US Construction Spending, Labor and Materials Outlook

BIMForum
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Ken Simonson
Chief Economist, AGC of America
simonsonk@agc.org
Construction spending & employment, 2006-2017

**Total spending, Feb. ‘06 (peak)-Jan. ‘17**
- $1.21 trillion (peak)
- $1.18 trillion (2% below peak)

**Total employment, Apr. ’06 (peak)-Jan. ‘17**
- 7.7 million (at peak)
- 6.7 million (13% below peak)

**January 2016-January 2017:**
- Total: 3%
  - Private res.: 6%
  - Private nonres.: 9%
  - Public: -9%
- Residential: 4%
- Nonresidential: 0%

Source: Spending--U.S. Census Bureau; Employment--Bureau of Labor Statistics
Policy possibilities & uncertainties affecting construction

• **Infrastructure:** How much? How soon? What types? Funding source?
• **Immigration:** Impact on new & current workers? Wall construction?
• **Trade:** Higher materials costs? Shortages? Less or more factory const.?
• **Regulatory relief:** Which ones? How soon?
• **Health care rewrite:** Timing? Impact on demand for hospital const.?
• **Fiscal:** Lower taxes? For whom? Bigger deficits? Implications for construction demand, labor supply?
• **Monetary:** Higher interest rates? Impact on housing, state/local bonds?
## Nonresidential segments: 2014-16 change, 2017 forecast

<table>
<thead>
<tr>
<th>Nonresidential total (public+private)</th>
<th>2015 vs. 2014</th>
<th>2016 vs. 2015</th>
<th>2017 forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power (incl. oil &amp; gas field structures, pipelines)</td>
<td>-16</td>
<td>4</td>
<td>5-10</td>
</tr>
<tr>
<td>Highway and street</td>
<td>6</td>
<td>1</td>
<td>2-5</td>
</tr>
<tr>
<td>Educational</td>
<td>5</td>
<td>6</td>
<td>3-7</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>33</td>
<td>-4</td>
<td>&lt;0</td>
</tr>
<tr>
<td>Commercial (retail, warehouse, farm)</td>
<td>6</td>
<td>11</td>
<td>0-5</td>
</tr>
<tr>
<td>Office</td>
<td>18</td>
<td>25</td>
<td>8-13</td>
</tr>
<tr>
<td>Transportation</td>
<td>8</td>
<td>-6</td>
<td>0-5</td>
</tr>
<tr>
<td>Health care</td>
<td>5</td>
<td>2</td>
<td>0-5</td>
</tr>
<tr>
<td>Lodging</td>
<td>30</td>
<td>25</td>
<td>~0</td>
</tr>
<tr>
<td>Sewage &amp; waste disposal</td>
<td>5</td>
<td>-9</td>
<td></td>
</tr>
<tr>
<td>Other--amusement; communication; religious; public safety; conservation; water: 10% of total</td>
<td>9</td>
<td>-1</td>
<td></td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau construction spending report; Author’s forecast
Construction spending: industrial, heavy
annual total, 2008-13; monthly, SAAR, 1/14-1/17; billion $

Power (93% private in 2016)
- Jan. '16-Jan. '17 change: 2% (oil & gas -17%; electric 8%)

Manufacturing (99% private)
- Jan. '16-Jan. '17 change: -7% (chemical 4%; other -16%)

Amusement & recreation (55% private)
- Jan. '16-Jan. '17 change: 10% (private 18%; public 1%)

Communication (99.6% private)
- Jan. '16-Jan. '17 change: -2%

Source: U.S. Census Bureau construction spending report
Key points: power, manufacturing, recreation

- Solar, wind power are growing again; expect more gas-fired plants, natural gas pipelines into ‘18
- Mfg decline led by completion or delay of chemical plants (fertilizer, ethane crackers, petrochemicals, LNG) and transportation equipment (cars, trucks, jets, railcars); recovery in ‘18 depends on policy impacts
- Amusement & recreation spending is very “lumpy”—a few big stadiums at irregular intervals; but funding for local, state, federal parks keeps eroding

Source: Author
Construction spending: public works
annual total, 2008-13; monthly, SAAR, 1/14-1/17; billion $

Highways (99.7% public in 2016)
Jan. '16-Jan. '17 change: -10%

Sewage/waste (99% public)
Jan. '16-Jan. '17 change: -28%

Transportation facilities (71% public)
Jan. '16-Jan. '17 change: -12% (private -11%; public -12%)

Water supply (99% public)
Jan. '16-Jan. '17 change: -11%

Source: U.S. Census Bureau construction spending report
Key points: roads, transportation, sewer/water

• Highway funds benefit from more travel, hence fuel purchases; gradual pick-up in state funding & P3s; higher federal funding unlikely before ‘18

• Railroads slashing investment; pickup in airport projects but no increase likely in port, transit construction funding

• Eastern & Midwestern cities under orders to make long-term upgrades to sewer systems that should keep a floor on spending; water utilities hurt by drought, conservation but may get money for lead abatement

Source: Author
Construction spending: education, health care
annual total, 2008-13; monthly, SAAR, 1/14-1/17; billion $

**Education**: state/local K-12, S/L higher; private

- Jan. '16-Jan. '17 change: 5% (state/local preK-12 9%; state/local higher ed -9%; private 16%)

**Health care**: (private hospital, S/L hospital, other)

- Jan. '16-Jan. '17 change: 7% (private hospital 9%; S/L hospital -20%; other: special care, med. office, federal 5%)

Source: U.S. Census Bureau construction spending report
Key points: education & health care

• Bond issues passed in 2014-16 should boost preK-12 projects in 2017 and 2018

• Higher-ed enrollment declined 21% from 2011 to 2016, so colleges need fewer dorms & classrooms; apts. (multifamily) replacing dorms (educational construction)

• Hospitals face uncertainty about utilization and reimbursement rates if Affordable Care Act is repealed/modified/replaced; also, more competition from standalone urgent care, outpatient surgery, clinics in stores

Source: Author
Construction spending: developer-financed
annual total, 2008-13; monthly, SAAR, 1/14-1/17; billion $

Retail (private)
Jan. '16-Jan. '17 change: 7%

Office (89% private in 2016)
Jan. '16-Jan. '17 change: 29% (private 34%; public -5%)

Warehouse (private)
Jan. '16-Jan. '17 change: 25%

Lodging (private)
Jan. '16-Jan. '17 change: 23%

Source: U.S. Census Bureau construction spending report
Key points: retail, warehouse, office, hotel, data centers

• Retail now tied to mixed-use buildings & renovations, not standalone stores or shopping centers
• Warehouse market still benefiting from e-commerce; more local than huge regional distribution centers likely in future
• Record employment each month but office space per employee keeps shrinking; more urban & renovation work than suburban office parks
• Hotel construction likely to drop as revenue per available room slows
• Data centers remain a strong niche but no daa available on how strong
Private residential spending: MF continues to outpace SF

- **Seasonally adjusted annual rate (SAAR):** Jan. 2011 ($238 B)-Jan. 2017 ($476 B)

  - **Multifamily (MF):** (Jan. ‘17: $64 B)
  - **Single-family (SF):** (Jan. ‘17: $254 B)
  - **Improvements:** (Jan. ‘17: $159 B)

- **12-month % change:** Jan. 2011 (-5.3 %)-Jan. 2017 (3.7 %)

  - **Improvements:** 10.8%
  - **Multifamily:** 9.0%
  - **Total:** 5.9%
  - **Single-family:** 2.3%

Source: U.S. Census Bureau construction spending reports
Private residential spending--2016: 5%; 2017 forecast: 5-10%

- SF: 4% in 2016, **6-11% in 2017**; ongoing job gains add to demand; but student debt and other credit impairments, limited supply will limit growth
- MF: 16% in 2016, **5-10% in 2017**; growth slowing but should last till 2018
  - occupancy rates, rents have leveled off or dipped in some markets
  - millennials are staying longer in cities, denser suburbs where MF construction is bigger share of market than in outer suburbs
  - nearly all MF construction is rental, not condo
- Improvements: 4% in 2016, **0-10% in 2017**; Census data is not reliable and shows only a loose relationship to SF spending

Source: Author
Population change by state, July 2015-July 2016 (U.S.: 0.70%)

Source: U.S. Census Bureau
State construction employment change (U.S.: 1.5%)

12/15 to 12/16: 32 states up, 18 + DC down

Shading based on unrounded numbers

Source: BLS state and regional employment report
Metro construction employment change
12/15 to 12/16: 183 metros up (51%), 65 unchanged, 109 + DC down (31%)
### Hardest positions to fill

<table>
<thead>
<tr>
<th>Position</th>
<th>% of respondents who are having trouble filling</th>
</tr>
</thead>
<tbody>
<tr>
<td>All hourly craft positions</td>
<td>69%</td>
</tr>
<tr>
<td>Carpenters</td>
<td>60%</td>
</tr>
<tr>
<td>Electricians</td>
<td>53%</td>
</tr>
<tr>
<td>Plumbers, roofers</td>
<td>50%</td>
</tr>
<tr>
<td>Concrete workers</td>
<td>49%</td>
</tr>
<tr>
<td>Salaried field/office positions</td>
<td>38%/33%</td>
</tr>
<tr>
<td>Project mgrs/supervisors</td>
<td>50%</td>
</tr>
<tr>
<td>Estimators</td>
<td>31%</td>
</tr>
<tr>
<td>Engineers</td>
<td>28%</td>
</tr>
</tbody>
</table>

Source: AGC Member Survey, August 2016
### How contractors are coping with worker shortages

<table>
<thead>
<tr>
<th>Method</th>
<th>Hourly (%)</th>
<th>Salaried (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raising base pay</td>
<td>43</td>
<td>48</td>
</tr>
<tr>
<td>Providing incentives/bonuses</td>
<td>20</td>
<td>27</td>
</tr>
<tr>
<td>Increasing contributions/benefits</td>
<td>22</td>
<td>21</td>
</tr>
<tr>
<td>In-house training</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>Overtime hours</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>Subcontractors</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Engage w/ career-building prog.</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Staffing company</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Labor-saving equip., tools, mach.</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Unions</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Lean construction</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Offsite prefabrication</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Building information modeling (BIM)</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>
Construction workforce indicators (not seasonally adjusted)

Source: Bureau of Labor Statistics
Producer price indexes for key inputs, 1/11-1/17 (Jan. 2011=100)

- **Diesel fuel**: Latest 1-mo. change: 2.2%, 12-mo.: 35%

- **Steel mill products**: Latest 1-mo. change: 1.6%, 12-mo.: 11%

- **Copper & brass mill shapes**: Latest 1-mo. change: -1.1%, 12-mo.: 20%

- **Aluminum mill shapes**: Latest 1-mo. change: 0.9%, 12-mo.: 5%
Producer price indexes for key inputs, 1/11-1/17 (Jan. 2011=100)

**Gypsum products**
Latest 1-mo. change: 0.8%, 12-mo.: 3%

**Paving mixtures**
Latest 1-mo. change: 7.5%, 12-mo.: -1%

**Flat glass**
Latest 1-mo. change: 0.2%, 12-mo.: 2%

**Concrete products**
Latest 1-mo. change: 0.4%, 12-mo.: 3%

Source: Bureau of Labor Statistics
### 2015-16 summary, 2017 forecast

<table>
<thead>
<tr>
<th></th>
<th>2015 actual</th>
<th>2016 actual</th>
<th>2017 forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total spending</td>
<td>11%</td>
<td>5%</td>
<td>2-7%</td>
</tr>
<tr>
<td>Private – residential</td>
<td>17%</td>
<td>5%</td>
<td>5-10%</td>
</tr>
<tr>
<td>– nonresidential</td>
<td>8%</td>
<td>8%</td>
<td>2-7%</td>
</tr>
<tr>
<td>Public</td>
<td>5%</td>
<td>-1%</td>
<td>0-3%</td>
</tr>
<tr>
<td>Goods &amp; serv. inputs PPI</td>
<td>-2%</td>
<td>2%</td>
<td>2-4%</td>
</tr>
<tr>
<td>Employment cost index</td>
<td>2.2%</td>
<td>2.2%</td>
<td>3-4%</td>
</tr>
</tbody>
</table>

Source: actuals: Census, BLS; forecasts: Author’s estimates
AGC economic resources
(email simonsonk@agc.org)

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