Welcome to the Housing Affordability Hearing

Hosted by the NIBS Consultative Council
Opening Remarks

Brian Pallasch, EVP & CEO, IIBEC
Chair, NIBS Consultative Council
Session 1: The State of Housing Affordability

Robert Dietz, Ph.D.
Chief Economist and Senior Vice President for Economics and Housing, NAHB

Solomon Greene
Principal Deputy Assistant Secretary for Policy Development and Research, Dept. of Housing and Urban Development

Chris Herbert, Ph.D.
Managing Director, Joint Center for Housing Studies of Harvard University

Brian Pallasch- Moderator
EVP & CEO, IIBEC
Chair, NIBS Consultative Council

November 7, 2023
After Improving Slightly Over Last Decade, the Number of Cost-Burdened Renter Households Has Reached a Record High

Number of Renter Households (Millions)  Share with Cost Burdens (Percent)

Notes: Moderately (severely) cost-burdened households pay more than 30% (more than 50%) of income for housing. Households with zero or negative income are assumed to have burdens, while households paying no cash rent are assumed to be without burdens.
Source: JCHS tabulations of US Census Bureau, American Community Survey 1-Year Estimates.
Even as Overall Cost Burdens Were Edging Down, Rates Were Rising in the Middle of the Income Scale

Share of Renter Households with Cost Burdens (Percent)

Household Income

- Under $25,000
- $25,000–49,999
- $50,000–74,999
- All Households

Notes: Incomes are adjusted for inflation using the CPI-U for All Items. Moderately (severely) cost-burdened households pay 31–49% (50% or more) of income for housing. Households with zero or negative income are assumed to have severe burdens, while households paying no cash rent are assumed to be without burdens. Source: JCHS tabulations of US Census Bureau, American Community Survey 1-Year Estimates.
Cost Burdens Among Middle-Income Households are Most Evident in High-Cost Markets

Share of Cost-Burdened Renters (Percent)

Notes: Cost-burdened households pay more than 30% of their income on housing. Households with zero or negative income are assumed to have burdens, while households paying no cash rent are assumed to be without burdens. Only the 100 largest metro areas by the number of households are shown, categorized by the median gross rent.

Source: JCHS tabulations of US Census Bureau, 2021 American Community Survey 1-Year Estimates and Missouri Census Data Center.
Notes: Moderately (severely) cost-burdened households pay more than 30% (more than 50%) of income for housing. Households with zero or negative income are assumed to have burdens, while households paying no cash rent are assumed to be without burdens.
Source: JCHS tabulations of 2021 American Community Survey 1-year estimates.
Lower-Income Renters Have Less Income Left Over After Paying Rent Than Ever Before

Change in Residual Income (Percent)

Median Residual Income in 2022 (Dollars)

Notes: Household incomes and residual incomes are adjusted for inflation using the CPI-U for All Items.
Source: JCHS tabulations of US Census Bureau, American Community Survey 1-Year Estimates.
Number of Cost-Burdened Homeowners Rose Sharply in 2021, a First Since the Mid-2000s

Cost-Burdened Homeowner Households (Millions)

Notes: Moderately (severely) cost-burdened households spend more than 30% (more than 50%) of income on housing. Estimates for 2020 are omitted due to data collection issues experienced during the pandemic.
Source: JCHS tabulations of US Census Bureau, American Community Survey 1-Year Estimates.
Buying a Home Has Gotten Much Harder as Rising Prices and Interest Rates Have Sharply Increased in the Monthly Cost of Homeownership

Indexed Percent Change in Real (Inflation-Adjusted) Values Since 1990 (1990=0)

- Median Home Sales Price
- Monthly Homeowner Costs
- Mortgage Interest Rate
- Median Income

Notes: House prices and monthly homeowner costs are adjusted to 2020 dollars using the CPI-U for All Items less shelter. Monthly homeowner costs assume a 3.5% downpayment on a median-priced, existing single-family home (including condos and coops); property taxes of 1.15%, property insurance of 0.35%, and mortgage insurance of 0.85%. Last value is Q3 of 2023.

Source: JCHS tabulations of Moody’s Analytics estimates; US Census Bureau, Current Population Surveys; and Freddie Mac, Primary Mortgage Market Surveys.
The Number of Renters with Incomes High Enough to Qualify to Buy the Median Home Has Been Nearly Cut in Half

<table>
<thead>
<tr>
<th></th>
<th>March 2022</th>
<th>March 2023</th>
<th>September 2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median US Home Price (Dollars)</td>
<td>379,300</td>
<td>375,400</td>
<td>394,300</td>
</tr>
<tr>
<td>Interest Rate (Percent)</td>
<td>4.2</td>
<td>6.5</td>
<td>7.20</td>
</tr>
<tr>
<td>Downpayment and Closing Costs</td>
<td>24,700</td>
<td>24,400</td>
<td>25,600</td>
</tr>
<tr>
<td>Total Monthly Owner Costs</td>
<td>2,500</td>
<td>3,000</td>
<td>3,300</td>
</tr>
<tr>
<td>Annual Income Needed @ maximum 31% debt to income</td>
<td>97,400</td>
<td>117,100</td>
<td>129,500</td>
</tr>
<tr>
<td>Renter Households in 2022 with Income Needed</td>
<td>8.8 million</td>
<td>6.1 million</td>
<td>4.9 million</td>
</tr>
</tbody>
</table>

Note: Estimates assume a 3.5% downpayment on a 30-year fixed-rate loan with zero points, 0.85% mortgage insurance, 0.35% property insurance, 1.15% property taxes, 3% closing costs, and a maximum 31% debt-to-income ratio.

Source: JCHS tabulations of Freddie Mac, Primary Mortgage Market Surveys; NAR US median sales prices for all existing homes.
Home Prices Are at Record Levels Relative to Incomes Making Saving for a Downpayment Increasingly Out of Reach

Notes: Price-to-income ratios are for the 100 largest metro areas by population. Income data for 2022 are based on Moody’s Analytics forecasts.
Source: JCHS tabulations of NAR, Metropolitan Median Area Prices; Moody’s Analytics estimates.
But Rental Housing Affordability Has Been Deteriorating for Decades—and Actually Improved Slightly Even as Underproduction Grew
At the Most Fundamental Level, Trends in Rental Affordability Reflect a Long-Term Divergence in Growth in Rents and Incomes

Note: Underlying values are adjusted for inflation using the CPI-U for all items.
Source: JCHS tabulations of the US Census Bureau, Decennial Census and American Community Surveys via IPUMS USA.
Renters Have Little Wealth or Cash Savings for Downpayments and Closing Costs

### Households by Income

<table>
<thead>
<tr>
<th>Quartile</th>
<th>Median (Thousands of 2022 Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom</td>
<td>2nd Quartile</td>
</tr>
<tr>
<td>3rd Quartile</td>
<td></td>
</tr>
</tbody>
</table>

- **Cash Savings**
- **Net Wealth**

### Households Headed by Race/Ethnicity

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Median (Thousands of 2022 Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>2nd Quartile</td>
</tr>
<tr>
<td>Black</td>
<td>3rd Quartile</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2nd Quartile</td>
</tr>
<tr>
<td>Asian and Other Races</td>
<td>3rd Quartile</td>
</tr>
</tbody>
</table>

- **Cash Savings**
- **Net Wealth**

**Note:** White, Black and Asian and Other Races are all non-Hispanic; Hispanics may be of any race.

**Source:** JCHS tabulations of Federal Reserve, Surveys of Consumer Finances, 2022.
While Homeowner Incomes Have Increased More, They Have Still Lagged Home Values By a Substantial Degree

Note: Underlying values are adjusted for inflation using the CPI-U for all items.
Source: JCHS tabulations of the US Census Bureau, Decennial Census and American Community Surveys via IPUMS USA.
Concluding Observations

• Rental affordability is most severe for lowest-income households but has been getting worse for moderate income renters over last two decades—particularly in high-cost markets
• Homeowner cost burdens are largely kept in check by mortgage underwriting and mostly reflect whether first-time buyers are active in the market
• Homebuyer affordability is a growing concern as high interest rates have priced millions of renters out of the market
• The downpayment constraint is increasingly important as house prices are at record levels as multiples of incomes—and particularly for BIPOC renters with little savings to draw on
• Housing affordability has been worsening for decades as rents and price growth consistently outpace income
• While income supports are clearly needed, so too are new approaches to producing more modestly priced housing for both rentals and homeownership
Housing Affordability Hearing

Chris Herbert

National Institute of Building Sciences
Washington, DC
National Press Club
November 6, 2023
Single-Family Starts by Decade: Population Adjusted

<table>
<thead>
<tr>
<th>Decade</th>
<th>Starts per million population (averaged)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960s</td>
<td>47,998</td>
</tr>
<tr>
<td>1970s</td>
<td>53,138</td>
</tr>
<tr>
<td>1980s</td>
<td>41,588</td>
</tr>
<tr>
<td>1990s</td>
<td>41,710</td>
</tr>
<tr>
<td>2000s</td>
<td>41,671</td>
</tr>
<tr>
<td>2010s</td>
<td>21,288</td>
</tr>
</tbody>
</table>

Source: Census Bureau and NAHB analysis

National Association of Home Builders
Reasons for Underbuilding After the Great Recession

- Strongly rooted on the supply side of the housing sector
  - Deficit estimates vary – 1.5 million to 5+ million
  - Particularly challenging for entry-level and more affordable housing

- NAHB warnings in 2014 and thereafter
  - 5 L’s as the challenges limiting construction
    - Labor
    - Lots
    - Lending
    - Lumber/materials
    - Legal/regulatory burdens

- Housing policies that fail to address all of these challenges will fail
Housing Affordability Declines? NAHB/Wells Fargo HOI Lower

Source: NAHB/Wells Fargo Housing Opportunity Index (HOI).
Consumer Inflation – Headline Rate and Shelter

Shelter costs continue to rise despite Fed policy tightening – “Gimmie Shelter”

Source: U.S. Bureau of Labor Statistics (BLS)
Mortgage Rates Near Cycle Peak
Housing affordability at more than decade low

Source: Federal Reserve and Freddie Mac data and NAHB forecast.
Supply-Side Challenges For Builders
Lumber Prices Edged Down

Current October price is $376; down 13% over the past seven weeks

Source: NAHB Analysis; Random Lengths Composite Index
Framing Alternatives
Over the past three years, wood share increasing and concrete share decreasing

Source: NAHB tabulation of data from Survey of Construction, U.S. Census Bureau
Labor – Construction Job Openings Peaked for Cycle?

Skilled labor shortage persists; 352,100 net gain for residential construction since Jan 2020

The number of open construction positions = 431,000 in Sept 2023

Women in Construction: 10.9% of Jobs
Rising count: finally surpassed 2006 peak – not true for total construction jobs

Source: NAHB analysis of data from the Current Population Survey (CPS)
Construction Sector Productivity Lags

13% gain for construction compared to 46% gain for overall economy

Index, 1993 = 1

- Construction Worker Productivity
- Overall Worker Productivity

The average effective rate continued to climb in 2023Q2:
- from 12.59% to 12.85% on speculative single-family construction loans
- from 12.01% to 12.67% on pre-sold single-family construction loans

Source: NAHB survey; Federal Reserve’s Senior Loan Officer Opinion Survey (SLOOS)
Lot Shortages Reported by Single-family Builders

Shortage of lots reached a new record in 2021

Source: Census Bureau and NAHB/Wells Fargo HMI survey
Regulatory Costs $93,870 Per New Home (11% Gain 2016 to 2021)

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

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

During Development: $41,330
During Construction: $52,540

23.8% of price

Source: NAHB/Wells Fargo Housing Market Index (HMI)
<table>
<thead>
<tr>
<th>Regulations - 41% of Multifamily Development Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NAHB-NMHC research</strong></td>
</tr>
</tbody>
</table>

**Government Regulations as a Share of Multifamily Development Costs**

- Cost of applying for zoning approval; 3.2%
- Costs when site work begins (fees, required studies, etc.); 8.5%
- Development requirements (layout, mats, etc.) beyond the ordinary; 5.4%
- Cost of land dedicated to the government or left unbuilt; 2.4%
- Fees charged when building construction is authorized; 4.4%
- Costs of affordability mandates (e.g., inclusionary zoning); 2.7%
- Changes to building codes over the past 10 years; 11.1%
- Complying with OSHA/other labor regulations; 2.6%

**Total = 40.6%**

*Source: NAHB/Wells Fargo HMI survey with additional NMHC survey respondents*
Construction Outlook

NAHB
National Association of Home Builders
NAHB/Royal Building Products Remodeling Market Index

Remodeling market sentiment declined in Q3; expect mild growth in 2024 and 2025

Source: U.S. Census Bureau (BOC) and NAHB/Royal Building Products RMI
Remodeling Gaining Market Share for Residential Construction

Improvement spending share increased from 33% in 2007 to 39% in 3Q 2023

Source: Bureau of Economic Analysis

NAHB
National Association of Home Builders
NAHB/Wells Fargo Housing Market Index (HMI)

Mortgage rates well above 7% continue to hammer builder confidence

Source: Census Bureau and NAHB/Wells Fargo HMI survey
## Most Likely Features in Typical 2023 New Home

<table>
<thead>
<tr>
<th>Feature</th>
<th>% of Builders Rating Likely to Very Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk-in closet in primary bedroom</td>
<td>97%</td>
</tr>
<tr>
<td>Laundry room</td>
<td>95%</td>
</tr>
<tr>
<td>Low-e windows</td>
<td>94%</td>
</tr>
<tr>
<td>Great room</td>
<td>94%</td>
</tr>
<tr>
<td>Central island in kitchen</td>
<td>94%</td>
</tr>
<tr>
<td>Efficient lighting (&lt;energy)</td>
<td>91%</td>
</tr>
<tr>
<td>Programmable thermostat</td>
<td>90%</td>
</tr>
<tr>
<td>9’+ first floor ceilings</td>
<td>87%</td>
</tr>
<tr>
<td>Energy-Star appliances</td>
<td>86%</td>
</tr>
<tr>
<td>Front porch</td>
<td>83%</td>
</tr>
<tr>
<td>2-car garage</td>
<td>82%</td>
</tr>
<tr>
<td>Walk-in pantry</td>
<td>81%</td>
</tr>
<tr>
<td>Private toilet compartment in primary bath</td>
<td>80%</td>
</tr>
<tr>
<td>Energy-Star windows</td>
<td>79%</td>
</tr>
<tr>
<td>Patio</td>
<td>76%</td>
</tr>
<tr>
<td>Primary bedroom on 1st floor (2-story home)</td>
<td>73%</td>
</tr>
<tr>
<td>Bathroom linen closet</td>
<td>73%</td>
</tr>
<tr>
<td>Home office</td>
<td>72%</td>
</tr>
<tr>
<td>Granite kitchen countertops</td>
<td>72%</td>
</tr>
<tr>
<td>Full bath on 1st floor (2-story home)</td>
<td>71%</td>
</tr>
</tbody>
</table>

*Source: NAHB (National Association of Home Builders)*
Due to COVID-19, Most Builders Saw Demand Increase for...

<table>
<thead>
<tr>
<th>Feature</th>
<th>Major extent</th>
<th>Minor extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home office</td>
<td>42%</td>
<td>46%</td>
</tr>
<tr>
<td>Exterior amenities (porches/decks/patios/pools)</td>
<td>30%</td>
<td>44%</td>
</tr>
<tr>
<td>Home technology</td>
<td>24%</td>
<td>46%</td>
</tr>
<tr>
<td>Fewer formal rooms and more living/flex spaces</td>
<td>27%</td>
<td>42%</td>
</tr>
<tr>
<td>Open floor plans</td>
<td>26%</td>
<td>42%</td>
</tr>
<tr>
<td>Larger and/or better-equipped kitchens</td>
<td>21%</td>
<td>46%</td>
</tr>
<tr>
<td>Homes built in outlying rural areas</td>
<td>24%</td>
<td>41%</td>
</tr>
<tr>
<td>Homes built in the suburbs</td>
<td>17%</td>
<td>46%</td>
</tr>
<tr>
<td>Maintenance-free materials</td>
<td>18%</td>
<td>40%</td>
</tr>
<tr>
<td>Larger homes</td>
<td>15%</td>
<td>40%</td>
</tr>
<tr>
<td>Entertainment space (game/media/theater room)</td>
<td>11%</td>
<td>44%</td>
</tr>
</tbody>
</table>
## Most Wanted Features

<table>
<thead>
<tr>
<th>1st Time Buyer</th>
<th>Repeat Buyer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laundry room</td>
<td>Laundry room</td>
</tr>
<tr>
<td>Exterior lighting</td>
<td>Exterior lighting</td>
</tr>
<tr>
<td>Ceiling fan</td>
<td>Ceiling fan</td>
</tr>
<tr>
<td>Hardwood flooring (main level)</td>
<td>ENERGY STAR windows</td>
</tr>
<tr>
<td>Walk-in pantry</td>
<td>Patio</td>
</tr>
<tr>
<td>Double kitchen sink (side-by-side)</td>
<td>Front porch</td>
</tr>
<tr>
<td>Patio</td>
<td>ENERGY STAR appliances</td>
</tr>
<tr>
<td>Security cameras</td>
<td>Hardwood flooring (main level)</td>
</tr>
<tr>
<td>Drinking water filtration</td>
<td>Walk-in pantry</td>
</tr>
<tr>
<td>Table space for eating in kitchen</td>
<td>Efficient lighting (uses &lt; energy)</td>
</tr>
</tbody>
</table>

**Common to both**

[NAHB National Association of Home Builders logo]
<table>
<thead>
<tr>
<th></th>
<th>Air Heating/Cooling</th>
<th>Water Heating</th>
<th>Cooking</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Time</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buyers</td>
<td>Gas: 19%</td>
<td>Gas: 29%</td>
<td>Gas: 39%</td>
</tr>
<tr>
<td></td>
<td>Electric: 57%</td>
<td>Electric: 48%</td>
<td>Electric: 46%</td>
</tr>
<tr>
<td><strong>Repeat</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buyers</td>
<td>Gas: 35%</td>
<td>Gas: 47%</td>
<td>Gas: 53%</td>
</tr>
<tr>
<td></td>
<td>Electric: 51%</td>
<td>Electric: 39%</td>
<td>Electric: 38%</td>
</tr>
</tbody>
</table>
Distribution of New Single-Family Home Size

Share of homes built less than 1,800 square feet

Source: U.S. Census Bureau (BOC)
Townhouse Market Cools at Start of 2023

Market share at multidecade high

Thousands, NSA

Percent

Source: U.S. Census Bureau (BOC)
Shares of New Single-family Homes Built in 2021

- Teardown and rebuild in older neighborhood, 9%
- Not in a residential development, 13%
- Infill lot in older neighborhood, 19%
- In new residential development, 59%

Source: 2022 Builder Practices Survey
# Top 10 Largest Single-Family Markets by Permits

<table>
<thead>
<tr>
<th>Top 10 Largest SF Markets</th>
<th>Aug 2023 (# of units YTD, NSA)</th>
<th>YTD % Change (compared to Aug 2022)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Houston-The Woodlands-Sugar Land, TX</td>
<td>34,841</td>
<td>-3%</td>
</tr>
<tr>
<td>Dallas-Fort Worth-Arlington, TX</td>
<td>28,338</td>
<td>-16%</td>
</tr>
<tr>
<td>Atlanta-Sandy Springs-Roswell, GA</td>
<td>16,894</td>
<td>-14%</td>
</tr>
<tr>
<td>Phoenix-Mesa-Scottsdale, AZ</td>
<td>15,889</td>
<td>-27%</td>
</tr>
<tr>
<td>Charlotte-Concord-Gastonia, NC-SC</td>
<td>12,919</td>
<td>-9%</td>
</tr>
<tr>
<td>Orlando-Kissimmee-Sanford, FL</td>
<td>11,734</td>
<td>-3%</td>
</tr>
<tr>
<td>Austin-Round Rock, TX</td>
<td>10,925</td>
<td>-35%</td>
</tr>
<tr>
<td>Nashville-Davidson-Murfreesboro-Franklin, TN</td>
<td>9,971</td>
<td>-14%</td>
</tr>
<tr>
<td>Tampa-St. Petersburg-Clearwater, FL</td>
<td>9,578</td>
<td>-17%</td>
</tr>
<tr>
<td>Raleigh, NC</td>
<td>8,726</td>
<td>-8%</td>
</tr>
</tbody>
</table>

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

Home construction shifted dramatically to lower density, lower cost markets after Covid

Large Metro Exurbs (mapped)
4Q19: 8.7% of SF permits
2Q23: 9.4% of SF permits

Small Metro Exurbs
4Q19: 8.7% of SF permits
2Q23: 9.9% of SF permits

Rural Areas/Small Towns
4Q19: 9.4% of SF permits
2Q23: 11.7% of SF permits

Collectively – these geographies increased from 26.7% to 31.1% of total SF permits

Source: NAHB Analysis of Census data (Building Permits and ACS)
Modular/Panelized Production

Number of Modular and Panelized Houses Completed (Ths.#)

- Modular
- Other (Includes Panelized and Precut Units)

Modular/Panelized Share
- 2% in 2022
- 7% in 1998

Manufactured Home Shipments
Forecast calls for limited declines due to affordability concerns

Peak of market (1970-1973): More than 400,000 Units per Year

78% fall

2Q22 to 2Q23 29% fall

Thousands of units, SAAR

<table>
<thead>
<tr>
<th>Year</th>
<th>Units</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>94,000</td>
<td>-1%</td>
</tr>
<tr>
<td>2021</td>
<td>106,000</td>
<td>13%</td>
</tr>
<tr>
<td>2022</td>
<td>112,000</td>
<td>6%</td>
</tr>
<tr>
<td>2023</td>
<td>87,000</td>
<td>-22%</td>
</tr>
<tr>
<td>2024</td>
<td>102,000</td>
<td>17%</td>
</tr>
<tr>
<td>2025</td>
<td>115,000</td>
<td>13%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau (BOC) and NAHB forecast
Single-Family Built-for-Rent Construction

Is the market cooling?

Thousands, NSA

<table>
<thead>
<tr>
<th>Year</th>
<th>Built for Rent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>4.3%</td>
</tr>
<tr>
<td>2017</td>
<td>4.4%</td>
</tr>
<tr>
<td>2018</td>
<td>4.8%</td>
</tr>
<tr>
<td>2019</td>
<td>4.3%</td>
</tr>
<tr>
<td>2020</td>
<td>4.5%</td>
</tr>
<tr>
<td>2021</td>
<td>4.6%</td>
</tr>
<tr>
<td>2022</td>
<td>7.0%</td>
</tr>
</tbody>
</table>

Another 4% to 5% sold to investors for rental purposes – weakening with higher interest rates

Combined market share of approximately 12%

Source: U.S. Census Bureau (BOC)
NAHB Multifamily Production Index
Multifamily developers are still experiencing many headwinds

Source: U.S. Census Bureau (BOC) and NAHB Multifamily Market Survey (MMS).
Note: * NAHB redesigned its Multifamily Market Survey (MMS) in the first quarter of 2023 to make it easier to interpret and more similar to the NAHB/Wells Fargo Housing Market Index (HMI) for single-family housing.
NAHB Home Building Geography Index

Large metro core counties have lost apartment market share since Covid

Large metro core counties
4Q19: 41.7% MF permits
2Q23: 37.4%

Large metro suburban counties
4Q19: 27.1% MF permits
2Q23: 27%

Small metro, exurban and rural counties
4Q19: 31.3% MF permits
2Q23: 35.6%

Source: NAHB Analysis of Census data (Building Permits and ACS)
Multifamily Missing Middle
Still missing....

Just 3,000 units were started in the second quarter of 2023, down from a year prior.

2- to 4-unit development was just above 2% of the total multifamily production for the second quarter.

Source: U.S. Census Bureau (BOC).
Rising Population Entering Housing Demand Years: 2023

Gen X the majority of new construction home buyers

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

Questions?
rdietz@nahb.org
@dietz_econ

eyeonhousing.org
housingeconomics.com
State of Housing Affordability

NIBS Housing Affordability Hearing
Monday, November 6, 2023

Solomon Greene
Principal Deputy Assistant Secretary
Office of Policy Development and Research
U.S. Department of Housing and Urban Development
Roadmap

Rental Housing Affordability

- Challenges
- Solutions

Homeownership Affordability

- Challenges
- Solutions
Rental Housing Affordability
Rental Affordability Challenges are Greatest for Unassisted, Low-Income Renters
Rental Affordability Challenges Have Increased Since the Pandemic
Driven by Supply Shortages ...

From 2019 → 2021:

- **950,000** increase in VLI households
- **463,000** decrease in VLI A&A units
- **571,000** increase in ELI households
- **252,000** decrease in ELI A&A units
... and Insufficient Subsidies and Incentives

- Government subsidies and tax incentives are necessary to make affordable housing deals pencil out, but there aren’t enough resources available.

- Only 1-in-4 eligible households receive federal rental assistance.

- As a result, many families wait years to receive federal rental assistance.
Addressing Rental Affordability Challenges Requires Concerted and Comprehensive Action

Federal
State & Local
Private

Production
Preservation
Protection
Recent Federal Actions on Production

*White House Housing Supply Action Plan*: launched in May 2022, includes dozens of actions to boost supply and reduce burden of housing costs. Notable initiatives include:

- Issued joint guidance with the Department of the Treasury on the use of State and **Local Fiscal Recovery Funds** for affordable housing
- Restarted the **Federal Finance Bank’s Risk Share Program** (HUD/Treasury)
- Allocated **$5B in HOME-ARP funds** to develop housing for vulnerable populations
- Launched **$85M Pathways to Removing Obstacles to Housing** (PRO Housing)
- Expanded **FHA LIHTC Pilot**
- Created new lending authority for residential development via **TIFIA and RRIF** (DOT)

HUD has also collaborated with NIBS and MOD X on the development of the **Offsite Construction for Housing Research Roadmap** and funded research on removing barriers to off-site construction and boosting supply through **land use and zoning reforms**.
Recent Federal Actions on Preservation

- **Green and Resilient Retrofitting Program**: $800M in grants and up to $4B in loans
- **Choice Neighborhoods**: 50 communities and nearly $7B invested since inception
- **Rental Assistance Demonstration**: over $16B in capital investment to improve or replace nearly 193,000 deeply rent-assisted homes since inception
- **Updated CDBG notice** to promote acquisition, preservation, and other supply uses
- **Launched HUD Funding Navigator** to identify IRA and BIL resources for climate resiliency and energy efficiency improvements.
WH issued first-of-its-kind *Blueprint for a Renter Bill of Rights*, which contains principles for fairness in the rental market and agency actions to advance those principles.

HUD commitments include:

- Make permanent the **30-day notice** for advanced notification of lease termination due to nonpayment of rent
- Provide $10 million for *tenant outreach and education* via the Section 514 NOFO
- Launch **NSPIRE**
- Inform PHAs and multifamily-assisted property owners of adverse action and FCRA obligations
- Expand **Eviction Protection Grant Program**

In addition, HUD has taken several important steps to improve and expand **Housing Choice Voucher Program**, resulting in increase in utilization rates and expanded housing choices.
State & Local Actions

Production
• Removing barriers to new production (e.g., “Montana miracle”)
• New bonds and other revenue for housing production (e.g., Minnesota’s $1B housing omnibus bill)

Preservation
• Right of first refusal requirements (e.g., DC)
• Preservation inventories (e.g., Chicago)

Protection
• Access to counsel (e.g., Kansas City)
• Good cause eviction protections (e.g., Washington)
• Eviction prevention and diversion (e.g., Memphis)
• Using positive rental reports to boost credit scores (e.g., CA)
Private Sector Actions

- **Production**
  - Innovation in off-site construction and other building technologies
  - Use of IRA tax credits
- **Preservation**
  - Use of IRA tax credits and rebates
- **Protection**
  - Online rental platforms promoting listings that accept vouchers and improving transparency in their rental listings
Affordable Homeownership
Homeownership Rates are Higher than Pre-Pandemic, but Remain Lower Than Pre-Recession Peak
Barriers include increasing costs of credit...
...and a Lack (Loss) of Inventory

- Due to “Rate lock” effect, fewer households are looking to sell their homes
- Investor share of buyers is above pre-pandemic rates, with investors buying approximately one-quarter of all low-priced homes
Addressing Homeownership Affordability Challenges Requires Concerted and Comprehensive Action

- Federal
- State & Local
- Private

- Expand & Preserve Inventory
- Increase Access to Credit
Recent Federal Actions on Affordable Inventory

• HUD updated the HUD Code for manufactured housing.
• HUD will launch $225M PRICE competitive grant program to “preserve and revitalize manufactured housing and eligible manufactured housing communities.” (FY23 appropriation).
• Treasury’s Homeowner Assistance Fund has assisted nearly 400,000 homeowners at risk of foreclosure.
• FHA, Fannie Mae, and Freddie Mac directed a greater share of the supply of defaulted asset dispositions to owner-occupants and mission-driven entities instead of large investors.
Recent Federal Actions on Access to Credit

- FHA reduced the mortgage interest premium, which saves 850,000 FHA borrowers $800 each year
- FHA allowed lenders to use positive rental history in determining creditworthiness, which has helped thousands of households qualify for FHA endorsements
- FHA enacted new policy to allow lenders to count income from ADUs when underwriting mortgages
- Ginnie Mae launched a “social bonds” label for SF forward mortgage-backed securities to promote broader access to mortgage financing for underserved communities.
- Exploring updates to the 203(k) Rehab. Mortgage Insurance Program and opportunities to increase availability of small dollar mortgages.
State, Local and Private Sector Actions

Affordable Inventory

• Adopt zoning and land use reforms to address “missing middle” and allow development of “starter” homes.
• Buy and rehab older homes before investors can.
• Create community land trusts
• Help existing homeowners maintain and stay in their homes

Access to Credit

• Create state and local downpayment and closing cost assistance programs
• State-HFA supported low-down payment lending
• Provide Homebuyer counseling
Thank you!
Session 1: The State of Housing Affordability
Welcome to the Housing Affordability Hearing
Hosted by the NIBS Consultative Council
Session 2: Examining Solutions-Innovation and Best Practices

Tyler Pullen
Senior Technical Advisor, Terner Center for Housing Innovation, UC Berkeley & The Housing Lab

Eric Werling
Building America National Director, Building Technologies Office, Dept. of Energy

Vicki Worden- Moderator
President & CEO, Green Building Initiative
For some Americans, paying the energy bill is a burden.
Low-income, elderly, and people of color experience most energy burden

Improving energy efficiency is one strategy to address energy inequities
U.S. Department of Energy

Affordable Home Energy Earthshot

Announced October 12, 2023
The Energy Affordability Challenge

Our imperative is to deliver equitable solutions to households with the highest energy burdens.

**High energy burdens**
1 in 4 households face high energy burdens (>6% of income spent on energy).

**Energy affordability challenges**
1 in 5 households were unable to pay an energy bill in full in 2022.

**Adverse pollution & health impacts**
Black children are nearly **twice as likely** to have asthma compared to the national average.

Households that experience energy insecurity live in **less efficient** homes.

<table>
<thead>
<tr>
<th>Average Energy Use Intensity (KBTu / sq. ft.)</th>
<th>Energy insecure households</th>
<th>All other households</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>48.1</td>
<td>40.6</td>
</tr>
<tr>
<td>35</td>
<td></td>
<td>40.6</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>40.6</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>40.6</td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>40.6</td>
</tr>
</tbody>
</table>

US average 42.2

Source: US Energy Information Administration, 2020 Residential Energy Consumption survey
The Building Decarbonization Challenge

Buildings are a **leading emitter of GHGs** in the United States.

Retrofits are key: The majority of buildings that will exist in 2050 have already been built today.

Total U.S. Greenhouse Gas Emissions by Sector with Electricity Distributed


Source: ACEEE calculations based on data in EIA AEO 2023; LBNL Building Performance Standards Overview graphics
Earthshot Mission Enables Energy Affordability & Building Decarbonization

Energy Earthshots target the major innovation breakthroughs we must achieve to solve the climate crisis.

Ambitious
Affordable housing is the most difficult-to-decarbonize portion of the building sector.

Purposeful
Advancing clean, affordable technology solutions that address household energy needs.

Leading the way
Acting first to lead the private sector to address the specific needs facing affordable housing.
Approach to Affordable Housing*

*single-family, multifamily, and manufactured homes occupied by households earning <80% of the area median income

The Affordable Home Energy Earthshot focuses on the challenges facing the 50M homes that make up the U.S. affordable housing stock.

Focus on multifamily and manufactured homes
Over 60% of multifamily and manufactured buildings serve as affordable housing and face unique decarbonization and affordability challenges.

Create scalable solutions that minimize disruptions to renters
Over 58% of low-to-moderate income households are renters.

Target design barriers specific to older buildings
Affordable housing is more likely to lack adequate insulation and central AC, as well as experience other non-energy hazards such as lead and mold.
Affordable Home Energy Earthshot

GOAL: to reduce by 50%+ the cost of home retrofit packages needed to decarbonize affordable housing while lowering energy bills by 20% within a decade.

- 50% lower upfront cost
- 20% lower energy bills
- Within a decade
U.S. Department of Energy

Building Technologies Office (BTO)
program highlights focused on
Home Energy Affordability
Retrofit Field Validation & Demonstration
A new portfolio of field demonstration projects leading to de-risked, equitable, and scalable retrofit solutions in the existing U.S. housing stock

Key Objectives:
- **Reduce risk** of retrofits to end-users, utilities, contractors, financiers.
- **Improve value proposition** of retrofit improvements to end-users, utilities, regulators.
- **Develop, disseminate, and promote** use of best retrofit practices.
- **Inform** technology development to meet end-user/contractor needs.

Successful teams will develop and share best practices for de-risked, scalable, and equitable retrofit solutions to help decarbonize existing homes in their local community and the broader U.S. residential stock.

Program Milestones
- **Qualified teams established**
- **Teams work with communities to define goals and needs**
- **Determine project scopes**
- **Monitor projects and collect implementation data**
- **Scale best practices and proven solutions to increase impact**
Building America Retrofit Solutions Teams
Buildings UP is designed to rapidly scale energy efficiency and efficient electrification building upgrades in communities across the country.

Phase 2: PLAN

- 45 Phase 1 winning teams invited to Phase 2
- Phase 2 submissions open June 2024
- $22M+ in cash prizes and Technical Assistance available to Phase 2 winning teams
What is the DOE ZERH Program?

- A nationally-recognized voluntary certification program focused on:
  - Energy efficiency
  - GHG reductions
  - Indoor air quality
  - Comfort
  - Moisture management
  - Renewable readiness
  - Electric readiness (V2)

What does the ZERH program do?

- Recognizes “high performance” new homes that meet rigorous criteria
- Encourages adoption of energy efficiency technology innovations
- Provides participating builders and programs with resources to promote benefits of high performance, low emission homes to homebuyers
- Certification system for 45L tax credit
DOE ZERH Builds Upon EPA Certification Programs

Companion federal programs recognize home performance beyond energy code minimums

DOE's Zero Energy Ready Home Program establishes the highest performance levels of federal programs to advance efficiency in the housing industry. Requires ENERGY STAR Homes and Indoor airPLUS as prerequisites.

All 3 federal programs use the same certification infrastructure (except IAP does not serve MH sector):

- HCO’s/MRO’s oversee verifiers (e.g., HERS)
- Verifiers certify homes using HCO approved software + onsite QA
States with direct references:
Arizona, Connecticut, Delaware, Idaho, Maryland, New Jersey, Pennsylvania, Rhode Island, Utah, Virginia

States with reference via EGC Plus:
Colorado, Washington D.C., Illinois, Michigan, Minnesota

States with ongoing engagement:
Michigan, Illinois, Georgia, New Hampshire, Ohio

ZERH Multifamily Version 2 will be referenced (either required or incentivized) in numerous affordable housing programs.
Affordable Housing Project is 2023 Grand Winner

Affordable Housing Concepts
New Paltz, NY
Project: Zer0 Place

Off the Shelf
Efficient Installation
Shows what can be accomplished if advanced materials are widely adopted

Blazing the Trail
Most advanced everything
Pushes the limit on performance in all categories

Class is in Session
Research and publication of monitored data

Decarbon Copy
Cold Climate Electrification – Extreme performance = cooling dominant design
Community Energy Monitoring + Solar
Transit Oriented Design
Minimal Operational Carbon
Now we live in a Zero Energy Ready Home that is comfortable, with healthy air to breathe, and our energy bills have decreased.

— HOMEOWNER

Habitat for Humanity of Catawba Valley
Hickory, NC
Project: Northstone Bungalow

HERS Score: **46**
Average Monthly Energy Bill: **$65**

Providing our residents with sustainable healthy homes that provide a safe and comfortable living environment for their families.

— BUILDER

Mutual Housing California
Sacramento, CA
Project: Mutual Housing at Spring Lake

**101 Affordable Units**
Average Monthly Energy Bill: **$2**
Average across all units
### DOE ZERH & the Federal Tax Credit for New Homes (45L)

#### Residential Building Types:

<table>
<thead>
<tr>
<th>Type</th>
<th>ENERGY STAR Homes</th>
<th>Zero Energy Ready Homes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified Single-Family Homes, Duplexes, Townhomes, &amp; Manufactured Homes</td>
<td>$2,500 each</td>
<td>$5,000 each</td>
</tr>
<tr>
<td>Certified Units in Multifamily Buildings</td>
<td>$500 each</td>
<td>$1,000 each</td>
</tr>
<tr>
<td>Certified Units in Multifamily Buildings when prevailing wage requirements are met</td>
<td>$2,500 each</td>
<td>$5,000 each</td>
</tr>
</tbody>
</table>

**45L Tax Credit available until 2032**

**Different program versions for different years**
IRS **Notice 2023-65** establishes that the ZERH program requirements under which homes must be certified are provided on the DOE Zero Energy Ready Home Program Requirements webpage:

https://www.energy.gov/eere/buildings/doe-zero-energy-ready-home-zerh-program-requirements
U.S. Department of Energy

State & Community Energy Program (SCEP)

IRA rebates focused on

Home Energy Affordability
Home Energy Rebates Program Design – Equity

• 50121 doubles rebate levels (up to 80% of project cost) for low-income homes, with option to increase max rebate levels for low-income homes at the request of the state
• 50122 only for low-income (80% AMI) and moderate-income (<150% AMI) homes

• States required to create a Community Benefits Plan with the following elements:
  – Plans for community engagement with CBOs, members of DACs, Labor, other stakeholders
  – Plans for how states will ensure workforce development for good jobs with DEIA considerations
  – Plans for how states will ensure direct benefits reach low-income households in DACs
    • 50121 requires $200 incentive to contractor for serving DACs
    • 50122 can include up to $200 incentive to contractor for serving DACs

• Tools to help states identify and target rebates for rural areas with expensive delivered heating fuels and other areas with energy poverty / high energy burden

• Opportunity for rebates to braid with other funding from HUD, EPA, USDA, BIA
Low-Income and Low-Income Multifamily Set Asides

Requirements will ensure rebates reach Low-Income and Low-Income Multifamily Households

- All states are required minimum allocation of ~50% for low-income households, including a 10% minimum allocation for low-income multifamily households
  - Justification in requirements document is based on statutory references to low-income and LI MF households and historic structural barriers that make achieving the statutory goals unlikely/impossible without a low-income set aside.
- States also required to create a Community Benefits Plan that covers community engagement, workforce development, DEIA for jobs for home energy retrofits, and a state’s contributions to the Justice40 Initiative
- Applicable J40 benefits:
  - Decrease energy burden, increase in clean energy parity, increase in contracting, increase in energy jobs
Housing Affordability: Innovations and Best Practices

Tyler Pullen
Terner Labs and Terner Center
November 2023
Housing Affordability: Innovations and Best Probably Good Practices

Tyler Pullen
Terner Labs and Terner Center
November 2023
Who are we?
“Innovation”

The Buzz
Affordable outcomes don’t necessarily require new [technology, delivery models, etc.]
“Innovation”

The Bees
“Innovation”: The Bees

- Design (not just architects)
- Contracts
  - Integrated project delivery (IPD)
- Building code
  - Cross-jurisdictional alignment
  - Performance code
- Retrofits
Terner’s Housing Lab

- Catalyzes new firms with coaching, relationship building
- Company examples:
  - Parity (Baltimore)
Terner’s Housing Lab

- Catalyzes new firms with coaching, relationship building
- Company examples:
  - Parity (Baltimore)
  - The Guild (Atlanta)
Terner’s Housing Lab

- Catalyzes new firms with coaching, relationship building
- Company examples:
  - Parity (Baltimore)
  - The Guild (Atlanta)
  - Frolic Communities (Seattle)
Terner’s *Builders* Lab to Launch in 2024

- Supporting innovative and industrialized construction
  - Technical coaching, mentorship
  - International study tours

*Photo credit: Tyler Pullen*
Terner’s *Builders* Lab to Launch in 2024

- Supporting innovative and industrialized construction
  - Technical coaching, mentorship
  - International study tours
- 2025: Physical site for prototyping, testing

Photo credit: Tyler Pullen
Case Study: 833 Bryant (2022)

- Supportive housing project in San Francisco (145 units)

- Complementary interventions
  a. Policy (state): Streamlined permitting
  b. Nonprofit and local government: Flexible financing
  c. Industry: Modular construction

- Outcomes: 30% time savings, 25% cost savings
Another Case: Parkside at Sabre City (2023)

- Single family rentals (44 units): 80% and 30% AMI
- **Complementary interventions**
  a. Policy (state): Split lot + ADU
  b. Local government and nonprofit: Soft debt (no LIHTC)
  c. Industry: HUD-code homes (with EE improvements!)
- Outcomes: >50% time savings, replicable model
The challenges for innovation are the same challenges for housing writ large
These Challenges Include:

- Uncertainty and inconsistency in housing development
- Familiarity/experience
- Industry fragmentation
- Workforce development/inclusion
- Risk aversion (culturally, financially)
Open Questions

- What/who are the best leverage points, and how do we engage them *in tandem*?
  - Government(s)?
  - Industry associations?
  - Universities?
- How to change *culture*?
“Innovation”

Cross-Pollination
Thank you!

To follow us or follow up:

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ternerlabs.org

tpullen@berkeley.edu
Session 2: Examining Solutions-Innovation and Best Practices

Tyler Pullen
Senior Technical Advisor, Terner Center for Housing Innovation, UC Berkeley & The Housing Lab

Eric Werling
Building America National Director, Building Technologies Office, Dept. of Energy

Vicki Worden-Moderator
President & CEO, Green Building Initiative
Welcome to the Housing Affordability Hearing

Hosted by the NIBS Consultative Council
Session 3: Examining Solutions—Means and Methods

Yonah Freemark, Ph.D.
Senior Research Associate, Metropolitan Housing and Communities Policy Center, Urban Institute

Ivan Rupnik, Ph.D.
Founding Partner, MOD X & Assoc. Professor, Northeastern University

Justice Favor
Director of Strategic Partnerships, Greater New York Laborers-Employers Cooperation and Education Trust (GNY-LE CET)

Thomas W. Smith III, Moderator
CEO, ASCE
Vice Chair, NIBS Consultative Council
Examining Solutions
Means and Methods for Framing Offsite Construction

Ivan Rupnik, Phd
Founding Partner, MOD X
Associate Professor, Northeastern University
MOD X is a research, education and advisory group focused on addressing societal challenges through the industrialization of construction.
Introduction
National Housing Affordability Crisis (2023)
Can offsite construction help increase housing affordability?
Introduction
National Housing Undersupply (2021)
Can offsite construction help increase housing availability?
Decline in Construction Productivity in the US
“Reinventing Construction: A Route To Higher Productivity”
Can offsite construction help increase housing productivity?
Improvements to Productivity: "Manufacturing Style Production"
McKinsey Global Institute

- Reshape regulation
- Rewire contracts
- Rethink design
- Improve procurement and supply chain
- Improve onsite execution
- Infuse technology and innovation
- Reskill workers

> 60%
Productivity boost (onsite)

> 10X
Productivity boost (offsite – onsite)

- Move to a manufacturing style production system
<table>
<thead>
<tr>
<th>Country</th>
<th>Initiative/Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>Fair Housing Act + Operation Breakthrough</td>
</tr>
<tr>
<td>Japan</td>
<td>Finance Agency + Pilot Program</td>
</tr>
<tr>
<td>Sweden</td>
<td>Million Homes Program + BBR94</td>
</tr>
<tr>
<td>UK</td>
<td>MMC Framework</td>
</tr>
<tr>
<td>USA</td>
<td>Strategy: Innovation Framework for Offsite</td>
</tr>
</tbody>
</table>
Fair Housing Act
26 Million Homes in 10 Years

- US housing productivity grew 2% every year from 1946 until 1959, supporting adequate housing supply.
• **Mid 1960s**: productivity **stagnated**, supply became constrained, housing affordability **declined**, cost of delivering public housing began to increase.

• **1968 The Fair Housing Act** called on the delivery of **26 million homes** in **ten years**, to exceed supply demand in order to **increase housing affordability**.

• **1969**, HUD Secretary, George Romney responded with "Operation Breakthrough", a program designed to **break through** the **internal** and **external barriers** limiting US offsite construction, the only mode of housing delivery capable of meeting such an increase in housing supply.
Offsite construction could increase housing supply and ultimately increase affordability.
Operation Breakthrough
Breaking through “barriers” to industrialized home delivery

• HUD’s assessment of the barriers **Operation Breakthrough** would *break through* were as follows:

**INTERNAL BARRIERS** preventing the construction sector shifting to a R&D-centric business model needed for higher productivity and industrialization

**EXTERNAL BARRIERS**: a fragmented regulatory framework consisting of prescriptive building codes based on onsite conventions and a high degree of local authority over interpretation of that framework > a lack of incentive to overcome internal barriers
Operation Breakthrough
Breaking through “institutional constraints” to industrialized home delivery

PHASE 1. Identified 22 companies in the US and abroad and helped them defray R&D costs for developing building systems using performance based specification developed by the National Bureau of Standards and HUD.

PHASE 2. Utilized 9 sites across US to refine Phase 1 systems and to further test solutions to breaking through a variety of external barriers to industrialization and offsite construction.

PHASE 3. Planned to help companies scale by guaranteeing a multi-year project pipeline of affordable housing projects, after which the companies would be expected to operate in the free market.
Operation Breakthrough
Breaking through “institutional constraints” to industrialized home delivery

PHASE 1. was generally successful, especially those companies who were already practicing many of the principles of industrialization, but who needed help navigating a fragmented regulatory framework.

PHASE 2. was less successful, with the fragmented regulatory framework and local authority proving more difficult to navigate than expected, creating significant delays and cost overruns.

PHASE 3. was prematurely cut short, with companies lacking a stable pipeline of affordable housing projects to amortize their significant investments in R&D, people and equipment during a major recession.
Two key **OB outcomes** that impact US today:

- In order to run Operation Breakthrough, HUD championed the creation of **“industrialized building programs” in 35 States.** Today, those programs provide a key framework for permitting and inspection of factories and offsite projects.

- Unable to transform the entire housing sector, HUD turned to **transforming the mobile home industry into the safer and higher quality manufactured home industry through the 1976 HUD Code.** Since that time 9 million + homes have been produced, at as much as a 50% savings when compared to conventional construction.
HUD Code reframed offsite construction to achieve housing affordability.
HUD Code
Regulatory Reform Helped the Manufactured Housing Industry Scale

Source: MHI
External Barriers Persist
Fragmented Offsite Framework

Source: ICC-NTA
Internal Barriers
Lack of Widespread Manufacturing Mindset
US / International Comparison
Operation Breakthrough Innovation

USA 1970

Japan 2020

USA 1970

Sweden 2020
Japan Offsite Construction Sector and Framework
Newly Built Housing Units Per Thousand Inhabitants

1950 – Mortgage subsidy program (following US)

1964 – Mortgage subsidy program connected to Certification system of offsite construction

1969 - 1973 – OB influenced Pilot House Program encourages further industrialization of Japanese housing delivery, certification system and mortgage support further refined

1975 – Despite of global recession a number of Pilot House program companies survive downturn and experience 20+ years of growth

1968 - z1973 – End of OB, peak of US housing supply

2000+ – Despite of a persistent recession and population decline, Japanese offsite companies continue to thrive and innovate

Source: Professor Shuchi Matsumura, University of Tokyo
Japanese offsite companies are able to balance standardization and customization at scale, using sophisticated product platforms.
They can deliver custom homes **40 days** after the customer signs on the dotted line.

Japan Offsite Construction Sector and Framework
Dependable Delivery As Key Market Advantage
They are able to assemble highly finished components on site in a matter of hours.
Modules move from station to station on the factory floor in a matter of minutes.
Japan’s continually improving regulatory framework that rewards capital intensive investment in people and technology with a streamlined permitting and inspection process that saves companies up to 30% of project cost.
That innovation framework and the feedback loop it affords has also helped Japan introduce circular and net-zero housing sector at scale with relative ease.

> 100% Japanese builders responsible for all construction waste since 2000

> 100% of new housing to be Net Zero by 2030

> 20% of Net Sales at Sekisui Heim comes from “Life Business”, refurbishment and additions

> 95% of Sekisui Heim homes Net Zero

> 65% of Pre-Certificed Systems Net Zero
Consistent Financing Strategy
Japan Finance Agency has supported offsite construction by creating a **stable pipeline** through specific mortgage rate reductions since 1964

Rigorous Certification of Systems and Manufacturers
Mortgage deductions have been closely tied to a system of certification of building systems and their related manufacturing processes which streamline permitting, inspection and appraisal.

Flexible Framework
The same finance/certification system has also been used to encourage increased construction waste recycling, resilience, energy performance and accessibility since 2000
1965 Sweden launches the Million Homes Program to deliver a million homes in ten years to increase housing affordability for all citizens (when adjusted for population, comparable to the US goal of 26 million)

A variety of financial tools directed at home owners, renters as well as building companies created a stable pipeline to assist the building industry to industrialize onsite construction as well as to move activities offsite.

1970 as a result of the program, increased supply stabilizes housing affordability for the next two decades.
Sweden
Increasing Housing Affordability > Increase Supply > Offsite Construction

• **1990s**, Sweden faced a new housing affordability crisis

• **1994** Sweden transformed from a *localized prescriptive building code* to an EU-wide *performance code* (Eurocode)

• Sweden’s *forestry sector* built upon this regulatory change to fund the development of new building *standards* to increase the safety, quality and affordability of industrialized wood-based construction
Sweden
Past: Prescriptive Code

Goal
Performance Criteria
Operative Criteria
Verification
Examples of acceptable solutions (Prescriptive Criteria)

Building Regulations
Building Sector
Source: Boverket
Sweden
Future: Eurocode 2.0 Anticipation

Pre-Certified Design Companies
> Can check design provisions and technical requirements
> Replaces municipal check for start notification
> Are focused on Housing

Building Regulations
- (Reduced regulation)
- Building Sector
- (project delivery cost savings)
- (Increased flexibility and possibilities)
- (Increased R&D)

Examples of acceptable solutions (Prescriptive Criteria)
- Verification
- Operative Criteria
- Performance Criteria
- Goal

Source: Boverket
Today, 90% of Sweden’s detached homes are fabricated offsite.
A 2023 national wide survey, the first of its kind, was able to demonstrate that industrialized home builders fabricated buildings offsite were 10% more productive on average than conventional builders.
In 1993, prescriptive code banned wood construction above two stories. Since 1994, industrialized wood based construction for multi-family has grown from 0% to 20% market share, and is still growing.
Can offsite construction *lower* the carbon footprint of housing delivery?
Innovation Framework Case Study: EU > Sweden
Increasing Housing Supply + Decreasing Carbon

- Lindbacks: Current Carbon Footprint 22
- Lindbacks: Future Carbon Footprint 22 = 1
Consistent Financing Strategy
Sweden’s Million Homes Program utilized a variety of financial instruments for owners, renters and builders to create a stable pipeline for the country’s nascent offsite construction sector.

Shift From Prescriptive to Performance Code
Sweden’s early adoption of Eurocode encouraged the existing offsite construction sector to invest in R&D and to diversify into new market segments (multi-family).

Flexible Framework
The same performance code is also being utilized to now set clear carbon targets at the company and project scale.
The Parliamentary Under-Secretary of State, Department for Levelling Up, Housing & Communities

... the Government are committed to increasing the number of homes built using modern methods of construction—MMC—across all housing tenures. MMC offers a range of benefits, such as delivering high-quality energy-efficient homes more quickly, and the Government are supporting the sector with our £1.5 billion levelling up home building fund and providing funding for up to 40,000 MMC homes through the affordable homes programme to help deliver these benefits at scale.

House of Lords, June 6 2023
United Kingdom
Early Phase of Offsite Construction Program
United Kingdom
Early Phase of Offsite Construction Program
Clear Terminology:
**MMC** Modern Methods of Construction
A more holistic term used to describe a complete application of manufacturing principles to construction

Clear System Value Assessment:
**PMV** Premanufacture Value, 7 categories of MMC
A consistent way to measure the value add produced away from the construction site

Direct MMC Financing:
**HOMES ENGLAND**, “an executive non-departmental public body, sponsored by the Department for Levelling Up, Housing and Communities” was founded in 2018 to direct strategic funding for the MMC sector.
Roadmap and Strategic Plan
1. Development and further roll out of procurement approaches to enable MMC
2. Regulation and Standards
3. Capital, Finance, and Insurance
4. MMC Skills Development
5. Industry Competitiveness and Capacity
6. Effective Policy Execution and Communication
Offsite Construction for Housing: Research Roadmap
MOD X with PTC and NIBS for US HUD, 2021

Research Topic 1: Regulatory Framework

Research Topic 2: Standards and System Performance

Research Topic 3: Capital, Finance, and Insurance

Research Topic 4: Project Delivery and Contracts

Research Topic 5: Labor and Workforce Training and Management

Research Topic 6: Business Models and Economic Performance
HUD’s Current and Future Role in US Industrialized Construction (IC)
MOD X with NIBS for US HUD, 2022-2024

**Current US Sector and Framework**
- US HUD’s Role in shaping the US IC Sector and Framework
- Mapping US IC Sector and Framework

**International IC Sectors and Frameworks**
- United Kingdom (Ireland, Australia, New Zealand)
- Sweden (European Union)
- Japan

**US Federal Action Plan for Offsite Construction**
- Working with HUD and Key Partners to articulate a US Federal Action Plan for Offsite Construction that will support a national innovation framework for industrialized housing delivery
An **innovation framework** is a foundational set of practices and tools that helps organizations generate ideas, evaluate those ideas and turn the best ideas into a value-add for the organization.

In our research of the **US, Japan, Sweden and the UK**, **MOD X** has found that the full benefits of offsite construction require **innovation frameworks** at the scale of companies AND at the scale of the sector to increase productivity AND address new societal challenges.
Improvements to Productivity: ”Manufacturing Style Production”
McKinsey Global Institute

> 60%
Productivity boost (onsite)

> 10X
Productivity boost (offsite – onsite)

- Reshape regulation
- Rewire contracts
- Rethink design
- Improve procurement and supply chain
- Improve onsite execution
- Infuse technology and innovation
- Reskill workers

- Move to a manufacturing style production system
Improvements to McKinsey’s Assessment
MOD X + HUD

> 10% +

Productivity boost

- Regulatory Framework
- Standards and System Performance
- Capital Finance and Insurance
- Project Delivery and Contracts
- Labor and Workforce Training and Management
- Business Models and Economic Performance
- Sustainability and Resilience

+ a move to a manufacturing style production system
The MOD X Approach
Offsite Framed

Macro Innovation Framework
(Sector)

Technology

Micro Innovation Framework
(Company)
Product platforms provide the flexibility to accommodate inputs from many different project scenarios through a set of common modules. These modules in turn adapt and evolve over time through the aggregation and synthesis of multiple customer and contextual inputs.
Product platforms thrive in performance based regulatory frameworks. Performance codes specify the outcomes or goals of a building, as opposed to prescriptive codes which specify the exact methods and/or materials. Performance based frameworks encourages and rewards data-driven R&D culture in companies.
Thank you!
Unlocking Zoning: Leveraging Local Land-Use Regulations for Housing Affordability
About the Urban Institute

- The Urban Institute is the trusted source for unbiased, authoritative insights that inform consequential choices about the well-being of people and places in the United States. We are a nonprofit research organization that believes decisions shaped by facts, rather than ideology, have the power to improve public policy and practice, strengthen communities, and transform people’s lives for the better.

OUR MISSION IS TO OPEN MINDS, SHAPE DECISIONS, AND OFFER SOLUTIONS THROUGH ECONOMIC AND SOCIAL POLICY RESEARCH.
Agenda

• The Elements of Zoning
• Zoning in Context
• Zoning History (with a racial equity and housing affordability lens)
• Action Steps
The bottom line

- Zoning goes beyond rules about what can be built where “as of right.” It also includes people and processes!
- Zoning has impacts on housing construction, but housing is a complex system with many more inputs.
- There is no silver bullet that will fix rising housing prices or segregation.
Zoning is...
Zoning is...

a set of laws governments use to regulate land use and building form...
Zoning is typically controlled by local governments, but it depends on the state.

But zoning is also a lot more than that!

Zoning is a *structure of laws, values, institutions, and people* that produces the built environment.
Zoning might best be characterized as an ensemble of elements.
Base Zoning

Zoning text

ZONING IS...


Source: City of Philadelphia
Requirements, Incentives, and Exactions

- Impact fees
- Development incentives
- Mandatory affordable housing requirements
- Exactions or minimums

Source: https://www.decosoup.com/advice/1184-what-is-the-minimum-size-of-a-parking-space
Procedures

- Flexibility measures
- Review processes, including public participation
- Meta processes

Administration

- People
- Planning & zoning
- State government requirements
Local zoning in context

State and federal regulations

The real-estate market

Society

A. Base Zoning

B. Procedures

C. Administration

D. Requirements, Exactions, & Incentives
Zoning: A Condensed History
Planning is an ancient tradition that formalized in the US about 150 years ago.

Plate One: *The Hauptbahnhof Quarter.* It was added to the city beginning in the late 1870s. A contrast can be made between the “pack donkey” street pattern of Medieval times and the geometric-regularist approach of the Baumeister-Stuben advocates of the last quarter of the nineteenth century.

Frankfurt, 1870s

Euclid, OH, 1922

Sources: City of Euclid (http://www.cityofeuclid.com/community/development/PlanningandZoningDivision/EuclideanZoningHistoricDocuments); ARL (https://www.arl-net.de/de/content/planning-system-germany-11-history-building-law)
Why zoning?

Crowding
• Address the perception that closely knit communities were bad for health

Pollution
• Address the negative impacts of living near industrial uses

Zoning Timeline: Early 1900s–1920

- Many early zoning codes were created with racist motivations
- Zoning out industrial uses was motivated by stopping integration
- Anti-density arguments come from inaccurate environmental determinism claims

An 1878 anti-Chinese cartoon in San Francisco

Zoning Timeline: 1920s–1970s

- The real-estate market and the public contributed to racist land use policy.
- Landlords advocated for single-family zoning and used covenants to prevent people of color from living in certain neighborhoods.
- Government officials and real-estate industry build racial-class gap.

Neighborhood ratings, Des Moines, IA, 1947
Zoning Timeline: 1970s–1990s

• Single family suburbs sprawled outward as white residents fled integration

• Restrictions on home forms increased

• State governments started to intervene

Suburban single-family neighborhoods

Zoning History: 2000s – Present

- Most neighborhoods in cities nationwide continue to be zoned only for single-family homes


Single-family zoning in US cities

Source: New York Times
What are the consequences of zoning—particularly for racial equity?
Some problems with single-family home requirements

- Increase costs.
- Limit options.
- Exacerbate segregation.
- Encourage car use.
- Make alternatives difficult to build.
Cities exclude new housing through zoning policy

- Exclusionary municipalities with limited housing production feature little room for multi-family housing

A FEW NEGATIVE CONSEQUENCES

Planning decisions are made based on demographics

- Land use approvals are influenced by the demographics of the location where the project is planned and who shows up to meetings.

![Image of bar chart showing approval rates for Louisville rezonings by demographic factors.

**FIGURE 1**
Approval Rates for Louisville Rezonings Were Associated with Public Speaker Presence and Tenor

<table>
<thead>
<tr>
<th>Factor</th>
<th>Approved</th>
<th>Denied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of cases with opposition speakers</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>Share of speakers opposed</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>Share of adults 25+ with bachelor’s</td>
<td>70%</td>
<td>30%</td>
</tr>
<tr>
<td>Share of homes that are owner-occupied</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>Share of population that is non-Hispanic white</td>
<td>50%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Source: Authors’ analysis of Louisville rezoning dataset and 2016–20 American Community Survey data.

Note: Approved cases were in block groups with median household incomes of $61,375, compared with $69,249 for denied cases.
Choices are made by unrepresentative decisionmakers

- Women, people of color, and renters are systematically underrepresented on land-use bodies

**FIGURE 1**

Land-Use Boards Overrepresent White Residents while Underrepresenting Hispanics, Women, Renters, and People in Certain Occupations

*Average share of land-use board membership and local jurisdictional population, by demographic group*

- **Source:** Authors’ mapping of 2022 Land Use Decisionmaking Board Composition Survey respondents.
- **Notes:** Data do not include legislative bodies or responses of “unknown” or “prefer not to answer.”
The US is not building enough housing

- The US built half as many units per capita in the 2010s as it did in the 1960s through 1980s

Housing units started/1,000 U.S. residents, for the average year in each decade

Source: St. Louis Federal Reserve (https://fred.stlouisfed.org/series/HOUST#0)
The US has a big gap in ‘missing middle’ housing

Source: Opticos (https://missingmiddlehousing.com)
The US has a big gap in ‘missing middle’ housing

Source: St. Louis Federal Reserve (https://fred.stlouisfed.org/series/HOUST#0)
US affordable housing construction is declining

People of color are disproportionately renters

### Share of Renters and Their Financial Status, by Race or Ethnicity

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Asian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renter share</td>
<td>27.8%</td>
<td>58.3%</td>
<td>52.5%</td>
<td>40.5%</td>
</tr>
<tr>
<td>Median income</td>
<td>$43,000</td>
<td>$30,000</td>
<td>$39,000</td>
<td>$58,500</td>
</tr>
<tr>
<td>Median liquid assets</td>
<td>$9,000</td>
<td>$1,600</td>
<td>$2,808</td>
<td>$9,300</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>4.1%</td>
<td>7.2%</td>
<td>4.4%</td>
<td>3.1%</td>
</tr>
</tbody>
</table>

The combination of:

- Restrictive local zoning codes
- Low construction overall
- Limited investment in affordable housing
- Rising real estate prices...

Limits access to opportunity, making it difficult for low-income people, particularly people of color, to access public services, jobs, and other essential needs.

Source: Opportunity Insights.
Enabling low-income folks to move to or live in opportunity communities has significant positive impacts:

- Better chances of rising up a class
- Increase in income
- Less incarceration
- More able to contribute to society
- Better mental and physical health outcomes

Source: Opportunity Insights.
What can we do?
Encourage increased density & diversity while cutting red tape

- Streamline review
- Reduce discretion to mitigate power inequities
- Build bigger
- Build smaller
- Repurpose space
Identify the means to boost affordability

- Invest directly in affordable housing, such as social housing
- Inclusionary zoning
- Density bonuses
- Eliminating parking requirements
- Disposition of public land, such as through new federal RRIF/TIFIA options
Create regional accountability

- Equitably distribute the benefits and responsibilities of economic development.
- Encourage coordination around open space and housing, transit and natural habitats.
- Associate housing investments with meeting federal Affirmatively Furthering Fair Housing goals.
Thank you!

Yonah Freemark
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Urban Institute
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Ending the Exploitative and Unjust Treatment of Disenfranchised Construction Workers

Construction Justice NYC is a grassroots coalition of labor unions and community-based organizations committed to ending the exploitation and unjust treatment of New Yorkers employed in the construction industry.
WE ARE DEMANDING JUSTICE

• Construction Justice NYC is a grassroots coalition of labor unions and community-based organizations. We’re committed to ending the exploitation and unjust treatment of New Yorkers employed in the construction industry.

• Criminalization of Black, Brown, Justice impacted and immigrant communities has led to an ever-growing labor pool of vulnerable, disadvantaged and discriminated-against workers. Today we are moving closer to changing this reality by ensuring no construction worker is treated as disposable or a burden to our society- we build this city and we should be able to work in this city.

• These employers have immense power over justice-affected workers, effectively suppressing wages and safety standards. Justice-affected workers are treated as disposable and a burden to taxpayers, but there is great economic advantage for communities when these workers are connected with quality construction careers.

• Ambitious community hire goals, raising workers’ wages and ensuring employer-paid benefits should be standard practice on City financed projects and today we celebrate a step closer to this reality.
WORKFORCE RECRUITMENT

- Apprenticeship / Pre-Apprenticeship Outreach
- P2A, NEW, Construction Skills, Helmets to Hardhats, Rebuilding Together, NYCHA Rees, Forward Connect NYC.
- Non-Union / Body Shops
- Re-Entry Population / Outreach
- Immigrant / Undocumented Population Outreach
- Public Housing Outreach
Session 3: Examining Solutions - Means and Methods

Yonah Freemark, Ph.D.
Senior Research Associate, Metropolitan Housing and Communities Policy Center, Urban Institute

Ivan Rupnik, Ph.D.
Founding Partner, MOD X & Assoc. Professor, Northeastern University

Justice Favor
Director of Strategic Partnerships, Greater New York Laborers-Employers Cooperation and Education Trust (GNY-LECET)

Thomas W. Smith III, Moderator
CEO, ASCE
Vice Chair, NIBS Consultative Council

November 7, 2023
Closing Remarks

Brian Pallasch, EVP & CEO, IIBEC
Chair, NIBS Consultative Council
Thank you all for attending!

Enjoy the reception!