amoco, then Aon Centre.  
The complete marble sheathing replaced by granite slabs after problems.



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## SEARS TOWER 1974



108 floors, 1451 ft, Architect: Skidmore, Owings & Merrill. Now the Willis Tower.  
Tallest building in the world 1974-1997. HVAC Consultant: Jaros, Baum & Bolles.  
Originally had perimeter induction unit air conditioning, now replaced with fan-coil units.  
Refrigeration 17,000 TR. Automatic control system upgraded.



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## **ST. STANISLAUS KOSTA CHURCH 1881**



Roman Catholic in Polish Cathedral Style. Capacity 1500. Architect: Patrick Keely.



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## ST. JOHN CANTIUS CHURCH 1898



Roman Catholic in Polish Cathedral Style. Capacity 2000. Architect: Adolphus Druiding.



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## OAK PARK UNITY TEMPLE 1909



Reinforced concrete construction (limited budget). Masterpiece of Architect Frank Lloyd Wright.



## OAK PARK UNITY TEMPLE 1909



Has top-lit natural lighting through stained glass windows in roof and clerestories.



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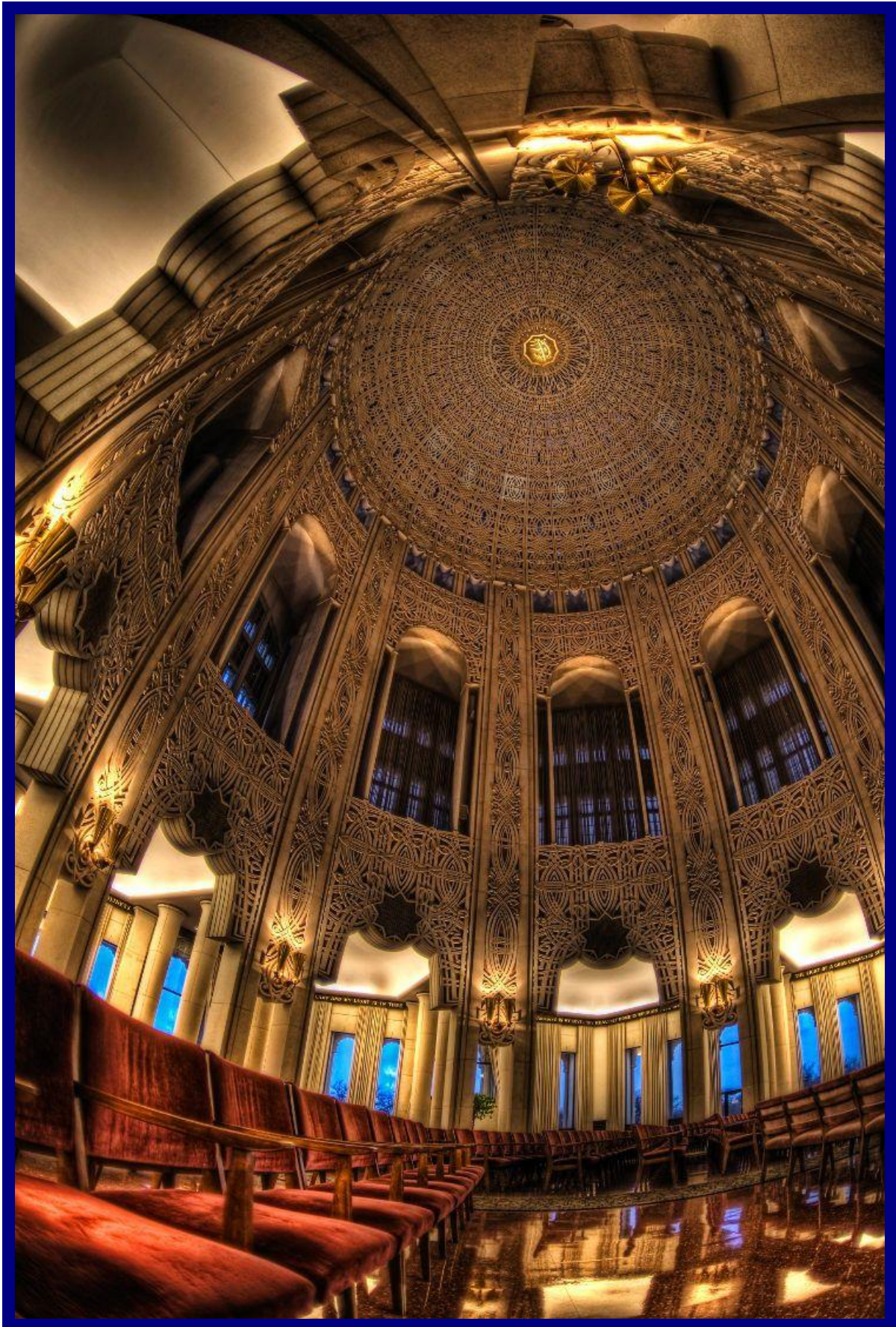
## **BAHAI HOUSE OF WORSHIP 1925-1953**



Height to top of dome 190ft. Located in Wilmette.



# BAHAI HOUSE OF WORSHIP 1925-1953



Architect: Louis Bourgeois, George A. Fuller.



# CARSON PIRIE SCOTT STORE 1890-1904



12 floors. Steel-framed fireproof structure.



# CARSON PIRIE SCOTT STORE 1890-1904



Architect: Louis Sullivan. Building included a very early fire suppression sprinkler system.



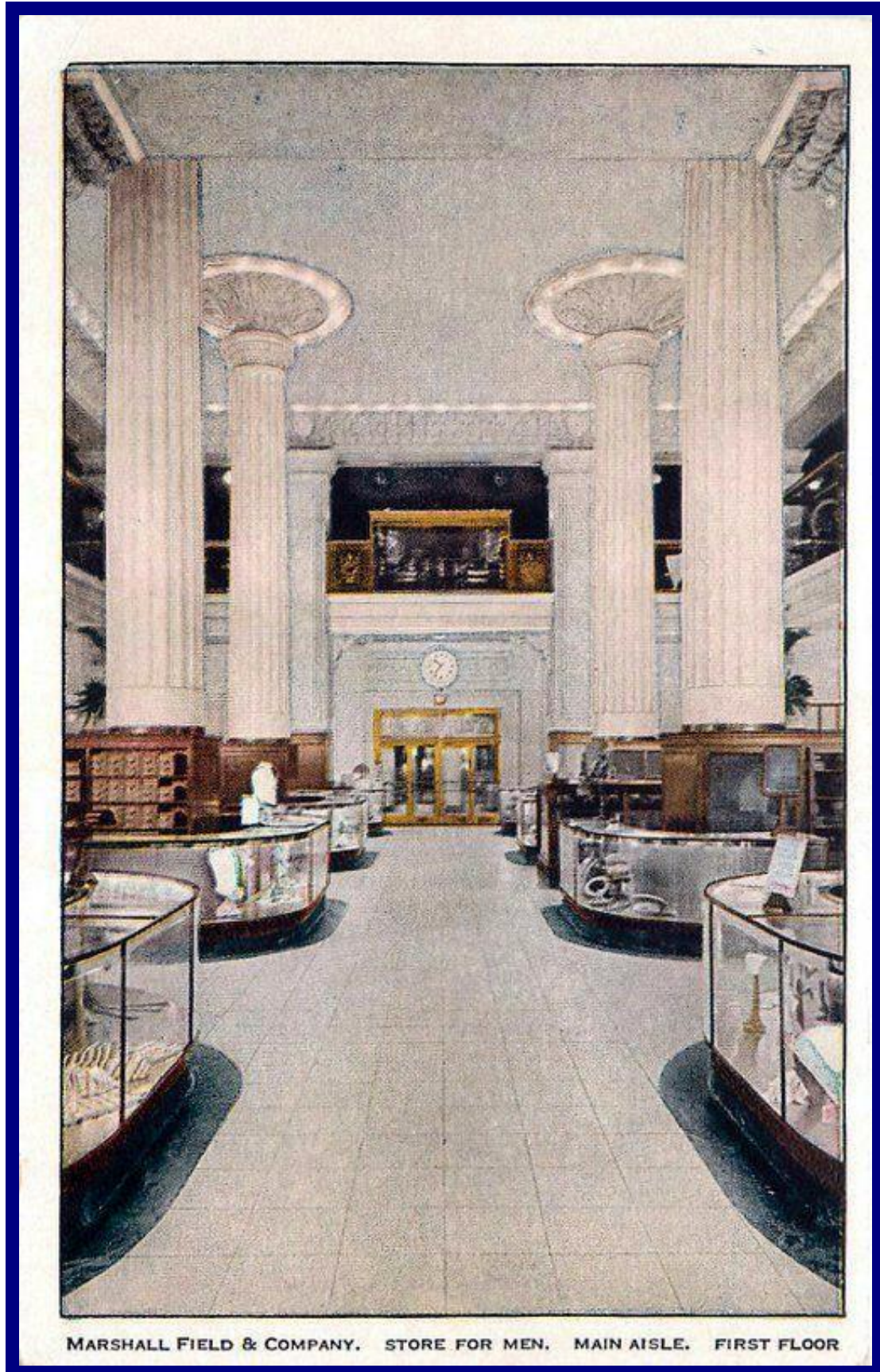
## MARSHALL FIELD WHOLESALE STORE 1887



The original store (with steam-powered elevators and gas lighting) was destroyed in the Great Fire of 1871. In the years which followed, Marshall Field had a number of stores in different locations. Architect for Wholesale Store: Henry Hobson Richardson.



# MARSHALL FIELD RETAIL STORE 1897-1906

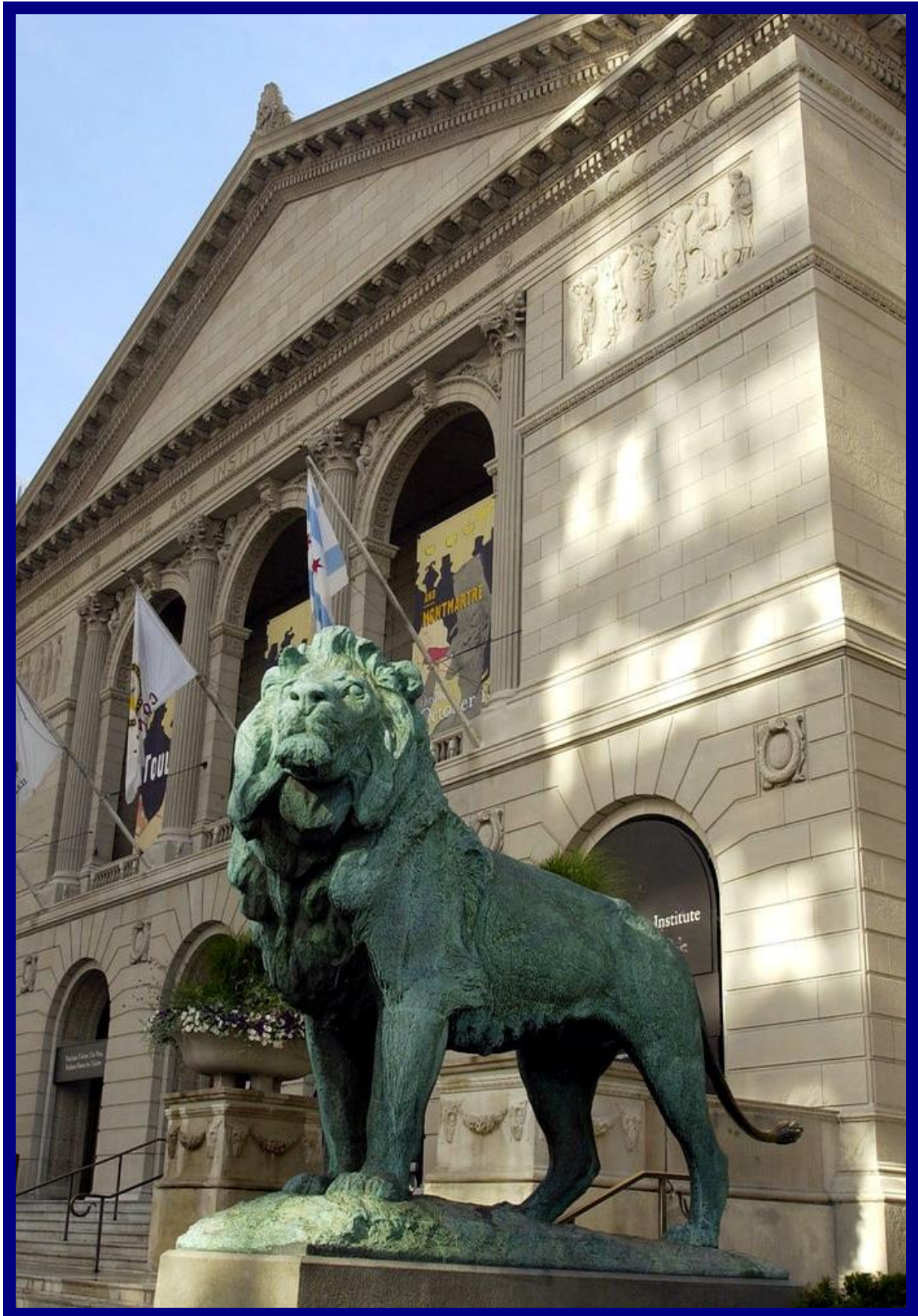


MARSHALL FIELD & COMPANY. STORE FOR MEN. MAIN AISLE. FIRST FLOOR

The famous State Street Store, altered and added to on a number of occasions.  
Architect: Daniel H. Burnham.



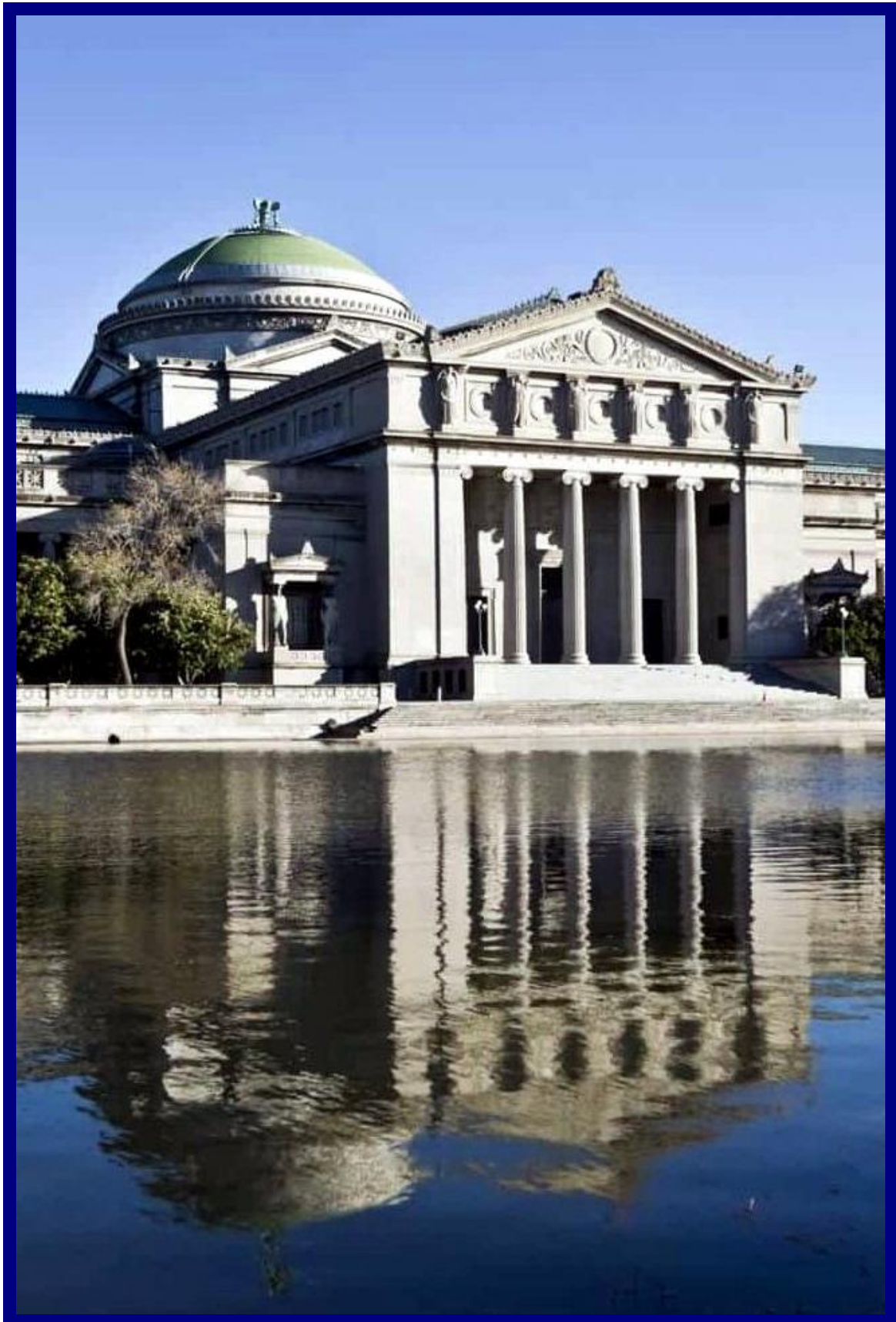
## ART INSTITUTE BUILDING 1893



Building initially constructed for Chicago Columbian Exposition and taken over when ended.



# MUSEUM SCIENCE & TECHNOLOGY 1933



Housed in the Palace of Fine Arts, built for 1893 Columbian Exposition.



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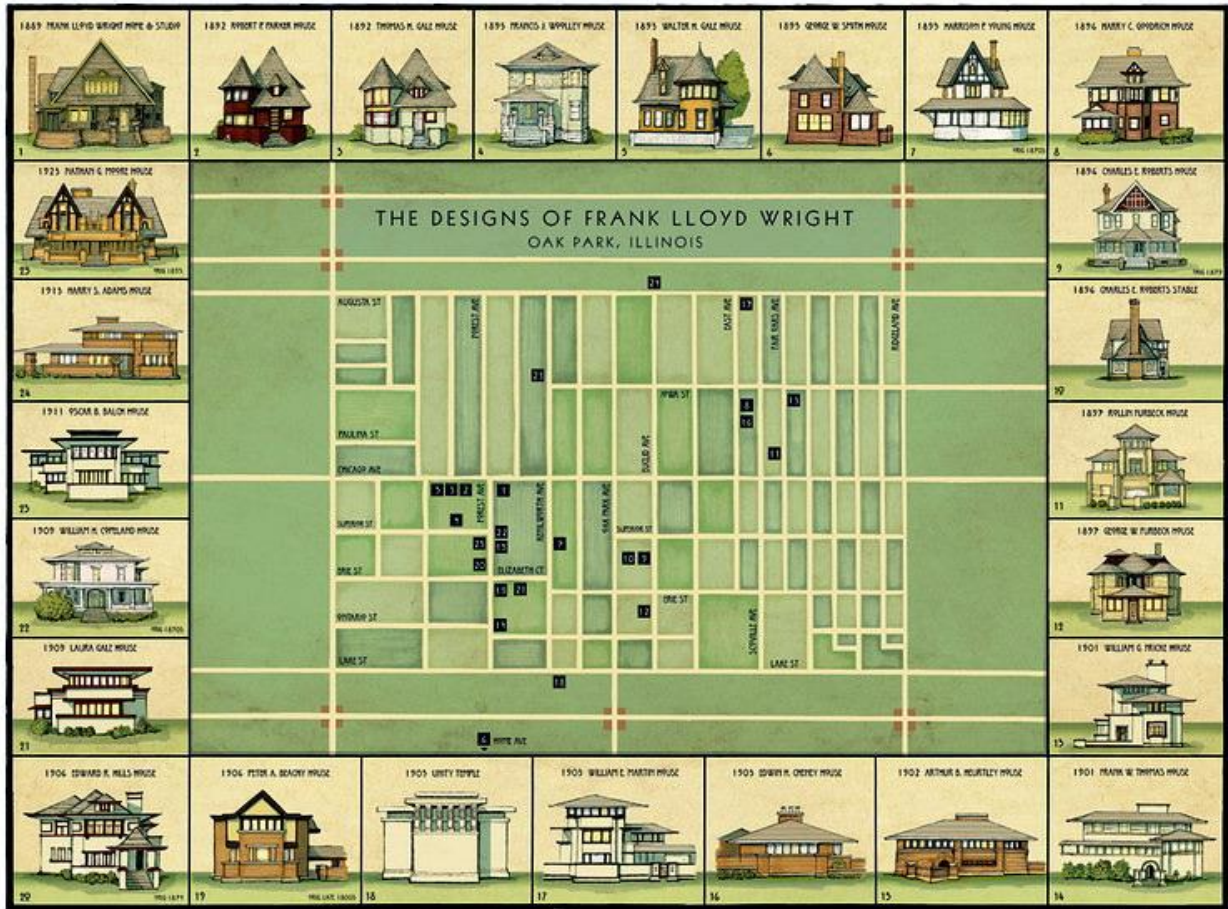
## **SOLDIER FIELD STADIUM 1924**



Designed in the Greek Revival style topped with Neo-Classical buildings and colonnades. Major changes in 1973 not universally liked and delisted as an Historic National Monument.



# OAK PARK HOUSES BY FRANK LLOYD WRIGHT





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## **NATHAN G. MOORE HOUSE 1895**



## **EDWARD R. HILLS HOUSE 1883**





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## **WRIGHT'S HOME AND STUDIO 1889**



## **FRANK C. ROBIE HOUSE 1909**





## CHICAGO: TOWER, CLOCK & SKYSCRAPER



Split View from the Brian Roberts' Slide Collection.

## REFERENCES AND FURTHER READING

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- 2021 Skyscrapers: The first Century and the Introduction of Air Conditioning, Brian Roberts, CIBSE Heritage Group, London.
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**Other information from the Heritage Group Archive and website.**