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Survey Overview

The Portland Cement Association’s (PCA’s) Market Intelligence Group conducts a quarterly survey of portland cement consumption by user segment. The intent of this report is to help member companies, PCA staff, and promotional allies better evaluate market conditions surrounding the use of concrete and other cement based products.

Data for eighteen user segments is collected:

- Building Materials Dealers
- Concrete Brick & Block Manufacturers
- Fiber-Cement Siding
- Concrete Pipe
- Concrete Roof Tile
- Interlocking Pavers
- Oil & Gas Well Drilling
- Packaged Product Producers
- Precast Concrete
- Prestressed Concrete
- Ready-Mixed Concrete
- Full-Depth Reclamation (FDR) Paving
- Soil-Cement (SC) Paving
- Roller Compacted Concrete (RCC) Paving
- Soil-Cement/ Roller Compacted Concrete (SC/RCC)-Water Resources
- Streets & Highways Contractors
- Waste Solidification & Stabilization (S/S)
- All Other Manufacturers and Contractors

Survey forms are sent to all PCA member cement companies in the United States. Totals exclude masonry and white cement. Cement tonnage is reported in metric tons.

Survey results are adjusted to correspond to U.S.G.S. (U.S.) cement consumption volumes as reported by cement companies in their respective monthly surveys to those agencies. Although this survey excludes white cement, white cement consumption cannot be excluded from the U.S.G.S. survey and may account for up to 1.5% of quarterly volume.

NOTE: Survey of Portland Cement by User Group has historically covered data for both the U.S. and Canada. Beginning in Q3 2013, total consumption and figures for individual segments reflect U.S. volumes only.

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The following companies/plants reported for the First Quarter of 20xx:

American Cement Company
Argos USA Corporation
Ash Grove Cement Company
Buzzi Unicem USA
CalPortland
CEMEX
Continental Cement
Drake Cement LLC
GCC of America Inc.
LafargeHolcim
Lehigh Cement Company
Martin Marietta Materials, Inc.
Mitsubishi Cement Corporation
The Monarch Cement Company
National Cement Company of Alabama
National Cement Company of California
Phoenix Cement Company
St. Mary’s Cement Inc. (U.S.)/VCNA
Suwannee American Cement/VCNA
Texas Lehigh Cement Co, LP
Titan America LLC

Industry Response Rate: 87%
Portland Cement Consumption

First Quarter 20xx

Cement consumption in the first quarter of 20xx was up xxx,086 metric tons (mt), up 1.0% from the first quarter of 20xx. In first quarter 20xx, Ready-Mixed Concrete captured xx.x% of total consumption, followed by All Other (x.x%), Precast (x.x%), Brick & Block/Manufactured Stone (x.x%), and the Streets & Highways Contractors (x.x%) segment.

NOTE: Portland cement consumed by the ready-mixed market and used in street and highway construction may be reported under Ready-Mixed Concrete and not under Streets & Highways Contractors.
Portland Cement Consumption, First Quarter 20xx: Analysis

Market Dynamics: Leaders & Laggards

Y-O-Y Change (%)

Market Dynamics: Leaders & Laggards

Y-O-Y Volume Change (000 mt)

SAMPLE
Portland Cement Consumption, First Quarter 20xx: Analysis & Outlook

U.S. Portland cement consumption grew x.x% in the first quarter of 20xx against the same period in 20xx. This increase mirrored recent trends in construction spending. However, consumption growth has been muted since the Great Recession.

PCA believes the current economic environment remains in a positive position to support growth. The unemployment rate has fallen to 4.2%, the lowest since 2001. Home prices are rising while interest rates remain low compared to historical standards. These factors have given consumers reason to be optimistic and consumer confidence is hovering near all time highs. However, consumer spending has been erratic through the year. Political uncertainty over the direction of the Trump administration could play a role in this. There have been attempts to reform healthcare and immigration that have been halted by Congress.

The Trump Administration has committed itself to tax reform that would impact near-term economic growth. Tax reforms proposed by the administration would stimulate economic activity and increase both employment and construction spending. The program would, however, more than likely add to the federal debt. This will put more pressure on interest rates that will already be affected by inflation expectations. Mortgage rates have already risen during the Trump presidency and are expected to feel continued upward pressure through 2017 and 2018. This is not expected to have a significant adverse effect on residential construction.

Tax reform also has the opportunity to stimulate nonresidential construction. The proposals set forth have in many cases already begun to impact spending will lead to increased nonresidential investment in real GDP growth. Nonresidential cement consumption continues to grow each year into the forecast horizon.

Public construction contains perhaps the largest swing of potential outcomes due to the new administration. While Trump's infrastructure plan remains unclear, the funding level he has suggested on the campaign trail is massive. PCA believes federal funding would not be allocated until 2019 at the earliest and since this report provides only near-term guidance, it is largely outside the scope of analysis for each segment. Public construction has struggled thus far through 2017. PCA believes there are two key hypotheses to explain the weakness. The first is aging demographics combined with the rapid growth in health care expenses has put a strain on state budgets. To balance the budget, many states cut spending on construction. The second explanation suggests states may be delaying spending on construction to await federal dollars from Trump's infrastructure bill. PCA expects public construction and cement consumption to remain sluggish in 2017 and 2018.

Oil prices have not been able to rebound since their collapse in 2014. Since this time drilling activity and oil well cement consumption have collapsed. Currently, oil prices are hovering just above $50 per barrel but oil well cement consumption continues to experience high rates of growth from depressed levels. Using EIA’s projections, PCA expects oil well cement to experience a few years of large growth rates followed by more modest increases as oil prices continue to rise.
# Portland Cement Consumption: Forecast

## Cement Consumption (000 mt)

<table>
<thead>
<tr>
<th>User group</th>
<th>Actual 2016</th>
<th>% Change Y/Y</th>
<th>PCA Projection 2017</th>
<th>% Change Y/Y</th>
<th>PCA Projection 2018</th>
<th>% Change Y/Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>91,932</td>
<td>2.3%</td>
<td>93,531</td>
<td>1.7%</td>
<td>95,959</td>
<td>2.6%</td>
</tr>
<tr>
<td>Ready-Mix</td>
<td>65,122</td>
<td>2.0%</td>
<td>66,164</td>
<td>1.6%</td>
<td>67,524</td>
<td>2.1%</td>
</tr>
<tr>
<td>Streets &amp; Highways Contractors</td>
<td>3,562</td>
<td>6.4%</td>
<td>3,557</td>
<td>-0.1%</td>
<td>3,557</td>
<td>0.0%</td>
</tr>
<tr>
<td>Precast</td>
<td>3,104</td>
<td>19.3%</td>
<td>3,195</td>
<td>2.9%</td>
<td>3,245</td>
<td>1.6%</td>
</tr>
<tr>
<td>Brick &amp; Block/ Manufactured Stone</td>
<td>2,879</td>
<td>3.1%</td>
<td>3,053</td>
<td>6.0%</td>
<td>3,175</td>
<td>4.0%</td>
</tr>
<tr>
<td>Packaged Product Producers</td>
<td>2,126</td>
<td>10.2%</td>
<td>2,182</td>
<td>2.6%</td>
<td>2,292</td>
<td>5.0%</td>
</tr>
<tr>
<td>SC/RCC/FDR Paving</td>
<td>2,059</td>
<td>-4.9%</td>
<td>2,064</td>
<td>0.2%</td>
<td>2,090</td>
<td>1.3%</td>
</tr>
<tr>
<td>Building Materials Dealers</td>
<td>1,637</td>
<td>-10.5%</td>
<td>1,746</td>
<td>6.6%</td>
<td>1,834</td>
<td>5.0%</td>
</tr>
<tr>
<td>Prestressed Concrete</td>
<td>1,460</td>
<td>-1.3%</td>
<td>1,466</td>
<td>0.4%</td>
<td>1,501</td>
<td>2.4%</td>
</tr>
<tr>
<td>Oil &amp; Gas Well Drilling</td>
<td>1,311</td>
<td>-42.7%</td>
<td>1,648</td>
<td>25.7%</td>
<td>1,946</td>
<td>18.1%</td>
</tr>
<tr>
<td>Concrete Pipe</td>
<td>1,141</td>
<td>-0.1%</td>
<td>1,155</td>
<td>1.2%</td>
<td>1,179</td>
<td>2.1%</td>
</tr>
<tr>
<td>Concrete Roof Tile Manufacturers</td>
<td>678</td>
<td>88.2%</td>
<td>410</td>
<td>-39.5%</td>
<td>431</td>
<td>5.2%</td>
</tr>
<tr>
<td>Fiber Cement Siding Manufacturers</td>
<td>542</td>
<td>-8.1%</td>
<td>674</td>
<td>24.3%</td>
<td>713</td>
<td>5.8%</td>
</tr>
<tr>
<td>Interlocking Pavers</td>
<td>422</td>
<td>38.8%</td>
<td>446</td>
<td>5.8%</td>
<td>470</td>
<td>5.3%</td>
</tr>
<tr>
<td>Waste S/S</td>
<td>279</td>
<td>-27.8%</td>
<td>279</td>
<td>0.1%</td>
<td>280</td>
<td>0.4%</td>
</tr>
<tr>
<td>SC/RCC Water Resources</td>
<td>43</td>
<td>-25.7%</td>
<td>43</td>
<td>-0.1%</td>
<td>43</td>
<td>1.1%</td>
</tr>
<tr>
<td>All Other</td>
<td>5,567</td>
<td>19.7%</td>
<td>5,450</td>
<td>-2.1%</td>
<td>5,678</td>
<td>4.2%</td>
</tr>
<tr>
<td>Total</td>
<td>91,932</td>
<td>2.3%</td>
<td>93,531</td>
<td>1.7%</td>
<td>95,959</td>
<td>2.6%</td>
</tr>
</tbody>
</table>
USER GROUPS
Ready-mixed concrete accounted for 69.7% of total U.S. cement consumption in the first quarter of 20xx. (13,043,121). This reflects a 3.4% increase from first quarter 20xx. The largest regional cement consumer for the ready-mixed segment was Texas with 2,254,318 mt, followed by the Southeast with 2,145,883 mt.
Ready-Mixed Concrete: Analysis

Ready-mixed refers to concrete that is batched for delivery from a central plant instead of mixed on the job site. Ready-mixed concrete is shipped to every market segment in North America. As a result, the market drivers for ready mix users generally mirror total cement demand. The principal exception is large highway construction projects which tend to rely on Street & Highway contractors.

Growth in ready-mixed concrete typically mirrors the dynamics of the overall cement market. PCA projects ready-mixed concrete to grow just below the 1.7% increase of overall consumption. This is due to the expectation of negative growth in public cement consumption.

Overall GDP growth in the U.S. remains slow and steady but the overall economic environment is still healthy. Consumer spending has been up and down but confidence has held strong. This could be attributed to the employment market which remained healthy with the unemployment rate at 4.2%. In terms of construction spending, the residential segment has experienced strong growth through 2017 thus far, which is where the majority of the growth for ready-mixed concrete has stemmed, given public construction has been down this year. Further down the forecast horizon, the prospect of infrastructure investment and possible tax reform will provide a boost to public and private construction. This will certainly have a significant positive impact on ready-mixed consumption in the long term.

PCA expects the ready-mix segment to grow at approximately 1.6% in 2017, followed by growth rates in line with PCA’s national forecast later down the forecast horizon.

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Quarter</td>
<td>9,757</td>
<td>10,333</td>
<td>10,899</td>
<td>12,616</td>
<td>13,043</td>
<td>PCA Projection</td>
<td></td>
</tr>
<tr>
<td>% Change Y/Y</td>
<td>-1.9%</td>
<td>5.9%</td>
<td>5.5%</td>
<td>15.7%</td>
<td>3.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Change YTD</td>
<td>-1.9%</td>
<td>5.9%</td>
<td>5.5%</td>
<td>15.7%</td>
<td>3.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd Quarter</td>
<td>14,437</td>
<td>16,187</td>
<td>17,156</td>
<td>17,635</td>
<td>PCA Projection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Change Y/Y</td>
<td>-1.0%</td>
<td>12.1%</td>
<td>6.0%</td>
<td>2.8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Change YTD</td>
<td>-1.3%</td>
<td>9.6%</td>
<td>5.8%</td>
<td>7.8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd Quarter</td>
<td>16,647</td>
<td>18,134</td>
<td>19,471</td>
<td>18,703</td>
<td>PCA Projection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Change Y/Y</td>
<td>10.2%</td>
<td>8.9%</td>
<td>7.4%</td>
<td>-3.9%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Change YTD</td>
<td>3.0%</td>
<td>9.3%</td>
<td>6.4%</td>
<td>3.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th Quarter</td>
<td>14,106</td>
<td>15,120</td>
<td>16,288</td>
<td>16,168</td>
<td>PCA Projection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Change Y/Y</td>
<td>5.2%</td>
<td>7.2%</td>
<td>7.7%</td>
<td>-0.7%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Change YTD</td>
<td>3.6%</td>
<td>8.8%</td>
<td>6.8%</td>
<td>2.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>54,947</td>
<td>59,775</td>
<td>63,814</td>
<td>65,122</td>
<td>66,164</td>
<td>67,524</td>
<td></td>
</tr>
<tr>
<td>% Change Y/Y</td>
<td>3.6%</td>
<td>8.8%</td>
<td>6.8%</td>
<td>2.0%</td>
<td>1.6%</td>
<td>2.1%</td>
<td></td>
</tr>
</tbody>
</table>

Growth in ready-mixed concrete typically mirrors the dynamics of the overall cement market. PCA projects ready-mixed concrete to grow just below the 1.7% increase of overall consumption. This is due to the expectation of negative growth in public cement consumption.

Overall GDP growth in the U.S. remains slow and steady but the overall economic environment is still healthy. Consumer spending has been up and down but confidence has held strong. This could be attributed to the employment market which remained healthy with the unemployment rate at 4.2%. In terms of construction spending, the residential segment has experienced strong growth through 2017 thus far, which is where the majority of the growth for ready-mixed concrete has stemmed, given public construction has been down this year. Further down the forecast horizon, the prospect of infrastructure investment and possible tax reform will provide a boost to public and private construction. This will certainly have a significant positive impact on ready-mixed consumption in the long term.

PCA expects the ready-mix segment to grow at approximately 1.6% in 2017, followed by growth rates in line with PCA’s national forecast later down the forecast horizon.
Shipments of portland cement to U.S. precast manufacturers increased 5.8% to 748,268 mt during the first quarter of 20xx when compared to the year-ago levels. Precast concrete accounted for 4.0% of total portland cement consumption during the first quarter of 20xx. The Northeast region was the largest regional cement consumer in this category with 180,726 mt, followed by the Southeast region with 112,281 mt.
Precast Concrete: Analysis

Precast concrete is concrete cast in forms in a controlled environment and allowed to achieve a specified strength prior to placement on location. Examples of products include, but are not limited to, architectural wall panels, catch basin covers, concrete furniture, and floor slabs.

With strong nonresidential construction spending in 20xx, the precast segment was able to bounce back and grow nearly 20%. PCA expects nonresidential construction to improve again in 2017 but at a slower pace.

Cement consumed in nonresidential construction projects has been growing at a healthy pace. PCA expects nonresidential cement consumption, and in turn precast cement consumption, to temper in 2017. It seems that some large commercial projects have been completed with nonresidential construction spending has slowed throughout 2017. However, PCA forecasts consistent growth long-term in nonresidential spending near 2%, which will benefit the precast segment.

Precast concrete is also allocated an upwards of 40% toward public construction, which is expected to decline in 2017. The long-term outlook remains positive though with the likelihood of increased federal investment from a infrastructure bill.

After tremendous growth in the precast consumption during 2016, PCA expects growth rates to slow into 2017 and further into the forecast. PCA projects precast consumption to increase 2.9% in 2017.

<table>
<thead>
<tr>
<th>Year</th>
<th>% Change Y/Y</th>
<th>% Change YTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Quarter</td>
<td>4.2%</td>
<td>16.1%</td>
</tr>
<tr>
<td>2nd Quarter</td>
<td>10.0%</td>
<td>9.0%</td>
</tr>
<tr>
<td>3rd Quarter</td>
<td>15.5%</td>
<td>7.8%</td>
</tr>
<tr>
<td>4th Quarter</td>
<td>12.1%</td>
<td>-2.2%</td>
</tr>
<tr>
<td>Total</td>
<td>10.7%</td>
<td>7.4%</td>
</tr>
</tbody>
</table>

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