



# Avalon Harbor East

A 25-STORY MIXED-USE HIGH-RISE APARTMENT COMPLEX

A WALK THROUGH FROM BID TO POUR OUT FROM A CONTRACTOR'S POINT OF VIEW



## Don Wickesser III

- Worked at Schuster for 30 years
- Graduated high school and attended college in the evenings while working full-time at Schuster
- Started as a laborer with Schuster
- Worked as a finisher
- Worked as a carpenter
- Worked as a foreman
- Worked as a Superintendent
- Worked as a project manager
- Favorite job was being a field engineer
- Currently Vice President and Director of Construction



# Schuster Inc.

## Schuster is...

- ❖ A concrete construction company
- ❖ A Ready-Mix concrete producer

- Our construction company has over 1000 employees and does roughly \$250 million annually
- Our Ready Mix company has over 400 employees and does roughly \$150 million annually
- Our construction company typically runs 14-20 projects much like the one we'll be discussing today, Avalon Harbor East.
- 95% of our construction work is located in Maryland, DC and Northern Virginia



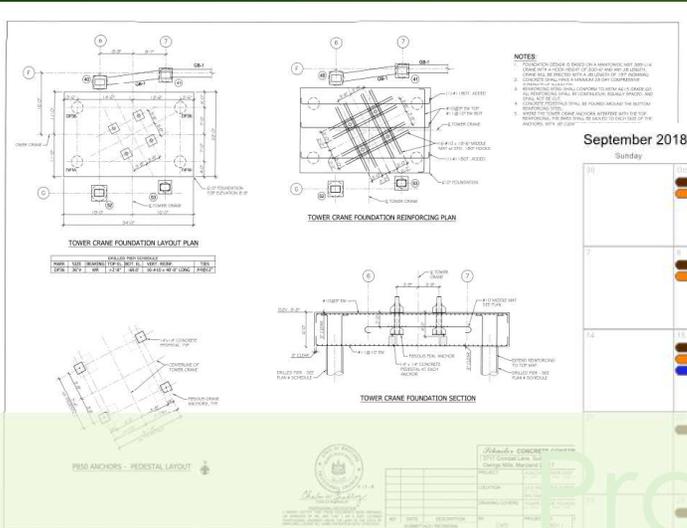


# Avalon Harbor East

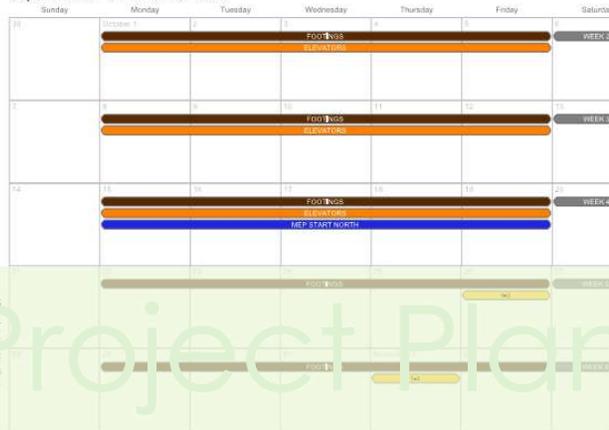
# ESTIMATING



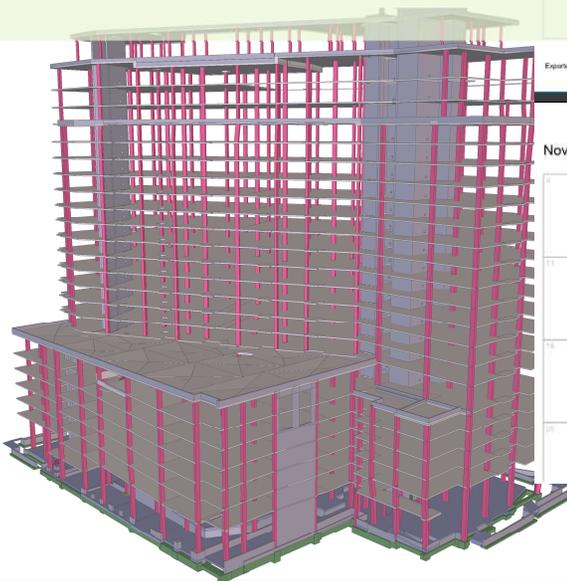
- For every 10-15 projects we bid, we may win one (1).
- Many projects are concept budgets until they finally decide to build it
- After you win the bid, that's when the fun starts.



September 2018 - November 2018

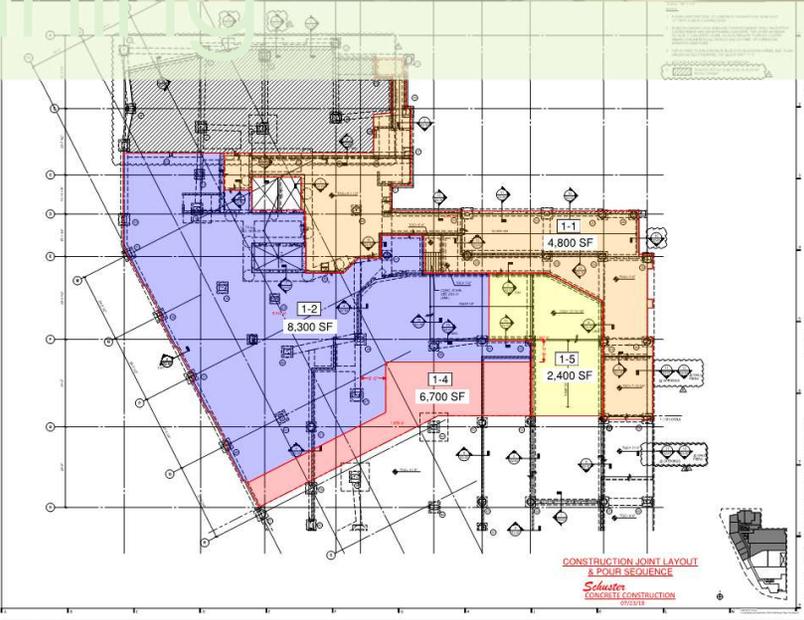


# Project Planning

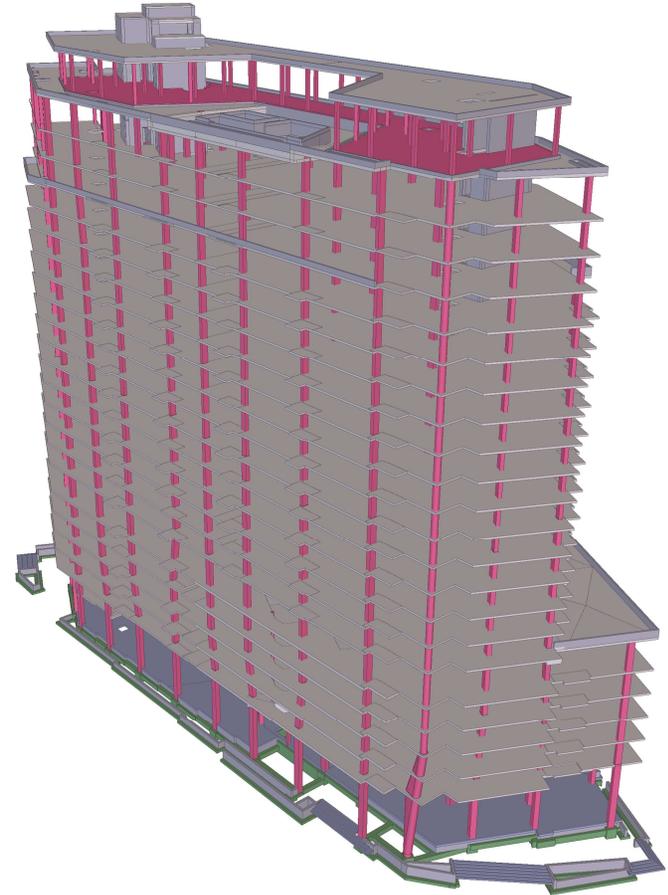
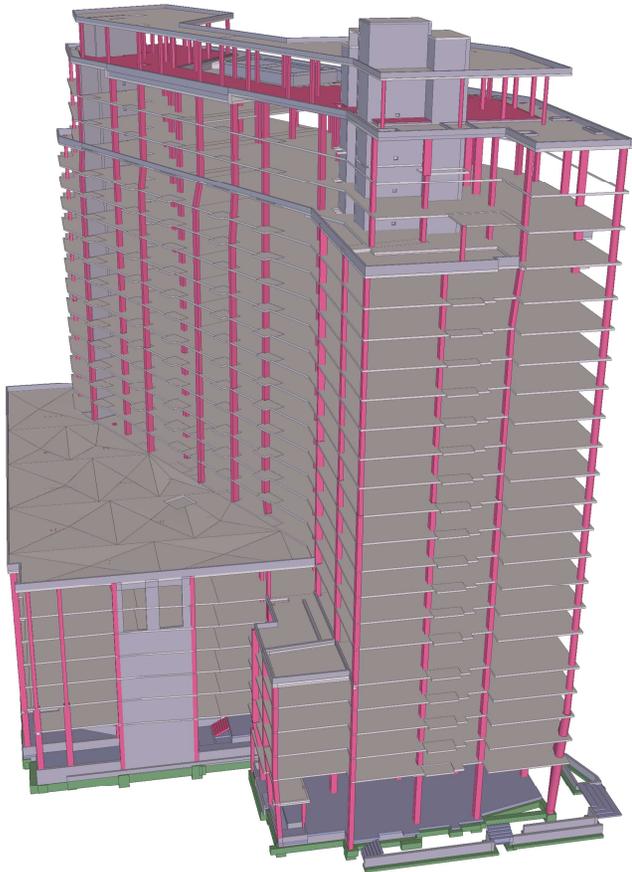


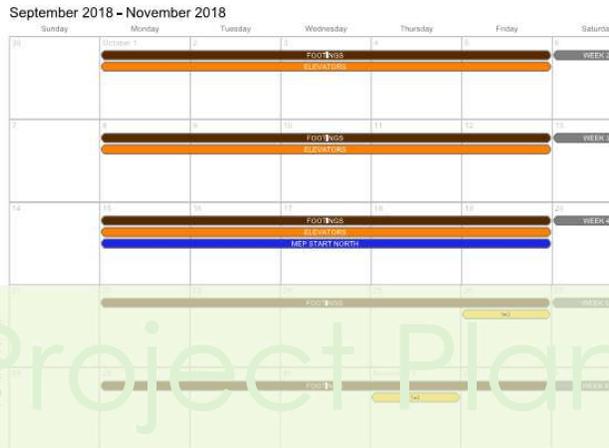
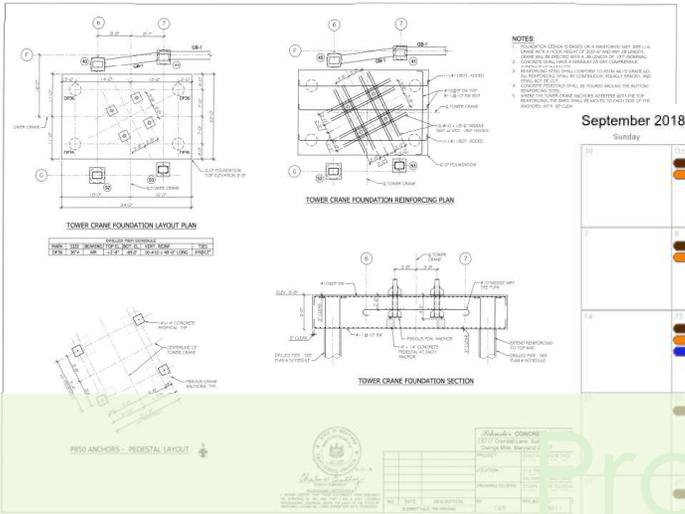
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November 2018 - December 2018

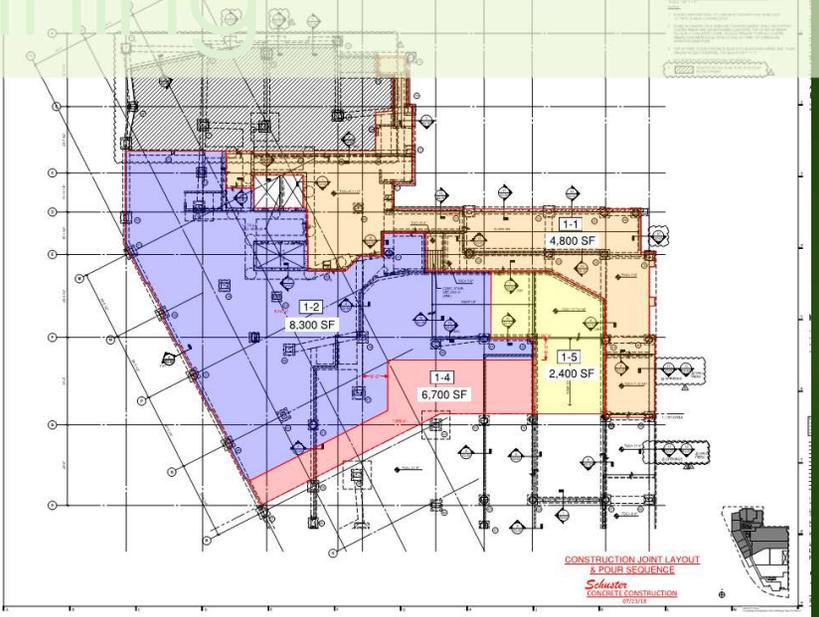
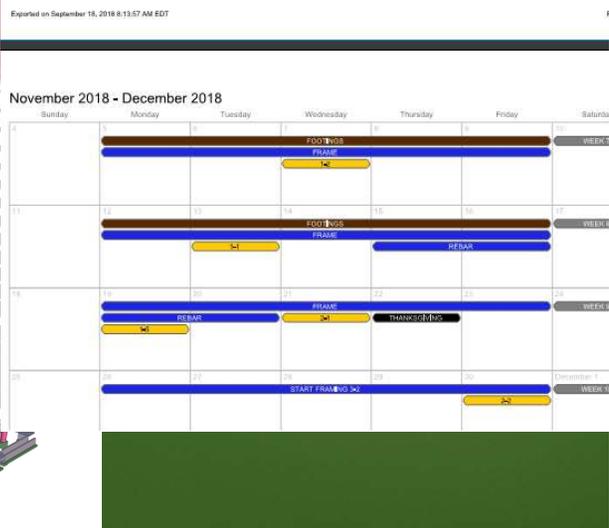
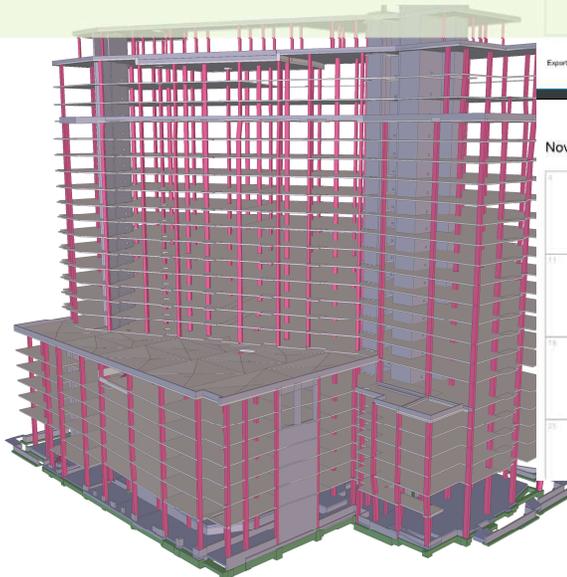


# BIM Modeling





# Project Planning

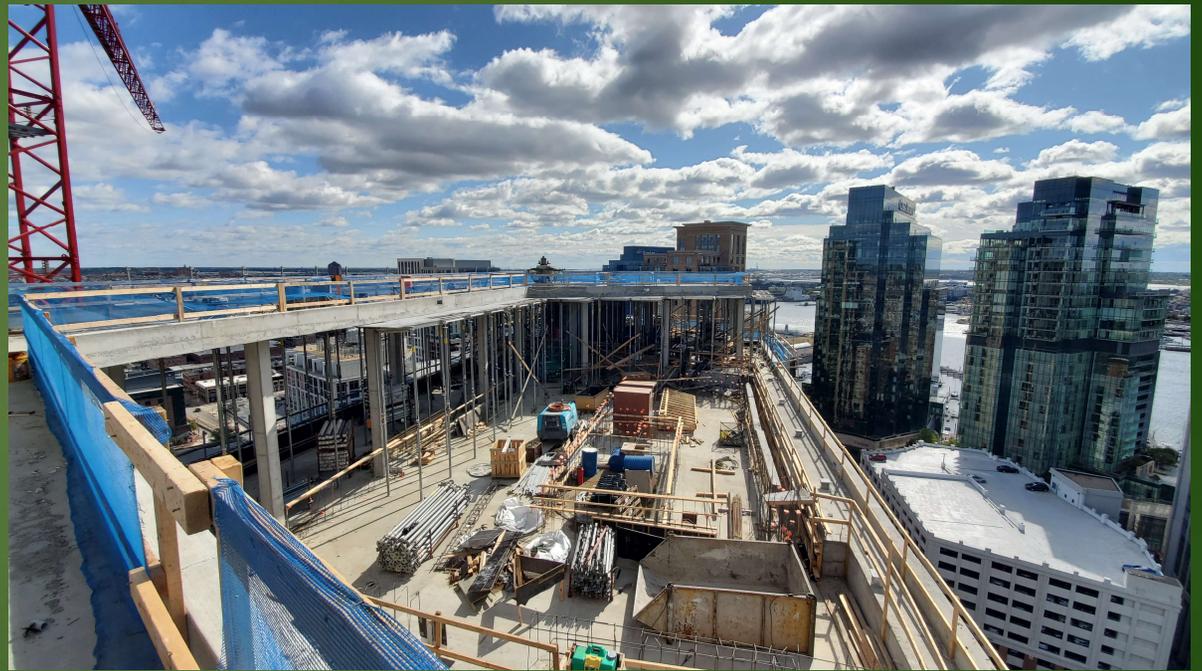


# Avalon Harbor East



- ▶ 25,000 cubic yards of concrete
- ▶ 2,000 tons of rebar
- ▶ 500,000 lbs of post tension
- ▶ Crane 300' tall
- ▶ Building 265' tall
- ▶ Foundation to high roof – 54 weeks
- ▶ 200,000 man-hours on the concrete portion of the job alone

# Lifeline of the Job

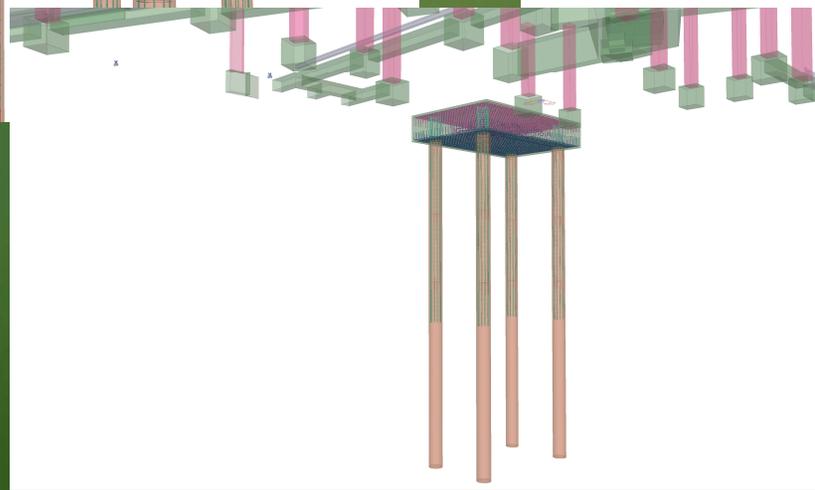
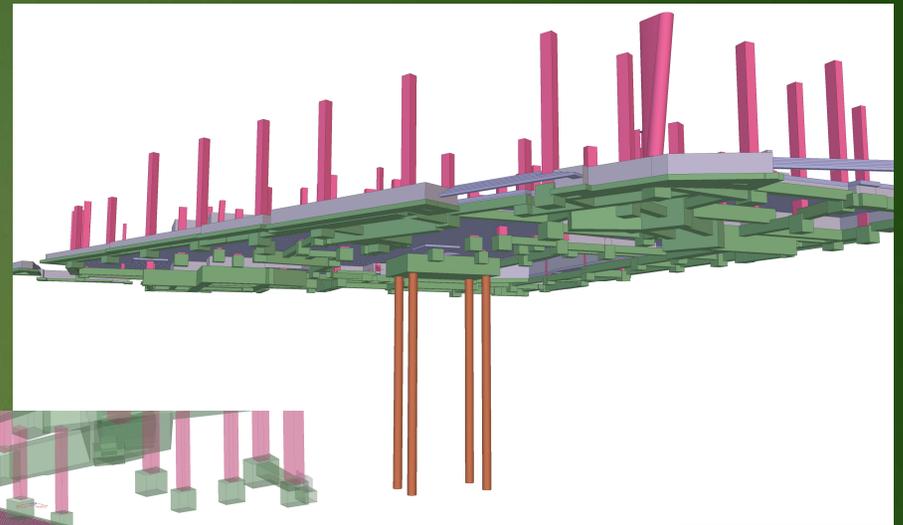
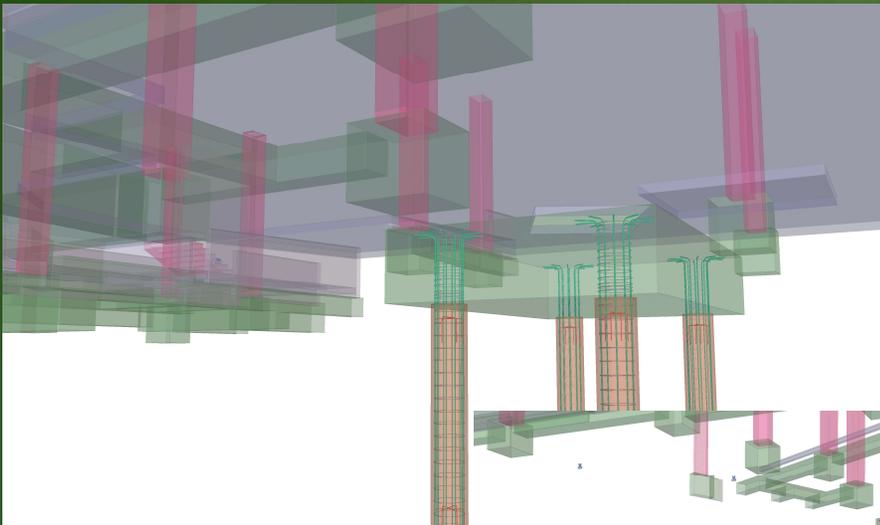


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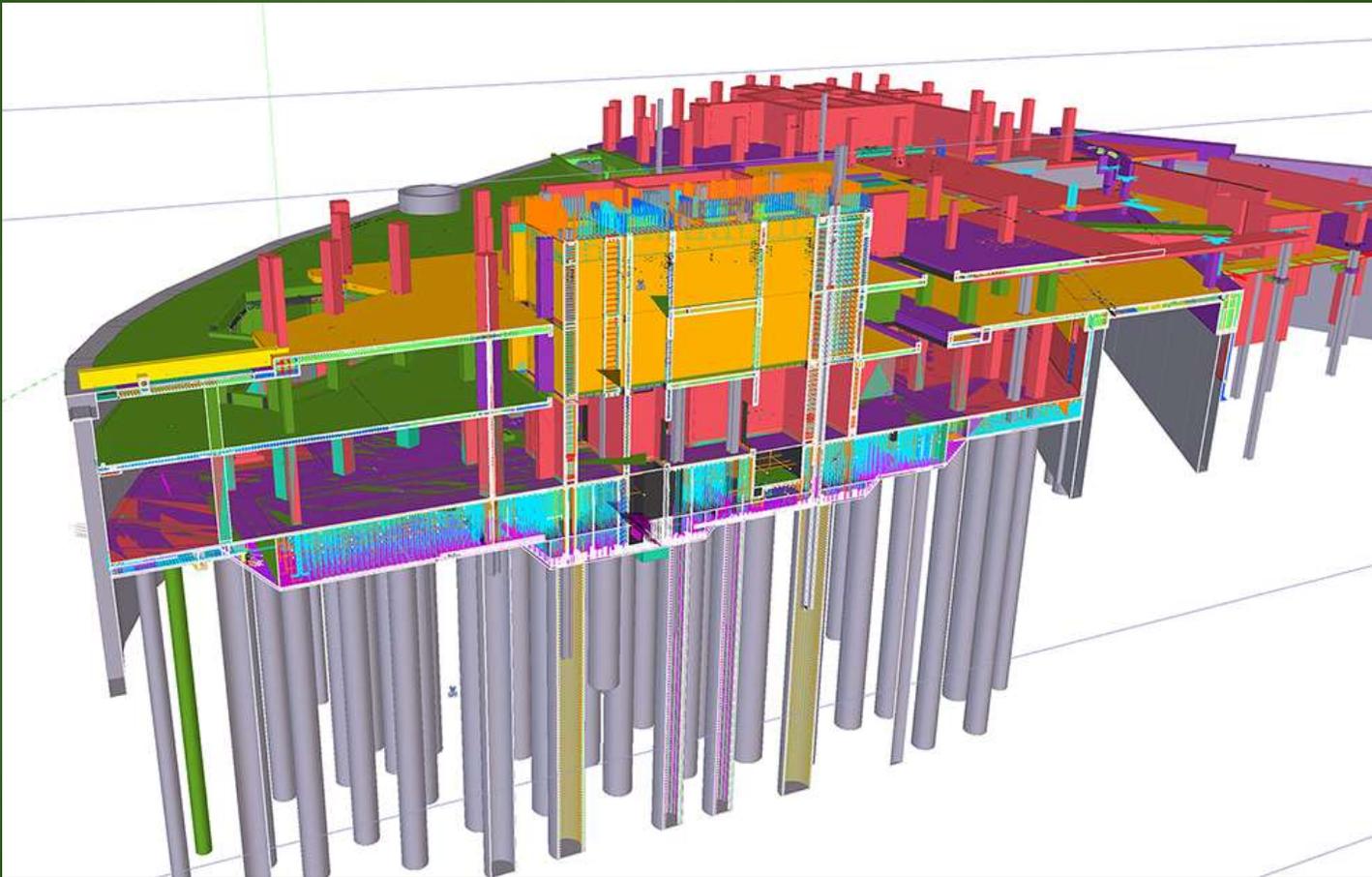


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# Pile Caps & Caissons



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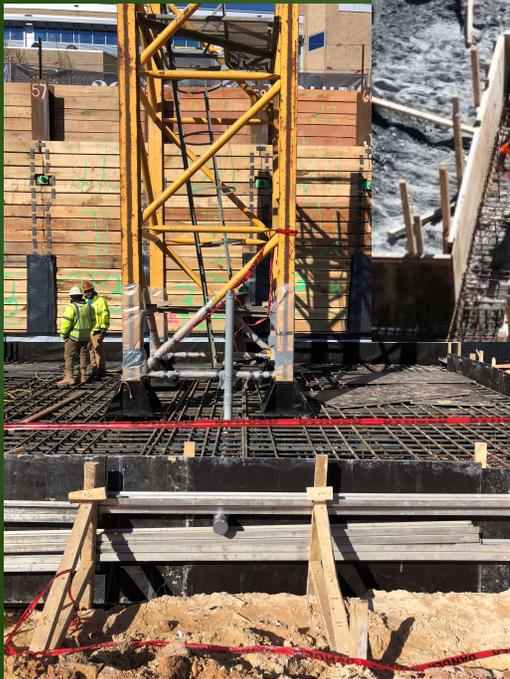


# Pile Caps & Caissons



SCHUSTER

# Tower Crane Erection



# Tower Crane Erection



# Tower Crane Erection



# No Matter How Big



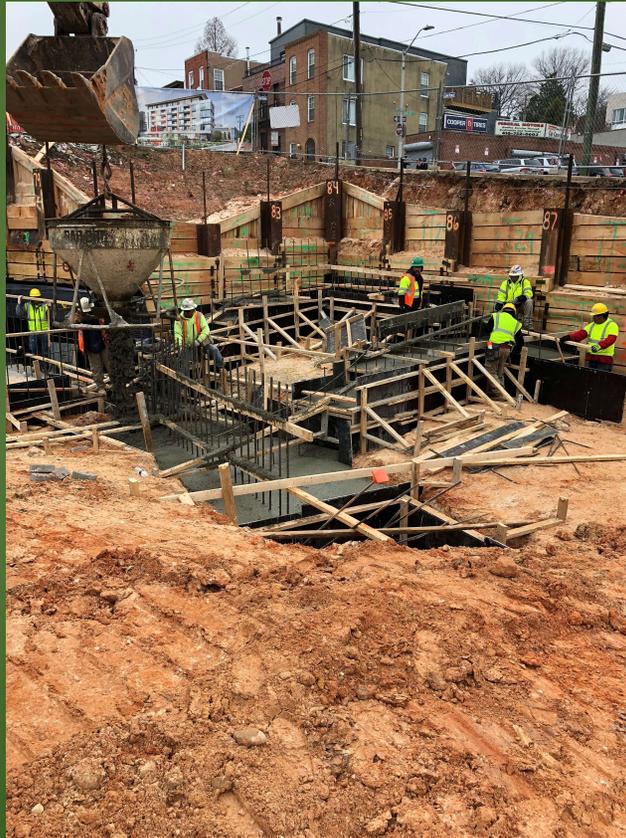
# 54-Week Bottom to Top



# Elevator Pits, Grade Beams, Foundation Walls, SOG



# Elevator Pits, Grade Beams, Foundation Walls, SOG



# Site Logistics

The logistics plan can make or break a project. In the next 12 months, the following was delivered and placed:

- 25,000 cubic yards of concrete
- 2,000 tons of rebar (4,000,000 lbs)
- 500,000 lbs of post tension

This took:

- 3000 concrete mixers
- 150 rebar trucks
- 50 post tension trucks
- 50 trucks of miscellaneous construction materials
- 20-25 loads of tower crane material in and out
- 30 loads of helper crane parts





# Slab on Grade Complete



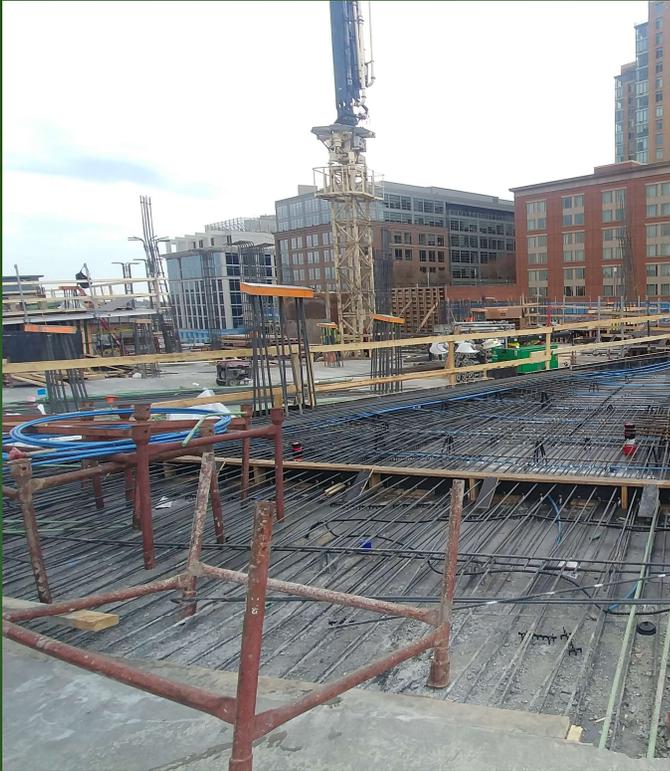
# Placing Boom



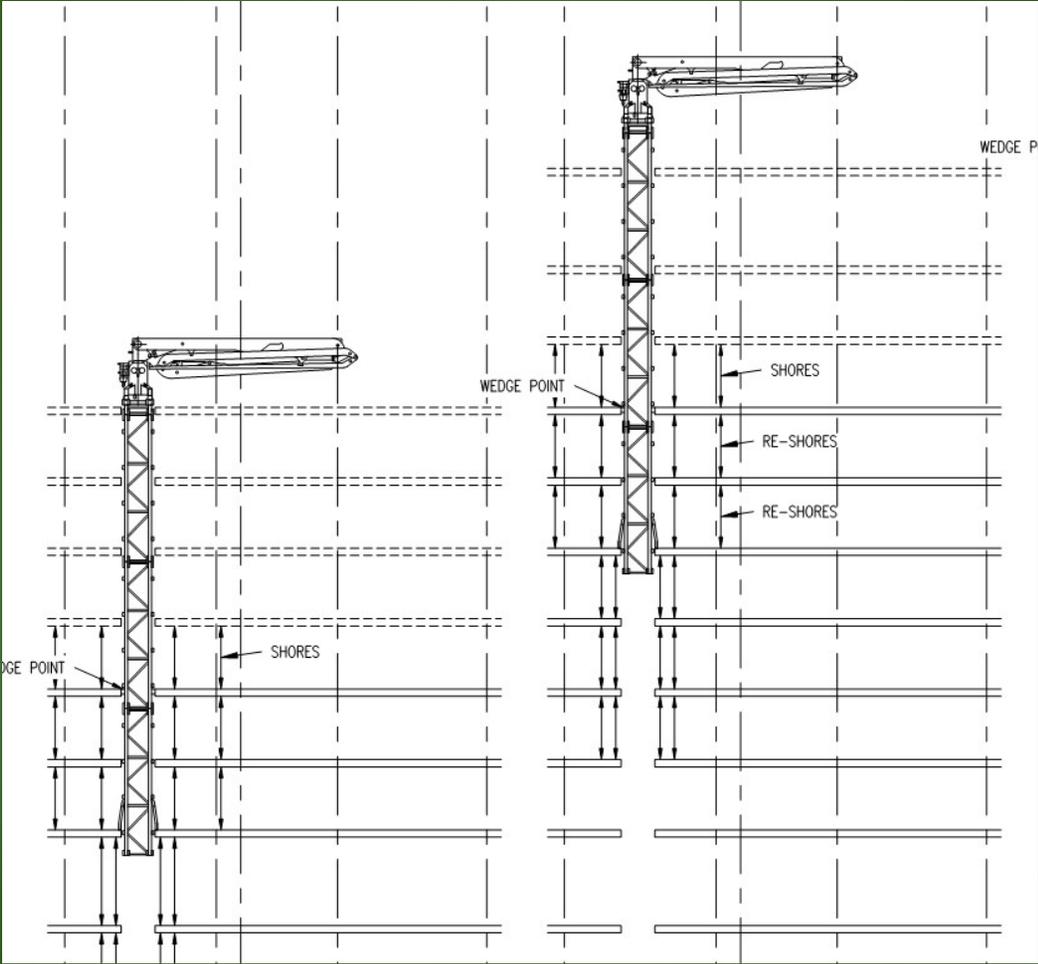
Putzmeister 39M



# Placing Boom



# Placing Boom Reshore





Core Walls

# Not Your Typical Structure

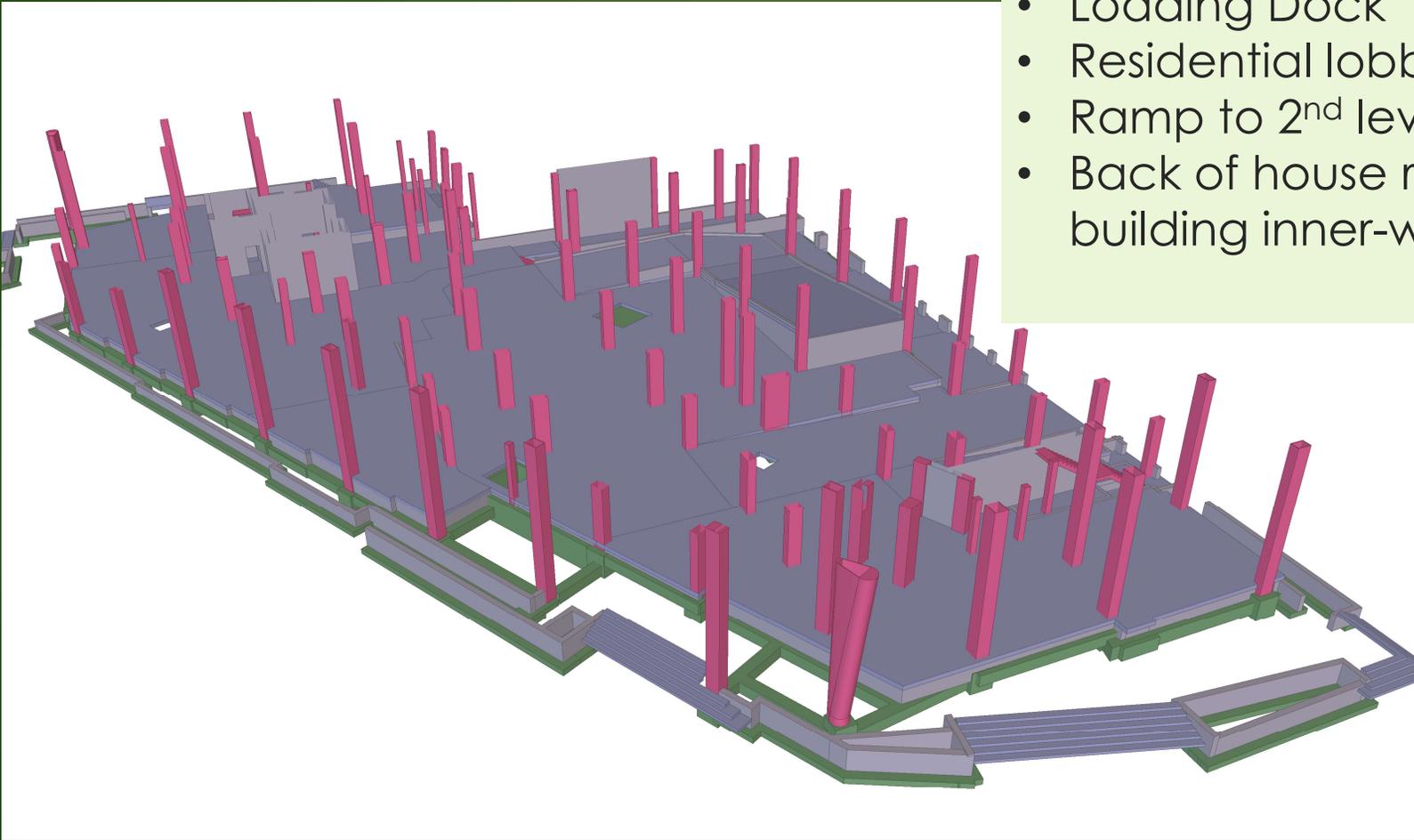
In most buildings, the parking is below grade, leaving the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> floors for amenity and retail, then 4<sup>th</sup> floor and up are actual units.

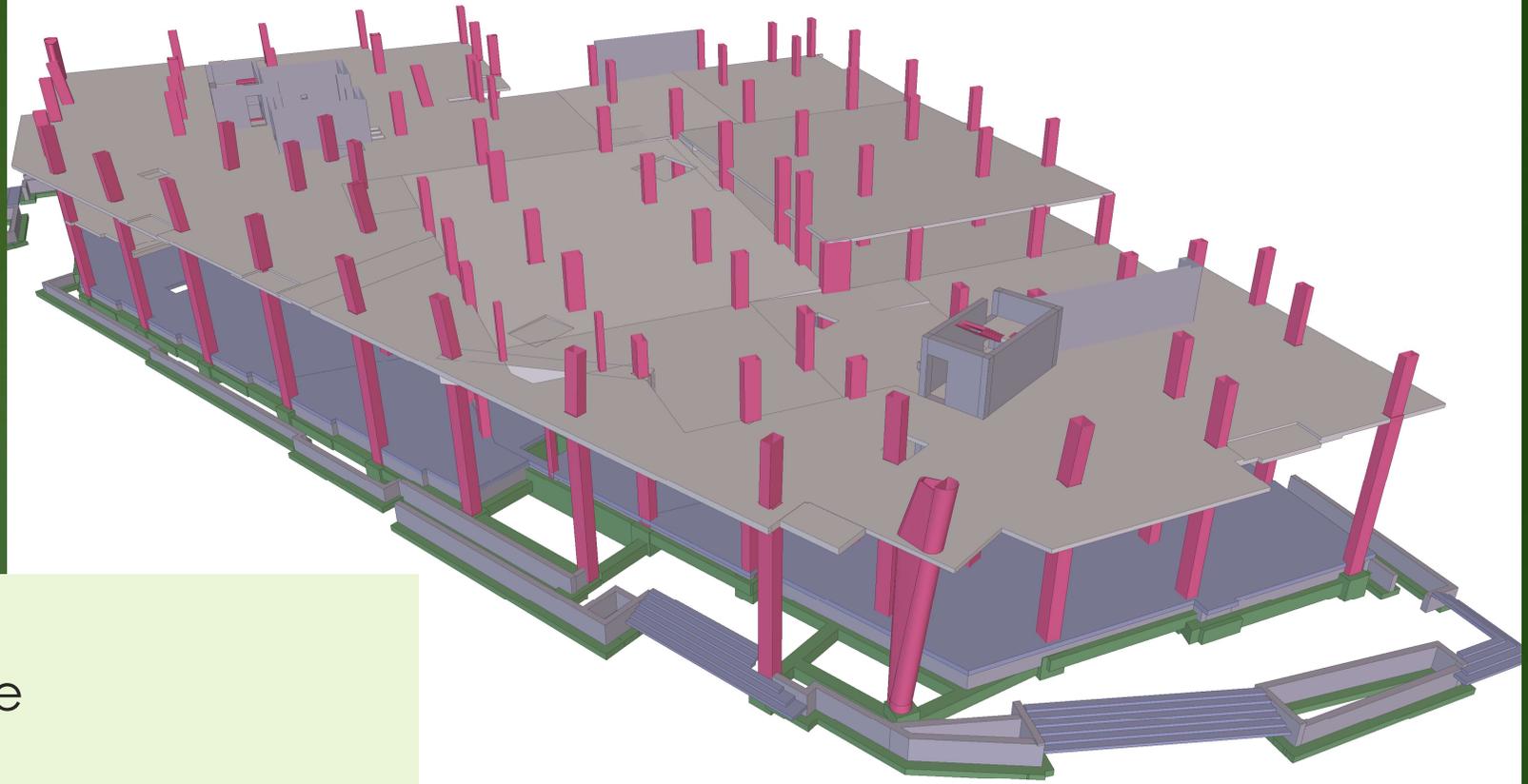
In this building, because there was no below grade parking, everything was compacted into the first 7 levels. This includes parking along with all the amenities of the building



## 1<sup>st</sup> Floor

- Loading Dock
- Residential lobby
- Ramp to 2<sup>nd</sup> level parking
- Back of house ramps to building inner-working area



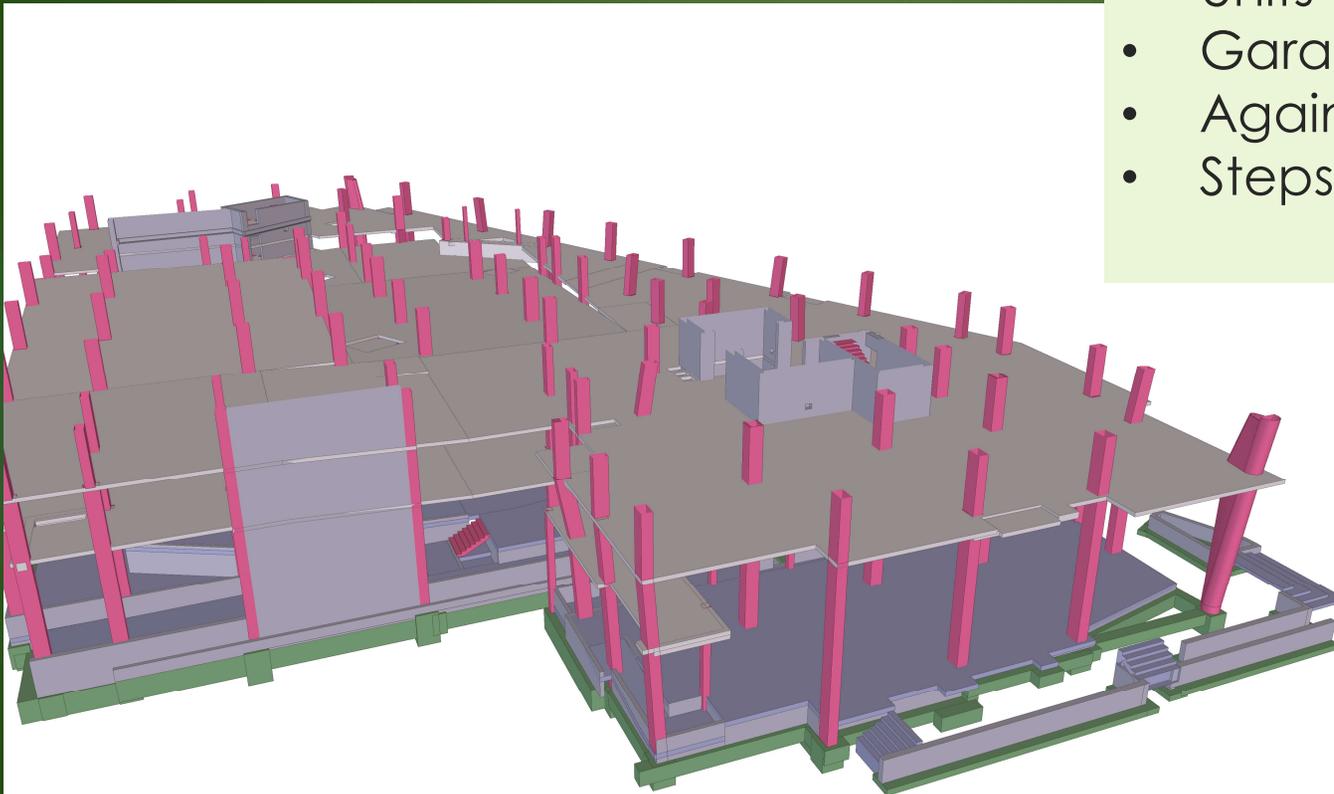


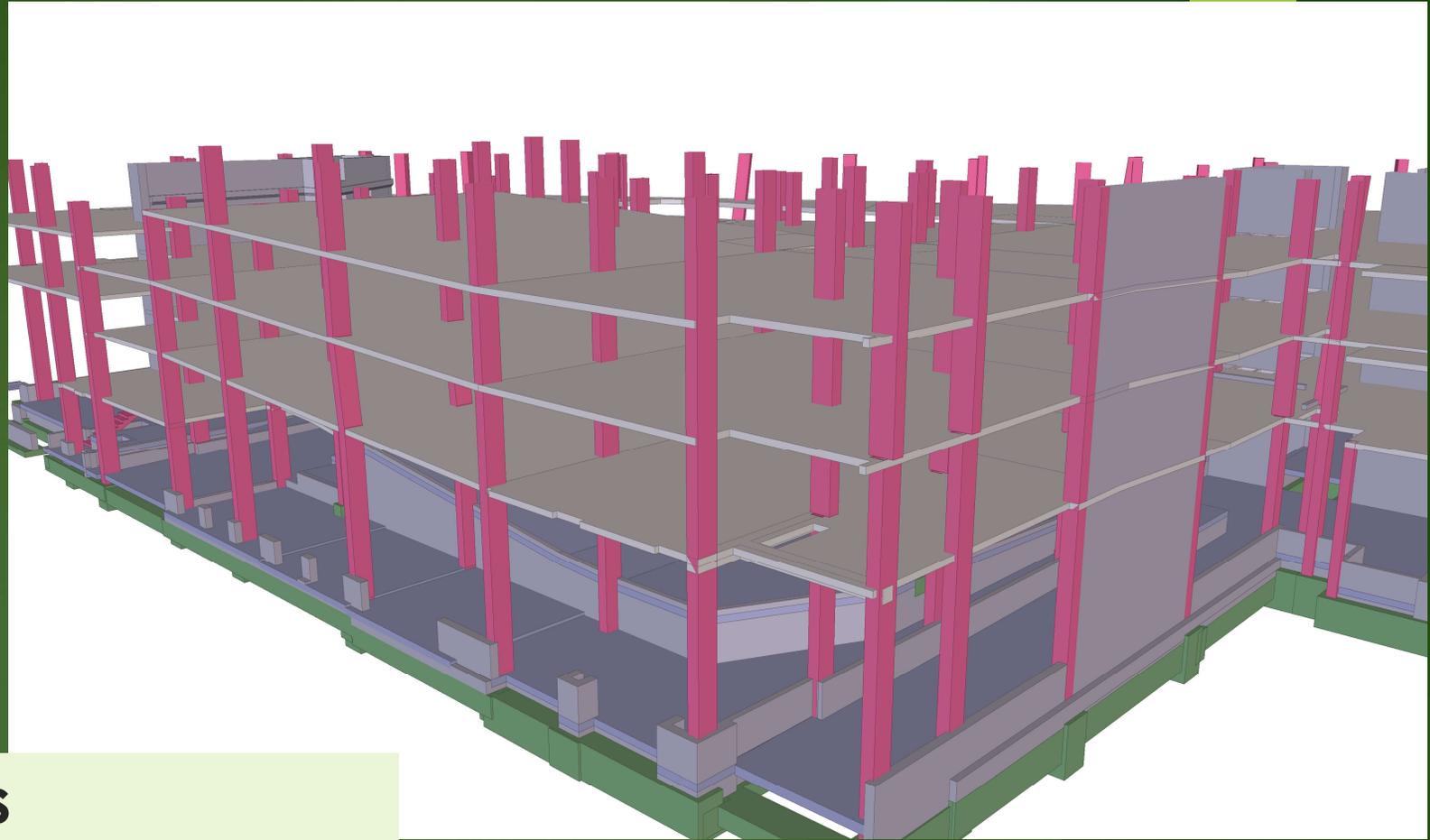
## 2<sup>nd</sup> Floor

- Leasing office
- Bathrooms
- Elevator lobbies
- Garage

## 3<sup>rd</sup> Floor

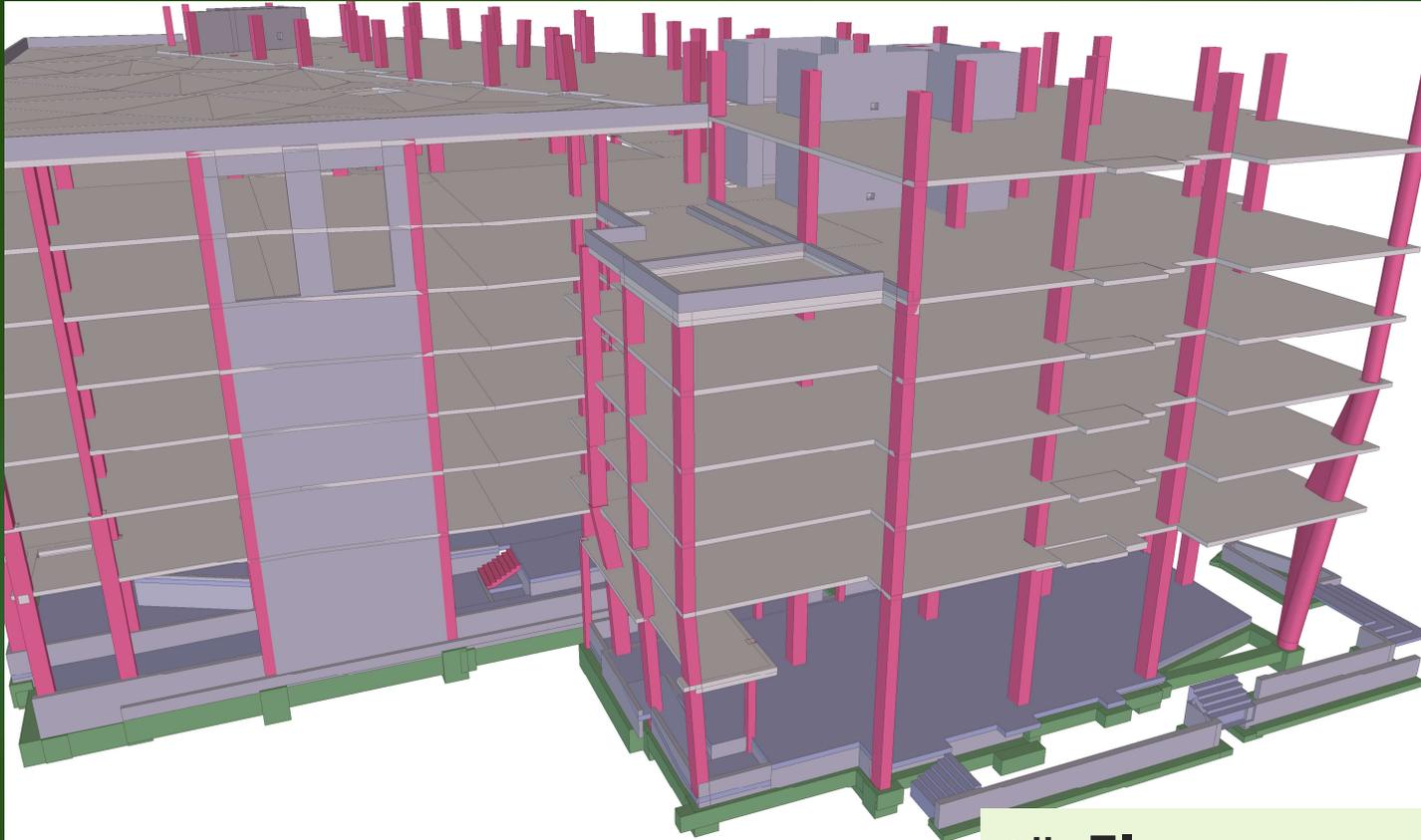
- Residential and Garage
- Units on the outside
- Garage in the middle
- Again floor to floor height
- Steps, slab folds, messy





## 4<sup>th</sup> – 7<sup>th</sup> Floors

- Exterior Units
- Garage in the middle



## 8<sup>th</sup> Floor

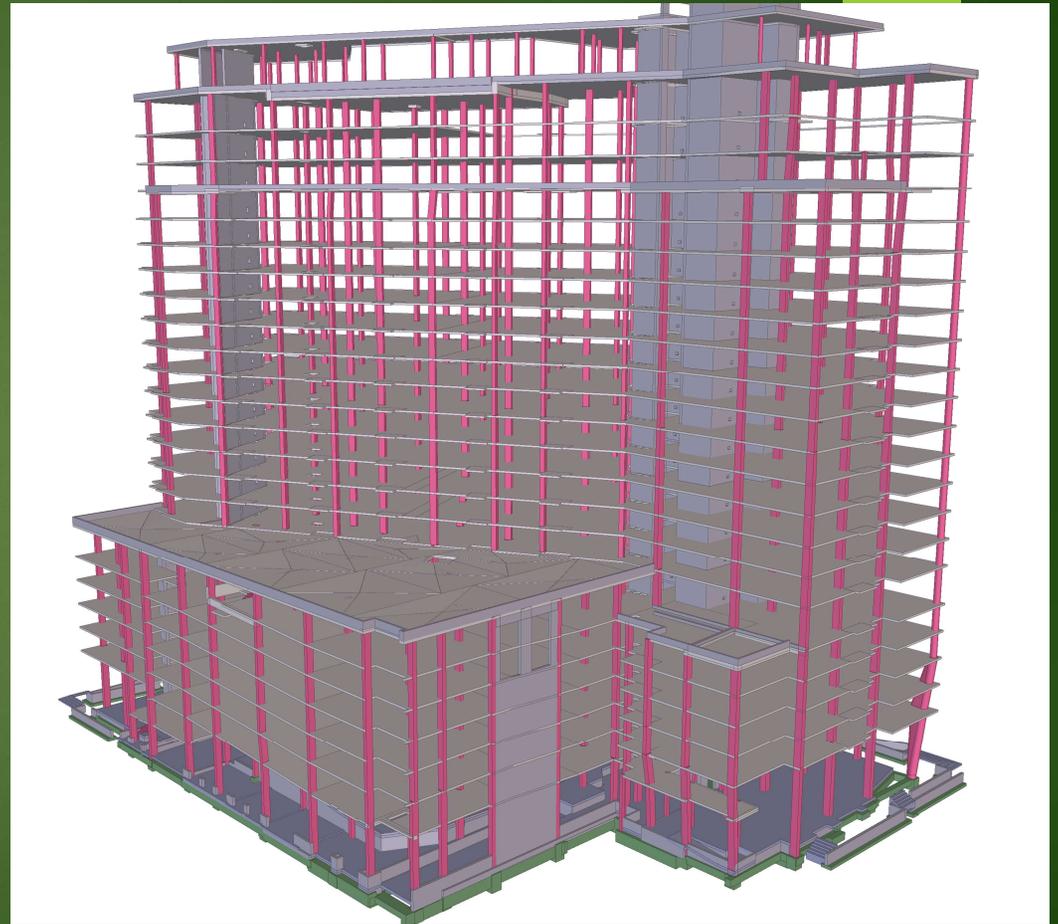
- Beginning of tower with courtyard

## 9<sup>th</sup> FLOOR & UP

- 22,000 square feet
- 50 columns
- 3 core walls (1 stair, 1 elevator, 1 stair/elevator combo)

All of this work will be done in 6 days

- Core walls begin the race
- Core walls will be poured and stripped in 2 days
- All 50 columns complete in 3 days
- MEP in place in one day
- Rebar and post tension in place in 2 days
- Poured on day 6



# Cycle of a Typical Floor – Core Walls

## Core walls

- Forms moved up (inside)
- Rebar installed
- Outside closed
- Poured approximately 90 yards



# Cycle of a Typical Floor – Columns

## Columns

- 50 Columns up
- Rebar installed
- Columns closed
- Poured and stripped
- All happens in 3 days



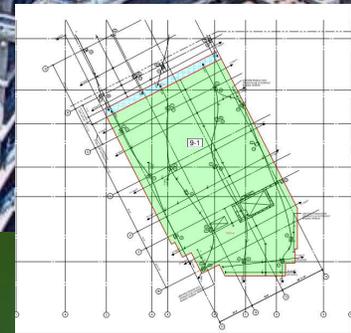
# Cycle of a Typical Floor – Deck

## Deck

- 22,000 sq ft of formwork, in 3 days
- Poles placed
- Aluminum in place
- Plywood down
- Handrails up
- MEP sleeves installed
- All misc. embeds are installed for exterior skin
- Rebar and post tension laid out
- Boxouts installed
- Day 6 pour the deck



# Typical Floor – 2 Pours



# Finishing Concrete



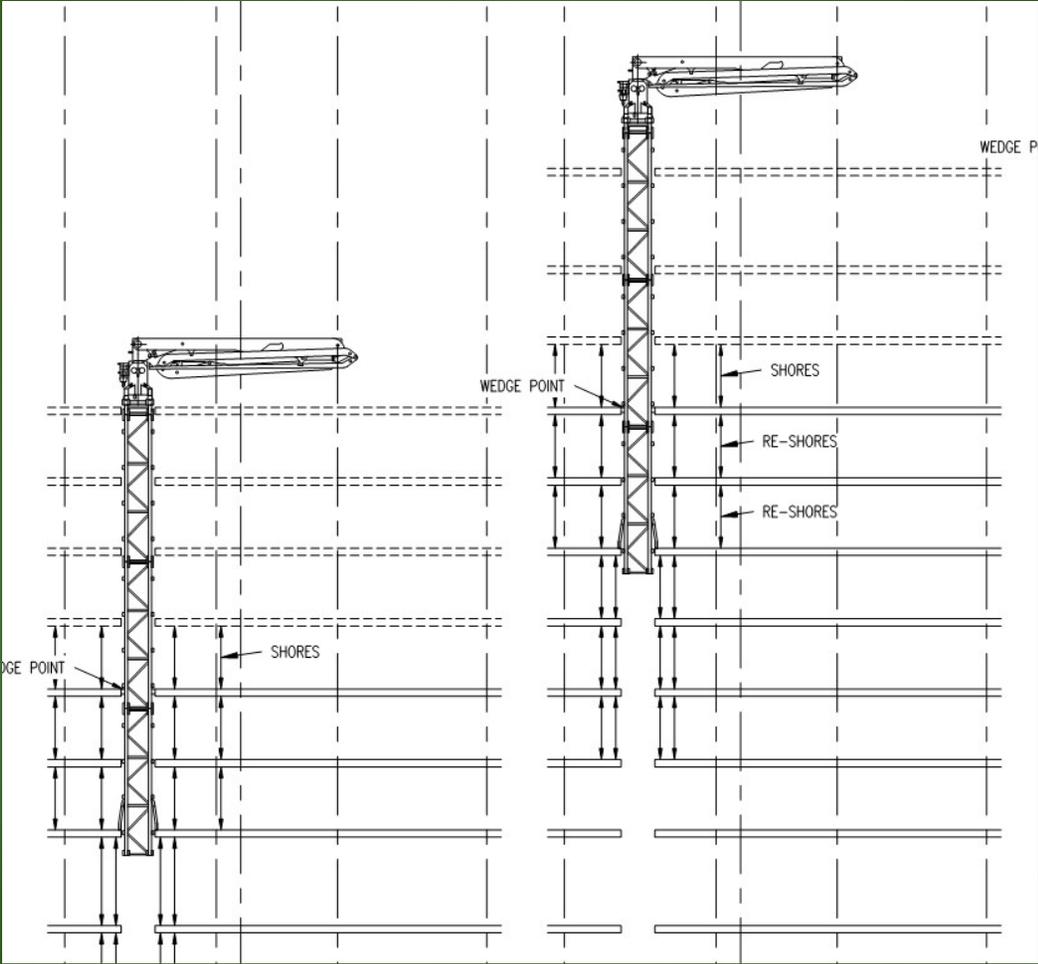


# Reshoring

This is why you typically see the poles, or “legs”, trailing behind 3-4 floors. It is the reshore that is needed to hold the weight of the wet concrete on the day of the pour.



# Placing Boom Reshore



# Post Tension

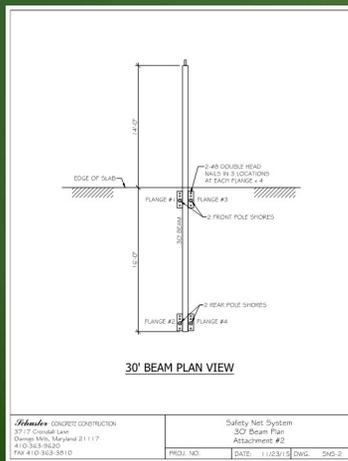
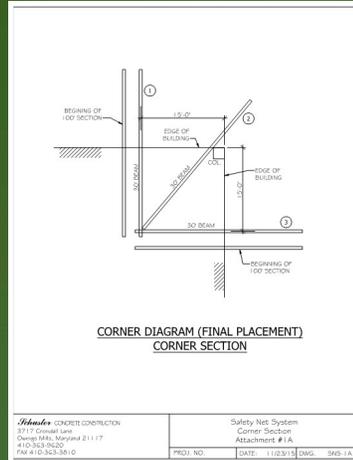
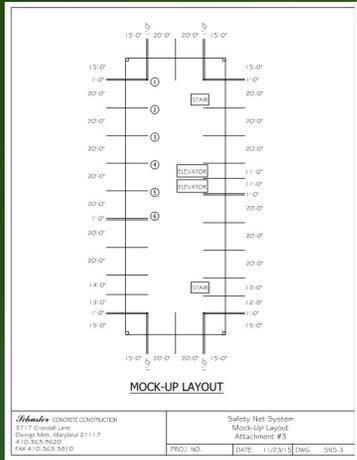


# Post Tension





# Safety Netting System



# Tower Crane Dismantle



# Challenges



# Avalon Harbor East

A 25-Story mixed-use high-rise apartment complex





QUESTIONS?