

The Grove at Grand Bay

LOCATION:

- Coconut Grove, FL

ARCHITECTS:

- Bjarke Ingles Group (BIG)
- Nichols Brosch Wurst Wolfe Associates

STRUCTURAL ENGINEER:

- DeSimone Consulting Engineers

GENERAL CONTRACTOR:

- Facchina Construction

CONCRETE CONTRACTOR:

- CapForm, Inc.

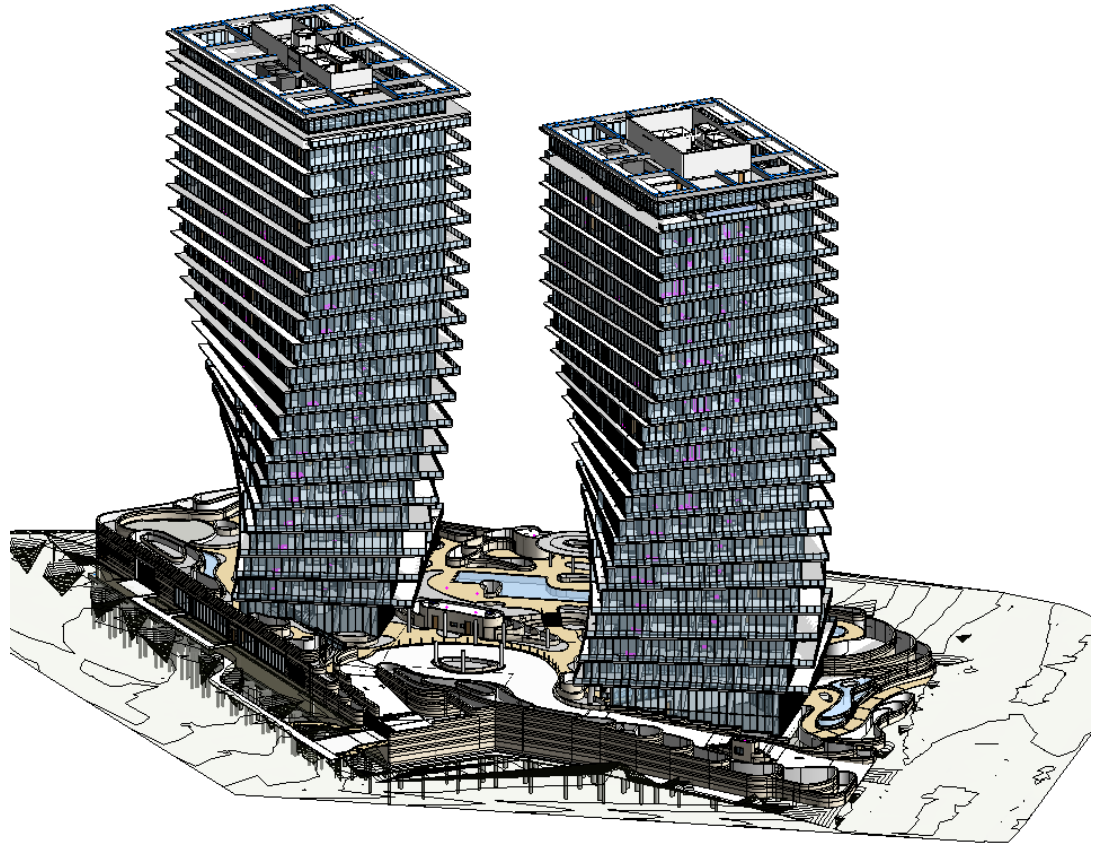
SQUARE FOOTAGE:

- North Tower Roof = 11,246 sf
- South Tower Roof = 10,645 sf



The Grove at Grand Bay

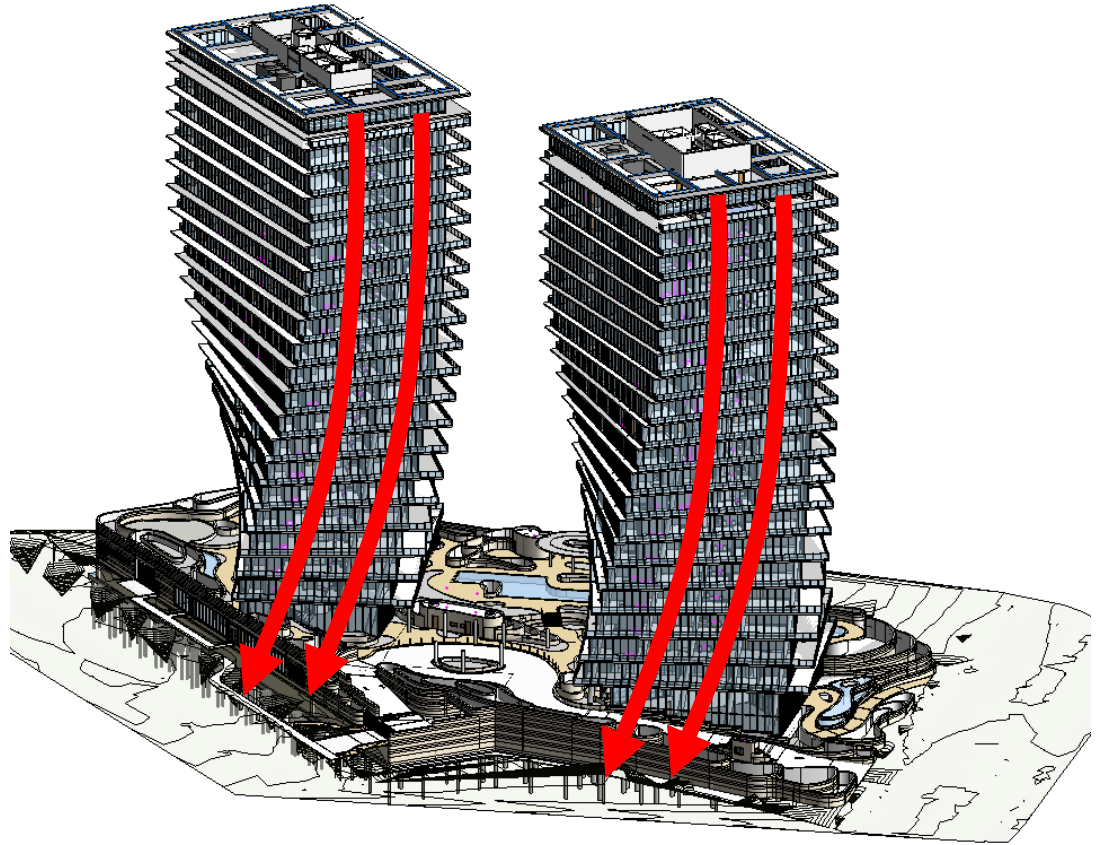
PROJECT CHALLENGES:



The Grove at Grand Bay

PROJECT CHALLENGES:

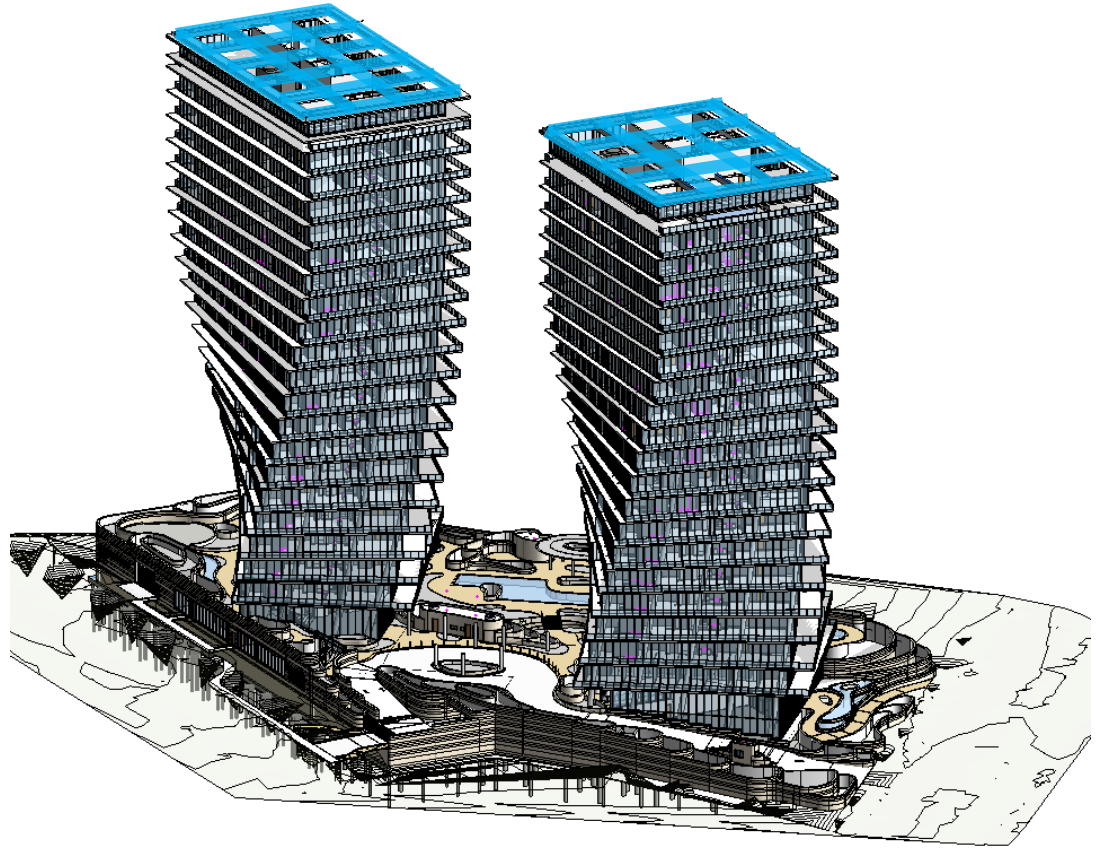
- Torsional forces of tower design (inclined columns)



The Grove at Grand Bay

PROJECT CHALLENGES:

- Torsional forces of tower design (inclined columns)
- Specialized roof frame designed to transfer forces to steel building core
- Initial design using a heavy steel roof frame elements required complex lifting plan & equipment

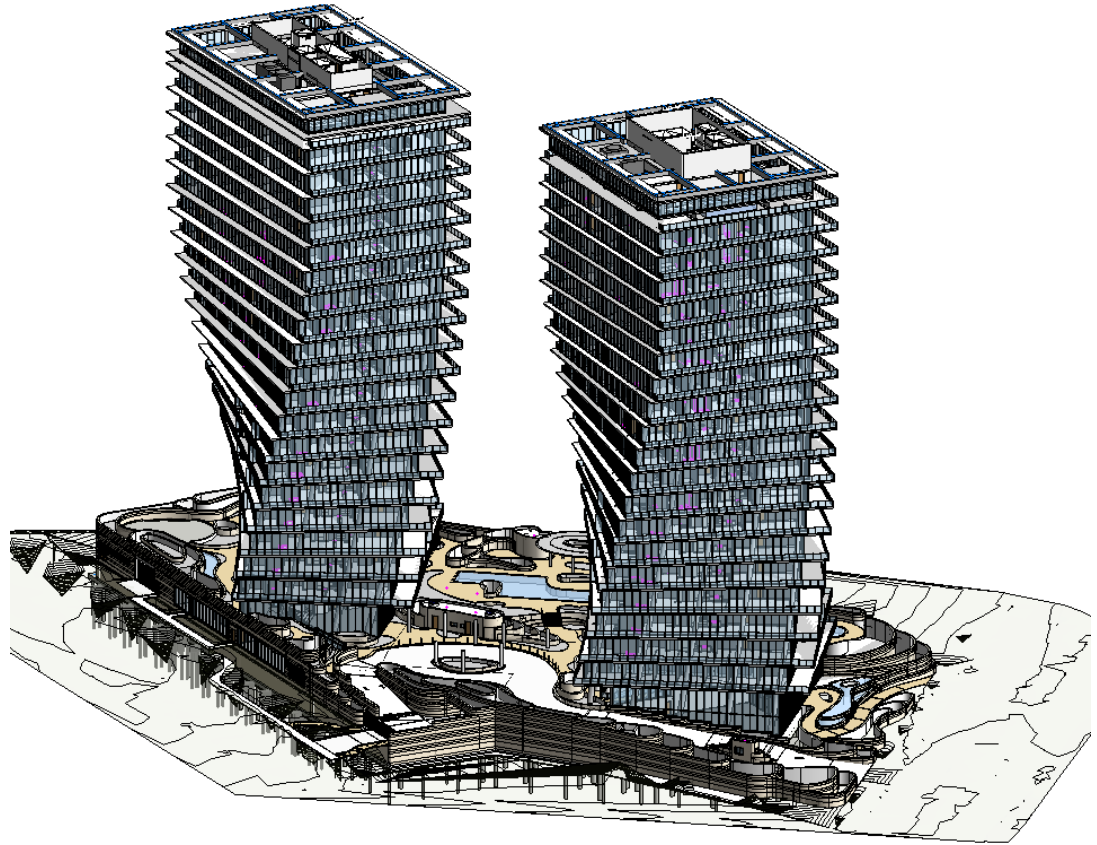


The Grove at Grand Bay

PROJECT CHALLENGES:

- Torsional forces of tower design (inclined columns)
- Specialized roof frame designed to transfer forces to steel building core
- Initial design using a heavy steel roof frame elements required complex lifting plan & equipment

PROJECT SOLUTIONS:



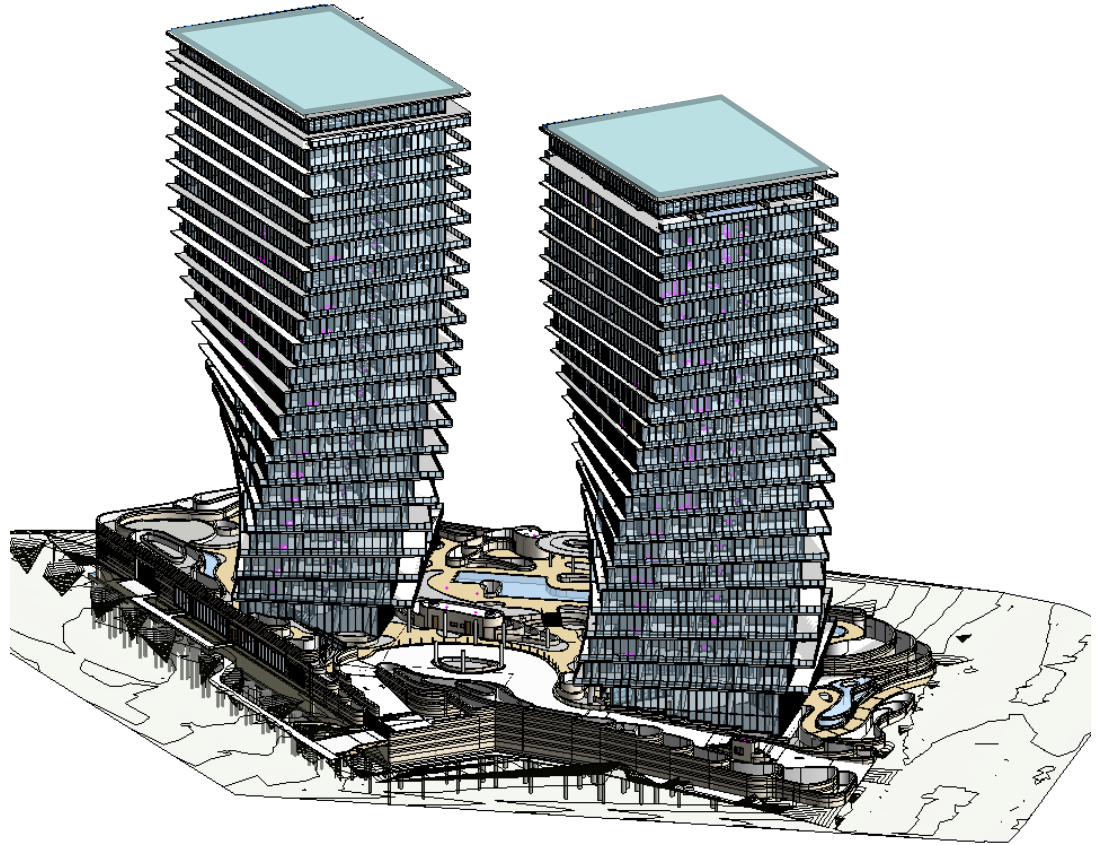
The Grove at Grand Bay

PROJECT CHALLENGES:

- Torsional forces of tower design (inclined columns)
- Specialized roof frame designed to transfer forces to steel building core
- Initial design using a heavy steel roof frame elements required complex lifting plan & equipment

PROJECT SOLUTIONS:

- Cast-in-Place P-T roof frame design (Bonded Multistrand)



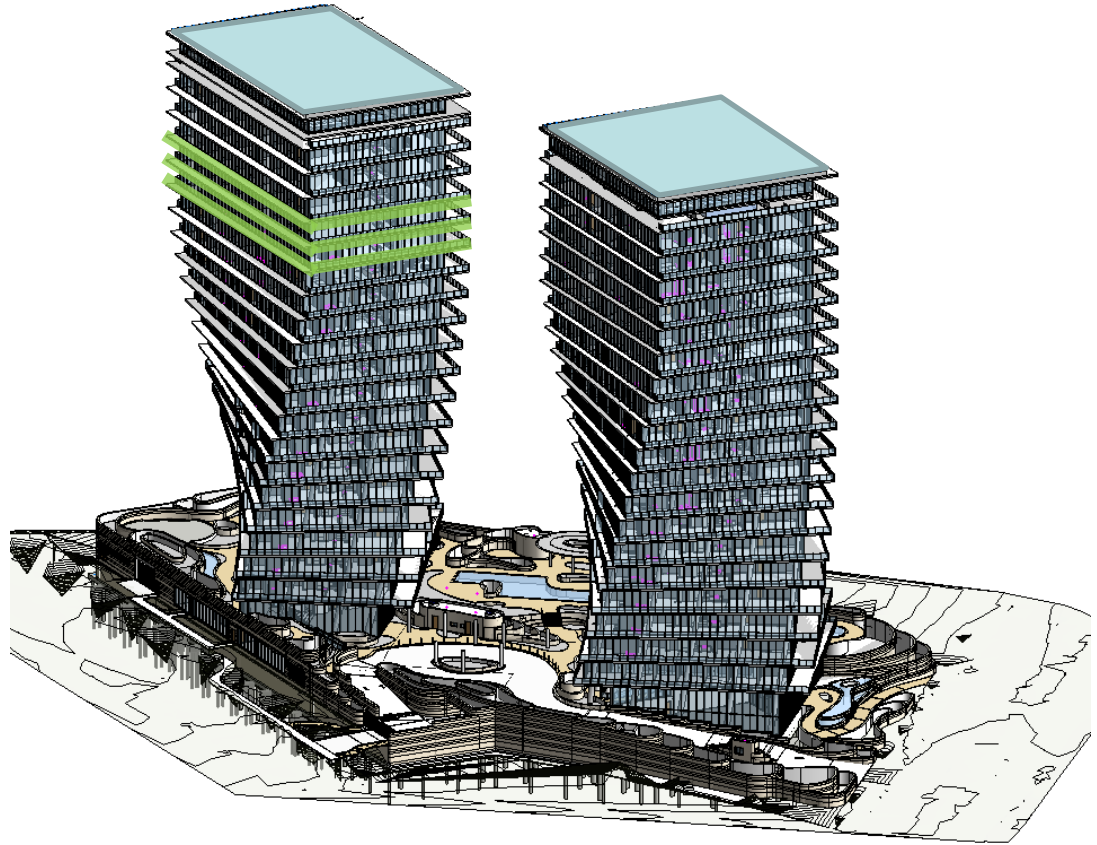
The Grove at Grand Bay

PROJECT CHALLENGES:

- Torsional forces of tower design (inclined columns)
- Specialized roof frame designed to transfer forces to steel building core
- Initial design using a heavy steel roof frame elements required complex lifting plan & equipment

PROJECT SOLUTIONS:

- Cast-in-Place P-T roof frame design (Bonded Multistrand)
- Unbonded Monostrand slabs



The Grove at Grand Bay

PROJECT CHALLENGES:

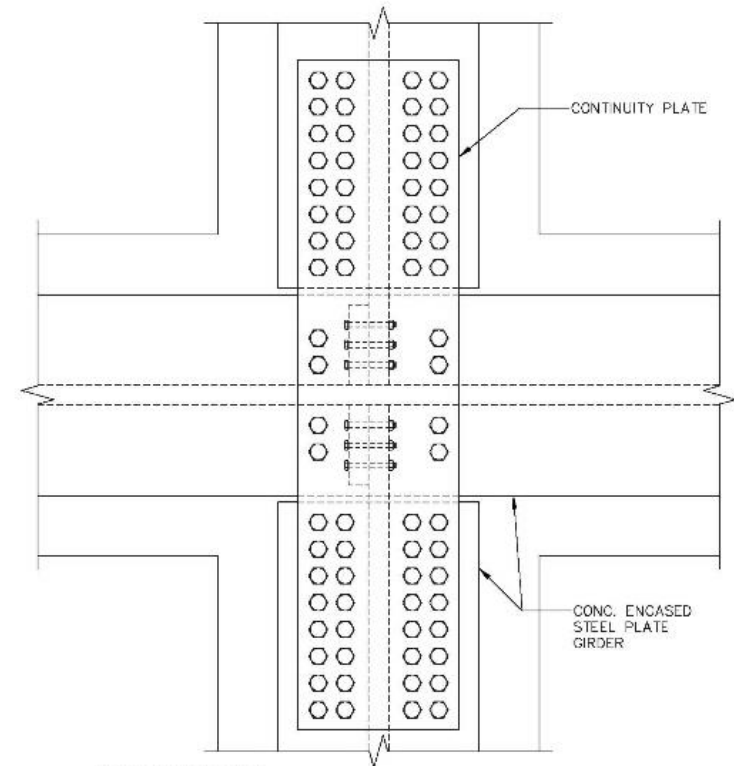
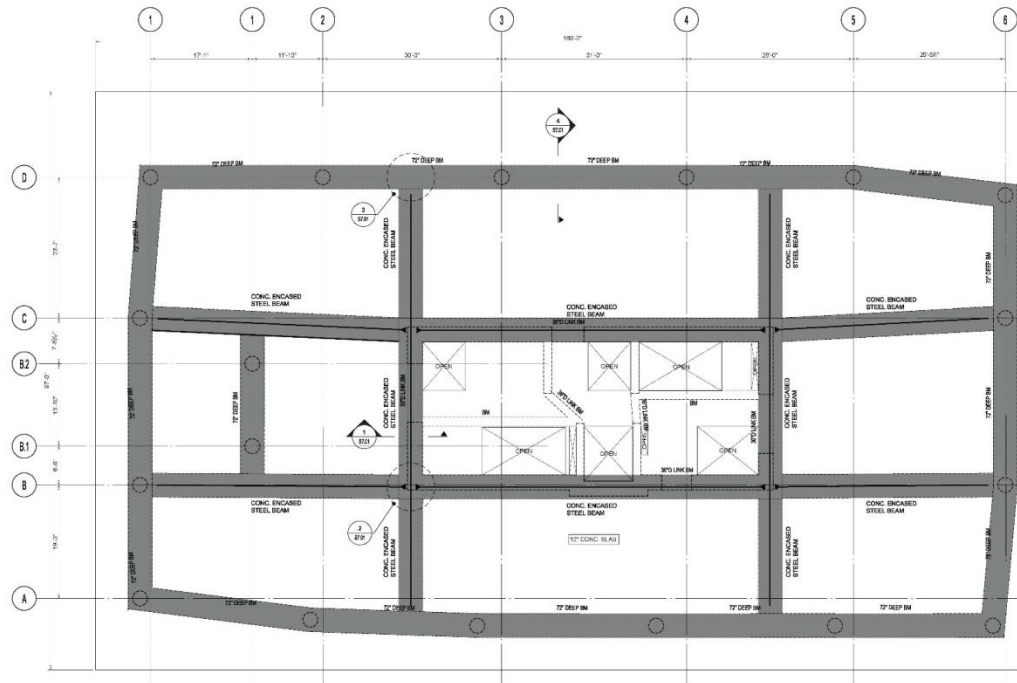
- Torsional forces of tower design (inclined columns)
- Specialized roof frame designed to transfer forces to steel building core
- Initial design using a heavy steel roof frame elements required complex lifting plan & equipment

PROJECT SOLUTIONS:

- Cast-in-Place P-T roof frame design (Bonded Multistrand)
- Unbonded Monostrand slabs



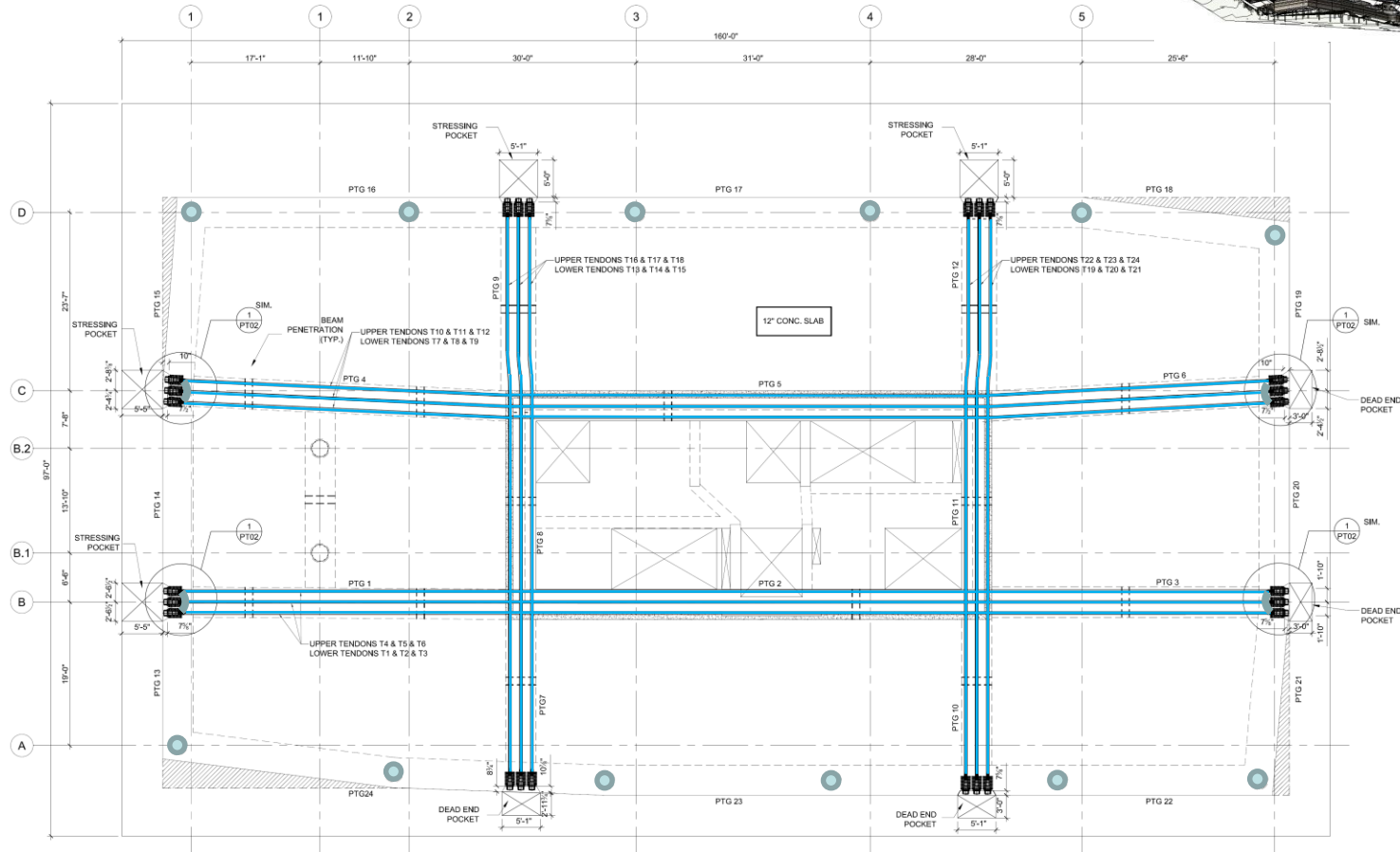
Original Low Roof Framing Plan



**PLAN DETAIL
HAT TRUSS AT CORE INTERSECTION**

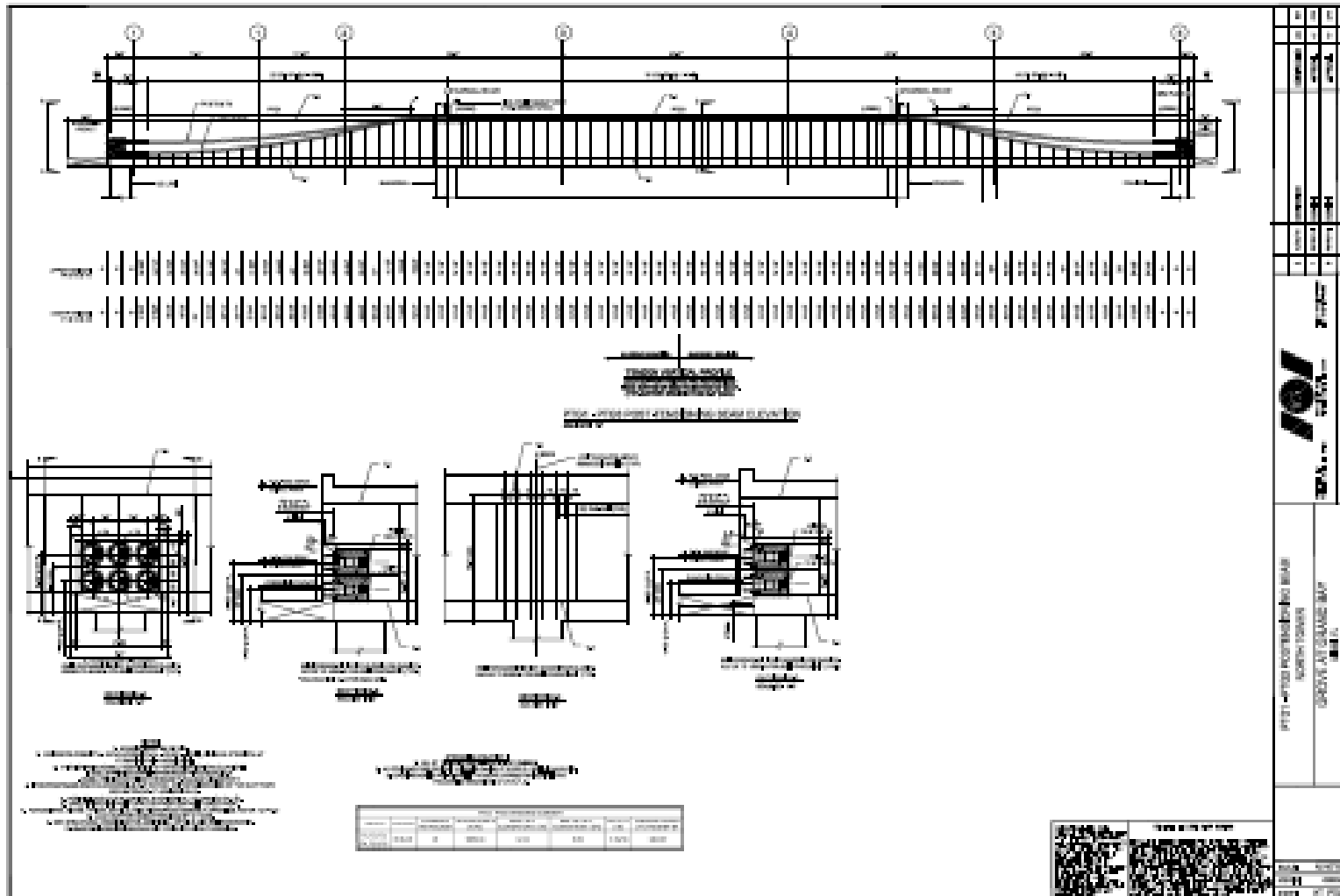
SCALE: 3/4" = 1'-0"

Final Roof Design with Post-Tensioning



LOW ROOF POST-TENSIONING BEAM LAYOUT - NORTH TOWER

Final Roof Design with Post-Tensioning





Final Roof Design with Post-Tensioning





Hydrostatic Slab

Approximately Area= 80,000 Sqf



Hydrostatic Slab

Approximately Area= 80,000 Sqf







1000 Museum Park

LOCATION:

- Miami, FL

ARCHITECTS:

- Zaha Hadid

STRUCTURAL ENGINEER:

- DeSimone Consulting Engineers

GENERAL CONTRACTOR:

- Plaza Construction

CONCRETE CONTRACTOR:

- CapForm, Inc.

SQUARE FOOTAGE:

- Tower = 1,140,000 sf



1000 Museum Park

PROJECT CHALLENGES:

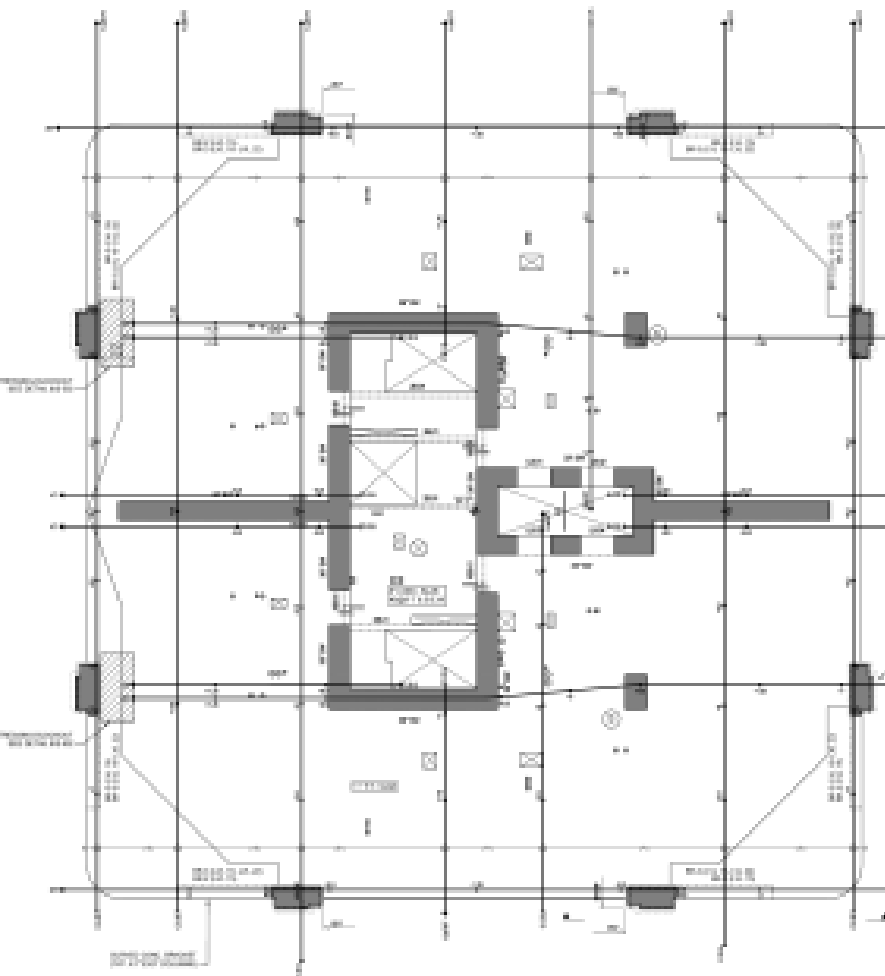
- Permanente GFRC forms will be use to form the Concrete Exoskeleton
- Pos-tensioning Tendons cannot be stressed from the face of the columns



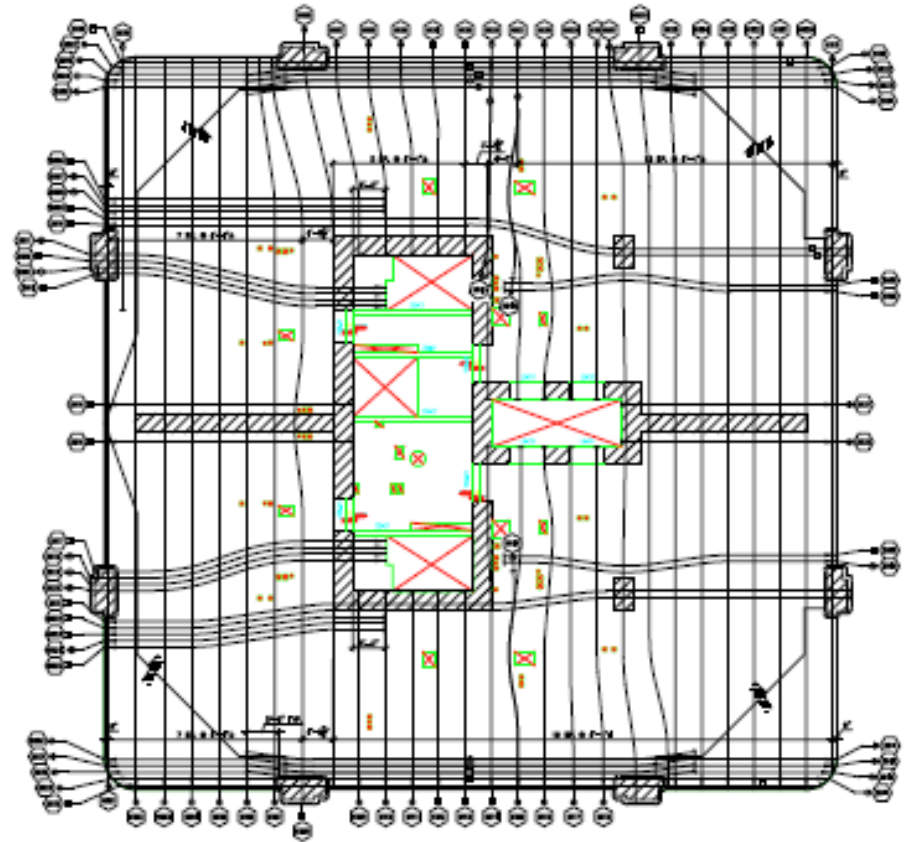
1000 Museum Park



1000 Museum Park



LEVEL 15 POST-TENSIONING PLAN
SCALE: 1/8" = 1'-0"



1000 Museum Park



1000 Museum Park



1000 Museum Park



The Grove at Grand Bay