Des Moines US Courthouse
Des Moines, IA

Agenda
1. Introductions
2. About Ryan
3. Project Overview
4. Preconstruction
5. Concrete Applications and Challenges
6. Statistics
7. Q&A

About Ryan – Midwest Profile

Ryan – Midwest Profile
- 740 Projects
- First Midwest Office
- $9,037,929.229
- 1st Midwest Office
- 1990
- Exterior Finishes
- Rough Carpentry
- Concrete
- Demolition
- Interior Finishes
- Safety Mod Rate
- 263
- 0.83
- 206M
- 2019
- 2019
- 2019

Jordan Stokes
Self-Performed Work Project Manager

TJ Meyerholz
Director of Preconstruction

Lauren Bockholt
Senior Project Engineer

Ron Embrey Jr.
Senior Superintendent
Ryan SPW
- Crews
  - Laborers #s
  - Finishers #s
  - Carpenters #s
- Volume
- Scopes we perform work
- CR DSM

U.S. COURTHOUSE – DES MOINES, IA
- 231,000 square feet
- 6 occupied floors
- 9 Courtrooms
- LEED Gold & SITES Gold
- $105.7M GMP contract w/ open-book accounting
- Funds were allocated by Congress in 2016
How Ryan was Selected

1. Advisory Step Technical Proposal
   - Past Experience
   - Past Performance
   - Project Management Approach
2. Selection Step Technical Proposal
   - Management Plan
   - Personnel
   - Schedule
   - Local Experience
   - Price Proposal - based on Program of Requirements narrative
36 weeks of design time would have transpired before understanding the proposed design concept was ~$19 million over budget – easily a 16-20 week project schedule advantage over the traditional GSA CMc selection process.

Design revisions identified prior to Final Concept Design approval:
- 19-feet of building height eliminated
- 10,000 square foot building area reduction
- 500,000 cubic feet of volume
- Simplified structure = 17 fewer columns
- Vastly simplified mechanical system
- Minimal impact to floor plan layouts or design intent

**PROCUREMENT PLAN**

<table>
<thead>
<tr>
<th>Pre-Design 12 weeks</th>
<th>Concept Design 24 weeks</th>
<th>Design Development 28 weeks</th>
<th>Construction Documents 34 weeks</th>
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<tr>
<td>BP #1 – Site Prep &amp; Removals</td>
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<td>BP #2 – Deep Foundations</td>
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<td>BP #3 – Elevators</td>
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<td>BP #4 – Enclosure</td>
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<td>BP #5 – Foundations</td>
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<td>75% Design Development Package</td>
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<td>• Structure</td>
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<td>• Site Utilities</td>
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<td>BP #6 – Major MEP Equipment</td>
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75% Design Development Package
- Majority of remaining scope

**PROCUREMENT PLAN**

**Preconstruction**
- Oklahoma City Bombing
- Progressive collapse & blast resistance
- Landing at a concrete frame solution
  - Steel vs. Concrete Structure
- Types of concrete structures
  - Steel Pan
  - Flat slab
  - Drop beams
  - Post Tensioned
Concrete Applications/Project Challenges

Superstructure
- Auger Cast Pile Foundations
  - 293 Piles
  - Formed CIP Pile Caps
  - Perimeter Grade Beams
- Tower Crane Pad
- Foundation Walls
- Birds Run Sewer
  - 100-year-old active storm sewer
  - Scanned and created 3D model of sewer
  - Bridged sewer using (3) W36x395 beams encased in concrete
- Total Schedule duration: 7 months

Left: Foundation walls and SOG
Right: Birds Run Sewer Beams

Structure
- Reinforced Pan Deck Structure
  - 30', 40', and 50-Foot Bays
  - 53' and 66' Typ. Pan Sizes
  - 29' Total Depth
    - 5' Slab
    - 24' Beam
  - 36' Average Beam Width
  - 12' Average Joist Width
- Average Floor Plate size
  - Level 1 & 2: 26,200 SF
  - Level 3-7: 33,300 SF
- Floor to Floor Height
  - Typical: 14'-5"
  - Courtroom Floors: 18'-6"
Concrete Applications/Project Challenges

Typical Deck Pour Sequence
- 3 pours per floor
  - 430 CY Average Pour Size
- Shoring: 1 week
- Edge form/Pans: 1 week
- MEP Sleeves/Hangers: 1 week
- Reinforcing: 4 days
- Pour: 1 day
- Columns: 6/day (12 per deck pour)
- Total Schedule duration: 11 months
Concrete Applications/Project Challenges

Structure Cont.

- **Columns**
  - Round and Square Columns
  - 30” Ø and 30” Square
  - Multiple Mix Designs
    - Basement/Level 1: 10,000 PSI
    - Level 2/3: 8,000 PSI
    - Level 4/5/6: 5,000 PSI
  - Concrete Surface Category 3
    - Self-consolidating concrete

- **Mega Columns**
  - 48” Ø
  - 36’ above grade, 13’ below grade
    - 36’ section as 1 monolithic pour
  - 10,000 PSI SCC
  - Concrete Surface Category 4
    - Mock-up required

Site Concrete

- Site retaining walls
  - CSC 3 Finish
- 17,000 SF Sidewalk
- 8,000 SF Vehicular Paving
  - Drive aprons
  - Public street pour back
- 5,800 SF Paving @ East Entry
Concrete Applications/Project Challenges

Winter Conditions
- Temporarily enclosed level below deck that was being poured
- Gas powered heaters kept underside of deck to ~85°F
- Covered decks w/ snow tarps after placement
- Wrapped columns in concrete blankets
- Hot water/accelerator in concrete

Concrete Summary

Foundations: 1,575 CY
Foundation walls: 605 CY
Slab on Grade: 461 CY
Decks: 9,605 CY
Columns: 748 CY
Mega Columns: 157 CY
Site Concrete: 1,200 CY
TOTAL Concrete: 14,351 CY
Total Reinforcing: 1,200 Tons

Questions

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