

A General Contractor's Perspective

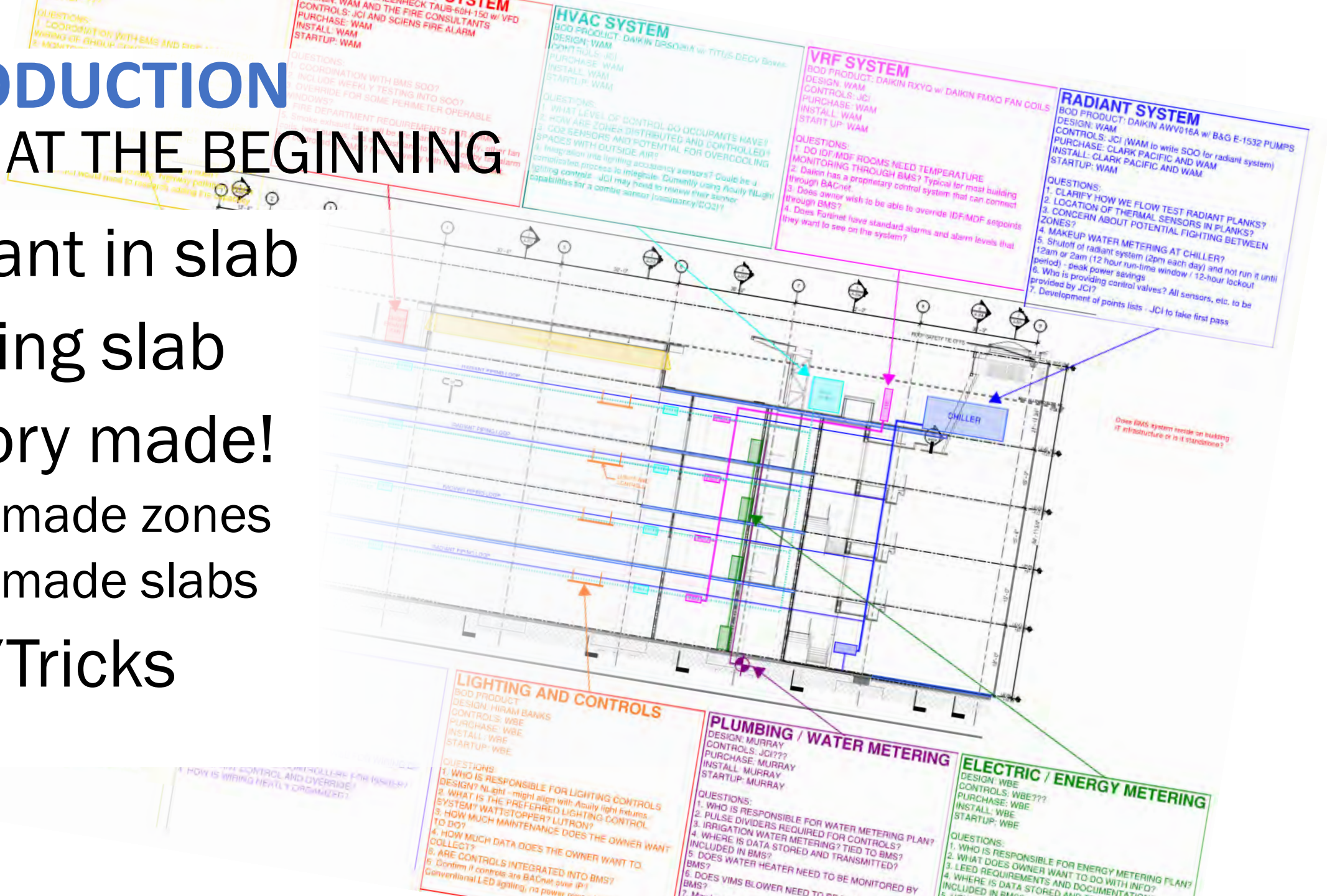
#technicalbuilder



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INTRODUCTION BEGIN AT THE BEGINNING

- Radiant in slab
- Topping slab
- Factory made!
 - Pre-made zones
 - Pre-made slabs
- Tips/Tricks



THINGS TO KNOW

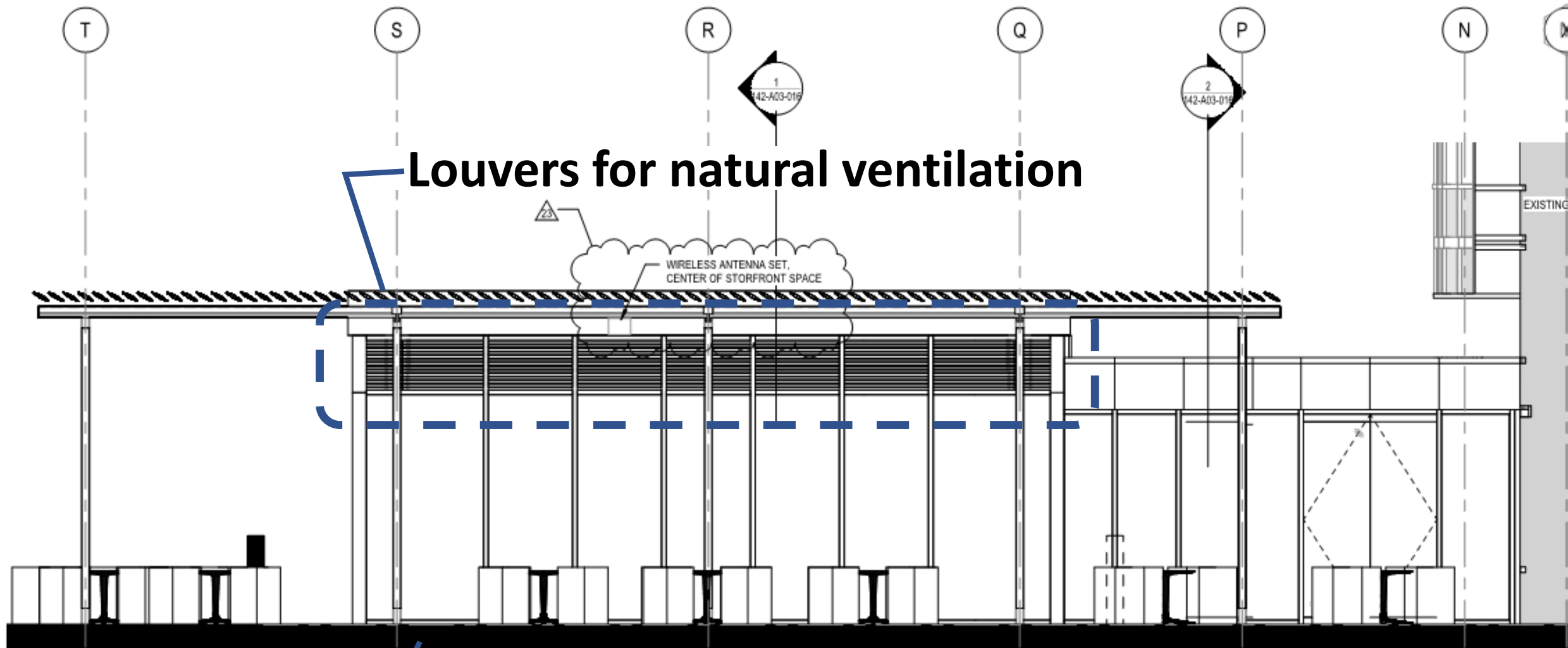
- Inexpensive
- Seismic/structural must approve
- Same coordination effort
- Requires protection
- More time to cure
- Pressure test 12-24 hours before pour
- Hold pressure during pour



GENENTECH

Topping Slab





Louvers for natural ventilation

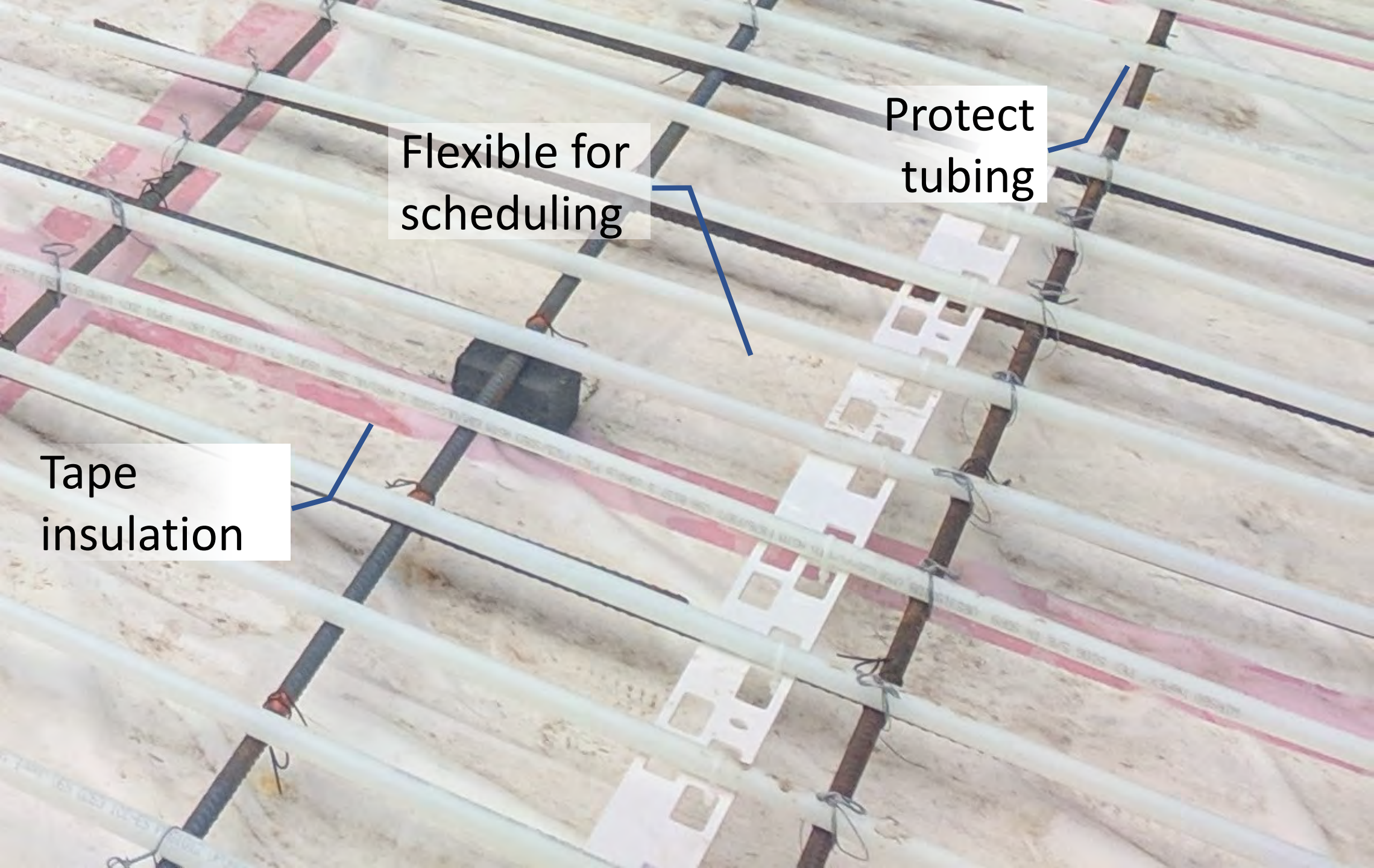
WIRELESS ANTENNA SET,
CENTER OF STORFRONT SPACE

Radiant floor as topping slab

② EAST ELEVATION
1/4" = 1'-0"

CONSTRUCTION SEQUENCING



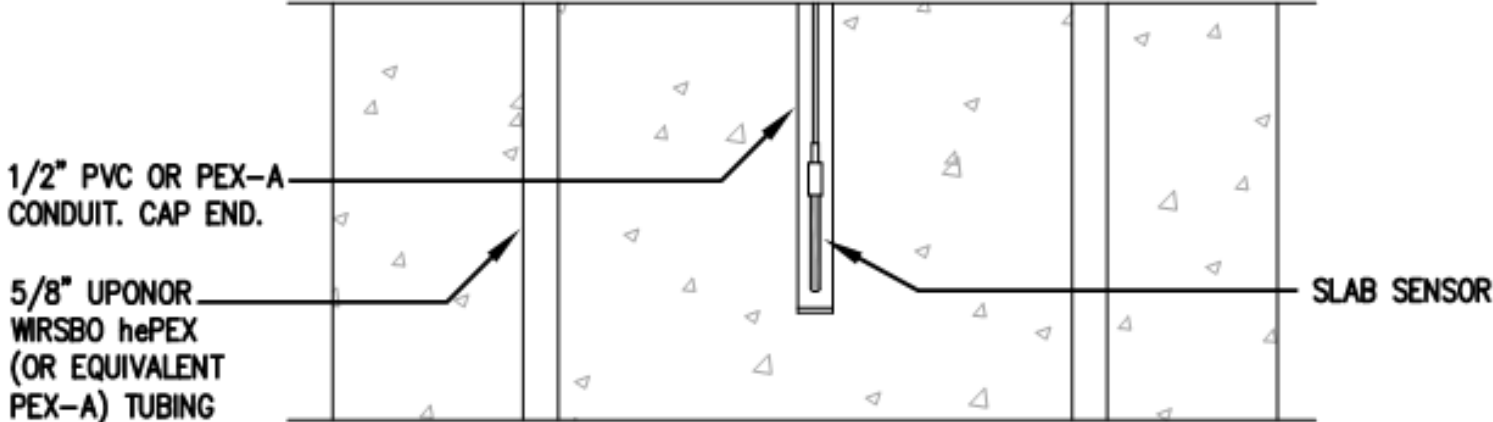


Flexible for scheduling

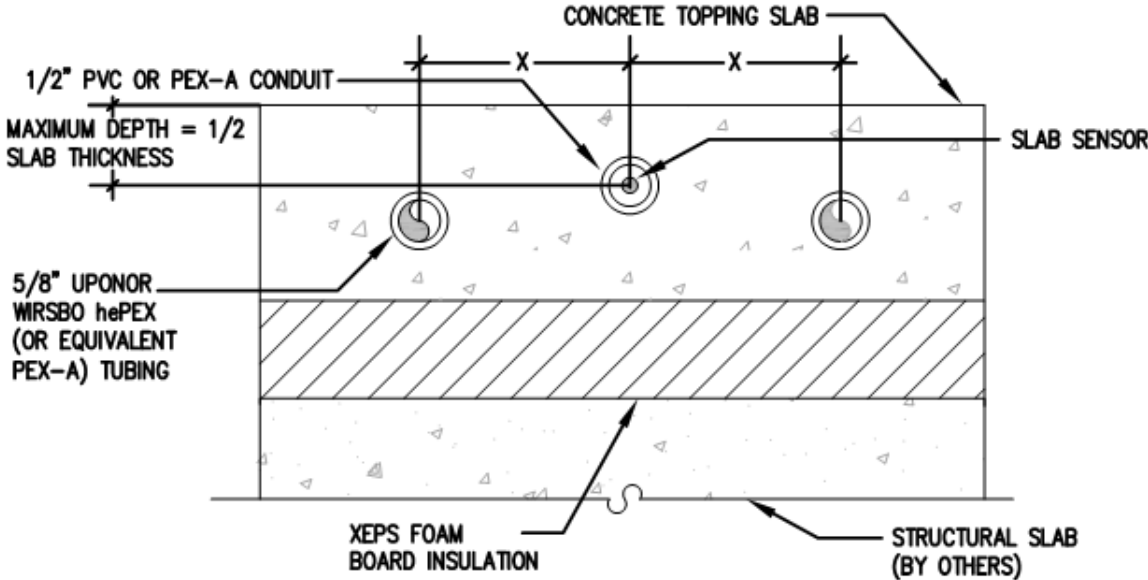
Protect tubing

Tape insulation

THERMOWELL



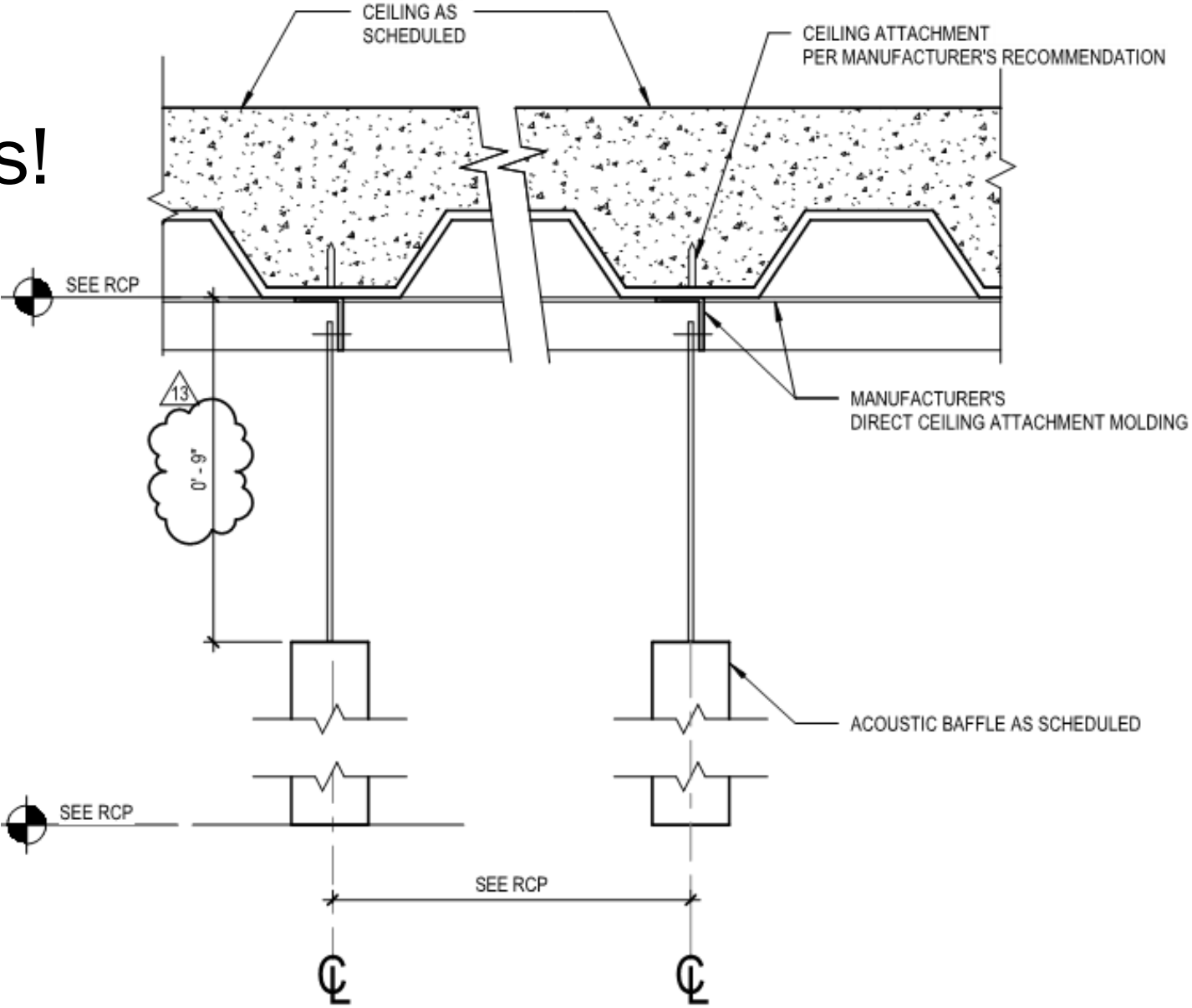
PLAN VIEW



SECTION VIEW

HOLISTIC DESIGN

Remember the acoustics!



17 BAFFLE CONNECTION TO DECK
3" = 1'-0"

FORTINET (PRE-CAST RADIANT SLABS)

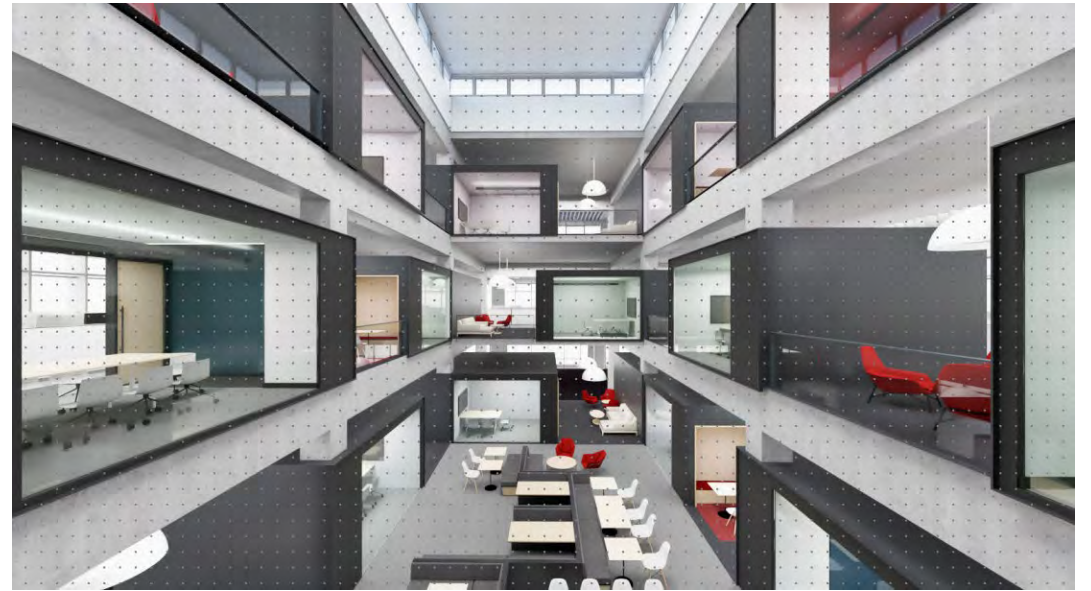
Program	Open Offices, Executive Business Center, Server, Atriums, Rooftop Solar
Site	Open parking lot, outdoor seating, and bioswales
Structure	Precast Concrete w/ Radiant Tubing (Clark Pacific)
Area	172,311 SF
Contract Amount	Prime Contract executed 12/20/2018 \$163 Million GMP anticipated
Current Status	100% CDs MEP + TI, Structural erection
LEED	LEED Gold (60+ points)
TCO	November 2020



Main Entrance - Commercial Street



Servery and Break Area



South Atrium

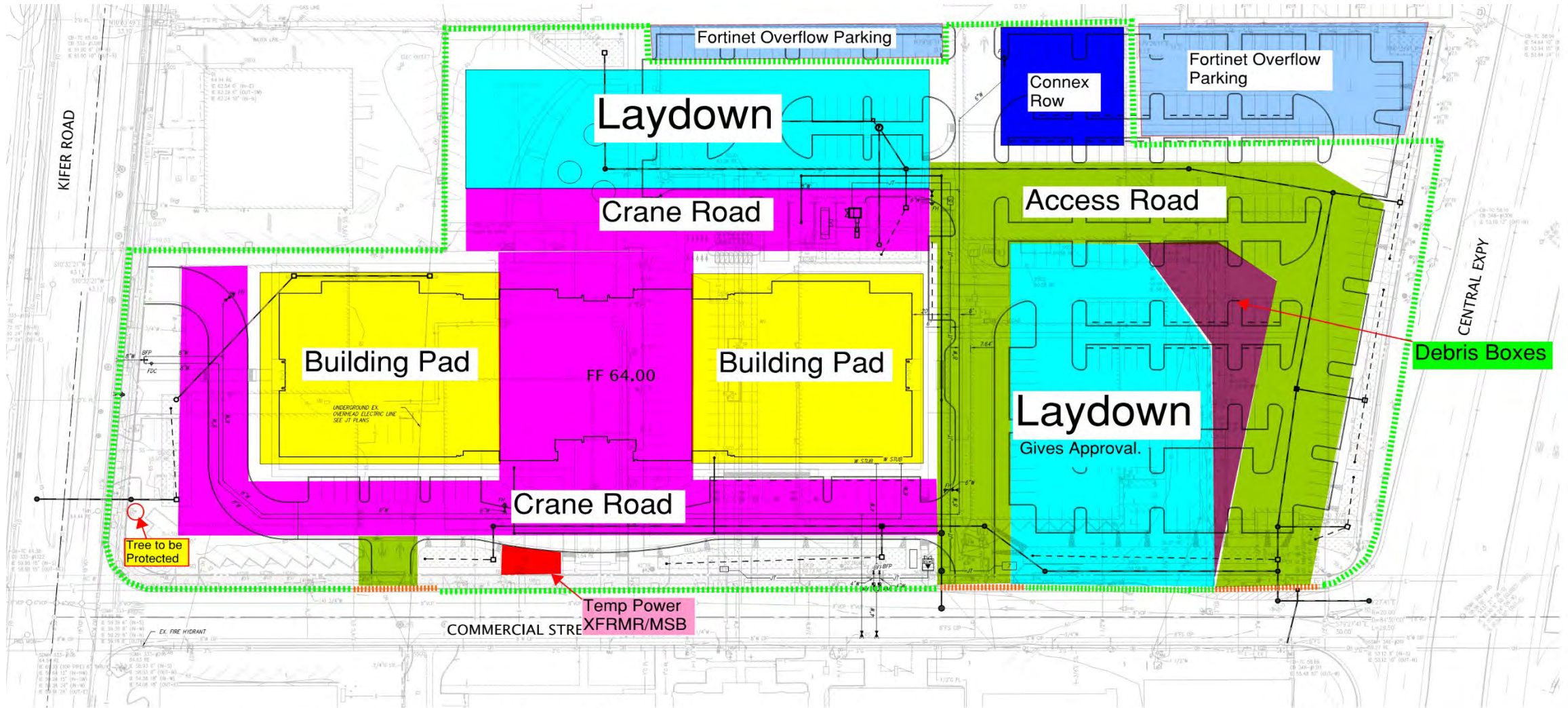




Executive Business Center



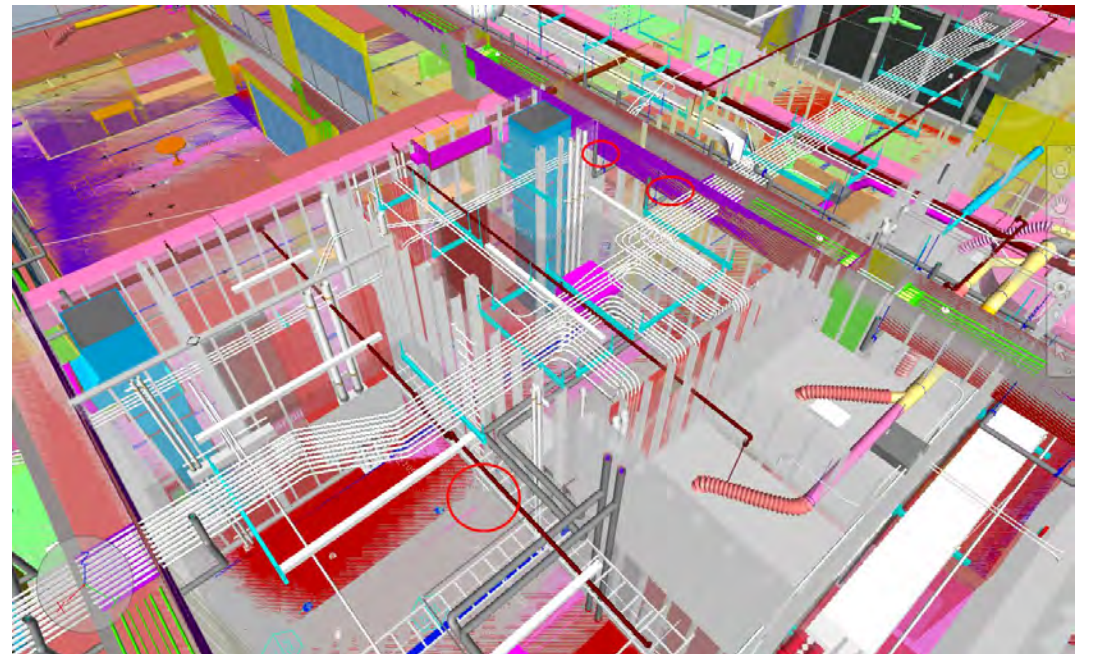
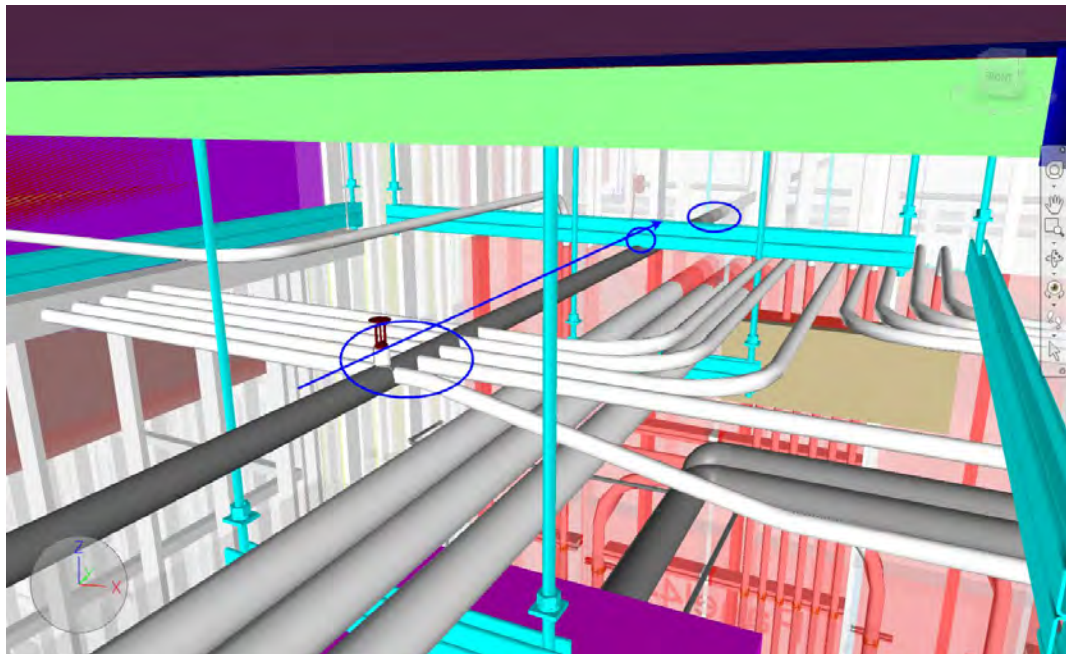
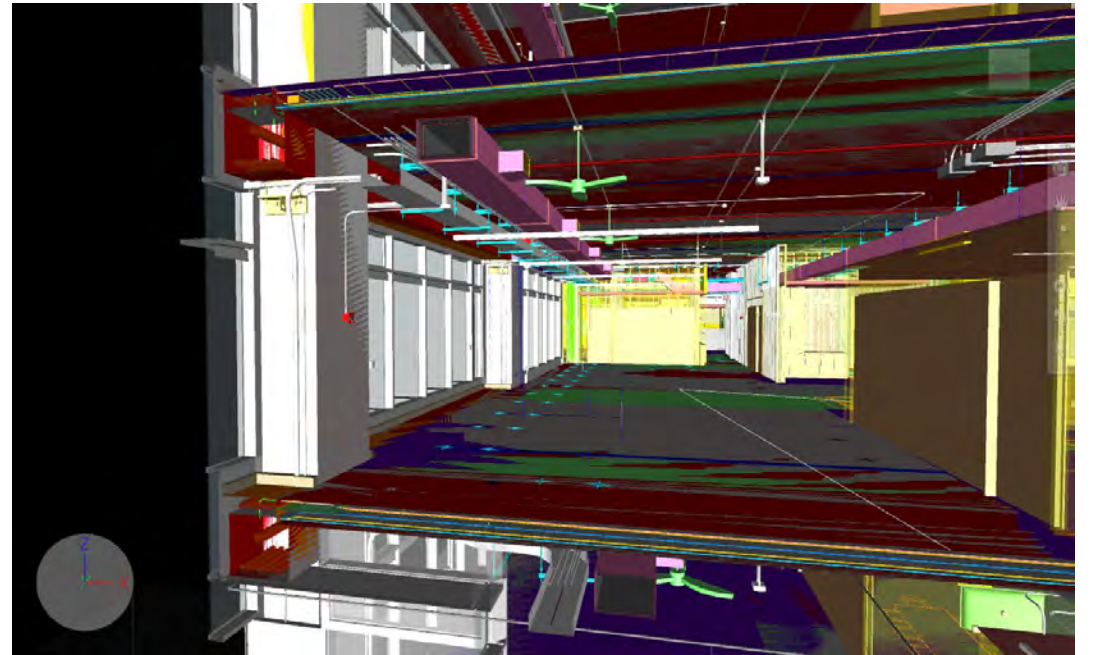
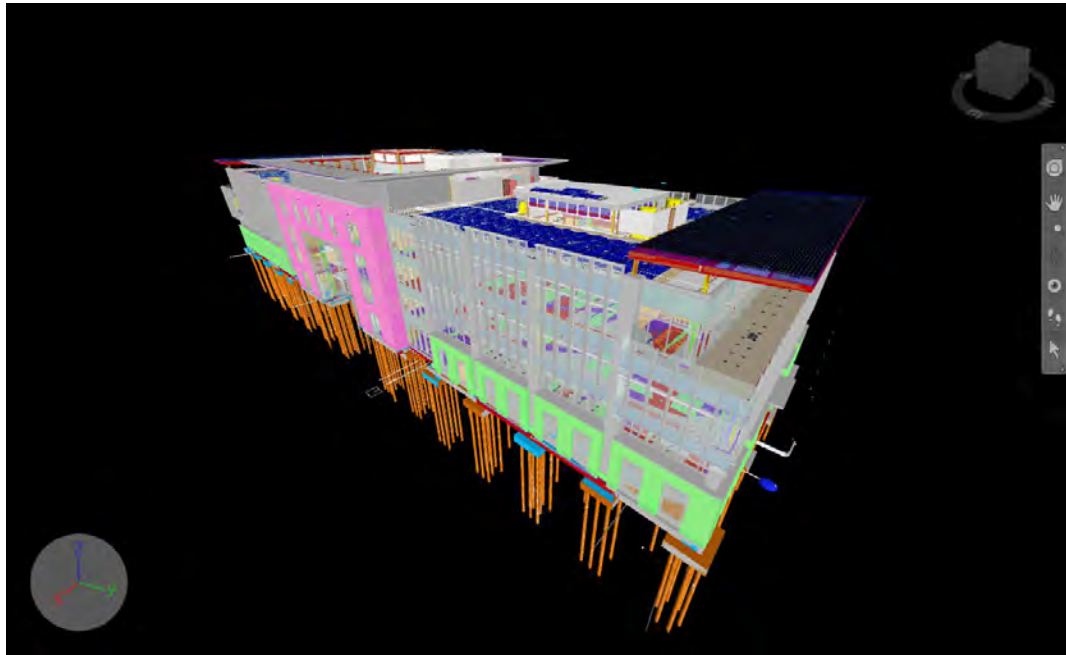
Executive Business Center

LOTS OF PLANNING

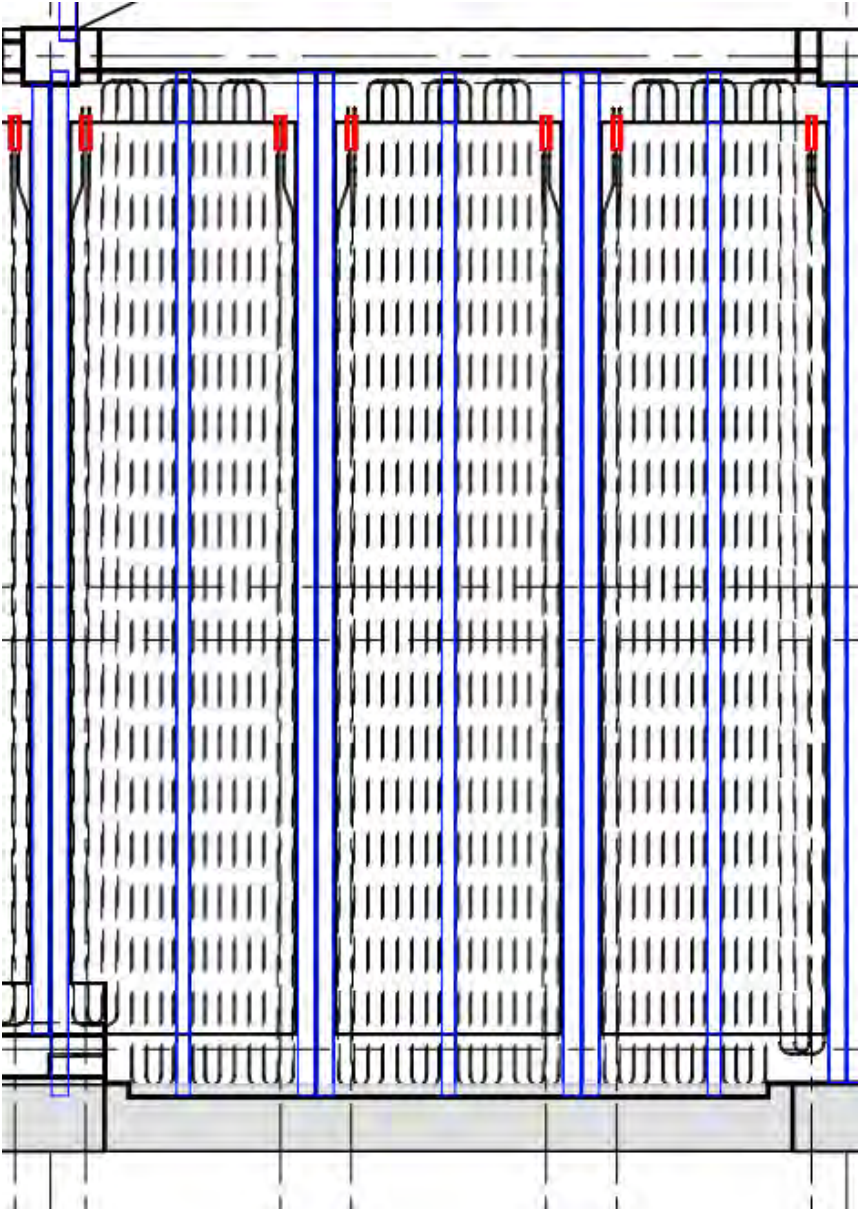


-  Construction Fence
-  Construction Entrance Gates

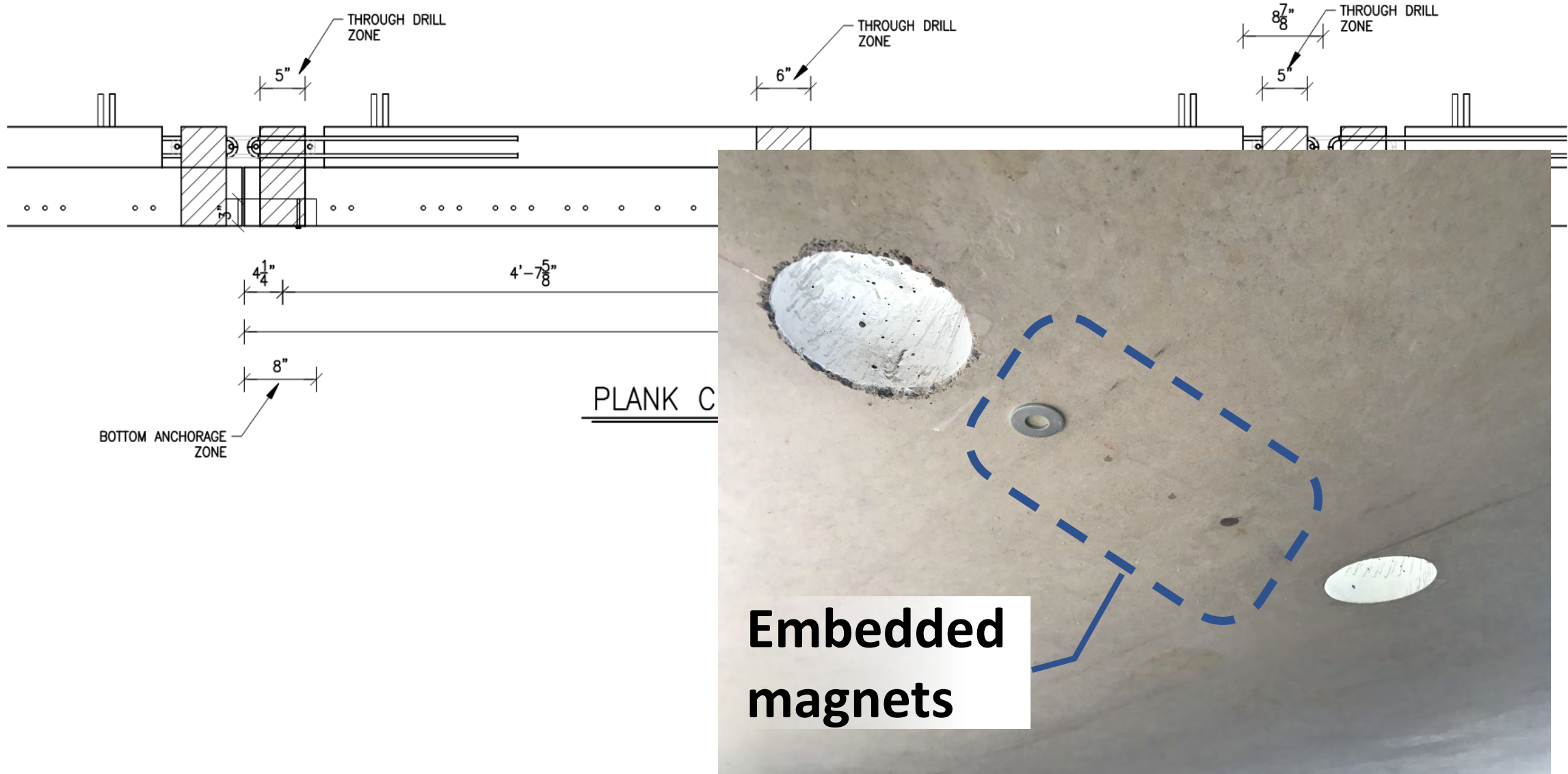
1. Underground Utilities outside the building start first.
2. Building Pad starts 2 weeks after UG.
3. Crane Roads and Access Roads build behind UG.
4. Under Slab Utilities after foundations.



RADIANT PRECAST



GO/NO GO ZONES



MAINTAINING QUALITY IN DESIGN-BUILD

- Beyond thorough
 - OPR
 - BOD/Bridging documents
- Enforceable & achievable
- Do a thorough review
- Choose thoughtfully
- Allow time



TIPS/TRICKS

For owners and engineers

- What happens after turnover?
- Maintainability
- Overall quality of space paramount
- Define control system quality (tuned loop & hunting)
- Thermal inertia → delayed response
- Topping slab + floor covering → slow moisture loss
- Where is your insulation?

ACKNOWLEDGEMENTS

- Integral Group
 - William Casper Ortiz
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 - Abishek Shete
 - Dannen Goetze
 - Brittney Lerdahl
 - Ray Trebino

Questions?

[\[Video link\]](#)

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