Khan and the (Chicago) Skyscraper

Themes:
- Tension between architectural and structural expression in buildings
- Fazlur Khan and expression of structure in buildings
- Stiffness in skyscrapers
Chicago 1930-1970
“The depression that began in the 1930’s and was ended ten years later only by a massive program of military procurement was a disaster for the nation as a whole but an absolute and unmitigated calamity for Chicago. It was not only the collapse of the public and private economy; it was the Sophoclean reversal of fortune, from the expansive force of the twenties … to the impotence and hopelessness of the thirties.”

“It was 12 years after WWII ended before a new building would be built in the Chicago CBD.”

*Chicago 1930-1970, Carl Condit*
OFFICIAL VIEW BOOK

A CENTURY OF PROGRESS EXPOSITION

CHICAGO - 1933
Ludwig Mies van der Rohe

2nd Chicago School (now more Arch.)
Seagram Building, New York.
Photo by Jean Alejandro di Bergerae Stephenson Davilus
www.structurae.de
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Load Path?
Chicago Civic Center – now the Daley center
Lateral load on building frame

Frame

Braced frame
Deflected Shape

Frame

Braced frame
Frame

Braced frame

Gravity load
Frame

Braced frame

Wind load
marine
midland
bank
2 Shell Plaza
1 Shell Plaza
3 Premium for height is largely due to wind loads.
Modular floor configuration
Prefabricated beam — Column modules
Classification of tall building structural systems by Khan
Updated by Ali and Moon in 2007 paper, focusing on tall building forms with exterior stiffening structures
Updated by Ali and Moon in 2007 paper, focusing on tall building forms with interior stiffening structures