Construction & Materials Outlook

Federation of Tax Administrators
Providence, October 22, 2012
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Current economy; construction outlook

- GDP, personal income, jobs: growing, but slowly
- Office, retail up due to remodeling, not starts
- Power, mfg., warehouse/distribution, lodging will grow
- ‘Shale gale,’ Panama Canal expansion driving new activity
- Apartments should boom; single-family still a mystery
- Federal, state, local construction cuts will continue
- Unemployment dropping but only because workers leave
- Materials costs not extreme but will outpace CPI

Source: AGC
One (or many) bright spot(s): the shale ‘gale’

Natural gas production
Trillion cubic feet (TCF)

862 TCF shale
2,543 TCF total
67% increase in shale production 2007-10

Source: EIA Annual Energy Outlook, 2008 to 2011
Shale’s direct and indirect impacts on construction

- **Onsite:** Each well requires access road, site prep, pad, storage pond, support structures, pipes
- **Nearby:** Products, water require trucking, rail, pipeline, processing
- **Local spending by drilling firms, workers, royalty holders**
- **Orders for fracking sand, drills, compressors, pumps, pipe, tanks, trucks, rail equipment, processing facilities**
- **Downstream:** Petrochemical, power, steel plants; LNG export terminals, fueling stations; LNG-powered vehicles
- **Losers:** coal; maybe wind, solar, nuclear & suppliers

Source: AGC
U.S. Post-Panamax Ready Ports

Source: U.S. Army Corps of Engineers
Panama Canal expansion’s impacts on construction

- Ports: investing in dredging, piers, cranes, land access
- Nearby: Storage, warehouse, trucking, rail facilities
- Possible bridge, tunnel, highway improvements
- Possible changes in inland distribution, manufacturing

Source: AGC
Construction spending (seasonally adjusted annual rate—SAAR)

**Total construction, 1/08-8/12 (billion $)**

<table>
<thead>
<tr>
<th>Year</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billion $</td>
<td>$1,200</td>
<td>$1,000</td>
<td>$800</td>
<td>$800</td>
<td>$1,200</td>
</tr>
</tbody>
</table>

Latest 1-month change: -0.6%

**Public, private nonres & private res, 1/08-8/12**

<table>
<thead>
<tr>
<th>Year</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billion $</td>
<td>$450</td>
<td>$300</td>
<td>$150</td>
<td>$300</td>
<td>$450</td>
</tr>
</tbody>
</table>

Latest 1-month change:
- Private Nonres (-1.7%)
- Public (-0.8%)
- Private Residential (0.9%)

**12-month % change, 1/11-8/12**

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 month % change</td>
<td>-15%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Latest 12-month change: 6.5%

**12-month % change, 1/11-8/12**

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 month % change</td>
<td>7.2%</td>
<td>17.8%</td>
</tr>
</tbody>
</table>

Source: Census Bureau construction spending reports
# Nonres totals (billion $, SAAR), share & 12-month change

<table>
<thead>
<tr>
<th>Nonresidential (priv.+federal+state/local)</th>
<th>8/12 Total</th>
<th>Share</th>
<th>8/11-8/12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power</strong> (incl. oil &amp; gas struc., pipelines)</td>
<td>85 billion</td>
<td>15 %</td>
<td>12 %</td>
</tr>
<tr>
<td>Educational</td>
<td>85</td>
<td>15 %</td>
<td>-2 %</td>
</tr>
<tr>
<td><strong>Highway and street</strong></td>
<td>81</td>
<td>15 %</td>
<td>4 %</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>48</td>
<td>9 %</td>
<td>6 %</td>
</tr>
<tr>
<td>Commercial (retail, warehouse, farm)</td>
<td>46</td>
<td>8 %</td>
<td>-2 %</td>
</tr>
<tr>
<td>Health care</td>
<td>41</td>
<td>7 %</td>
<td>3 %</td>
</tr>
<tr>
<td>Transportation</td>
<td>37</td>
<td>7 %</td>
<td>4 %</td>
</tr>
<tr>
<td>Office</td>
<td>36</td>
<td>6 %</td>
<td>3 %</td>
</tr>
<tr>
<td>Sewage and waste disposal</td>
<td>22</td>
<td>4 %</td>
<td>1 %</td>
</tr>
<tr>
<td>Communication</td>
<td>17</td>
<td>3 %</td>
<td>-4 %</td>
</tr>
<tr>
<td>Amusement and recreation</td>
<td>15</td>
<td>3 %</td>
<td>-4 %</td>
</tr>
<tr>
<td>Other (water, lodging; public safety; conservation; religious): 8% of total</td>
<td></td>
<td></td>
<td>-5 %</td>
</tr>
</tbody>
</table>

Source: Census Bureau construction spending report
Construction spending: public works (billion $, SAAR)

Highways (99.8% public)

Sewage/waste (97% public)

Amusement & recreation (57% public)

Water supply (97% public)

Source: Census Bureau construction spending reports
Construction spending: industrial, heavy (billion $, SAAR)

**Power (89% private)**

- 2008-2012 spending chart
- Latest 1-mo. change: -3.0%, 12-mo.: 12%

**Manufacturing (98% private)**

- 2008-2012 spending chart
- Latest 1-mo. change: -0.6%, 12-mo.: 6%

**Private transportation facilities**

- 2008-2012 spending chart
- Latest 1-mo. change: 0.2%, 12-mo.: 15%

**Public transportation facilities**

- 2008-2012 spending chart
- Latest 1-mo. change: -1.6%, 12-mo.: 0%

Source: Census Bureau construction spending reports
Construction spending: institutional (private + state/local)

Private higher education

Latest 1-mo. change: -1.4%, 12-mo.: 31%

State & local higher education

Latest 1-mo. change: -1.4%, 12-mo.: -9%

Hospitals (80% private)

Latest 1-mo. change: -0.7%, 12-mo.: 3%

PreK-12 education (93% state/local)

Latest 1-mo. change: -4.9%, 12-mo.: -6%

Source: Census Bureau construction spending reports
Construction spending: developer-financed (billion $, SAAR)

- **Retail (private)**
  - Latest 1-mo. change: -0.3%, 12-mo.: 4%

- **Office (private)**
  - Latest 1-mo. change: -0.5%, 12-mo.: 10%

- **Warehouse (private)**
  - Latest 1-mo. change: -2.1%, 12-mo.: -7%

- **Lodging (private)**
  - Latest 1-mo. change: -0.1%, 12-mo.: 34%

Source: Census Bureau construction spending reports
Priv. residential spending, permits, starts: single- & multi-family, 2008-12

**Multi-family construction spending**

- Latest 1-mo. change: 3.7%, 12-mo.: 45%

**Single-family & improvements spending**

- SF: 1-mo. 2.8%, 12-mo. 21%
- Imp: 1-mo. -1.7%, 12-mo. 11%

**Multi-family permits & starts**

- Permits (1-mo. 20.3%, 12-mo. 86%)
- Starts (1-mo. 25.1%, 12-mo. 20%)

**Single-family permits & starts**

- Permits (1-mo. 6.7%, 12-mo. 27%)
- Starts (1-mo. 11.0%, 12-mo. 43%)

Source: Census Bureau construction spending, housing starts reports
Housing outlook

• SF: improvement so far but distressed and ‘shadow’ inventory will depress prices, limit new construction

• MF: Upturn should last throughout 2012 and 2013
  - Vacancy rate is now at 10-year low; rents are up
  - Rental demand should rise as more people get jobs
  - But condo market continues to have large overhang
  - And government-subsidized market likely to worsen

• The big mystery: Have preferences changed to favor renting, close-in locations (=> more MF, less SF)?

Source: Author
Construction vs. overall (un)employment, 9/10-9/12

- Private sector added jobs since 2010, construction only since 1/11
- Unemployment fell but construction added few jobs in 2 years
- Thus, workers are leaving for other sectors, school, retiring

**Construction vs. private employment, 9/10-9/12**
(seasonally adjusted, cumulative % change since 9/10)

- Private: 3.6%, 3,881,000
- Construction: 0.6%, 31,000

**Unemployment rates**
(September 2010-September 2012)
- Construction: 17.2%, 9.2%, 13.3%, 11.9%
- Total: 13.3%, 8.8%, 7.6%

Source: BLS employment, unemployment reports
State construction employment change (U.S.: 0.4%)
8/11 to 8/12 (seasonally adjusted): 20 + DC up, 30 down

Source: BLS state and regional employment report
Material & labor costs vs. office & highway bid prices, 3/09-9/12

Source: Author, based on Bureau of Labor Statistics for Producer Price Indexes (PPIs) and Employment Cost Index (ECI); Federal Highway Administration for National Highway Construction Cost Index (NHCCI)
PPIs for inputs vs. bid prices, 1/11-9/12 (January 2011=100)

PPI for inputs to commercial structures

PPI for new offices

PPI for inputs for other nonres (highway, heavy)

Natl. Highway Construction Cost Index (NHCCI)

Source: Author, based on BLS reports (PPI), Federal Highway Administration reports (NHCCI)
Producer price indexes for key inputs, 1/11-9/12 (January 2011=100)

Steel mill products

Copper & brass mill shapes

Gypsum products

Lumber & plywood

Source: Author, based on BLS producer price index reports
Producer price indexes for key inputs, 1/11-9/12 (January 2011=100)

**No. 2 diesel fuel**

- 2011
- 2012

**Concrete products**

- 2011
- 2012

**Asphalt paving mixtures & blocks**

- 2011
- 2012

**Prepared asphalt & tar roofing & siding materials**

- 2011
- 2012

Source: Author, based on BLS producer price index reports
Outlook for materials

• Industry depends on specific materials that:
  • are in demand worldwide
  • have erratic supply growth
  • are heavy, bulky or hard to transport

• Construction requires physical delivery

• Thus, industry is subject to price spurts, transport bottlenecks, fuel price swings

• Expect 2-4% Dec-Dec PPI increase but volatility still a risk

Source: Author
Summary for 2012

• Private nonres spending: +10 to +15% (more power, pipelines, mfg., warehouse, hospitals, maybe higher ed)

• Public: -2 to -5% (highways, educational 0%, other transp. -5%; continued weak state-local spending)

• Res: +10% to +15% (SF and imp. up a bit, MF very strong)

• Total construction spending: +5 to +9%

• Materials costs: +2 to +4% Dec.-Dec.

• Labor costs: +1.5% to +2.5%

Source: Author
Trends: 2013-2017

- Total construction spending: +6% to +10% per year
  - less housing, retail; declining public spending
  - new drivers: shale-based gas & oil; Panama Canal widening; more elderly & kids, fewer young adults
- Materials costs: +3% to +8% (vs. 2% to 3% for CPI)
- Labor costs: +2% to + 4%
- Bid prices: +2% to +5%

Source: Author
AGC economic resources
(email simonsonk@agc.org)

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- 5 monthly press releases: national, state, metro employment; spending; PPI
- State and metro data, fact sheets
- Webinars
- Website: http://www.agc.org/Economics