To participate in the polling:

Text: KRISNEWMAN258 TO 22333
Trends

Steady thru 2021
Current vs. Ideal Backlog

Average Current Backlog

Average Stated Ideal Backlog

10.3 Months

82%

12.5 Months

Source: USG Corporation & US Chamber of Commerce 2Q Commercial Construction Index
Expected Revenue Changes in the Next 12 Months

<table>
<thead>
<tr>
<th></th>
<th>Increase</th>
<th>Remain the Same</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3 2018</td>
<td>47%</td>
<td>50%</td>
</tr>
<tr>
<td>Q4 2018</td>
<td>45%</td>
<td>50%</td>
</tr>
<tr>
<td>Q1 2019</td>
<td>40%</td>
<td>55%</td>
</tr>
<tr>
<td>Q2 2019</td>
<td>36%</td>
<td>60%</td>
</tr>
</tbody>
</table>

Source: USG Corporation & US Chamber of Commerce 2Q Commercial Construction Index
Trends

<10% Unemployment Nationwide
Trends

Public Investment up 5%
Total US Construction Spend – in billions
- Workforce
- Advanced Technologies
- Mega Projects
Workforce

Where are the Skilled Workers?
What is the percentage of Construction Managers, Builders and Trade Contractors that reported having difficulty finding skilled workers?

- 75%
- 94%
- 58%
Turning Down Opportunities for Work

Source: USG Corporation & US Chamber of Commerce 2Q Commercial Construction Index
“...perception issues narrow the pipeline for talent...”

Source: Monitor Institute & Autodesk Foundation Report: Supporting Worker Success in the Age of Automation” June 2019
+ 25%
Women 9%
White 89%
Hispanic or Latino 30%
Black or African American 6%
Asian 2%
How Many Women Are in Construction?

Women comprise 9.9% of all construction employees in 2018.

- 86.7% are in office positions
- 13.3% are tradespeople

Women are expected to make up 25% of the industry by 2020.
Female-Owned Firms

13% of constructions firms are owned by women

94% growth in female owners from 2007 to 2018

9% of female-owned firms achieve revenues of more than $500,000

4% of new construction firms were launched by women last year
“...occupations that currently require only a secondary education or less will likely see a net decline in jobs due to automation...”

Source: Monitor Institute & Autodesk Foundation Report: Supporting Worker Success in the Age of Automation” June 2019
37% of vulnerable workers worry that their skills will become obsolete.
Supply vs Demand

Skills Gap
- Increased Technology
- Speed of Change
What can be done?

- Public Awareness Campaigns
- Attracting Women & Other Diverse Populations
What can be done?

- Early Exposure
- More Agile Credentialing Models
Advanced Technologies
Cities of Tomorrow

- Growth of urban dwellers
- D+ Rating
- Investing in connected Infrastructure
OPPORTUNITY

- Game Changing Technologies
  - Bring projects to completion sooner
  - Increase safety
  - Reduce costs
  - Less quality issues/re-work
  - Train employees
Building Information Modeling

3D Visualization
Represent the building in 3D

4D Time
Facilitate programming

5D Cost
Help calculate and adjust the budget

6D Operation
Concerns facilities management

7D Sustainability
Provide environmental and energy-efficiency solution

8D Safety
Embed emergency plans and prevent security issues
Drone Photography & Overlay
QCR Codes
Augmented Reality
Virtual Reality
Pre-Fabrication
What is the average size of your construction industry clients?

- < 500 employees
- > 500 employees
Limiters

- < 500 employees
  - 92% of Firms
  - 82% of Employment
- Thin Margins
- High Cyclicality
- Limited Scale
Mega Projects
JAMES WEBB SPACE TELESCOPE

$9 BILLION

Location: United States
Estimated Completion: 2021

Why It’s Innovative
A successor to the Hubble Space Telescope built to discover light from the first stars and search for solar systems capable of supporting life.

4x farther from Earth than moon

Viewing point 1 million miles away
MERCEDES-BENZ STADIUM

$11 BILLION

**Location:** United States

**Estimated Completion:** 2018 (complete)

**Why It’s Innovative**

North America’s first **LEED platinum certified stadium** with an open-air design, rainwater recycling system, and circular video boards.

- Retractable “petal” roof for natural light
- 4,000 solar panels
**Hudson Yards**

$20 Billion

**Location:** United States  
**Estimated Completion:** 2024

**Why It’s Innovative**  
The largest private real estate development in U.S. history with more than 12 million square feet of mixed-use space.

- 4,000 residents
- In-house smart grid
Design Build Process
Design Inspiration
Design Inspiration
Design Inspiration
Design Build

40 months
Design Build Team

MANICA
DESIGN ARCHITECT

HNTB
ARCHITECT OF RECORD

JOINT VENTURE

ARUP
STRUCTURAL ENGINEER

SSR
MEP & FP ENGINEER

Kimley-Horn
CIVIL ENGINEER

WJHW
TECHNOLOGY CONSULTANT

DURAY
FOOD SERVICE CONSULTANT
Design Overview
Design Overview
Design Overview
Design Overview
Design Overview
Community Benefits
Putting Nevadans to Work
Construction Jobs

Local small and WMBE participation
Community engagement
Workforce diversity
Technical assistance & internship program
Charitable and civic endeavors
Improving the Entertainment Capital of the World

6,000+ jobs
Hotel/restaurant impact
High net-worth families
Raiders front office staff
A-List concerts
Music festivals
Bull riding
Monster trucks
Rodeos
Corporate and private events
Pac-12 championship
The Cool Stats
That is, if numbers are your thing...
How many dump trucks did it take to remove the 895,000 cubic yards of dirt from the stadium site?

- 25,000
- 100,000
- 64,000
895,000 CUBIC YARDS of DIRT REMOVED

64,000 DUMP TRUCKS TO REMOVE
12 MILES CONCRETE DRILLER SHAFT THAT SUPPORT THE STADIUM

EQUAL TO 3X THE LENGTH OF THE STRIP
SLIDING FIELD TRAY IS POWERED BY 72 INDIVIDUAL MOTORS
WEIGHS 19 MILLION POUNDS
NEARLY AS HEAVY AS THE EIFFEL TOWER (PARIS)
21,000 LIGHT FIXTURES
The amount of concrete in the stadium is enough to lay a side walk from:

- Las Vegas to Reno
- Las Vegas to Los Angeles
- Las Vegas to Lake Havasu
105,000
CUBIC YARDS of CONCRETE
257 MILES OF SIDEWALK FROM LAS VEGAS TO LA
9.85
MILES OF WIRE ROPES TO SUSPEND THE ETFE ROOF
7,400 GLASS AND METAL PANELS ON THE EXTERIOR
3,692 METAL STAIRS
The stadium contains 25,000 tons of structural steel, this is nearly as heavy as?

- The Golden Gate Bridge (A)
- The Bean at Millennium Park in Chicago (B)
- The Statue of Liberty (C)
25,000 TONS of STRUCTURAL STEEL
NEARLY AS HEAVY AS THE STATUE OF LIBERTY
425 TREES PLANTED
22 MILES OF HVAC PIPING
47 MILES OF WATER/WASTE PIPING
COUNTDOWN TO COMPLETION

DAYS  HOURS  MINUTES  SECONDS

325    12      5        11

LAS VEGAS STADIUM

Mortenson  McCarthy  MANICA  HNTB  CAA Icon

RAIDERS
Downturn?
Why Companies Fail?

- Poor Strategic Leadership
- Excessive Ego
- Too Much Change
- Loss of Discipline
- Inadequate Capitalization
What can your clients do?
“Contractors don’t starve to death; they die from gluttony...”

Source: 2019 FMI Overview U.S. & Canada Construction Outlooks