2019 Construction Outlook Survey Results

Open Shop Results

Total Responses: 637. Responses varied for some questions. Percentages are based on responses to each question and may not sum to 100 due to rounding.

1. Compared to 2018, do you expect the available dollar volume of projects you compete for in 2019 to be (answer for all market areas in which your business operates):

<table>
<thead>
<tr>
<th>Market</th>
<th>Higher</th>
<th>Lower</th>
<th>Same</th>
<th>Net*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail, Warehouse, Lodging</td>
<td>32%</td>
<td>10%</td>
<td>59%</td>
<td>22%</td>
</tr>
<tr>
<td>Private Office</td>
<td>27%</td>
<td>11%</td>
<td>62%</td>
<td>16%</td>
</tr>
<tr>
<td>K-12 School</td>
<td>30%</td>
<td>15%</td>
<td>55%</td>
<td>15%</td>
</tr>
<tr>
<td>Federal (e.g., VA, GSA, USACE, NAVFAC)</td>
<td>26%</td>
<td>12%</td>
<td>62%</td>
<td>14%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>30%</td>
<td>16%</td>
<td>54%</td>
<td>14%</td>
</tr>
<tr>
<td>Public Building</td>
<td>25%</td>
<td>11%</td>
<td>64%</td>
<td>13%</td>
</tr>
<tr>
<td>Higher Education</td>
<td>26%</td>
<td>13%</td>
<td>61%</td>
<td>13%</td>
</tr>
<tr>
<td>Multifamily Residential</td>
<td>31%</td>
<td>19%</td>
<td>50%</td>
<td>12%</td>
</tr>
<tr>
<td>Hospital</td>
<td>28%</td>
<td>17%</td>
<td>56%</td>
<td>11%</td>
</tr>
<tr>
<td>Water/Sewer</td>
<td>24%</td>
<td>13%</td>
<td>64%</td>
<td>11%</td>
</tr>
<tr>
<td>Highway</td>
<td>25%</td>
<td>17%</td>
<td>58%</td>
<td>8%</td>
</tr>
<tr>
<td>Power</td>
<td>20%</td>
<td>13%</td>
<td>67%</td>
<td>6%</td>
</tr>
<tr>
<td>Transportation (e.g., transit, rail, airport)</td>
<td>20%</td>
<td>17%</td>
<td>64%</td>
<td>3%</td>
</tr>
<tr>
<td>Other</td>
<td>33%</td>
<td>12%</td>
<td>55%</td>
<td>22%</td>
</tr>
</tbody>
</table>

*Net equals difference between number of “Higher” and “Lower” responses as percent of total.

2. What numerical change do you expect in your headcount in 2019?

- Increase: 43%
- No change: 17%
- Decrease: 3%

3. What percentage change do you expect in your headcount in 2019?

- Increase: 50%
- No change: 17%
- Decrease: 2%
4. How would you describe your current situation in filling salaried and hourly craft positions?

- We are having a hard time filling some or all positions: 82%
- We are having no difficulty filling any positions: 9%
- We have no openings for positions: 9%

5. Do you expect any changes in the availability of hourly craft or salaried personnel over the coming 12 months?

- It will continue to be hard to hire: 48%
- It will become harder to hire: 26%
- No change: 22%
- It will become easier to hire: 3%
- It will continue to be easy to hire: 1%

6. Did your firm increase pay or benefits for salaried or hourly craft personnel in 2018 because of difficulty filling positions? (mark all that apply)

- Yes, our firm increased base pay rates: 57%
- Yes, our firm provided incentives/bonuses: 25%
- Yes, our firm increased our portion of benefit contributions and/or improved employee benefits: 23%
- No, but we are considering increases in pay and/or benefits in the near future: 10%
- No, and we are not considering increases in pay and/or benefits: 6%
- Don’t know: 2%
- We did not seek to fill any positions: 1%
7. If your firm is experiencing staffing challenges, how would you describe the impact on your projects? (mark all that apply)

- Costs have been higher than we anticipated: 29%
- Projects have taken longer than we anticipated: 33%
- We have put higher prices into our bids or contracts: 36%
- We have put longer completion times into our bids or contracts: 18%
- No impact/Stay the same: 16%
- Completion times or costs have been lower than we anticipated: 1%
- Don’t know: 4%
- Other: 6%

8. Has your firm adopted or increased use of the following to replace workers or skills? (mark all that apply)

- Methods to reduce onsite worktime (e.g., lean construction, virtual construction such as BIM, offsite fabrication): 25%
- Labor-saving equipment (e.g., drones, robots, 3-D printers, laser-or GPS-guided equipment): 23%
- Added specialists (e.g., architects, BIM or lean construction personnel, drone or other equipment operators, data or IT personnel): 11%
- No changes: 44%

9. Compared to 2018, how will your firm's 2019 investment in training and development change?

- Increase: 66%
- Decrease: 1%
- Stay the same: 33%
10. Which of the following issues is the biggest concern to your firm?

- Worker shortages: 34%
- Rising direct labor costs (pay, benefits, employer taxes): 8%
- Increased competition for projects: 8%
- Growth in federal regulations: 8%
- Safety: 8%
- Worker quality: 7%
- Lack of infrastructure investments: 4%
- Growth in state and local regulations: 4%
- Internal company process inefficiencies: 3%
- Rising materials costs: 3%
- Not enough private sector work: 3%
- Relations with external process inefficiencies (such as collaboration with owners, subs and/or vendors): 2%
- Subcontractor defaults: 2%
- Rising subcontractor costs: 2%
- Rising indirect labor costs (recruitment, training): 1%
- Lack of public non-infrastructure work: 1%

11. What challenges, if any, do you see regarding the safety and health of your firm’s workers? (mark all that apply)

- Inexperienced skilled labor/workforce shortage: 46%
- Poor subcontractor safety and health performance: 16%
- Lack of cooperation from government agencies or regulators: 14%
- Low quality of available safety and health training: 3%
- Other: 2%
12. What change do you expect in 2019 in the number of your firm's projects that involve Building Information Modeling (BIM)?

- **Increase**: 15% (11-50%) 16% (more than 50%)
- **Stay the same ( +/-10%)**: 27%
- **Decrease**: 0%
- **We don't expect to use BIM on any projects in 2019**: 31%
- **Don't know**: 26%

13. What is your firm using BIM for? (mark all that apply)

- **We do not use BIM**: 44%
- **Clash detection**: 16%
- **Constructability input into the design process**: 15%
- **Visually communicate project scope to clients**: 12%
- **Design of 3D model**: 10%
- **Scheduling and workforce planning**: 10%
- **3D model-based takeoff for cost estimating**: 9%
- **Safety (identify safety issues, safety by design, safety training, etc.)**: 6%

14. Does your firm utilize lean construction principles on its projects and/or in its operation?

- **Yes**: 38%
- **No**: 46%
- **Don't know**: 16%
15. Does your firm use any of the following collaborative project delivery methods? (mark all that apply)

- Design-Build: 41%
- Design-Assist: 24%
- Public-Private Partnerships: 10%
- Integrated Project Delivery (IPD): 7%
- None: 20%
- Don't know: 5%

16. Does your firm use any of the following to collaborate with project partners? (mark all that apply)

- File-sharing sites such as Dropbox: 52%
- Online project collaboration software: 34%
- BIM: 18%
- Home-grown project web site: 12%
- None: 9%
- Don't know: 4%

17. What business or IT functions does your firm outsource or plan to outsource to a technology provider? (mark all that apply)

- Backup and disaster recovery: 24%
- Network management: 19%
- Desktop (light maintenance): 18%
- Voice over IP (phone service over the internet): 14%
- Other business or IT functions: 13%
- Our firm doesn't currently outsource or plan to outsource any business or IT functions: 11%
- Payroll: 11%
- Lien waiver processing: 4%
- Subcontractor insurance processing: 4%
- Accounts payable automation: 3%
- Accounts receivable payment automation: 2%
- Prequalification: 2%
- Inventory: 1%
- Other business or IT functions: 1%
- Currently outsource
- Plan to outsource
18. Approximately what percent of your firm’s gross annual revenue is spent on IT?

- Less than 1%: 15%
- 1 to 1.9%: 27%
- 2 to 2.9%: 8%
- 3% or more: 6%
- Don’t know: 15%

19. Compared to 2018, how will your firm’s 2019 investment in IT change?

- Increase: 45%
- Decrease: 3%
- Stay the same: 43%
- Don’t know: 9%

20. Compared to 2018, how will your firm’s 2019 investment in the following technologies change? (mark all that apply)

<table>
<thead>
<tr>
<th>Technologies</th>
<th>Increase</th>
<th>Stay the same</th>
<th>Decrease</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project management software</td>
<td>30%</td>
<td>55%</td>
<td>1%</td>
<td>14%</td>
</tr>
<tr>
<td>Document management software</td>
<td>30%</td>
<td>55%</td>
<td>1%</td>
<td>14%</td>
</tr>
<tr>
<td>Estimating software</td>
<td>25%</td>
<td>63%</td>
<td>1%</td>
<td>11%</td>
</tr>
<tr>
<td>Scheduling software</td>
<td>25%</td>
<td>60%</td>
<td>1%</td>
<td>14%</td>
</tr>
<tr>
<td>Fleet tracking/management software</td>
<td>22%</td>
<td>59%</td>
<td>0%</td>
<td>18%</td>
</tr>
<tr>
<td>Human resources (HR) software</td>
<td>22%</td>
<td>61%</td>
<td>0%</td>
<td>16%</td>
</tr>
<tr>
<td>Accounting software</td>
<td>21%</td>
<td>71%</td>
<td>1%</td>
<td>7%</td>
</tr>
<tr>
<td>Building Information Modeling (BIM)</td>
<td>19%</td>
<td>43%</td>
<td>2%</td>
<td>36%</td>
</tr>
<tr>
<td>Project collaboration software</td>
<td>19%</td>
<td>58%</td>
<td>1%</td>
<td>23%</td>
</tr>
<tr>
<td>Client relationship management (CRM) software</td>
<td>18%</td>
<td>55%</td>
<td>1%</td>
<td>26%</td>
</tr>
<tr>
<td>Payroll software</td>
<td>17%</td>
<td>73%</td>
<td>0%</td>
<td>10%</td>
</tr>
<tr>
<td>Service management software</td>
<td>11%</td>
<td>61%</td>
<td>1%</td>
<td>27%</td>
</tr>
<tr>
<td>Subcontractor bid management/ITB software</td>
<td>11%</td>
<td>64%</td>
<td>1%</td>
<td>25%</td>
</tr>
<tr>
<td>Prequalification software</td>
<td>5%</td>
<td>66%</td>
<td>1%</td>
<td>29%</td>
</tr>
<tr>
<td>Other</td>
<td>10%</td>
<td>50%</td>
<td>0%</td>
<td>40%</td>
</tr>
</tbody>
</table>

21. How comfortable is your firm with moving its data to the cloud?

- Very comfortable: 29%
- Moderately comfortable: 42%
- Not comfortable: 22%
- No opinion: 7%
22. How does your firm plan to use mobile software technology? (mark all that apply)

- Daily field reports: 45%
- Access to customer and job information from the field: 40%
- Employee time tracking and approval: 40%
- Sharing of drawings, photos and documents: 40%
- Access to job cost and project reports from the field: 33%
- Punch lists: 30%
- Equipment tracking: 27%
- RFI/Issue tracking: 24%
- Submittals and commitments: 24%
- Scheduling: 23%
- GPS tracking (e.g. fleet tracking): 23%
- Change management: 17%
- Estimating: 15%
- Processing service work orders in the field: 11%
- Building Information Modeling (BIM): 11%
- Material acceptance at the job site: 10%
- Inventory tracking: 10%
- Processing payments in the field: 7%
- No plan to use mobile technology software: 3%
- Don't know/Unsure: 6%

23. Which of the following cloud service models does your firm currently use or plan to use? (mark all that apply)

- Cloud hosting: we outsource our servers and networking components to a cloud service provider’s data center
  - Current use: 18%
  - Plan to use: 5%

- Hybrid cloud: our software and data is on a private network but can be securely accessed with a web browser
  - Current use: 24%
  - Plan to use: 3%

- SaaS: we use software-as-a-service (SaaS) applications that are fully cloud-based
  - Current use: 8%
  - Plan to use: 2%
24. Does your firm currently have a mobile security plan in place?

- Yes: 36%
- No: 46%
- Don't know: 18%

25. Does your firm currently have a formal IT plan that support your business objectives?

- Yes: 48%
- No: 33%
- Not yet, but plan to in 2019: 10%
- Don't know: 9%

26. What are your firm’s biggest IT challenges? (mark all that apply)

- Employee resistance to technology: 28%
- Time needed to implement and train on new technology: 28%
- Communication between field and office: 24%
- Connectivity to remote job sites: 24%
- Keeping company data secure from hackers: 21%
- Keeping software current: 17%
- Integration between software used inside of our company: 16%
- Keeping hardware current: 16%
- Integration with software used by project partners outside our company: 12%
- Outdated company software and systems: 10%
- Management resistance to technology: 6%
- Don't know: 4%
- None: 3%
27. What best describes your firm:

- General contractor/construction manager: 50%
- Specialty or sub-contractor: 39%
- Supplier/service provider: 6%
- Architect/engineer/designer: 1%
- Other: 4%

28. When you self-perform construction work, do you operate as a union contractor or an open-shop contractor?

- We always operate as a union contractor: 0%
- We primarily operate as a union contractor but not always: 0%
- We primarily operate as an open-shop contractor but not always: 0%
- We always operate as an open-shop contractor: 100%
- We do not self-perform or directly hire craft personnel: 0%

29. Estimate the total dollar amount of work your firm performed in 2018.

- $50 million or less: 67%
- $50.1 million-$500 million: 28%
- Over $500 million: 5%

30. How many total employees does your firm employ at all of its locations?

- 1-19: 20%
- 20-99: 41%
- 100-499: 29%
- 500 or more: 10%