US Construction Spending, Labor & Materials Outlook

FTA Revenue Estimating Conference
New Orleans    September 23, 2019
Ken Simonson
Chief Economist, AGC of America
ken.simonson@agc.org
Headline Forecast

• The US economy is still expanding but more slowly:
  - consumer, business confidence, stocks are still high but getting more volatile
  - latest data are weak for manufacturing; mixed for apts., single-family housing
  - concerns about trade, slowing global growth have added to recession risk

• Contractors remain busy and confident; construction employment is growing in most states and spending is up in most project categories

• Three concerns:
  - impact of trade policies on materials costs and on demand for construction
  - ongoing labor shortage, worsened by hostile immigration policy
  - if interest rates rise, may cut demand for income-producing projects, new homes

Source: Author
Construction spending & employment, 2006–2019

Spending put in place, Feb. ‘06 (prior peak)–July ‘19
trillion $, seasonally adjusted annual rate

7/18–7/19 % change:
Total: -2.7%

7/19 Total: $1.29 trillion
(3% below ‘18 peak)

Private residential
(25% below ‘06 peak)
Private nonresidential
(4% below ‘18 peak)
Public
(4% below ‘19 peak)

7/19 Total: $1.29 trillion
(3% below ‘06 peak)

Employment, April ‘06 (peak)–July ‘19
millions, seasonally adjusted

7/18–7/19 % change:
Total: 2.8%

7/19 Total: 7.5 million
(3% below ‘06 peak)

Nonresidential
(3% above ‘08 peak)
Residential
(16% below ‘06 peak)

Nonres: 2.7%
Res: 2.8%

Source: spending--U.S. Census Bureau; employment--Bureau of Labor Statistics
### Nonresidential spending by segment: 2017-2018 change and 2019 forecast

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonresidential total (public+private)</td>
<td>3.7%</td>
<td>2.6%</td>
<td>2-4%</td>
<td>0-4%</td>
</tr>
<tr>
<td>Educational</td>
<td>1</td>
<td>-3</td>
<td>-1 to -3</td>
<td>0-5%</td>
</tr>
<tr>
<td>Power (incl. oil &amp; gas field structures, pipelines)</td>
<td>-3</td>
<td>8</td>
<td>6-8</td>
<td>5-10%</td>
</tr>
<tr>
<td>Highway and street</td>
<td>2</td>
<td>12</td>
<td>10-12</td>
<td>5-10%</td>
</tr>
<tr>
<td>Office</td>
<td>8</td>
<td>7</td>
<td>5-6</td>
<td>near 0</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0.1</td>
<td>4</td>
<td>2-4</td>
<td>near 0</td>
</tr>
<tr>
<td>Transportation (air, land, water)</td>
<td>12</td>
<td>8</td>
<td>6-8</td>
<td>5-10%</td>
</tr>
<tr>
<td>Retail</td>
<td>5</td>
<td>-26</td>
<td>-20 to -30</td>
<td>-15 to -20%</td>
</tr>
<tr>
<td>Health care</td>
<td>-1</td>
<td>4</td>
<td>3-5</td>
<td>-0-5%</td>
</tr>
<tr>
<td>Warehouse</td>
<td>16</td>
<td>-3</td>
<td>-1 to -3</td>
<td>near 0</td>
</tr>
<tr>
<td>Lodging</td>
<td>10</td>
<td>11</td>
<td>9-11</td>
<td>near 0</td>
</tr>
<tr>
<td>Sewage &amp; waste disposal</td>
<td>4</td>
<td>6</td>
<td>6-8</td>
<td></td>
</tr>
<tr>
<td>Other* (13% of 2018 total)</td>
<td>6</td>
<td>-1</td>
<td>-1 to 1</td>
<td></td>
</tr>
</tbody>
</table>

*Amusement, farm, communication, water supply, public safety, conservation, and religious

Source: U.S. Census Bureau construction spending report; Author’s forecast
Construction spending: public works
annual total, 2008–17; monthly, 1/18-7/19 (seasonally adjusted annual rate); billion $

Highways (99.7% public in 2018)

Sewage/waste & water
(2018 public shares: sewage 98%; water 98%)

Transportation (68% public in 2018)
(air, transit, rail trucking, water)

Conservation and development
(99.7% public in 2018)

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

• Any federal infrastructure spending increase won’t occur until 2021 or later, but state highway funding and toll projects are increasing
• Many new and ongoing public & private airport projects; selective increases in transit construction
• Water & sewer/wastewater spending are at or near record levels after large drop in 2016-17; little long-term new funding likely
• Conservation will grow if Corps of Engineers can award enough $
Construction spending: industrial, heavy
annual total, 2008–17; monthly, 1/18-7/19 (seasonally adjusted annual rate); billion $

Power (94% private in 2018)

Jul ’18–Jul ’19: 0% (oil & gas 8%; electric -2%)

Manufacturing (99.4% private in 2018)

Jul ’18–Jul ’19: 3% (chemical -4%; other 9%)

Amusement & recreation (56% private in 2018)

Jul ’18–Jul ’19: -4% (private -12%; public 5%)

Communication (99.3% private in 2018)

Jul ’18–Jul ’19: -5%

Source: U.S. Census Bureau construction spending report
Key points: power & energy, mfg, amusement, communication

• Solar, wind power are growing; oil & natural gas pipelines have hit court & regulatory delays; new drilling is down as oil, gas prices fall

• Manufacturing construction is benefitting from energy projects, U.S. economic growth; but tariffs, foreign retaliation, slowing global economy are major concerns

• Amusement & recreation spending is very “lumpy”—a few big stadiums at irregular intervals; but funding for local, state, federal parks keeps eroding

• Communication may revive as wireless firms build out 5G networks

Source: Author
Construction spending: education, health care
annual total, 2008–17; monthly, 1/18-7/19 (seasonally adjusted annual rate); billion $

Education (78% public in 2018)

- Jul ‘18–Jul ‘19: -5% (state/local preK-12 -2%; state/local higher ed -4%; private -18%)

Health care (78% private in 2018)

- Jul ‘18–Jul ‘19: 5% (hospital 0%; medical building 11%; special care 28%)

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

• Rising house & commercial property values are supporting school district tax receipts & bond issues for preK-12 projects
• More school spending is on urban/older suburban school reconstruction & expansion, less on new schools in new subdivisions
• Higher-ed enrollment is shrinking and some small colleges are closing; decrease in full-tuition foreign students will hurt budgets
• State of stock market affects college construction capital campaigns
• Health care spending is shifting from hospitals to standalone special-care facilities (urgent care, surgery, rehab, hospices) and doctors’ offices

Source: Author
Construction spending: developer-financed
annual total, 2008–17; monthly, 1/18-7/19 (seasonally adjusted annual rate); billion $

Retail (private)
Jul ‘18–Jul ‘19: -33%

Office (87% private in 2018)
Jul ‘18–Jul ‘19: 6% (private 6%; public 3%)

Warehouse (private)
Jul ‘18–Jul ‘19: -1%

Lodging (private)
Jul ‘18–Jul ‘19: 7%

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 stand-alone structures; massive store closings imply ongoing downturn

• Warehouse growth is still benefiting from e-commerce but trade wars are reducing inbound and outbound shipments

• Office employment is still rising but space per worker is shrinking; more urban & renovation work than new suburban office parks

• Hotel “pipeline” is still large but sector is very interest-rate sensitive

• Data centers remain a strong niche but no data available on how strong

Source: Author
Private residential spending: single-family poised to grow; pickup in multifamily annual total, 2006–17; monthly, 1/18-7/19 (seasonally adjusted annual rate); billion $

Source: U.S. Census Bureau construction spending report
Residential spending forecast—2019: -3 to -5%; 2020: 2-7% (3% in 2018)

- Single-family—2019: -6 to -8%; 2020: 5-10% (7% in 2018); low interest rates, rising income & wealth will boost home buying, but builders face challenges

- Multifamily—2019: 5-7%; 2020: 0-5% (-1% in 2018)
  - occupancy rates, rents have leveled off; some millennials moving to houses but some seniors moving to apartments
  - millennials are staying longer in cities and denser suburbs where multifamily construction is bigger share of market than in outer suburbs
  - nearly all multifamily construction is rental, not condo; more high-rises

- Improvements—2019: -7 to -9%; 2020: 5-10% (-2% in 2018); additions and renovations should track homebuying closely

Source: Author
Population change by state, July 2017–July 2018 (U.S.: 0.62%)

**Top 5**
- NV: 2.1%
- ID: 2.1%
- UT: 1.9%
- AZ: 1.7%
- FL: 1.5%

**Bottom 5**
- WV: -0.6%
- IL: -0.4%
- AK: -0.3%
- HI: -0.3%
- NY: -0.2%

Source: U.S. Census Bureau
State construction employment change (U.S.: 3.2%)

7/18 to 7/19: 40 states and DC up, 10 states down

**Top 5**
- Wyoming: 13.1%
- West Virginia: 11.7%
- North Dakota: 11.6%
- Arizona: 11.0%
- Nevada: 8.8%

**Bottom 5**
- Louisiana: -7.9%
- Vermont: -3.3%
- South Carolina: -2.7%
- Connecticut: -2.6%
- Massachusetts: -1.6%

Note: Shading based on unrounded numbers
Source: BLS state and regional employment report
Metro construction employment change (U.S.: 3.2%)

7/18 to 7/19: 255 (71%) of 358 metros up, 47 unchanged, 56 (16%) down

Source: BLS state and regional employment report
Construction workforce indicators (not seasonally adjusted)

Construction openings: all-time high; hires steady (July data, 2009-19)

- Openings: 373,000
- Hires: 442,000

Construction job openings rate has been growing as pay accelerates (July data, 2009-19)

- 12-mo % change in construction average hourly earnings: 4.6%
- Job openings rate in construction: 2.5%

Source: Bureau of Labor Statistics
12-month change in producer price index for key inputs

Source: Bureau of Labor Statistics
## Summary: 2018 actual, 2019 year-to-date & forecast

<table>
<thead>
<tr>
<th></th>
<th>2018 actual</th>
<th>Jan.-July ’19 vs. ’18</th>
<th>2019 forecast</th>
<th>2020 forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total spending</strong></td>
<td>3%</td>
<td>-2%</td>
<td>0-2%</td>
<td>1-5%</td>
</tr>
<tr>
<td><strong>Private – residential</strong></td>
<td>3%</td>
<td>-9%</td>
<td>-3 to -5%</td>
<td>2-7%</td>
</tr>
<tr>
<td><strong>– nonresidential</strong></td>
<td>4%</td>
<td>0.6%</td>
<td>0-2%</td>
<td>0-4%</td>
</tr>
<tr>
<td><strong>Public</strong></td>
<td>4%</td>
<td>6%</td>
<td>3-5%</td>
<td>0-4%</td>
</tr>
<tr>
<td><strong>Goods &amp; services inputs PPI</strong></td>
<td>3.8%*</td>
<td>0.1%**</td>
<td>2-3%</td>
<td>3-5%</td>
</tr>
<tr>
<td><strong>Wages &amp; salaries (avg. hourly earnings)</strong></td>
<td>3.6%*</td>
<td>2.7%**</td>
<td>3-3.5%</td>
<td>3.5-4.5%</td>
</tr>
</tbody>
</table>

AGC economic resources
(email ken.simonson@agc.org)

• The Data DIGest: weekly 1-page email (subscribe at http://store.agc.org)

• monthly press releases: spending; producer price indexes; national, state, metro employment with rankings

• yearly employment & outlook surveys, state and metro data, fact sheets: www.agc.org/learn/construction-data
D.C., 39 states add construction jobs through August; ABI slides; housing starts surge

Seasonally adjusted construction employment increased from August 2018 to August 2019 in 39 states and the District of Columbia and declined in 10 states and was unchanged in Mississippi, Bureau of Labor Statistics data released today show. AGC posted analysis and a revised set of state construction fact sheets. Texas added the most construction jobs over the year (43,900 jobs, 5.9%), followed by California (34,300 jobs, 4.0%), Florida (20,900 jobs, 3.8%), and Arizona (15,400 jobs, 9.7%). North Dakota added the highest percentage of construction jobs over 12 months (12.1%, 3,100 jobs), followed by Nevada (11.7%, 10,500 jobs), Arizona, and New Mexico (9.2%, 4,300 jobs). Construction employment reached new highs (in records dating back to 1990) in two states: Nebraska and Texas. Louisiana again lost the largest number and percentage of construction jobs for the year (-10,100 jobs, -6.6%). Other states with large job losses include Ohio (-3,600 jobs, -1.6%), Maryland (-1,600 jobs, -1%), Vermont (-1,000 jobs, -6.6%) and Connecticut (-1,000 jobs, -1.7%). Construction employment rose from July to August in 29 states, decreased in 21 and was flat in D.C. (AGC’s rankings are based on seasonally adjusted data, which in D.C., Hawaii and Delaware is available only for construction, mining and logging combined.)

“Demand for design services in August took a markedly downward swing compared to July’s already soft score,” the American Institute of Architects (AIA) reported on Wednesday. AIA’s Architecture Billings Index (ABI) “score of 47.2 in August showed a significant drop in architecture firm billings compared to the July score of 50.1. (Any score below 50 [on a 0-100 scale] indicates a decrease in billings.) The design contracts score also declined to 47.9 in August, representing a rare dip for this indicator….The sizeable drop in both design billings and new project activity, coming on the heels of six months of disappointing growth in billings, suggests that the design expansion that began in mid-2012 is beginning to face headwinds,” said AIA Chief Economist Kermit Baker….“Currently, the weakness is centered at firms specializing in commercial/industrial facilities as well as those located in the Midwest. However, there are fewer pockets of strength in design activity now, either by building sector or region than there have been in recent years.” The ABI measures the percentage of surveyed architecture firms that reported higher billings than a month earlier, less the percentage reporting lower billings. Scores (based on three-month moving averages) varied by practice specialty: institutional, 50.6, up from 49.5 in July; residential (mainly multifamily), 50.5, up from 49.8; commercial/industrial, 46.9, down from 47.3; and mixed practice, 46.3, down from 48.9.

Housing starts (units) in August jumped to the highest level in 12 years, up 12% at a seasonally adjusted annual rate from July and 6.6% year-over-year (y/y) from August 2018, the Census Bureau reported on Wednesday. Multifamily (five or more units) starts soared 31% from July and 14% y/y, although the data are typically volatile and often substantially revised in later months. Single-family starts increased 4.4% for the month and 3.4% y/y. For the first eight months of 2019 combined, total starts slipped 1.8% from a year ago, with single-family starts down 2.7% and multifamily starts up 0.4%. Residential permits climbed 7.7% for the month and 12% y/y. Multifamily permits jumped 15% and 27%, respectively. Single-family permits rose 4.5% for both intervals. Multifamily permits in the first eight months of 2019 combined totaled 298,000, 22% higher than year-to-date starts, implying there is a backlog of projects that may break ground in the next several months.

“The latest labor force statistics from the [Census Bureau’s] 2018 Current Population Survey show that the construction industry continues to struggle to attract younger workers,” the National Association of Home Builders posted on Thursday in its “Eye on Housing” blog. “While workers under the age of 25 comprised 12.3% of the U.S. labor force, their share in the construction industry reached only 9% in 2018. Meanwhile, the share of older construction workers ages 55+ increased from less than 17% in 2011 to almost 22% in 2018. An earlier post showed that the construction workforce is aging faster than the overall labor force. Compared to the workforce in all industries, construction has a relatively smaller share of younger workers, but a larger proportion of workers in their prime-working age….as of 2018, only about 9% of construction workers were 16-24 years old, less than the employment share of this age group in all industries. Around 69% of construction workforce were in the prime working years of 25-54, compared to 64% in overall workforce. The share of workers ages 55 and older was 21.7% in construction, implying that a substantial portion of workforce would retire in near future….Analysis of the age distribution of construction workers over time reveals that the construction workforce is aging, with the share of older workers ages 55+ rising from 16.8% in 2010 to almost 22% in 2018. At the same time, the proportion of workers ages 25 to 54 declined from 74.6% to 69.3%. This change in age composition of construction labor force is largely because the last elements of the Baby Boomer generation are entering the 55+ age group. The share of younger construction workers ages 19 -24 edged up to 9.0% from 8.6%.”

“The U.S. Energy Information Administration (EIA) expects that U.S. wind capacity additions in both 2019 and in 2020 will be near the annual record level of additions set in 2012,” EIA posted on Thursday in its “Today in Energy” blog. “Wind capacity additions through June 2019 totaled 3.7 gigawatts (GW). According to projects reported to EIA through surveys and on EIA’s Preliminary Monthly Electric Generator Inventory, operators expect another 8.5 GW to come online by the end of this year, with an additional 14.3 GW by the end of 2020….the legislated phaseout of the PTC extension for wind is largely driving the increase in annual wind capacity additions in 2019.” Offshore projects may increase in 2020, but timing remains uncertain.
**The Economic Impact of Construction in the United States and California**

**Economic Impact of Construction:**
- U.S. gross domestic product (GDP)—the value of all goods and services produced in the country—totaled $20.6 trillion in 2018; construction contributed $840 billion (4.1%). In California, construction contributed $111 billion (3.8%) of the state’s GDP of $3 trillion.
- Construction wages and salaries in 2018 totaled $468 billion in the United States, including $62.3 billion in California.

**Construction Spending and Starts:**
- Nonresidential spending in the U.S. totaled $761 billion in 2018 ($461 billion private, $301 billion public).
- Residential construction spending in the U.S. totaled $546 billion ($290 billion single family, $60 billion multifamily, $190 billion improvements, $7 billion public).
- Private nonresidential spending in California totaled $30.1 billion in 2018. State and local spending totaled $30.3 billion. (Totals are not available for residential or federal construction spending).
- Nonresidential (building and heavy/civil) starts in California totaled $43 billion in 2018, according to ConstructConnect.

**Construction Employment (Seasonally Adjusted):**
- Construction (residential + nonresidential) employed 7.5 million workers in July 2019, an increase of 177,000 (2.7%) from July 2018, but 3% less than in April 2006, when U.S. construction employment peaked.
- Construction employment in California in July 2019 totaled 900,700, an increase of 4.3% from July 2018, but 5% less than the state’s peak in June 2006.
- Construction unemployment is near a series low. In the 2019 AGC-Autodesk Workforce Survey, 78% of firms in the U.S. and 68% in California reported difficulty filling hourly craft worker positions.

**Construction Industry Pay:**
- In 2018, pay for all construction industry employees in the U.S. averaged $62,727, 10% more than the average (mean) for all private-sector employees. Construction industry pay in California averaged $70,084 in 2018, 3% more than the state average for all private-sector employees.
- The five most numerous construction occupations in California had higher median pay than the median for all employees in the state. (Half of workers earn more than the median; half earn less.)

**Small Business:**
- The United States had 810,295 construction firms in 2016, of which 92% were small (1 to 19 employees). California had 80,657 construction firms in 2016, of which 91% were small.

*The Bureau of Labor Statistics reports employment for construction, mining and logging combined for metro areas in which mining and logging have few employers. Construction-only employment change is shown for a metro if BLS posts that data.

Source: Ken Simonson, Chief Economist, AGC of America, ken.simonson@agc.org, from Bureau of Economic Analysis (GDP); Census Bureau (spending, small business); ConstructConnect (starts); Bureau of Labor Statistics (jobs, pay, occupations); AGC (rankings, workforce survey). September 17, 2019