OneEleven
60-Inch Thick Unbonded Post-Tensioned Transfer Deck
by Neel Khosa (AMYSSCO) – May 2015
THE (SAD) HISTORY OF WATerview TOWER
Originally designed as an 89-story luxury condotel.

Construction of the conventionally-reinforced building progressed until the 27th floor in 2008.
Then This Happened...
A Dream Deferred
“Groundbreaking” 2010
In 2012, the condo/hotel was redesigned as a 60-story residential apartment building and renamed ‘OneEleven.’
The 29th (amenity) level built with a 12-inch post-tensioned slab.
TRANSFER DECK

• Remained on Level 30
• Was going to support 58 floors
• Now supports 30 floors
There were MAJOR design issues with having a DIFFERENT column layout and a SMALLER floor-plate than originally-designed on the upper levels.
Element: Structure Summary Perspective
Wall Elements Below; Wall Elements Above; Column Elements Below; Column Elements Above; Slab Elements;
User Lines; User Notes; User Dimensions;
WHAT SEPARATES THIS HIGH-RISE TOWER FROM MOST SKYSCRAPERS IS THE 30TH FLOOR TRANSFER DECK
THE HIGHEST UNBONDED POST-TENSIONED TRANSFER DECK BUILT IN NEW CONSTRUCTION*
<table>
<thead>
<tr>
<th></th>
<th>HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rebar (old - transfer 58 floors)</td>
<td>108</td>
</tr>
<tr>
<td>Rebar (new - transfer 30 floors)</td>
<td>72</td>
</tr>
<tr>
<td>PT (redesign - transfer 30 floors)</td>
<td>60</td>
</tr>
</tbody>
</table>

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ADDITION BY SUBTRACTION

ORIGINAL DESIGN
-12 INCHES OF CONCRETE
-372 TONS OF REBAR
+60 TONS OF POST-TENSIONING
-RESHORING REQUIREMENTS (dead load)

SAVE $380,000* IN CONCRETE FRAME

*excludes savings to other vertical elements or life-cycle benefits
The TRANSFER DECK was the 2\textsuperscript{nd} level in new construction.
TIME
BUT....

Team spent 1 month coordinating PT tendons, rebar, MEP piping/penetrations
Poured in 2 lifts

• The 1st lift supported the 2nd lift without shoring.
• 2 floors were reshored below the shoring.

2,250 cubic yards of 8,750 psi concrete

One of the pours lasted 17 hours

• Increased degree of complexity
• Poured 30-stories in the air.
OH BY THE WAY (part 1)...

...UPPER LEVELS OF PT
On the Upper Levels, PT reduced 1 inch per floor compared to mild-steel.

~30 inches shaved off building height.
PT helped to make a stalled project more economical due to the reduction in other material costs.

- Concrete Columns / Shear Walls
- MEP piping
- Elevators
- Stairs
- Curtainwall + Facade
WITHOUT UNBONDED PT
THIS PROJECT MAY NOT HAVE HAPPENED $$$
OH BY THE WAY (part 2)...

...VERTICAL PT
CONSTRUCTION TEAM
BUILDING HEIGHT

616 FT (187.8 M)

FLOORS

60+4

HOUSING UNITS + PARKING SPOTS

504

439

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<table>
<thead>
<tr>
<th>Location</th>
<th>Tallest Building</th>
<th>Tallest Concrete-Frame Building</th>
<th>Tallest Residential Concrete-Frame Building</th>
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</thead>
<tbody>
<tr>
<td>Chicago</td>
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<td>307&lt;sup&gt;th&lt;/sup&gt;</td>
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</table>

As of March 15, 2015 per CTBUH.
170 TONS
IN RECENT NEWS

• Helped developer win the NAIOP Developer of the Year
• Featured on the cover of ‘ENR Midwest’ magazine
• Monthly Rents from $1,700 to $12,000 (CNBC 2015)
• Sold for $333 million (or $661,000/unit) in late-2014
Pictures
• Project Location : Google Maps
• Waterview Tower : http://yochicago.com/will-waterview-tower-%E2%80%9Crust-in-peace%E2%80%9D-no-more/19548/
• S&P500 Chart : www.finance.yahoo.com
• 3D Model : Courtesy of Halvorson+Partners
• Problems-Solutions : http://solopracticeuniversity.com/files/2015/01/Problem-Solutions.jpg
• Coordination : Courtesy of ADAPT (BIM model)
• Vertical PT : Courtesy of Lend-Lease