Supply-Side Hurdles for Home Building

FHFA Economic Summit
October 26, 2021

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NAHB Chief Economist
Housing Deficit Persists

Size of the deficit is debatable
5 million, 3+ million, or 1 million

Reason for deficit
Years of underbuilding

Supply-side limiting factors:
5 Ls: Labor, lots, lending, lumber/materials, laws/regs

Suburban shift for home building in mid-2020 thru early 2021
Shift is now easing as economy reopens (except for multifamily)

Remodeling market still strong thanks to equity gains
Building Materials - Residential Construction Cost

Year-over-year (YOY) % change

Inputs to Residential Construction

Lumber Prices Edged Higher

Current October price $545; increased 22% over the past four weeks

$30,000 per SF home average impact
$10,000 per apartment

Source: NAHB Analysis; Random Lengths Composite Index
Domestic Sawmill Output

In July, sawmill employment is 3% higher than a year ago

Source: Board of Governors of the Federal Reserve System (US)
Softwood Lumber Imports from Canada: Lower than 2016

Import Volume (millions of cubic meters)

Source: DataWeb, U.S. International Trade Commission
Builders Reporting Shortages in May 2021

(Percents of Builders who Purchase the Material or Product)

<table>
<thead>
<tr>
<th>Material</th>
<th>Serious shortage</th>
<th>Some shortage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appliances</td>
<td>57%</td>
<td>38%</td>
</tr>
<tr>
<td>Framing lumber</td>
<td>47%</td>
<td>47%</td>
</tr>
<tr>
<td>Oriented Strand Board (OSB)</td>
<td>54%</td>
<td>38%</td>
</tr>
<tr>
<td>Plywood</td>
<td>48%</td>
<td>42%</td>
</tr>
<tr>
<td>Windows and Doors</td>
<td>38%</td>
<td>49%</td>
</tr>
<tr>
<td>Trusses</td>
<td>27%</td>
<td>51%</td>
</tr>
<tr>
<td>Copper wiring</td>
<td>23%</td>
<td>54%</td>
</tr>
<tr>
<td>Plumbing fixtures &amp; fittings</td>
<td>19%</td>
<td>56%</td>
</tr>
<tr>
<td>Vinyl siding</td>
<td>23%</td>
<td>51%</td>
</tr>
<tr>
<td>Millwork</td>
<td>13%</td>
<td>59%</td>
</tr>
<tr>
<td>Gypsum wall board</td>
<td>13%</td>
<td>57%</td>
</tr>
<tr>
<td>Steel (Lightweight for framing)</td>
<td>12%</td>
<td>58%</td>
</tr>
<tr>
<td>HVAC equipment</td>
<td>13%</td>
<td>55%</td>
</tr>
<tr>
<td>Hardwood flooring</td>
<td>12%</td>
<td>55%</td>
</tr>
<tr>
<td>Roofing materials</td>
<td>13%</td>
<td>53%</td>
</tr>
<tr>
<td>Cabinets</td>
<td>10%</td>
<td>53%</td>
</tr>
<tr>
<td>Structural Insulated Panels (SIP)</td>
<td>14%</td>
<td>48%</td>
</tr>
<tr>
<td>Insulation material</td>
<td>12%</td>
<td>50%</td>
</tr>
<tr>
<td>Steel Beams</td>
<td>9%</td>
<td>48%</td>
</tr>
<tr>
<td>Clay brick</td>
<td>12%</td>
<td>39%</td>
</tr>
<tr>
<td>Ceramic tiles</td>
<td>7%</td>
<td>44%</td>
</tr>
<tr>
<td>Concrete brick and block</td>
<td>6%</td>
<td>40%</td>
</tr>
<tr>
<td>Cement</td>
<td>8%</td>
<td>36%</td>
</tr>
<tr>
<td>Ready-mix concrete</td>
<td>7%</td>
<td>36%</td>
</tr>
</tbody>
</table>

Source: NAHB Survey.
Skilled labor shortage persists; 104,000 net gain for residential construction since Jan 2020

The number of open construction positions = 344,000 in August 2021

# Construction Occupations in Highest Demand

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Serious Shortage</th>
<th>Some Shortage</th>
<th>Serious to Some Shortage (Percent of Respondents)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Framing crews</td>
<td>25%</td>
<td>49%</td>
<td>74%</td>
</tr>
<tr>
<td>Carpenters-rough</td>
<td>26%</td>
<td>47%</td>
<td>73%</td>
</tr>
<tr>
<td>Carpenters-finished</td>
<td>25%</td>
<td>47%</td>
<td>72%</td>
</tr>
<tr>
<td>Bricklayers/Masons</td>
<td>19%</td>
<td>41%</td>
<td>60%</td>
</tr>
<tr>
<td>Concrete workers</td>
<td>18%</td>
<td>42%</td>
<td>60%</td>
</tr>
<tr>
<td>Painters</td>
<td>12%</td>
<td>44%</td>
<td>56%</td>
</tr>
<tr>
<td>Plumbers</td>
<td>15%</td>
<td>40%</td>
<td>55%</td>
</tr>
<tr>
<td>Drywall Installation workers</td>
<td>14%</td>
<td>41%</td>
<td>55%</td>
</tr>
<tr>
<td>Electricians</td>
<td>13%</td>
<td>39%</td>
<td>52%</td>
</tr>
<tr>
<td>Roofers</td>
<td>12%</td>
<td>40%</td>
<td>52%</td>
</tr>
<tr>
<td>HVAC workers</td>
<td>12%</td>
<td>39%</td>
<td>51%</td>
</tr>
<tr>
<td>Flooring installers</td>
<td>12%</td>
<td>37%</td>
<td>49%</td>
</tr>
<tr>
<td>Landscaping workers</td>
<td>10%</td>
<td>38%</td>
<td>48%</td>
</tr>
<tr>
<td>Excavators</td>
<td>9%</td>
<td>38%</td>
<td>47%</td>
</tr>
<tr>
<td>Weatherization workers</td>
<td>7%</td>
<td>38%</td>
<td>45%</td>
</tr>
<tr>
<td>Building maintenance manager</td>
<td>7%</td>
<td>32%</td>
<td>39%</td>
</tr>
</tbody>
</table>

Source: NAHB/Wells Fargo Housing Market Index (HMI)
Lot Shortages Reported by Single-family Builders

Shortage of lots worse than ever, hit a new record in 2021

Source: Census Bureau and NAHB/Wells Fargo HMI survey

Housing Starts (Thousands)

Low/Very Low Lot Supply (bars)
Regulatory Costs $93,870 Per New Home (11% Gain 2016 to 2021)

Total effect of building codes, land use, environmental and other rules

- Cost of applying for zoning approval $6,473
- Hard costs of compliance (fees, required studies, etc.), $11,791
- Land dedicated to the govt. or otherwise left unbuilt, $10,854
- Standards (setbacks, etc.) that go beyond the ordinary, $8,992
- Fees paid by the builder after purchasing the lot, $12,184
- Changes to building codes over the past 10 years, $24,144
- Architectural design standards beyond the ordinary, $10,794
- OSHA/other labor requirements during construction, $4,477

23.8% of price

Source: NAHB/Wells Fargo Housing Market Index (HMI)
Regulations: 32% of Multifamily Development Costs

NAHB-NMHC research

Government Regulations as a Share of Multifamily Development Costs

- 32.1% Cost increases from changes to building codes over the past 10 years
- 7.0% Development requirements that go beyond the ordinary
- 5.9% Fees charged when building construction is authorized
- 3.9% Cost of applying for zoning approval
- 5.2% Other (non-refundable) fees charged when site work begins
- 4.8% Cost of complying with OSHA requirements
- 42.6%* Others

Lower Quartile
- 21.7%*
- 5.2%

Average
- 32.1%
- 7.0%
- 5.9%
- 3.9%
- 4.2%
- 2.3%
- 4.8%

Upper Quartile
- 42.6%*
- 7.1%
- 8.4%
- 5.4%
- 5.3%
- 5.5%
- 7.3%

Note: * For quartiles, all types of costs do not sum to the total.
Source: NAHB/Wells Fargo HMI survey
Housing Affordability Declines: NAHB/Wells Fargo HOI Lower

Source: NAHB/Wells Fargo Housing Opportunity Index (HOI).
Strong demand boosts builder confidence in October despite supply chain disruptions

Source: Census Bureau and NAHB/Wells Fargo HMI survey
44% of Builders Report Reducing 2021 Starts Expectations

Reasons for the change

- Change in availability/cost of building materials and products: 59%
- Change in availability/cost of labor and subcontractors: 40%
- Economic conditions: 40%
- Change in availability/cost of developed lots: 23%
- Inventory of existing homes: 23%
- Change in the regulatory environment: 8%
- Change in availability of financing: 5%
- Demand stronger or weaker than expected: 0%
- Other: 5%

Source: NAHB Survey.
Single-Family Built-for-Rent Construction: 64,000 in 2020

A window of opportunity

25% of builders have seen an uptick of investor buyers thus far in 2021

Another 2% to 3% sold to investors for rental purposes

Source: U.S. Census Bureau (BOC)
NAHB Home Building Geography Index

17.0% of single-family construction takes place in Large Metro – Core County

Q2 2021
4-Quarter MA of YoY growth rate: 26.2%

Source: NAHB Analysis of Census data (Building Permits and ACS)
26.0% of single-family construction takes place in Large Metro – Suburban County

Source: NAHB Analysis of Census data (Building Permits and ACS)
NAHB Home Building Geography Index

9.2% of single-family construction takes place in Large Metro – Outlying County

Q2 2021 4-Quarter MA of YoY growth rate: 36.3%

Source: NAHB Analysis of Census data (Building Permits and ACS)
Townhouse Construction Accelerating

2Q21 best quarter in 14 years

Source: U.S. Census Bureau (BOC)
The share of 50+ unit property declined to 55% in 2020

Source: U.S. Census Bureau (BOC).
Multifamily Construction

Rental production dominates

Source: U.S. Census Bureau (BOC).
Thank you

Questions?
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