MIDDLE EAST TECHNICAL UNIVERSITY
DEPARTMENT OF ARCHITECTURE / BUILDING SCIENCE PROGRAM

BS 536
STUDIES ON TALL BUILDINGS: DESIGN CONSIDERATIONS
Spring 2015-2016

Case Study: **432 Park Avenue**
by
Miyase Merve Kaplan

Submitted to: Assoc.Prof.Dr. Mehmet Halis Günel
Assist.Prof.Dr. Bekir Özer Ay

m http://432parkavenue.com/

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Submitted to: Günel, Ay – Spring 2016

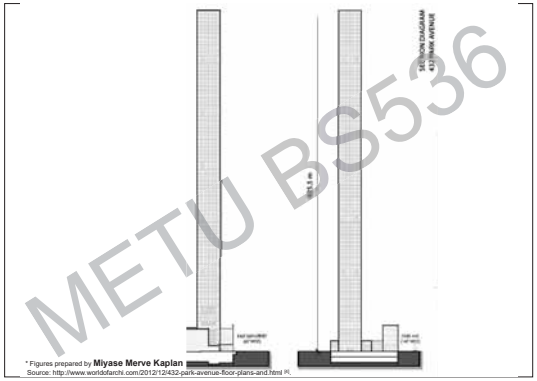

[1] CTBUH 432 Park Avenue Fact Sheet (2016), skyscrapercenter.com
[2] METU BS536 -Course: Studies on Tall Buildings
[3]Macklowe, Henry (2015), The Story of 432 Park Avenue
* Image Retrieved from Caravitis Alexander (Photographer) , skipedia.org

432 Park Avenue

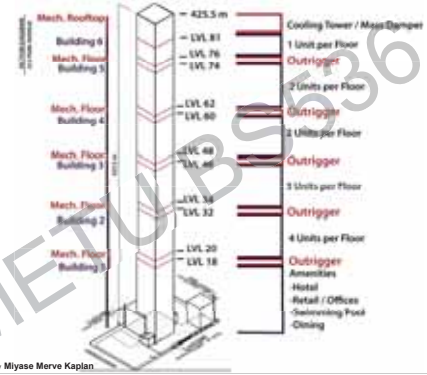
GENERAL INFO

Location: New York City, NY, USA
Status: Completed [1]
Construction Start and Completion: 2011 / 2015 [1]
Building Function: Residential [1]
Architecture: Rafael Vinoly Architects [1]
Structural Engineering: WSP Cantor Seinuk [1]
Structural Material: Reinforced Concrete [1]
Structural System: Framed Tube [2]
Architectural & Structural Height: 425.5 m [1]
- #14 Tallest in the World acc. to 2016 rankings
- #2 Tallest in New York City acc. to 2016 rankings
Occupied Height: 392.1 m [1]
Aspect Ratio: 15 [3]
Number of Floors: 85 (above ground) 3 (below ground) [1]
Number of Apartments: 104 [1]
Tower GFA: 65,497 m² [1]
Development GFA: 74,322 m² [1]


* Image Retrieved from http://432parkavenue.com



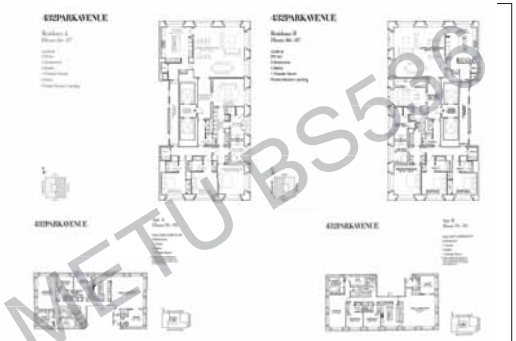
* Figures prepared by **Miyase Merve Kaplan**
Source: http://www.worldofarchi.com/2012/12/432-park-avenue-floor-plans-and.html [4].



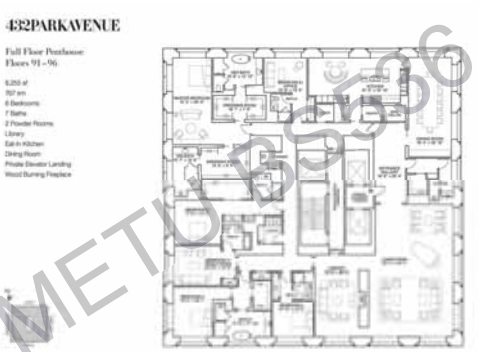
* Figure prepared by **Miyase Merve Kaplan**


Image Retrieved from http://www.skyscrapercity.com

* Figure: Courtesy of Rafael Vinoly Architects



* Figures Retrieved from http://432parkavenue.com



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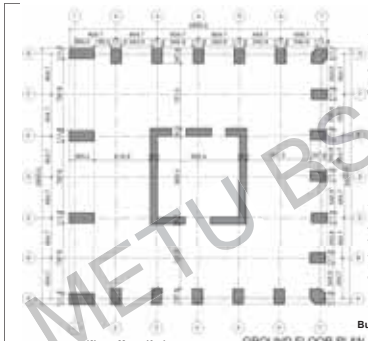


* Figure: Drawn by **Miyase Merve Kaplan**

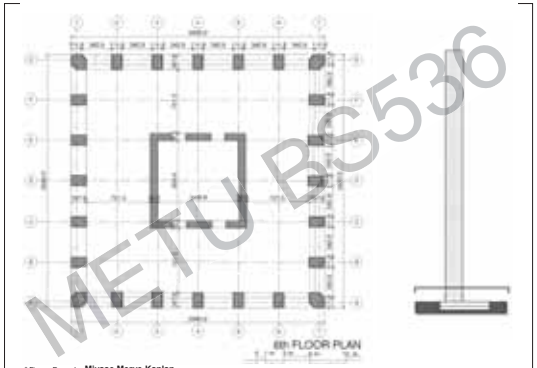
• The dimension for the module is 3-foot-8-inch-wide columns (111.8 cm) and 3-foot-8-inch-deep (111.8 cm) spandrel beams, leaving six equal open bays across each face of the building.

•The depth of the columns ranges from 20 inches (50.8 cm) at the top [5] to as much as 66 inches (167.6 cm) at the bottom [6] of the building.

•The floor-to-floor heights are 15 ½ feet (4.72 m) with 10-inch-thick (25.4 cm) slabs, though at the top of the building the slabs are 18 inches (45.72 cm) thick in order to add more mass to combat acceleration.[5]

Building Footprint Area : 814 m²

[5] Seward, Aaron (2014), 432 Park Avenue
[6] Rafael Vinoly Lecture, 432 Park Avenue and other towers. Retrieved from https://www.youtube.com/watch?v=tIlQu9ym_sk



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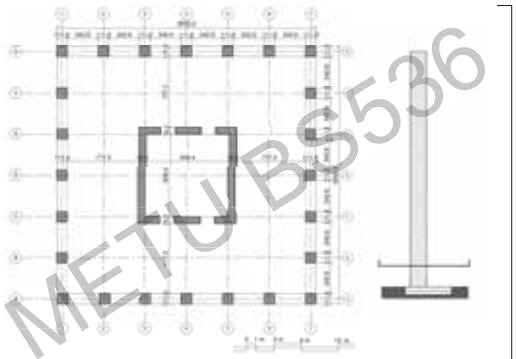

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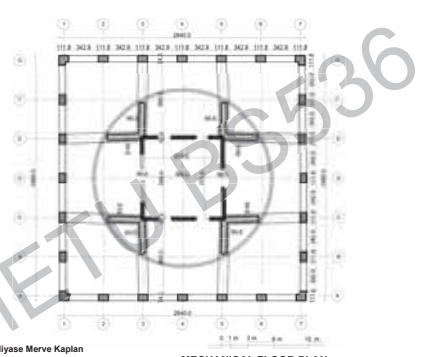
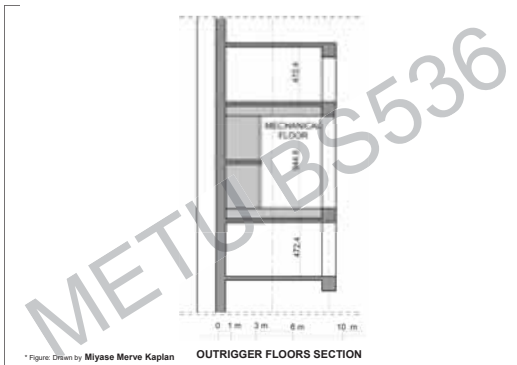


* Figure: Drawn by **Miyase Merve Kaplan**
[7] Silvian Marcus (2015), The New Supers: Super-slender Towers of New York, CTBUH 2015 Conference, https://www.youtube.com/watch?v=dOcXdgCCPnc



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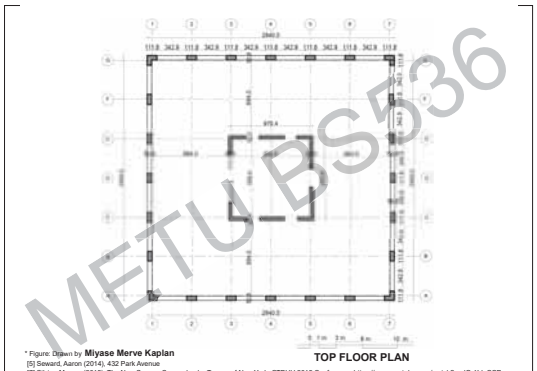
[7] Silvian Marcus (2015), The New Supers: Super-slender Towers of New York, CTBUH 2015 Conference, https://www.youtube.com/watch?v=dOcXdgCCPnc



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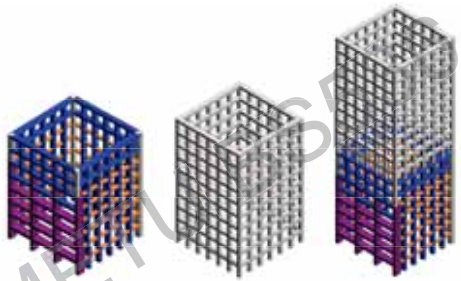


Structural axonometric from ground floor to 8th floor

Structural axonometric from 8th floor to 18th floor

Structural axonometric from ground floor to 18th floor

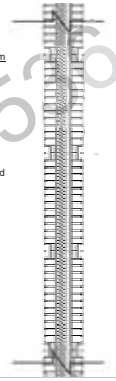
Figures: Drawn by **Miyase Merve Kaplan**

[6] Rafael Vinoly Lecture, 432 Park Avenue and other towers. Retrieved from https://www.youtube.com/watch?v=tlIQu9ym_sk

• Every 12 floors two levels of the basket grid modules are left empty as drum floors that are double height mechanical floors that deflect wind pressure.

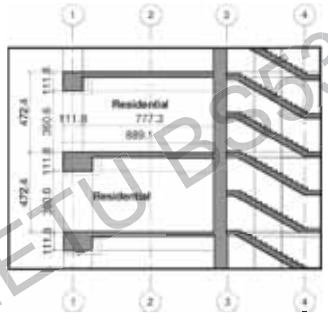
• Within these open floors are circular enclosures housing mechanicals that serve the six floors above and the six floors below.

•Breaking up the mechanicals in this way also meant that the architects could keep the ducting at a minimum, preserving valuable saleable square footage.[3]



[3] Macklowe, Henry (2015).The Complex Path to Simple Elegance: The Story of 432 Park Avenue

* Figure: Section Drawing Retrieved from skyscrapercity.com



* Figure: Section Drawn by **Miyase Merve Kaplan**

[6] Rafael Vinoly Lecture, 432 Park Avenue and other towers. Retrieved from https://www.youtube.com/watch?v=tlIQu9ym_sk

* Retrieved from: Berenholtz, Richard. (Photographer) http://432parkavenue.com

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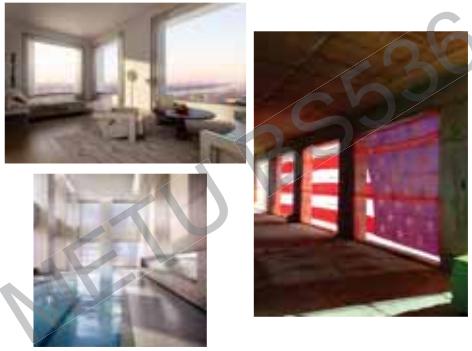

* Images Retrieved from http://432parkavenue.com, Berenholtz, Richard. (Photographer)

Image Retrieved from:
432 Park Avenue: World's Tallest Residential Building,
Skyscraper&Mega Projects

*Image Retrieved from http://2015.ctbuh.org/tours/technical-tours/432-park-avenue/

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3. Macklowe, Henry. (2015). The Complex Path to Simple Elegance: The Story of 432 Park Avenue. CTBUH Research Paper. New York (NY).
4. http://www.worldofarchi.com/2012/12/432-park-avenue-floor-plans-and.html
5. Seeward, Aaron. (2014). 432 Park Avenue. The Architects Newspaper.
6. Rafael Vinoly Lecture, 432 Park Avenue and other towers. Retrieved from https://www.youtube.com/watch?v=tlIQu9ym_sk
7. Silvian Marcus (2015), The New Supers: Super-slender Towers of New York, CTBUH 2015 Conference, Retrieved from https://www.youtube.com/watch?v=dOcXdgCCPnc.