

Virginia Coalition of Housing and Economic Development Researchers

Addressing the Impact of Housing for Virginia's Economy

A REPORT FOR VIRGINIA'S HOUSING POLICY ADVISORY COUNCIL
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Appendix Report 5:

Virginia Housing Production Affordability Findings

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Introduction

Housing production contributes to national, regional and local economies, but local market characteristics often make it difficult to produce an affordable new home. If local factors are unfavorable to the new construction process, producing a new home can cost significantly more than the price of an existing home. As a broad industry, residential construction is an important contributor to Virginia's economic diversity. New home construction has a large economic footprint of suppliers and contractors, and renovating a home produces a smaller but similar economic effect. Sales of existing homes produce the smallest economic impact on the regional economy, with fewer stakeholders and processes involved. Despite setbacks in activity since 2008, new housing production remains an important contributor to updating our aging infrastructure, expanding opportunity for personal wealth, and driving our economy.

In Virginia, housing production and demand relies on several economic drivers. The following report provides local housing market data and housing industry statistics to explain these drivers and consider the many sides of the housing industry. However, focusing only on the drivers of housing demand would exclude much of the risk unique to the housing industry, so the report also considers other characteristics of the construction industry broadly, and housing construction within it.

The report begins with a discussion of broad trends at the construction industry level to place context around housing construction. The report discusses the state of housing production to analyze construction and building industry trends, and the characteristics of the primary sources for labor and materials in the Virginia construction sector's supply chain. The report examines development and construction costs such as fees, taxes, possible regulatory requirements, direct land preparation and construction costs, and other possible costs of doing business. Finally, the report analyzes local data specific to Virginia regions to provide information on drivers of local markets.

Body of Findings

The housing industry’s continuing contribution to Virginia’s economic success depends on more than the characteristics of housing—its location, quality, cost, and availability—to maintain the ability to provide affordable options. The ability to produce homes in a way that balances economic pressures across all stakeholders of the supply chain is a major factor in achieving affordability.

The Balance of Housing Production and Demand

The housing industry is a balance of multiple stakeholders that influence production from raw materials to homeowners (Figure 1). Production costs of a home are a zero sum game: each participant's gain or loss of utility is balanced by the losses or gains of the utility of the other participants. When considering economic pressures that can affect affordability, it is important to remember this balance between stakeholders that are critical to the production of a home.

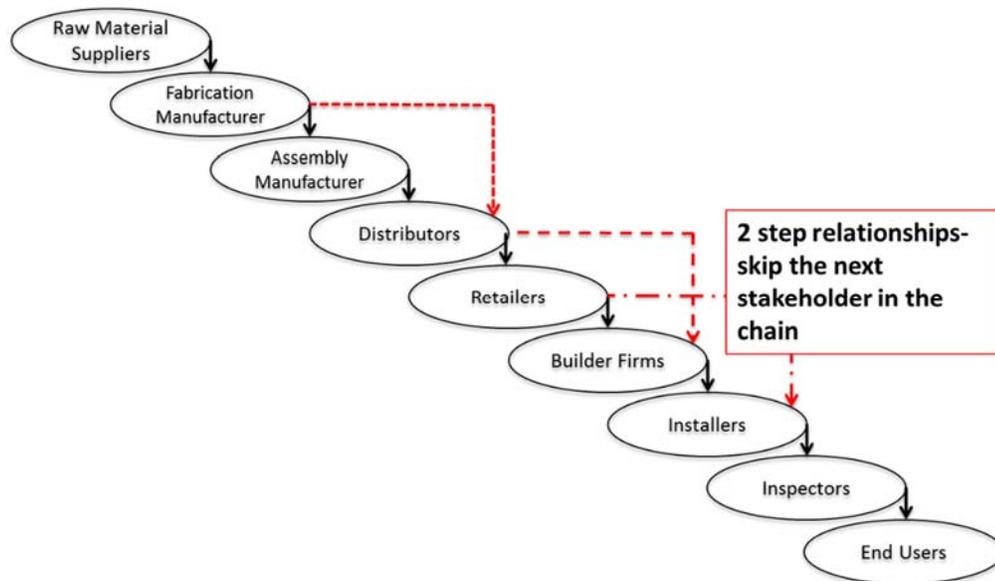


Figure 1: Residential Construction Supply Chain

General US Industry Trends- US National Characteristics

Producing buildings is expensive. The average cost of construction increased by 5 times from 1908 to 1960 and by 9 times from 1960 to 1990. Since 1990, we have seen even larger increases in cost. The cost of buildings has doubled from 1990 – 2014 and the cost of materials is 1.8 times higher in the same period.

We are not as productive as we could be in delivering buildings. According to the BLS Report “Productivity Growth in Construction” (2014), “productivity growth (in construction) was negative from 1967 to 1987, close to zero from 1987 to 1997, but has been substantially negative since then.” In comparison, manufacturing productivity has grown 1.7 times more than construction over the same period.

It is not “one size fits all.” Residential construction contains localized uncertainty and risk that is unique to the production of a home. Risks include: concentration, supply chain, subcontractor networks, and productivity. For example, increased (or decreased) productivity is an indicator of the quality of the labor available at a local level, and could increase the need for innovative technologies. The level of local subcontractor fragmentation can affect productivity directly as well.

The nature of the industry has changed over the last 30 years. The national homebuilding market used to be typified by “small firms that produce only a few homes using their own crews or subcontractors” and would place most builders in the sector of Homebuilding. In contrast, the current list of top-100 companies (in terms of volume) contains a couple dozen large, publicly-traded housing production firms.

Since the recession, productivity is driving growth. According to “The Builder Top 100”, the top-100 builder firms produced 240,190 of the total 1.11 million housing starts in 2015, or 21.6% of all housing starts (<http://www.builderonline.com/builder-100/builder-100-list/2016/>). In some metro markets, production builder firms constitute over 30% of housing starts and the trend is rising in many locations. Many small homebuilders were driven out of the market during the recession, with little room for them to re-enter now. Costs of producing a building are not level with existing sales pricing and options.

We are a fragmented industry with many stakeholders that resist change for different reasons. The residential construction industry is vast and far-reaching in terms of its contribution to employment and national spending, including the number of related occupations and economic stakeholders. Each stakeholder along the supply chain has a tendency to resist new processes, products or services, even though some of these innovations could improve productivity and reduce costs.

We are diversified and expect more from our housing. Today's firms that produce housing range from affordable housing non-profits to speculative developers of multimillion-dollar luxury mansions; from units with a small footprint to commercial-type residential highrises; from sophisticated financial investments to work-from-home offices.

In many ways, we are not sophisticated enough. As an industry, we need to improve our ability to collect, analyze and utilize data in order to understand and respond to the market more effectively.

National Production Costs

According to the National Association of Homebuilders (NAHB) New Construction Cost Breakdown national data, the average total cost associated with building a single family dwelling unit (Indirect, Direct and Soft costs) was on the rise until the recession of 2008. The total costs of producing a house decreased until 2011 before rebounding.

As of 2015, the total cost of producing a house is 2% more than what it was in 2007, at the height of the market before the recession. Since 1998, the total cost of producing a house is 206% higher. With a conventional 30-year mortgage at a 4% interest rate, the monthly cost for an average house at current prices would be \$2,148. A household would need to make \$85,920 after taxes to spend 30% of their income on such a mortgage, but the HUD 4-person household median income was \$54,100 in 2015 for the US, and \$78,400 in Virginia.

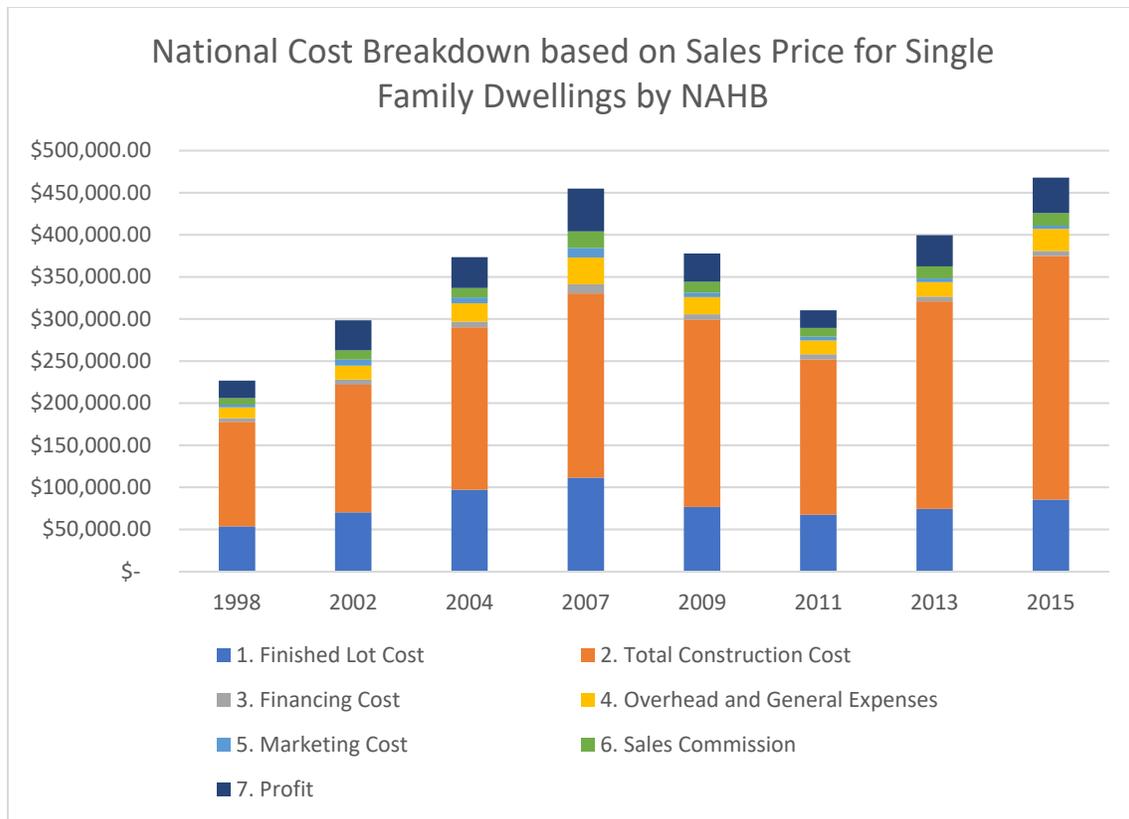


Figure 2: National Cost Breakdown based on Sales Price for Single Family Dwellings by NAHB
 Source: National Association of Homebuilders (NAHB), New Construction Cost Breakdown, 1998-2015.

Breaking down the costs of the sales price of a single family house in Figure 2:

- ✓ “Finished Lot Costs” increased by 108% from 1998 – 2007, decreased by 40% from 2007 – 2011, and have increased by 26% since 2011.
- ✓ “Total Construction Costs,” or “direct costs,” represent the largest proportion of costs. These costs increased by 79% from 1998 – 2009, decreased by 17% from 2009 – 2011, and have increased by 57% since 2011.
- ✓ “Financing Costs” increased by 153% from 1998 – 2007, decreased by 49% from 2007 – 2013, and have increased by 9% since 2013.
- ✓ “Overhead and General Expenses” increased by 146% from 1998 – 2007, decreased by 49% from 2007 – 2011, and have increased by 62% since 2011.
- ✓ “Marketing Costs” increased by 258% from 1998 – 2007, and have decreased by 67% since 2007.
- ✓ “Sales Commissions” increased by 154% from 1998 – 2007, decreased by 48% from 2007 – 2011, and have increased by 46% since 2011.
- ✓ “Profit” increased by 144% from 1998 – 2007, decreased by 59% from 2007 – 2011, and increased by 100% since 2011.

- ✓ “Soft Costs” increased by 155% from 1998 – 2007, decreased by 53% from 2007 – 2011, and have increased by 59% since 2011.

National Direct Costs of Production

On average, the direct cost of building a single family dwelling unit has been on the rise every year except 2011. Even right after the recession hit in 2008, these costs were still rising. Between 1998 and 2015, direct costs of producing a home have increased by 233%, with all components of direct costs increasing over that time period.

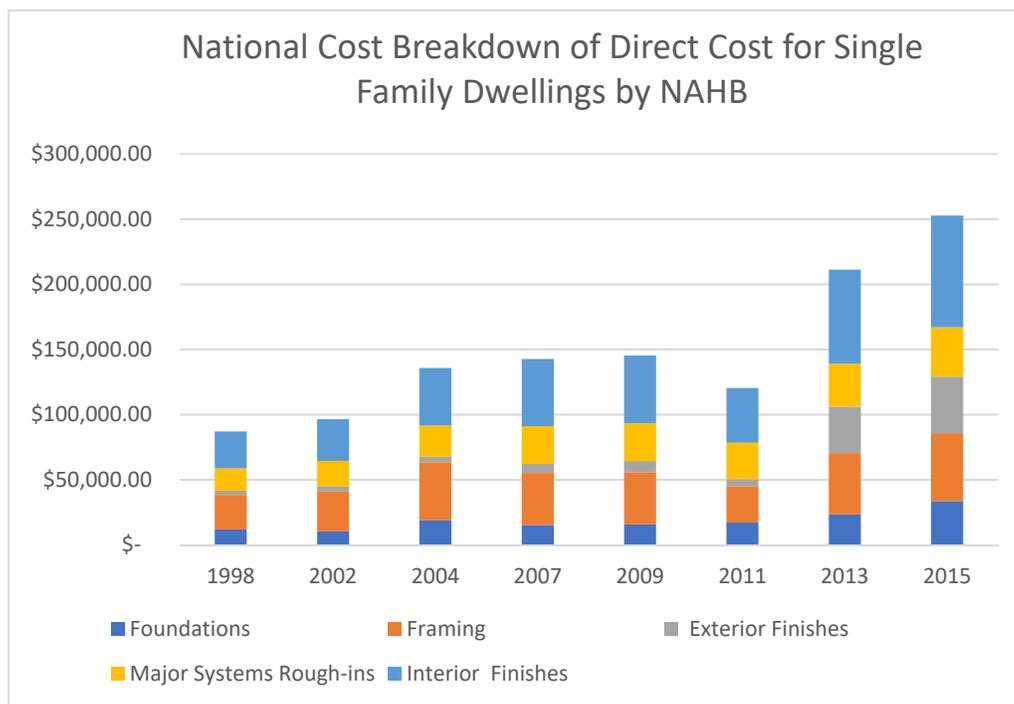


Figure 3: National Cost Breakdown of Direct Cost for Single Family Dwellings by NAHB
 Source: National Association of Homebuilders (NAHB), New Construction Cost Breakdown, 1998-2015.

Breaking down the direct costs of a single family house in Figure 3:

- ✓ The largest growth areas of the home’s direct costs have been exterior and interior finishes. One reason may be the building code and insulation values. Green building standards are also possible reasons behind the increase in exterior costs.
- ✓ “Foundation Costs” increased by 60% from 1998 – 2004, decreased by 20% from 2004 – 2007, and have increased by 119% since 2007.

- ✓ “Framing Costs” increased by 68% from 1998 – 2004, decreased by 37% from 2004 – 2011, and have increased by 86% since 2011.
- ✓ “Exterior Finishes Costs” increased by 162% from 1998 – 2009, decreased by 37% from 2009 – 2011, and have increased by 713% since 2011.
- ✓ “Major Systems Rough-ins Costs” increased by 69% from 1998 – 2009, decreased by 3% from 2009 – 2011, and have increased by 35% since 2011.
- ✓ “Interior Finishes Costs” increased by 84% from 1998 – 2009, decreased by 19% from 2009 – 2011, and have increased by 104% since 2011.

Housing production trends in Virginia since the recession- Statewide Characteristics

As of 2015, the average total cost to build a house in Virginia was \$ 469,186.14, and the average cost per square foot (cost/sf) was \$144.37/sf. At the same time, Virginia’s labor statistics indicate that the “residential building construction” industry has decreased significantly in terms of the number of establishments and the number of employees, while the average wages of workers has increased significantly (Table 1):

- ✓ The number of “residential building construction” establishments in Virginia decreased by 25% from 2007 – 2011, and decreased by another 5% since 2011.
- ✓ The number of “residential building construction” employees decreased by 42% from 2007 – 2011, and increased by 9% since 2011.
- ✓ The average annual income of “residential building construction” workers increased by 7.6% from 2007 – 2011, and increased by another 11% since 2011.

Year	Number of Establishments	Number of Employees	Average Annual Income
2007	7,326	32,058	\$51,679
2008	7,055	27,279	\$52,113
2009	6,364	20,895	\$52,571
2010	5,845	19,250	\$52,924
2011	5,501	18,704	\$55,602
2012	5,301	18,599	\$58,287
2013	5,052	18,864	\$59,532
2014	4,913	19,721	\$60,303
2015	5,207	20,419	\$61,927

Table 1 - NAICS 23611 - Residential Building Construction

Source: BLS QCEW Annual Data, 2006 - 2015 (URL: <http://www.bls.gov/cew/datatoc.htm>)

According to the Bureau of Labor Statistics 2015 Occupation Employment Statistics (<http://www.bls.gov/oes/>), “Installation, Maintenance, and Repair Occupations,” “Construction and Extraction Occupations,” “Building and Grounds Cleaning and Maintenance Occupations” and “Architecture and Engineering Occupations” categories account for 499,000 jobs, or 11.8 percent of the state’s total occupational employment.

From 2006 to 2015, the annual number of single unit housing starts has been cut almost in half, from 38,977 per year to 19,865 (Table 2). Housing starts with 2, 3, or 4 units traditionally have been less than 1% of the total Virginia housing starts. Housing starts with 5 or more units are the only type of dwelling that is being produced above its pre-recession level.

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1 Unit	38,977	30,944	19,939	16,268	16,149	15,625	17,496	20,895	18,834	19,865
2 Unit	352	250	278	274	132	84	250	124	150	86
3 & 4 Unit	731	474	206	140	167	97	273	146	181	169
5 or More Units	7,644	6,694	7,154	4,770	4,544	7,491	9,259	10,779	9,517	8,349
VA Total Housing Starts (Units)	47,704	38,362	27,577	21,452	20,992	23,297	27,278	31,944	28,682	28,469

Table 2: Housing Starts in Virginia 2006 to 2015 (Census Bureau)

Production Characteristics

Processes that drive new housing costs typically fall into three categories: 1) *indirect items*, 2) *direct items*, and 3) *soft items*. *Indirect items* refer to materials, costs and services that are required for the production of the building, but which are not directly included in the building’s footprint. For example, land costs and design services are *indirect costs* for a typical new home construction project. *Direct items* refer to materials, costs and services that are used in the production of the building, and are included in the building’s footprint. For example, framing materials and labor and specialty trade services are direct costs for a typical new home construction project. *Soft items* refer to materials, costs and services that are required for the management of the building process, but are not directly included in the building’s footprint, nor indirectly applied to the

development itself. For example, green certification, financing costs, and realtor or marketing services are soft costs for a typical new home construction project.

Production- Indirect Costs

On average, the state of Virginia has seen a 0.01% decrease in the costs of materials and equipment for site development costs of a building relative to the national average, but remains above the national average overall. While year-to-year percentage changes are small statewide, Northern Virginia, Harrisonburg-Staunton-Highlands, and Richmond are more expensive for site development, and Southside, Lynchburg, and Winchester are the least expensive. Between 2008 and 2015, each area has seen a decrease or no change relative to the national average, and only Winchester currently has costs that are below the national average.

Land Costs

Figure 4 below illustrates the percent change in the assessed value of all property in 11 Virginia regions, without including the assessed value of the building structure(s) (referred to as “Improvements”), from tax year 2005 to 2014. The assessed value of land has increased consistently between the 2005 and 2014. The central portion of the state has seen the largest increases in assessed value during that time. Land assessment value is not necessarily an indicator of land cost only, but it does provide an indicator of trends in local property value across the state.

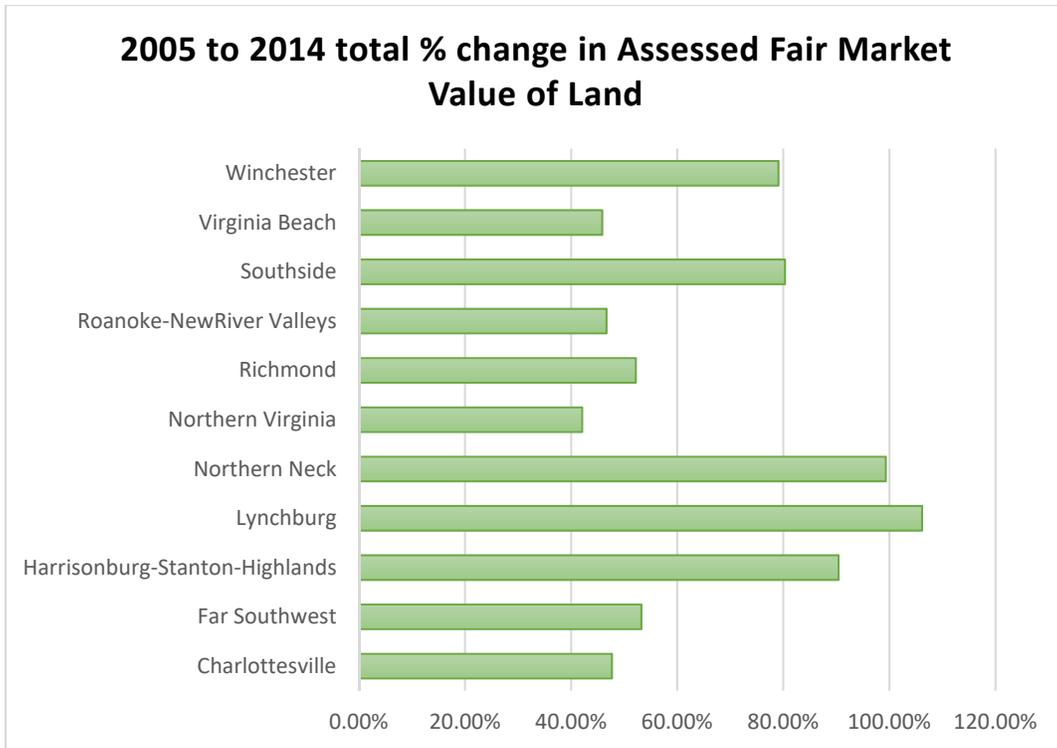


Figure 4: 2005 to 2014 Total Percent Change in Assessed Fair Market Value of Virginia Property by Region
 Source: Virginia Department of Taxation

Local Taxes and Fees

Figure 5 below lists the average nominal tax on property for 2013, 2015 and 2016 across regions in the state of Virginia. The Northern Neck and Charlottesville regions have experienced the largest increase in average nominal tax on property over this period. The Virginia Beach, Northern Virginia and Richmond regions have the highest average nominal tax on property overall, respectively.

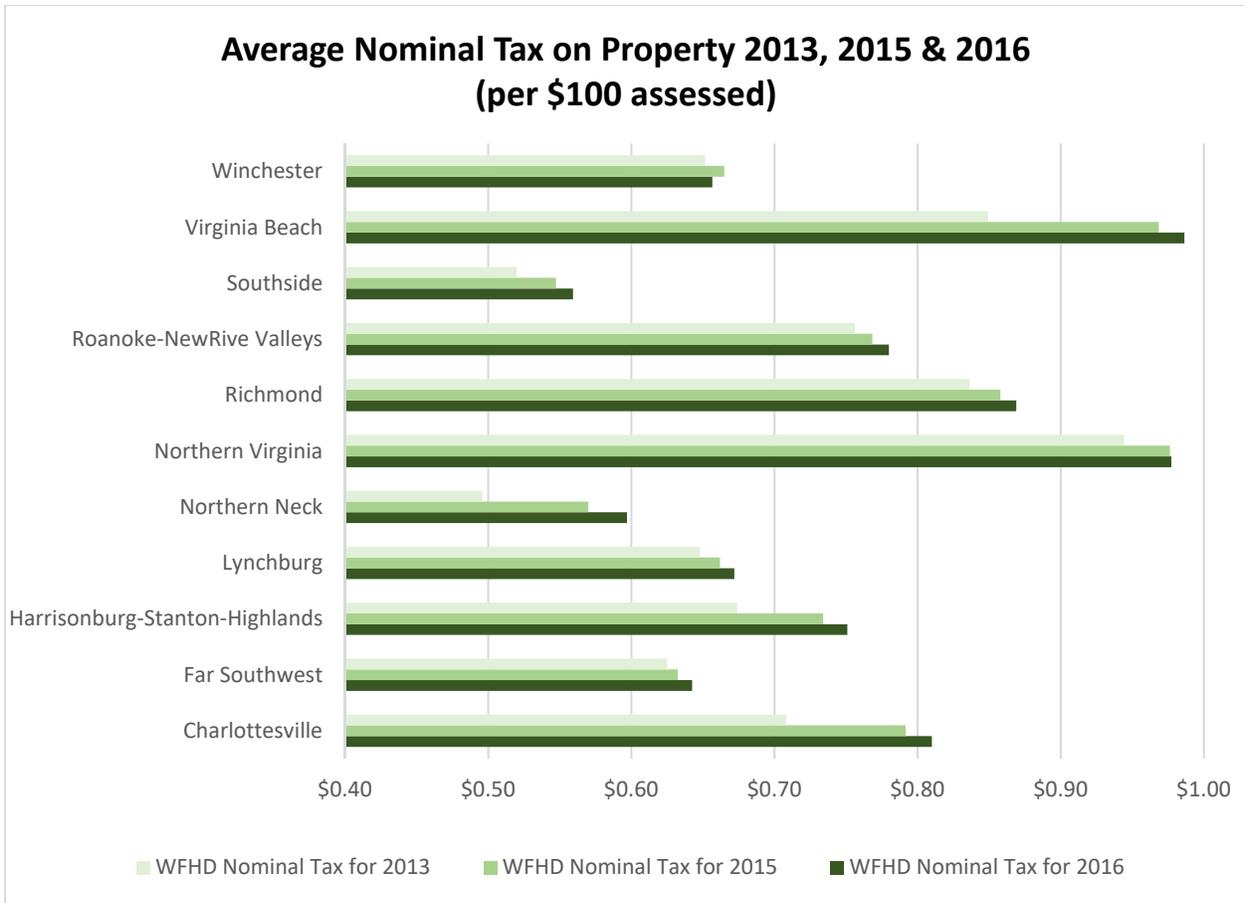


Figure 5: Average Nominal Tax on Property 2013, 2015 & 2016

Source: Virginia Department of Taxation

Figure 6 below shows trends in Utility System Construction sector (NAICS 2371) across regions of Virginia for the past 10 years. While not all of this industry sector’s activity relates to residential construction, companies in this sector support the residential construction industry by connecting new homes to utilities, or upgrading existing infrastructure for residential development.

Virginia lost 90 establishments in the Utility System Construction sector from 2006 to 2015, but employment has remained steady across the industry (only 140 jobs lost), with slow or stagnant growth in employment from year to year. Average annual pay has increased by \$9,700 from 2006 to 2015.

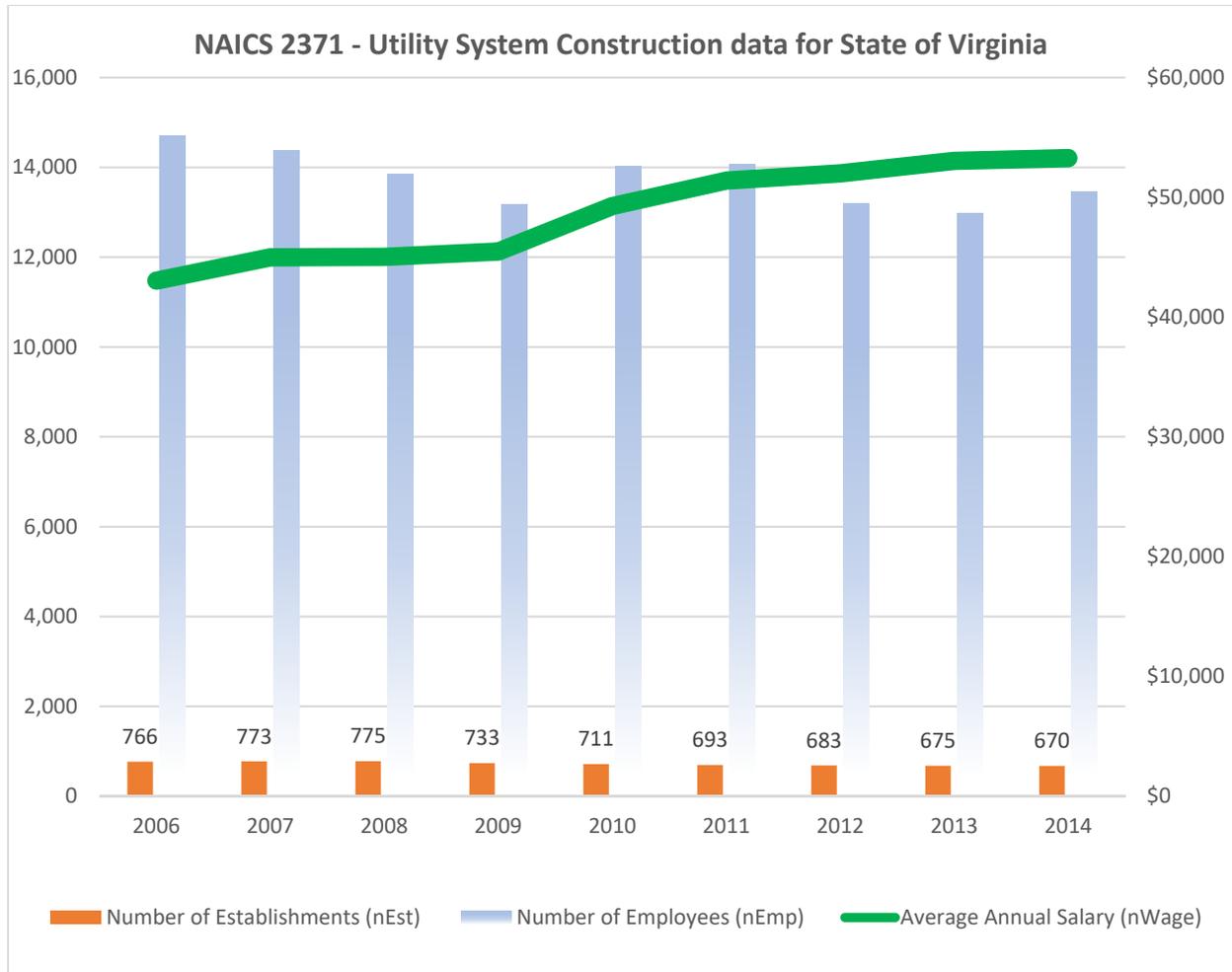


Figure 6: NAICS 2371 - Utility System Construction data for State of Virginia

Source: BLS QCEW Annual Data, NAICS 2371, 2006 - 2015 (URL: <http://www.bls.gov/cew/datatoc.htm>)

The broad category of “All Other Specialty Trade Contractors” (NAICS 23899) includes other supporting industries, such as sidewalks, pools, after construction clean-up, etc. Figure 7 below highlights trends in this part of the industry.

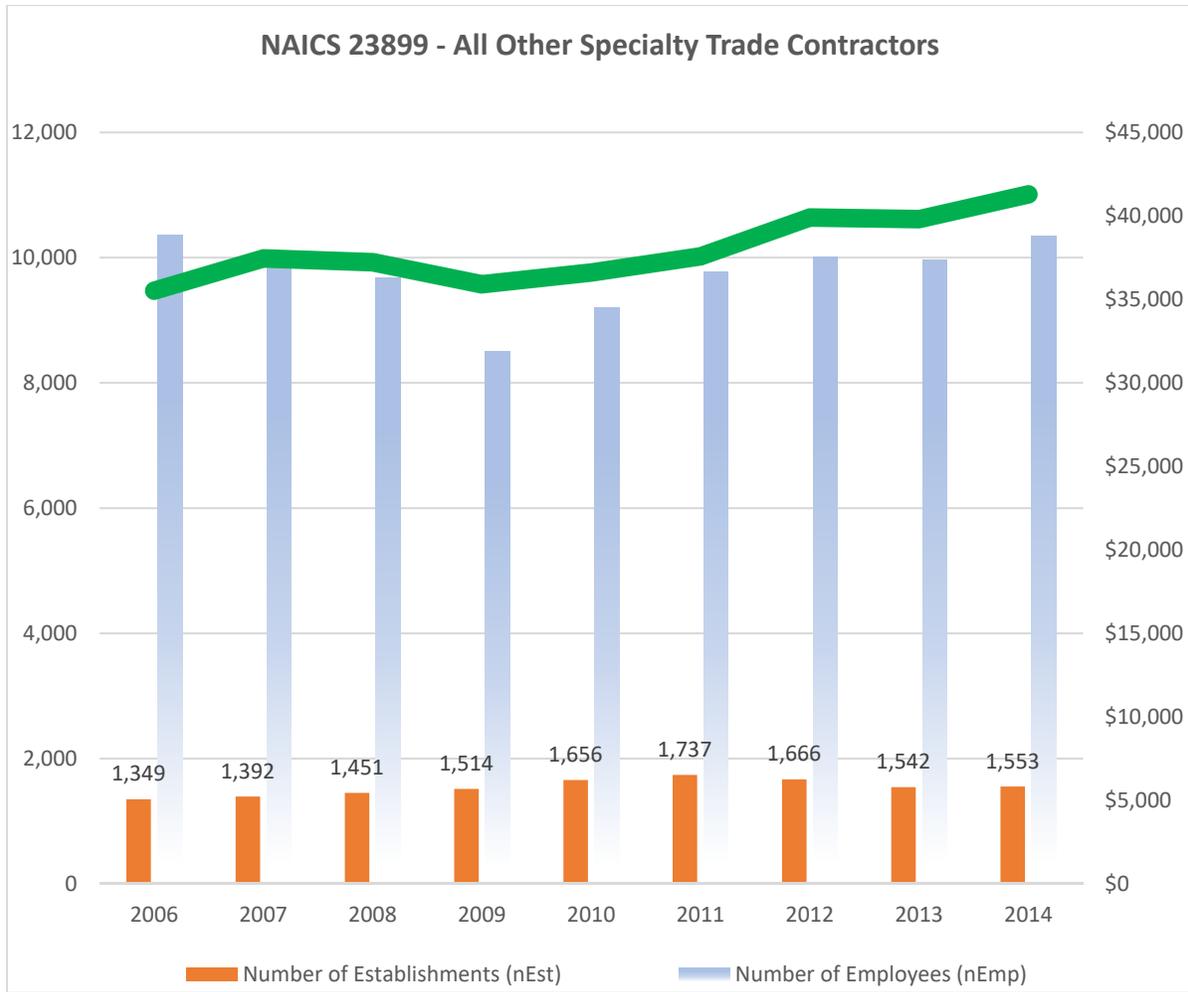


Figure 7 - NAICS 23899 - All Other Specialty Contractors data for State of Virginia

Source: BLS QCEW Annual Data, NAICS 23899, 2006 - 2015 (URL: <http://www.bls.gov/cew/datatoc.htm>)

Other Specialty Trade Contractor economic activity for Virginia between 2006 and 2015 indicates that the number of establishments increased by 15%, the number of employees remained the same, and the average annual pay increased by 16%.

The Bureau of Labor Statistics tracks information on “Site Preparation Contractors” (NAICS 23891). While not all contractors are doing work for residential construction, Figure 8 highlights the trends in this industry that supports housing.

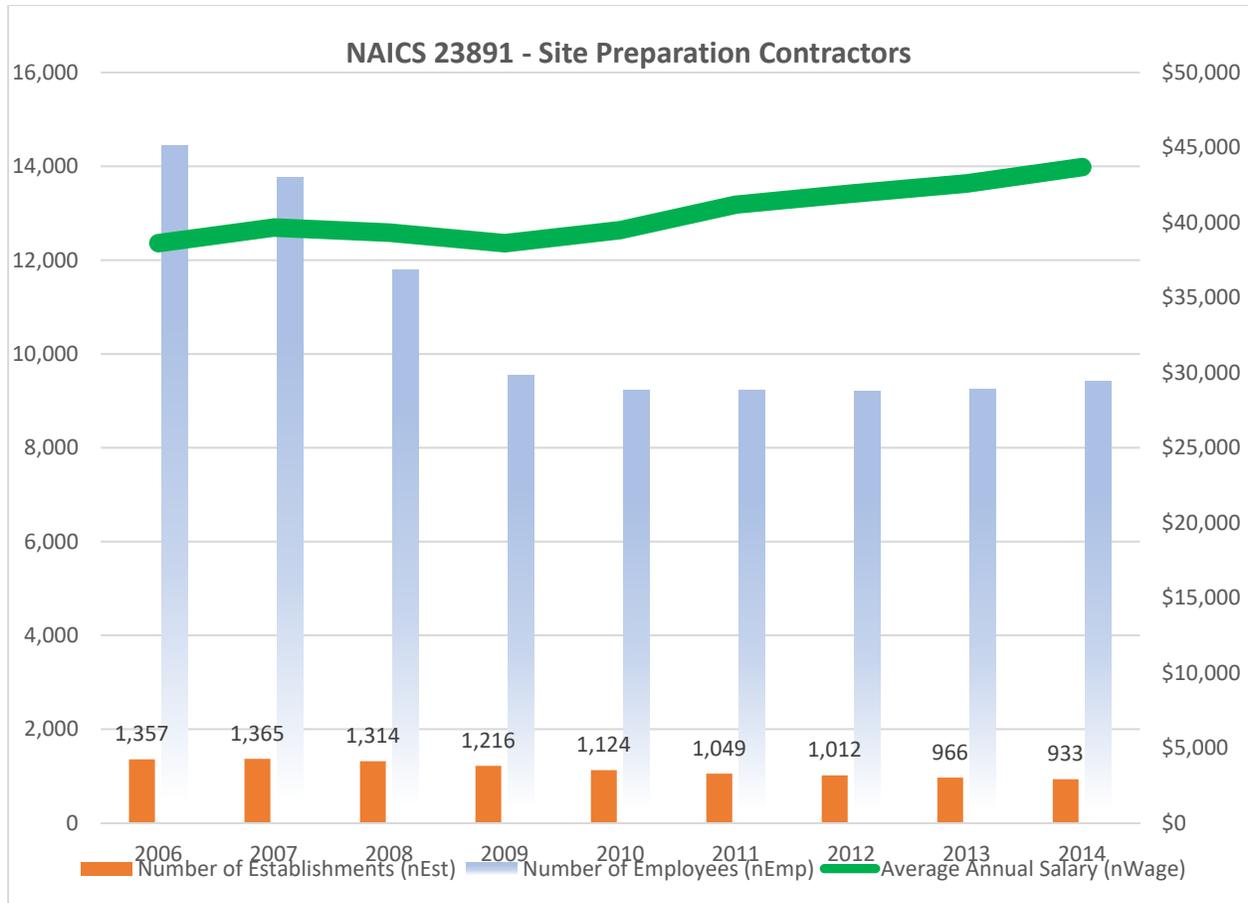


Figure 8 - NAICS 23891 - Site Preparation Contractors

Source: BLS QCEW Annual Data, 2006 - 2015 (URL: <http://www.bls.gov/cew/datatoc.htm>)

In the Site Preparation Contractor sector in Virginia between 2006 and 2015, the number of establishments decreased by 31%, the number of employees decreased by 35%, and the average annual pay increased by 13%.

On average, the state of Virginia has seen a 0.01% decrease in the costs of materials and equipment for the site development costs of a building relative to the national average, but remains above the national average overall (see Figure 9 below).

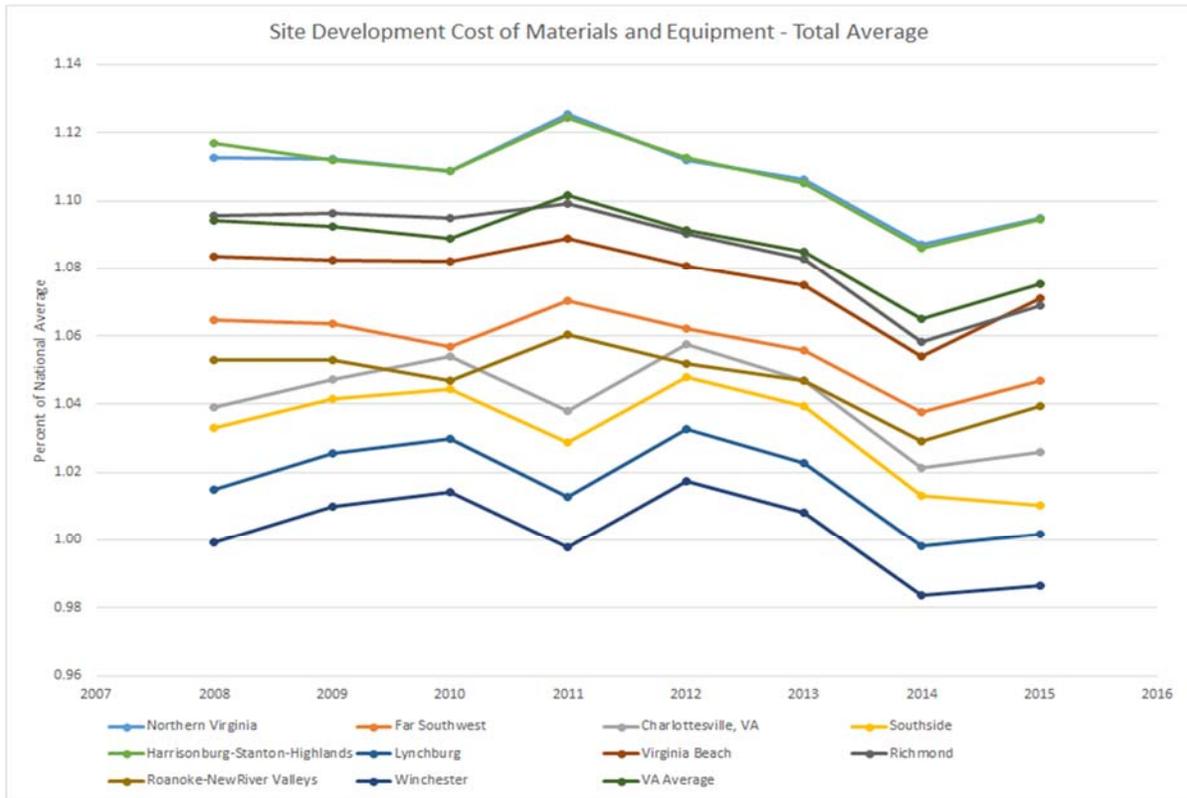


Figure 9: Site Development cost of Material and Equipment - Total Average
 Source: R.S. Means Square Foot Cost Data, Virginia Location Factors, 2007-2015.

While year-to-year percentage changes are small, Northern Virginia, Harrisonburg-Staunton-Highlands, and Richmond are more expensive regions for site development, and Southside, Lynchburg, and Winchester are the least expensive. Between 2008 and 2015, costs in each region decreased or stayed the same relative to the national average. Currently, costs are below the national average in the Winchester region.

Production- Direct Costs

The regions of the state show similar trends when combining all of the material and equipment costs for a single family dwelling unit. Currently, the state material and equipment cost average is equal to the national average. Each region in the state has seen a decrease in costs over the last seven years. Costs rose across all regions in 2009, but then fell until 2011. They rose again in 2012, but stayed below their 2009 highs. Costs fell sharply between 2012 and 2014, to their lowest levels in all regions. Costs rose in 2015 for all regions except Richmond, which continued to see lower costs.

Richmond, Northern Virginia, Virginia Beach and Southside are the more expensive regions in the state on average, although these areas were not always the most expensive in all cost categories. In fact, these regions typically had high costs in only one category, which pushed up the average cost. Conversely, Far Southwest, Lynchburg, and Harrisonburg-Staunton-Highlands are the least expensive regions in the state on average, even though they had higher costs than other regions in some categories.

Figure 10 below illustrates the relative cost of materials in regions across Virginia, adjusting local market rates relative to RS Means national cost data. In this figure, larger circles equate to higher advantage from local materials costs. Based on these data, materials costs are advantageous in the Far Southwest region, Southside, the Peninsula and the Northern Neck regions. Urban centers contain the least advantage in terms of material costs.

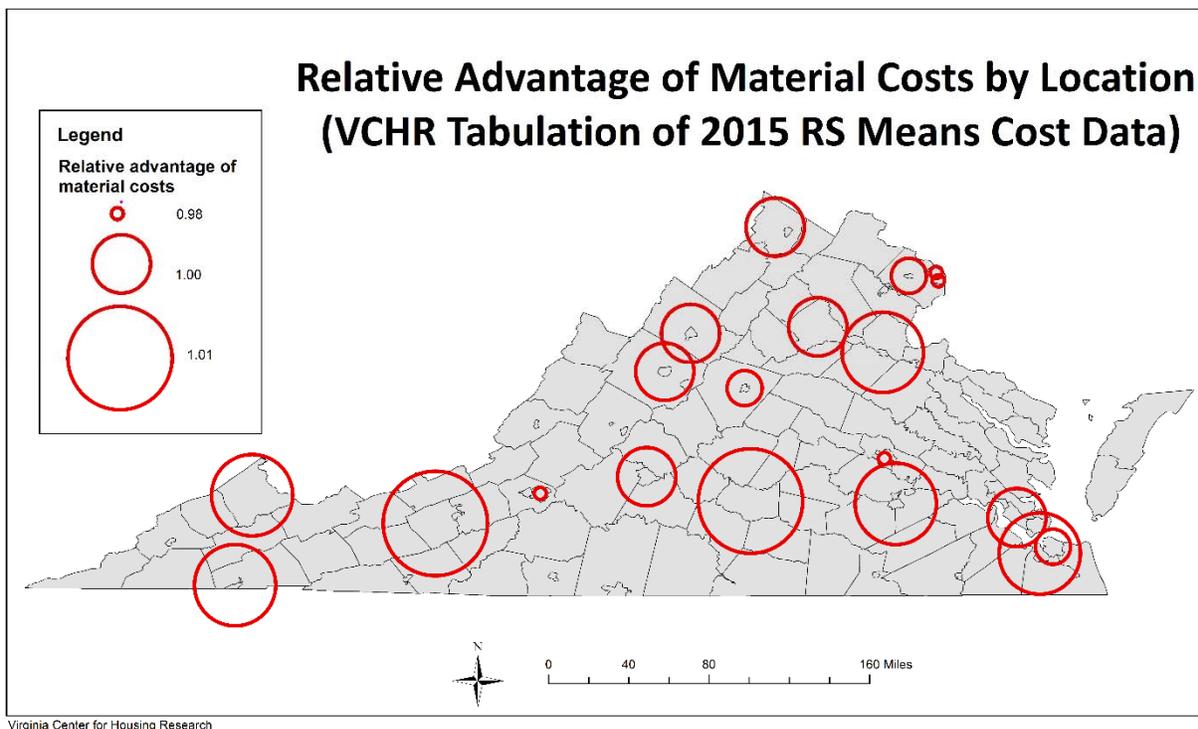


Figure 10: Relative Advantage of Material Costs in VA

Source: RS Means 2015 Building Cost Data

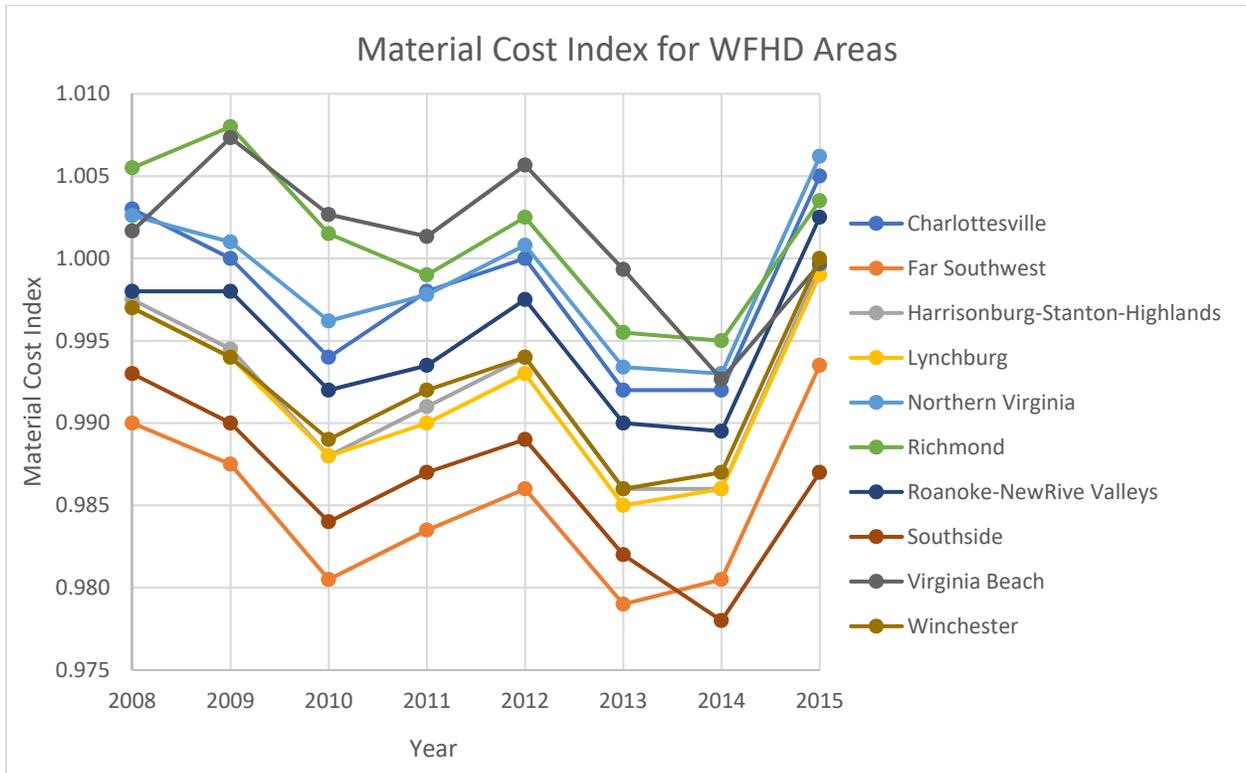


Figure 11: Local Material Cost Indices in VA from 2008-2015

Source: RS Means 2008- 2015 Building Cost Data

Figure 11 above shows a close-up of local material cost indices in Virginia. While the difference between the highest and lowest value in this figure is minimal, material costs have fluctuated slightly since 2008. Local material costs have risen in many regions since the recession, while costs in other regions have stayed relatively flat or decreased. Year-to-year changes in materials costs are relatively similar between regions.

Figure 12 below highlights the cost of installation (labor) in Virginia regions in 2015, adjusting local market rates relative to RS Means national cost data. Like our previous materials advantage figure, larger circles equate to higher advantage from local labor rates compared to national averages. Based on these data, labor pricing contains advantage in the Far Southwest, Southside, and Central Virginia regions, and parts of the Hampton Roads region. Large urban centers contain the least advantage in terms of labor costs, although some urban centers in rural areas do contain some advantage.

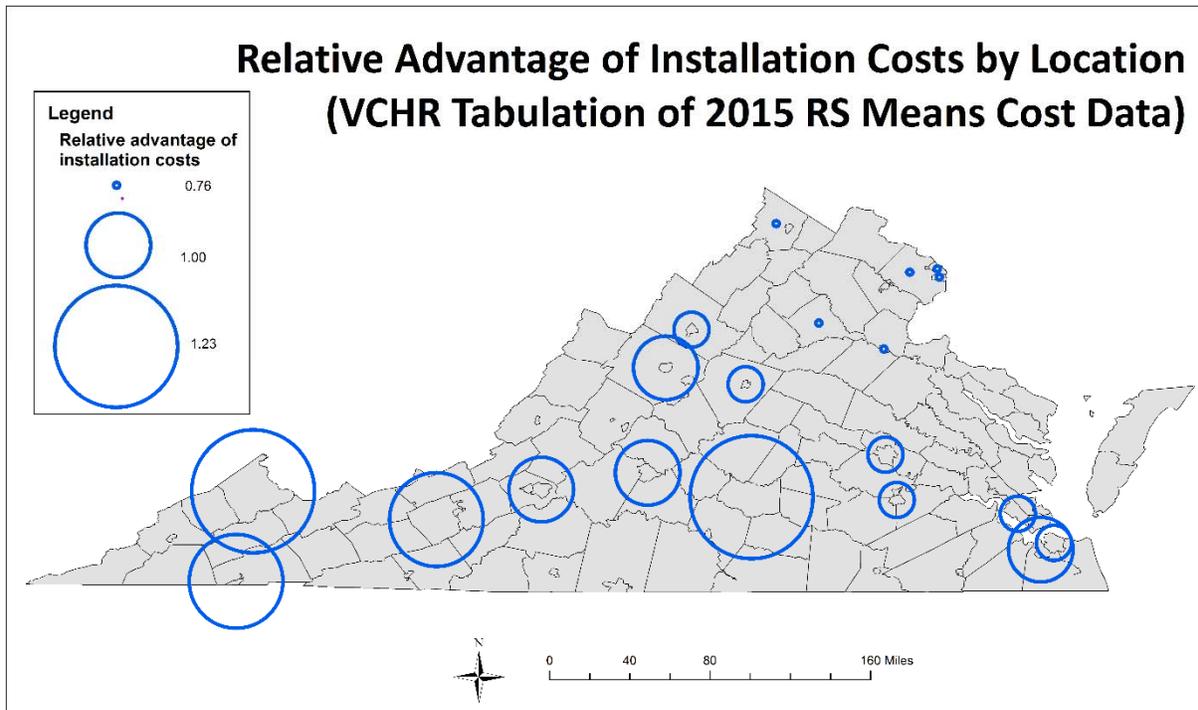


Figure 12: Relative Advantage of Installation Costs in VA

Source: RS Means 2015 Building Cost Data

Figure 13 below illustrates the changes in labor cost indices for Virginia regions relative to the national average. The difference between the highest and lowest values for labor costs is considerably larger than the differences in material costs, with labor costs fluctuating considerably in some regions. Labor costs appear to be changing relatively uniformly, with the exception of the Winchester region, where costs have increased sharply as the DC-Metro area suburbs and exurbs expand into this area of the state.

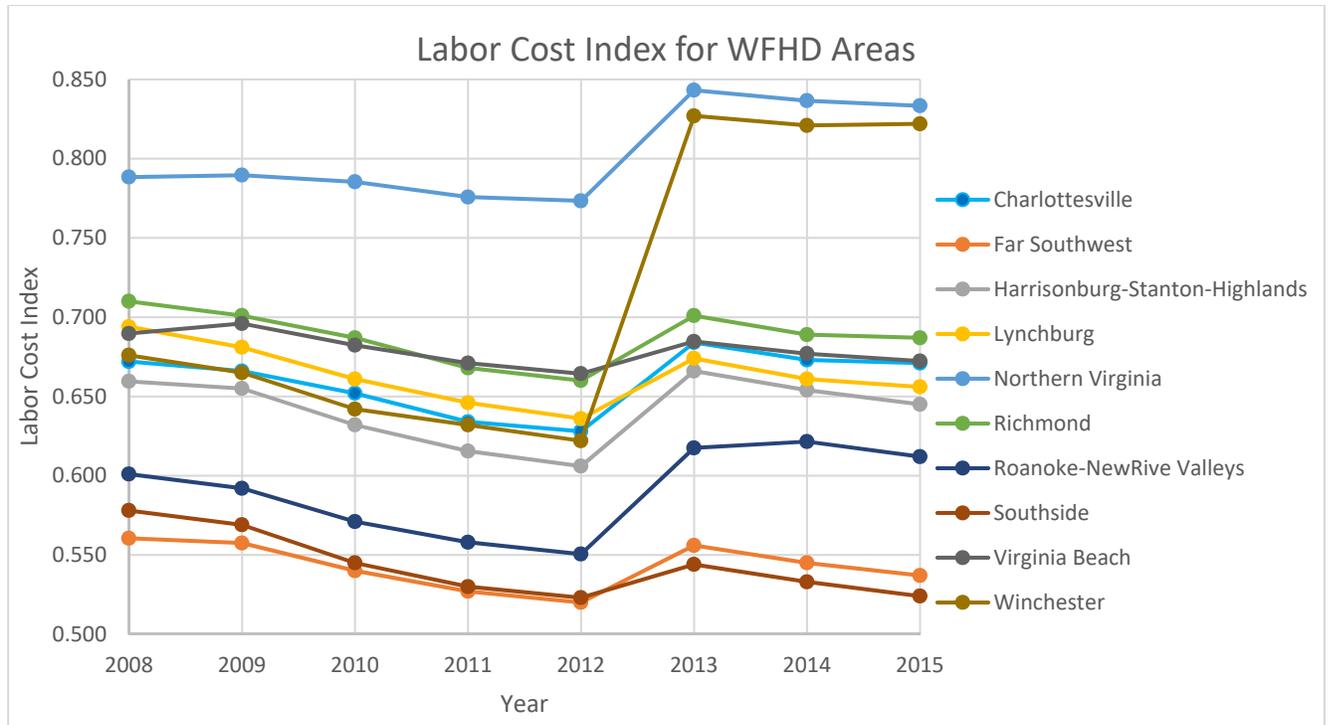


Figure 13: Local Labor Cost Indices in VA from 2008-2015

Source: RS Means 2008- 2015 Building Cost Data

Adding labor costs to material and equipment costs provide a more complete picture of overall construction costs in Virginia. Although material costs are higher in Virginia than the national average, the labor costs in each region are well below the national average, bringing the total cost of construction below the national average. Between 2008 and 2015, Virginia’s total cost of construction was on-average 85% of the US total construction cost average. Labor can increase costs as well. For instance, Winchester had relatively low costs in each of the material and equipment categories, but labor costs spiked in 2012, causing a large increase in total costs. While the assumption is that Northern Virginia, Richmond and Virginia Beach tend to be the most expensive regions, costs in Winchester jumped up to just below those in Northern Virginia by 2013 (see Figure 13). Between 2008 and 2015, every region except Northern Virginia and Winchester have seen the overall costs decrease relative to the national average. Far Southwest, Southside, and Roanoke-New River Valley are typically the least expensive regions.

Generally, all construction sectors experienced significant decreases in the number of establishments and number of employees since 2006, but significant increases in wages (see Table 3 below). While many trades had little or no increases in number of establishments and employees, Central Virginia, in general, had the highest increases across the region. Central Virginia also had the highest increases in pay, with Virginia Beach

as an outlier in electrical trades. Some growth occurred in the western parts of Northern Virginia (Winchester) as well. Northern Virginia, in general, had the highest decreases in number of establishments and employees. The highest decreases in wages occurred across the center and southeastern regions of the state, including the Lynchburg, Harrisonburg-Staunton-Highlands, Northern Neck, and Virginia Beach regions.

Trade	Largest changes in number of establishments	Largest changes in number of employees	Largest changes in average wages
Substructure	Northern Virginia (-)	Northern Virginia (-)	Lynchburg (-)
	Harrisonburg (+)	Charlottesville (+)	Richmond (+)
Superstructure	Virginia Beach (-)	Northern Virginia (-)	None (-)
	None (+)	None (+)	Lynchburg (+)
Exterior Enclosures	Northern Virginia (-)	Northern Virginia (-)	Northern Neck (-)
	None (+)	None (+)	Winchester (+)
Roofing	Richmond (-)	Virginia Beach (-)	Lynchburg (-)
	None (+)	Harrisonburg-Staunton-Highlands (+)	Charlottesville (+)
Interiors	Northern Virginia (-)	Northern Virginia (-)	Virginia Beach (-)
	None (+)	None (+)	Charlottesville (+)
Systems	Richmond (-)	Lynchburg (-)	Lynchburg (-)
	None (+)	Far Southwest (+)	Southside (+)
Electrical	Northern Virginia (-)	Northern Virginia (-)	Harrisonburg-Staunton-Highlands (-)
	None (+)	Richmond (+)	Virginia Beach (+)

Table 3: Employment Data in VA since 2006

Source: BLS Data

Substructure

Between 2008 and 2015, each region of Virginia has seen a 0.01% decrease in the costs of materials and equipment for the substructure of a building relative to the national average, but the average costs in Virginia remains above the national average overall. Charlottesville, Harrisonburg-Staunton-Highlands, and Richmond are relatively more expensive for substructure, and Far Southwest, Roanoke-New River Valley, and Winchester are the least expensive. Characteristics of Substructure industry sector activity for Virginia between 2006 and 2015 are as follows:

- ✓ The number of establishments decreased by 23%, the number of employees decreased 31%, and the

average annual pay increased 23%.

- ✓ Statewide, the number of establishments decreased by an average of 13 per year (-1.5% per year), the number of employees decreased by an average of 280 per year (-3.5 %/year), and average annual pay increased by \$982 per year (+2.5 %/year).
- ✓ The largest decrease in number of establishments occurred in the Northern Virginia region (-69). The largest decrease in number of employees occurred in the Northern Virginia region (-1,581). The largest decrease in average annual pay occurred in the Lynchburg region (-\$5,998).
- ✓ The largest increase in number of establishments occurred in the Harrisonburg region (+6). The largest increase in number of employees occurred in the Charlottesville region (+77). The largest increase in average annual pay occurred in the Richmond region (\$20,033).
- ✓ The Far Southwest region had the most volatility in the workforce. (i.e. from 2006 to 2015 the number of employees went from 8 to zero, and annual pay went from \$16,055 to \$0 due to the lack of employment).

Superstructure

Charlottesville, Southside and Lynchburg have more expensive costs for superstructure, and Far Southwest, Roanoke-New River Valley, and Harrisonburg-Staunton-Highlands are the least expensive. Interestingly, Northern Virginia is also near the bottom. Several individual cities in Northern Virginia have high costs, but the low costs in Culpeper County and Fredericksburg County bring the Northern Virginia average down to one of the least expensive regions for superstructure. Between 2008 and 2015, each area has seen a decrease in costs relative to the national average, or no change. Currently, Winchester is the only region where costs are below the national average. Characteristics of Superstructure industry sector activity between 2006 and 2015 are as follows:

- ✓ The number of establishments decreased by 45%, the number of employees decreased by 51%, and average annual pay increased by 28%.
- ✓ Statewide, the number of establishments decreased by an average of 35 per year (-5% per year), the number of employees decreased by an average of 357 per year (-6% per year), and average annual pay has increased \$1,148 per year (+3.1% per year).
- ✓ The largest decrease in number of establishments occurred in the Virginia Beach region (-83). No region increased in number of establishments. The lowest decrease in number of establishments occurred in the Southside region (-4).
- ✓ The largest decrease in number of employees occurred in the Northern Virginia region (-905 jobs – the 2006 value was 1,562). There were no increases in number of employees. The lowest decrease in number of employees occurred in the Southside region (-2).*
- ✓ The highest decrease in average annual pay occurred in the Charlottesville region (\$21,588).** The highest increase in average annual pay occurred in the Lynchburg region (\$25,794 - the 2006 value was \$24,838.50).*

(* Notes that the actual least decrease was a Region where the 2006 value was 0 and the 2015 value was 0.

(**) Notes there was no Annual Pay that was from this category in 2015. (No earners in this category in the region in 2015.)

Exterior Enclosures

Between 2008 and 2015, the state of Virginia experienced no change in the costs of materials and equipment for the exterior enclosure of a single family dwelling unit relative to the national average. Currently, the Virginia average is equal to the national average, although the state fell below the national average between 2008 and 2015 before rebounding back. Charlottesville, Southside and Lynchburg are relatively more expensive for exterior enclosures, and Far Southwest, Roanoke-New River Valley, and Northern Virginia are the least expensive. In 2015, costs in Richmond and Virginia Beach surpassed Lynchburg. Interestingly, Northern Virginia is one of the least expensive regions for the exterior envelope. Several individual cities in Northern Virginia have higher costs, but low costs in Culpeper County and Fredericksburg County bring down the Northern Virginia average to make it one of the least expensive regions. Between 2008 and 2015, each area has seen different levels of change. Northern Virginia, Virginia Beach, and Harrisonburg-Staunton-Highlands have seen little change. Far Southwest, Richmond, and Roanoke-New River Valley have seen increases in cost, whereas Charlottesville, Southside, Lynchburg, and Winchester have seen decreases.

Characteristics of Exterior Enclosure industry sector activity between 2006 and 2015 are:

- ✓ The number of establishments decreased by 43%, the number of employees decreased by 53%, and average annual pay increased 17%.
- ✓ Statewide, the number of establishments decreased by an average of 76 establishments per year (-5% per year), the number of employees decreased by an average of 778 per year (-6% per year), and average annual pay increased by an average of \$608 per year (+1.9% per year).
- ✓ There were no increases in the number of establishments. The highest decrease in number of establishments occurred in the Northern Virginia region. The lowest decrease in number of establishments occurred in the Far Southwest region.
- ✓ There were no increases in number of employees. The highest decrease in number of employees occurred in the Northern Virginia region. The lowest decrease in number of employees occurred in the Far Southwest region.*
- ✓ The state experienced wage increases and decreases in exterior enclosures. The highest decrease in average annual pay occurred in the Northern Neck region. The highest increase in average annual pay occurred in the Winchester region.*

(*) Notes that the actual least decrease was a Region where the 2006 value was 0 and the 2015 value was 0.

Roofing

Between 2008 and 2015, Virginia has seen a 0.01% increase in the costs of materials and equipment for the roofing of a single family dwelling unit relative to the national average. The Virginia average is currently above

the national average. Several regions have experienced dramatic shifts in costs for roofing over the past few years. Starting in 2012, costs fell in several of the more expensive areas, and rose in several of the less expensive areas. Before 2012, Charlottesville, Southside and Lynchburg were relatively more expensive regions, but costs decreased after 2012 to become some of the least expensive areas. Costs have continued to increase in Richmond, Virginia Beach, and Harrisonburg-Staunton-Highlands regions, which are currently the more expensive areas. Winchester has continued to be one of the least expensive areas, but has still seen their prices fluctuate over time. Between 2008 and 2015, Charlottesville, Southside, Lynchburg, and Winchester have seen a slight decrease in costs. The rest of the regions have seen an increase in costs. Characteristics of Roofing industry sector activity between 2006 and 2015 are:

- ✓ The number of establishments decreased by 17, the number of employees decreased by 20% and the average annual pay increased by 25%.
- ✓ Statewide, the number of establishments has decreased by an average of 11 establishments per year (-2% per year), the number of employees has decreased by an average of 125 per year (-2% per year), and average annual pay has increased by an average of \$1,002 per year (+2.7% per year).
- ✓ There were no increases in number of establishments during this time in the state. The largest decrease in number of establishments occurred in the Richmond region, and the smallest decrease in number of establishments occurred in the Far Southwest region.
- ✓ The largest decrease in number of employees occurred in the Virginia Beach region, and the largest increase in number of employees occurred in the Harrisonburg-Staunton-Highlands region.
- ✓ The largest decrease in average annual pay occurred in the Lynchburg region, and the largest increase in average annual pay occurred in the Charlottesville region.*

(*) Notes that the largest change of value was not shown because a 2006 value was 0, or a 2015 value was 0, or both values were 0.

Interiors

Between 2008 and 2015, Virginia has seen no change in the costs of materials and equipment for the interior finishes of a single family dwelling unit relative to the national average. Currently, the Virginia average is 0.01% above the national average, although the Virginia average grew faster than the national average between 2008 and 2015 before falling again. Trends differ among regions of the state, with large swings in costs in the Charlottesville, Southside, Lynchburg, and Winchester regions, including a large drop in costs between 2013 and 2014. Price then rose slightly between 2014 and 2015. The other regions saw an opposite pattern, with little or no reduction in costs between 2013 and 2014, followed by larger price drops between 2014 and 2015. These areas also saw a large price jump in 2009 before falling back in 2010. Charlottesville and Southside have been the most expensive regions until costs fell in 2015. Winchester and Far Southwest have been traditionally the least expensive regions in the state. Characteristics of Interiors industry sector activity in Virginia between 2006 and 2015 are:

- ✓ The number of establishments decreased by 27%, the number of employees decreased by 45%, and average annual pay increased by 25%.
- ✓ Statewide, the number of establishments decreased by an average of 19 per year (-3% per year), the number of employees decreased by an average of 432 per year (-5% per year), and average annual pay increased by an average of \$1,000 per year (+2.8% per year).
- ✓ There were no increases in number of establishments during this period of time in Virginia. The largest decrease in number of establishments occurred in the Northern Virginia region (-43), and the smallest decrease in number of establishments occurred in the Far Southwest region (-1).
- ✓ There were no increases in number of employees during this time period in Virginia. The largest decrease in number of employees occurred in the Northern Virginia region (-1,447), and the smallest decrease in number of employees occurred in the Charlottesville region (0).
- ✓ The largest decrease in average annual pay occurred in the Virginia Beach region (\$2,073.00), and the largest increase in average annual pay occurred in the Charlottesville region (\$19,713.50).

Systems

Between 2008 and 2015, Virginia has seen no change in the costs of materials and equipment for the Fire Protection, Plumbing and HVAC cost of a single family dwelling unit relative to the national average. Currently, the Virginia average is equal to the national average, although the cost fell below the national average between 2008 and 2015 before rising again. Charlottesville, Southside, Lynchburg, and Winchester are following a similar trend of steady increases in costs until a large dip in 2011. Costs rose again in 2012, but then fell sharply until 2014. Southside continued to fall in 2015 although the other three regions increased slightly. All other regions in the state have seen more steady shifts in the costs, hitting a low in 2012 but then steadily growing. Charlottesville, Southside, and Virginia Beach are typically the more expensive regions in the state, and Far Southwest, Roanoke-New River Valley, and Northern Virginia are typically the least expensive. Costs in Richmond surpassed those in Southside in 2015 to become more expensive, and Winchester fell below Northern Virginia to become less expensive. Characteristics of Fire Sprinkler, Plumbing and HVAC industry sector activity between 2006 and 2015 are:

- ✓ The number of establishments decreased by 9%, the number of employees decreased by 16% and average annual pay increased by 26%.
- ✓ Statewide, the number of establishments decreased by an average of 29 per year (-1% per year), the number of employees decreased by an average of 622 per year (-2% per year), and average annual pay increased by an average of \$1,163 per year (+2.8% per year).
- ✓ There were no increases in number of establishments in Virginia during this time period. The largest decrease in number of establishments was in the Richmond region (-54), and the smallest decrease in number of establishments was in the Far Southwest region (-4).
- ✓ The largest decrease in number of employees was in the Lynchburg region (-1,132). The largest increase in number of employees was in the Far Southwest region (8).

- ✓ The largest decrease in average annual pay was in the Lynchburg region (\$3,106.87), and the largest increase in average annual pay was in the Southside region (\$10,716.78).

Electrical

Between 2008 and 2015, Virginia has seen no change in the costs of materials and equipment for the electrical cost of a single family dwelling unit relative to the national average. Currently, the Virginia average is equal to the national average, although the Virginia average has been higher or lower than the national average between 2008 and 2015. Trends vary in different regions of the state, with the Charlottesville, Southside, Lynchburg, and Winchester showing a similar trend of steady increase in costs until a large dip in 2011. Costs rose in 2012 but then fell sharply until 2014. Costs in Southside continued to fall in 2015 as the other three regions increased slightly. All other regions in the state have seen more steady shifts in the costs, hitting a low in 2012 but then steadily growing. Charlottesville, Southside, and Lynchburg are typically the more expensive regions in the state, while Far Southwest, Roanoke-New River Valley, and Northern Virginia are typically the least expensive. Costs in Richmond surpassed Lynchburg in 2015 to become more expensive, while Winchester fell below all the other regions to become the least expensive region. Characteristics of Electrical industry sector activity between 2006 and 2015 are:

- ✓ The number of establishments decreased by 17%, the number of employees decreased by 18%, and average annual pay increased by 28%.
- ✓ Statewide, the number of establishments decreased by an average of 46 per year (-2% per year), the number of employees decreased by an average of 573 per year (-2% per year), and average annual pay increased by an average of \$1,384 per year (+3.2% per year).
- ✓ There were no increases in number of establishments in Virginia during this time period. The largest decrease in number of establishments occurred in the Northern Virginia region (-99), and the smallest decrease in number of establishments occurred in the Winchester region (-3).
- ✓ The largest decrease in number of employees occurred in the Northern Virginia region (-2,620), and the largest increase in number of employees occurred in the Richmond region (1,040).
- ✓ There was no decrease in average annual pay in the state during this time period. The smallest increase in average annual pay occurred in the Harrisonburg-Staunton-Highlands region (\$1,293.27), and the largest increase in average annual pay occurred in the Virginia Beach region (\$15,065.54).

Production- Soft Costs

As previously mentioned, soft cost items refer to materials, costs and services that are required for the management of the building process, but which are not directly included in the building's footprint, nor indirectly applied to the development itself. For example, green certification, financing costs, and realtor or marketing services are soft costs for a typical new home construction project. Here are some highlights of the report's findings on soft costs:

- ✓ The cost of financing a building project have remained at historical lows since the recession of 2008.
- ✓ Green certification and construction has infiltrated the code and is a pre-requisite to competing in today’s construction market. The cost of green certification and construction, once reported as a risk, has largely diffused into the market and is considered a cost of doing business. That said, many designers, builders and developers market their services as “certified” in the sense that they achieve the current level necessary for certification, while also advocating that fees associated with certification should not be paid. In other words, buildings are being built to green certification levels, but not being officially certified.
- ✓ Realtor and marketing services seem to have remained steady since the recession, and realtors are not reporting volume discounts.

Localized housing production trends since the recession- Local Market Characteristics

Affordable new home production often depends on the local construction supply chain and local market characteristics, such as: land availability and cost, labor availability and cost, material availability and cost, the presence of supporting industries, supporting infrastructure, firm characteristics, and local costs of doing business (i.e. taxes, fees and proffers). In addition, the industry is fragmented among various types of construction firms, and the varying cost breakdowns associated with these categories, as described below.

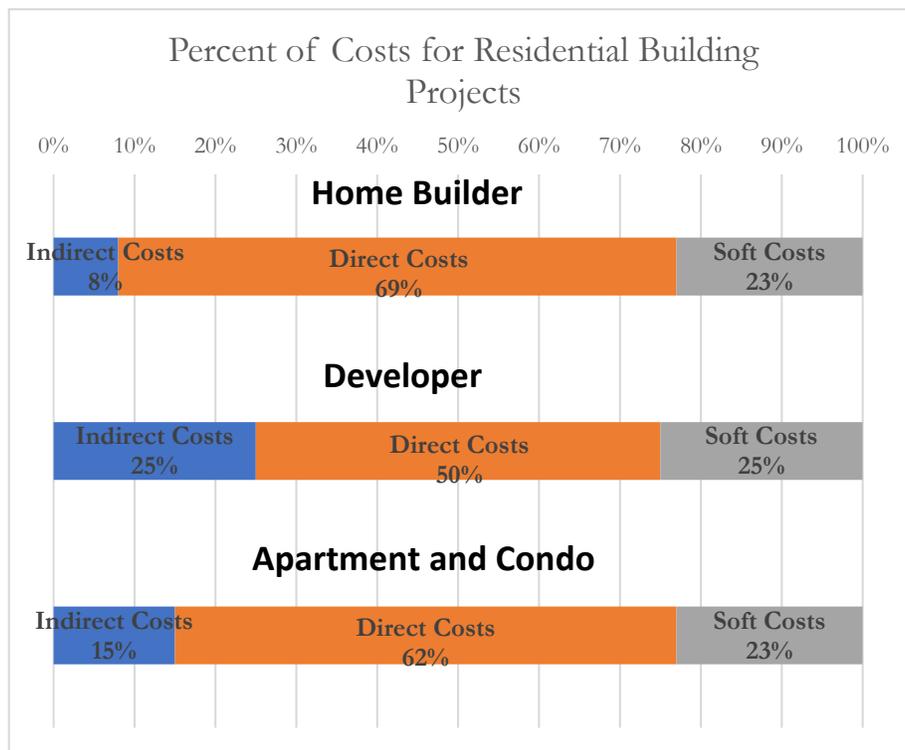


Figure 14: Percent of Costs for Residential Building Projects
 Source: R.S. Means Square Foot and Assembly Data, 2015 and other industry standards

RS Means 2015 data provides the estimated typical cost breakdown for *homebuilders* producing a home as follows: Indirect Costs are 8%, Direct Costs are 69% and Soft Costs are 23% (Figure 14). The Homebuilding industry is comprised of firms who “primarily construct single-family homes, where units that are separated by ground-to-roof walls and have no units above or below, includes remodeling of residential buildings and **does not include speculative builders or contractors that build on their own account for sale** (IBIS World).” The Bureau of Labor and Statistics (BLS) refers to these companies as New Single Family Housing Construction Companies.

Similarly, the estimated typical cost breakdown for *developers* producing a home is as follows: Indirect Costs are 25%, Direct Costs are 50% and Soft Costs are 25% (Figure 14). Housing Developers are “primarily engaged in the development of new homes on land that is owned or controlled by the builder rather than the homebuyer or investor, includes firms that build single-family or multifamily homes and are merchant or **speculative builders** and also known as production for-sale builders (IBIS World).” The BLS classifies these companies as New Housing For-Sale Builders.

Finally, the estimated typical cost breakdown for *Apartment and Condo Builders* producing a home is as follows: Indirect Costs are 15%, Direct Costs are 62% and Soft Costs are 23% (Figure 14). The Apartment and Condominium Industry is “composed of general contractors responsible for constructing new multifamily residential units, including high-rise apartments, townhouses, condominiums and medium-to-high density units (i.e. units not separated by a ground-to-roof wall), are constructed for sale as condominiums or cooperatives, or used as rental apartments and **does not include speculative builders or contractors who build on their own account for sale** (IBIS World).” The BLS classifies these companies as New Housing Multifamily Construction.

Based on these industry *categories of construction and indirect costs*, the report identifies the following trends in the Commonwealth of Virginia:

- ✓ Land cost has increased in the large urban centers. Land cost around rural economic hubs has also increased. The cost of land is making the production of new housing difficult in financial and economic terms, as compared to the cost of existing housing.
- ✓ Local fees and taxes have increased in urban and rural economic hubs.
- ✓ Site Preparation Contractor industry activity in Virginia between 2006 and 2015 indicates that the number of establishments decreased by 31%, the number of employees decreased by 35%, and average annual pay increased by 13%.
- ✓ Virginia lost 90 establishments in the Utility System Construction industry sector, but employment levels have remained steady across the industry from 2006 to 2015 (only 140 jobs lost), which indicates slow or stagnant growth in employment. Average annual pay has increased by \$9,700 from 2006 to 2015.

- ✓ Other Specialty Trade Contractor industry activity in Virginia between 2006 and 2015 indicates that the number of establishments increased by 15%, the number of employees remained the same, and average annual pay increased by 16%.
- ✓ Virginia has seen a 0.01% decrease in the costs of materials and equipment for site development costs of a building compared to the national average, although costs remain above the national average.
- ✓ While annual percentage changes are small, Northern Virginia, Harrisonburg-Staunton-Highlands, and Richmond are more expensive for site development, and Southside, Lynchburg, and Winchester are the least expensive. Between 2008 and 2015, each area decreased or stayed the same in terms of the national average. Currently, the only region with costs below the national level is Winchester.

Based on comparison of local industry *categories of construction and direct* costs to national averages, the report identifies the following trends in Virginia:

- ✓ Materials pricing contains advantage in the Far Southwest, Southside, Peninsula and Northern Neck regions. Urban centers contain the least advantage in terms of material costs.
- ✓ Labor pricing contains advantage in the Far Southwest, Southside, and Central Virginia regions and parts of the Hampton Roads region. Large urban centers contain the least advantage in terms of labor costs, while urban centers in rural areas do contain some advantage.

Within industry *categories of construction and direct* costs, we can differentiate trends and characteristics across various BLS classifications of construction industry sectors. The following section breaks down trends in direct costs by these classifications, for the period from 2006-2015.

Characteristics of *Substructure* industry sector activity in Virginia:

- ✓ The number of establishments decreased by 23%, the number of employees decreased 31%, and average annual pay increased 23%.
- ✓ The largest decrease in number of establishments occurred in the Northern Virginia region (-69). The largest decrease in number of employees occurred in the Northern Virginia region as well (-1,581). The largest decrease in average annual pay occurred in the Lynchburg (-\$5,998) region.
- ✓ The largest increase in number of establishments occurred in the Harrisonburg region (+6). The largest increase in number employees occurred in the Charlottesville region (+77). The largest increase in average annual pay occurred in the Richmond region (\$20,033).
- ✓ The most volatility occurred in the Far Southwest region. The number of employees went from 8 to zero, and average annual pay went from \$16,055 to \$0 as a result of no employees in this sector within the region.).

Characteristics of *Superstructure* industry sector activity in Virginia:

- ✓ The number of establishments decreased by 45%, the number of employees decreased by 51%, and average annual pay increased by 28%.
- ✓ The largest decrease in number of establishments occurred in the Virginia Beach region (-83). No region increased in number of establishments. The smallest decrease in number of establishments occurred in the Southside region (-4).
- ✓ The highest decrease in number of employees occurred in the Northern Virginia region (-905, from a 2006 value of 1,562). There were no increases in number of employees. The smallest decrease in number of employees occurred in the Southside region (-2).*
- ✓ The largest decrease in average annual pay occurred in the Charlottesville region (\$21,588).** The largest increase in average annual pay occurred in the Lynchburg region (\$25,794, from a 2006 value of \$24,838.50).*

Characteristics of *Exterior Enclosures* industry sector activity in Virginia:

- ✓ The number of establishments decreased by 43%, the number of employees decreased by 53%, and average annual pay increased 17%.
- ✓ There were no increases in the number of establishments. The largest decrease in number of establishments occurred in the Northern Virginia region. The smallest decrease in number of establishments occurred in the Far Southwest region,
- ✓ The highest decrease in number of employees occurred in the Northern Virginia region. There were no increases in number of employees. The smallest decrease in number of employees was in the Far Southwest region.*
- ✓ The state experienced wage increases and decreases in exterior enclosures. The largest decrease in average annual pay was in the Northern Neck region. The largest increase in average annual pay was in the Winchester region.*

Characteristics of *Roofing* economic activity in Virginia:

- ✓ The number of establishments decreased by 17, the number of employees decreased by 20%, and average annual pay increased by 25%.
- ✓ There were no increases in number of establishments in Virginia during this time period. The largest decrease in number of establishments was in the Richmond region, and the smallest decrease in number of establishments was in the Far Southwest region.
- ✓ The largest decrease in number of employees was in the Virginia Beach region, and the largest increase in number of employees was in the Harrisonburg-Staunton-Highlands.
- ✓ The largest decrease in average annual pay was in the Lynchburg region, and the largest increase in average annual pay was in the Charlottesville region.*

Characteristics of *Interiors* industry sector activity in Virginia:

- ✓ The number of establishments decreased by 27%, the number of employees decreased by 45%, and average annual pay increased by 25%.
- ✓ There were no increases in number of establishments in Virginia during this period of time. The largest decrease in number of establishments was in the Northern Virginia region (-43), and the smallest decrease in number of establishments was in the Far Southwest region (-1).
- ✓ There were no increases in number of employees during this time period in the state. The largest decrease in number of employees was in the Northern Virginia region (-1,447), and the smallest decrease in number of employees was in the Charlottesville region (0).
- ✓ The largest decrease in average annual pay occurred in the Virginia Beach region (\$2,073.00), and the largest increase in average annual pay was in the Charlottesville region (\$19,713.50).

Characteristics of *Systems* industry sector activity in Virginia:

- ✓ The number of establishments decreased by 9%, the number of employees decreased by 16%, and average annual pay increased by 26%.
- ✓ There were no increases in number of establishments in Virginia during this time period. The largest decrease in number of establishments occurred in the Richmond region (-54), and smallest decrease in number of establishments occurred in the Far Southwest region (-4).
- ✓ The largest decrease in number of employees occurred in the Lynchburg region (-1,132), and the largest increase in number of employees was in the Far Southwest region (8).
- ✓ The largest decrease in average annual pay was in the Lynchburg region (\$3,106.87), and the largest increase in average annual pay was in the Southside region (\$10,716.78).

Characteristics of *Electrical* industry sector activity in Virginia:

- ✓ The number of establishments decreased by 17%, the number of employees decreased by 18%, and average annual pay increased by 28%.
- ✓ There were no increases in number of establishments in Virginia during this time period. The largest decrease in number of establishments occurred in the Northern Virginia region (-99), and the smallest decrease in number of establishments occurred in the Winchester region (-3).
- ✓ The largest decrease in number of employees was in the Northern Virginia region (-2,620), and the largest increase in number of employees was in the Richmond region (1,040).
- ✓ There was no decrease in average annual pay in Virginia during this time period. The smallest increase in average annual pay occurred in the Harrisonburg-Staunton-Highlands region (\$1,293.27), and the largest increase in average annual pay was in the Virginia Beach region (\$15,065.54).

Based on industry *categories of construction and soft costs*, the report identifies the following trends in the Commonwealth of Virginia:

- ✓ The costs of financing a building project have remained at historical lows since the recession of 2008. Nevertheless, anecdotal evidence suggests that regulations on lending practices can drive the type of development that builders pursue significantly, based on required financial statements and market returns. For example, projects on smaller lots in urban areas that are higher in price often will not receive financing from a bank unless the housing product is valued at 2-3 times the land cost, thus driving up the market price and the type of product that can be developed (i.e. luxury quality).
- ✓ Green certification and construction has infiltrated the code and is a pre-requisite to competing in today's construction market. The cost of green certification and construction, once reported as a risk, has largely diffused into the market and is considered a cost of doing business. That said, many designers, builders and developers market their services as "certified," in the sense that they will build projects to meet current certification levels, while also advocating that fees associated with certification should not be paid. In other words, buildings are being built to green certification levels, but are not being officially certified.
- ✓ Realtor and marketing services seem to have remained steady since the recession, and realtors are not reporting volume discounts.

Survey of NAHB Builders on Production Characteristics

The authors distributed a survey to the members of the Homebuilders Association of Virginia (HBAV). One-hundred thirteen (113) companies respond to the survey, of which 40 fully completed the survey. The survey asked companies to define all the categories of types of housing products they built. Of the full responses, 28 of the companies built single family detached homes, 3 built single family attached homes, 8 built low-rise multifamily (1 to 3 stories), and 1 built mid-rise multifamily homes (4 to 7 stories). The survey asked companies to answer several questions regarding the percentages of each type of building they built per area that they worked. Further, the survey asked builders to list the top three barriers they are facing in their local home building markets.

The five general categories shown in Figure 15 below represent a consolidation by the authors of this study of the specific factors that builders listed as barriers to home building. Table 4 below shows the specific factors

that contractors identified as the top three barriers they are facing in their local home building markets, and indicates the number of individual contractors selecting each factor.

According to the survey of HBAV homebuilders in Virginia, builders report local taxes and fees as the largest factor affecting housing production. Local fees include proffers, environmental fees and taxes. Builders report land cost as the second largest factor affecting housing production (Figure 15). Land cost has increased in the major urban centers, as well as in rural economic hubs. The cost of land is making the production of new housing difficult in economic terms, as compared to the cost of existing housing.

Top Barriers in Home Building, results from VCHR Survey

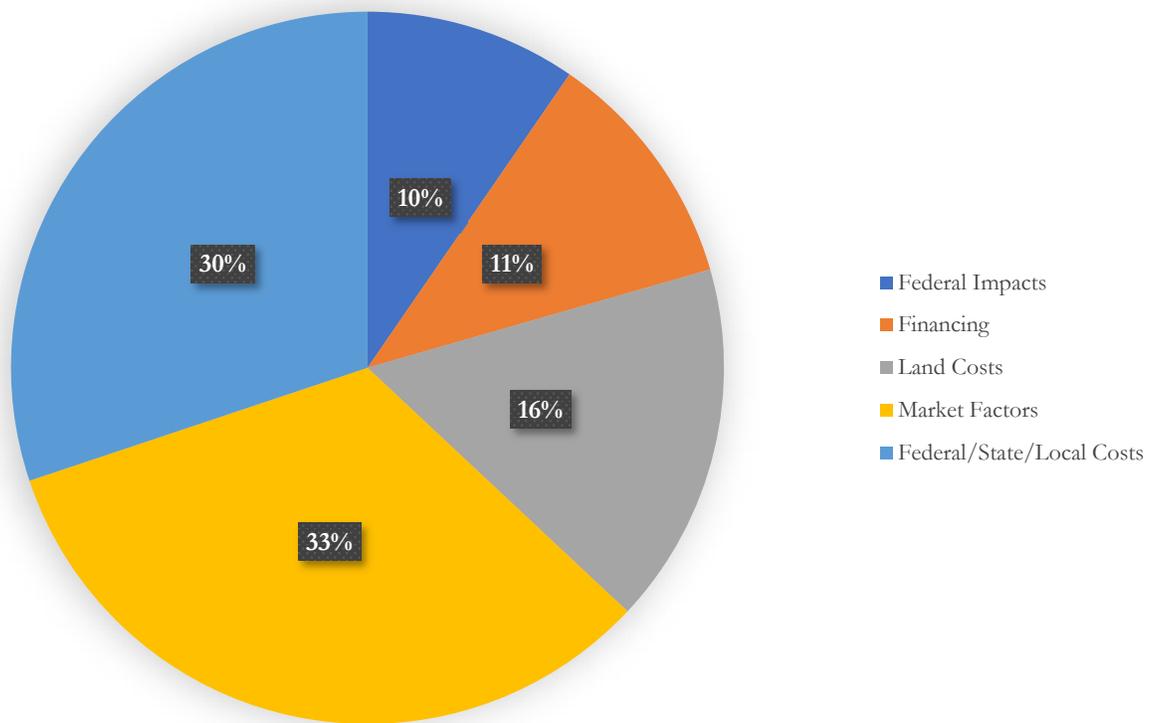


Figure 15: Top Barriers in Home Building, results from VCHR Survey

Top Barriers in Home Building	
Barriers	Responses
Federal Impacts	7
EPA storm water management	5
Sequestration	1
Infrastructure	1
Financing	8
Lending	5
Fair appraisals	2
Equity requirements	1
Land Costs	12
Land costs	8
Cost of developed lots	2
Shortage of land	2
Market Factors	24
Jobs/ Availability of labor/ Availability of quality subcontractors	5
Profit Margin/ Investor expected returns	3
Construction costs	3
Economy	2
Lack of competition of labor & material suppliers	2
Material costs	2
Labor costs	2
Markets willingness to pay for completed product with reasonable profit margins	1
Not Enough	2
New construction costs versus existing homes	1
National builders	1
Federal/State/Local Costs	22

Municipal fees	4
Permit time	3
Developer proffers	2
Governmental red tape/ Regulations	11
Incompetent building inspectors	1
Utility hookups	1

Table 4: Top Barriers in Home Building

As noted above, the top three barriers that survey respondents noted were market factors, federal/state/local costs, and land costs. Surprisingly, federal/state/local costs and land costs rank highly even though these barriers are not direct costs to construction, but issues with development and regulations. As building codes and other government regulations that affect building projects become stricter and more heavily enforced (such as the DEQ’s Erosion and Sediment control regulations), builders face higher costs for construction due to increased requirements for materials, fees and permits, and higher levels of management. These codes and regulations are necessary to create houses that are safer, more sustainable, and have less impact on the environment/watershed, but also result in increased costs for new housing. For example, the building code for decks has continued to be increased with each rendition of the building code, due to increasing safety requirements. A feature that had been possible to build with simple labor and limited hardware now requires larger dimensional lumber, more advanced and expensive hardware, and more skilled labor. Several other issues dealing with government regulations that builders noted include EPA storm water management, municipal fees, permitting fees, and timing. Together, these Federal/state/local costs make up the largest set of issues contractors see facing the building industry in Virginia.

The cost of land development continues to increase in and around Virginia’s larger urban areas, as more land is developed, and continued job growth attracts more residents, and creates a still greater demand for land for housing and other development. The owners of developable land understand this increased value, and are asking a premium price for land in most cases. Higher initial land costs for all development in these areas are increasing the costs for building homes. Builders that can provide a housing product at a relatively lower cost are highly desirable and their products are easily sellable.

In addition to the two top issues of government regulation and increased land costs, builders’ identified other barriers regarding labor costs and quality, material costs, and housing market. A lack of a strong competitive labor market allows subcontractors to charge higher rates, and without competition they can continue to

demand higher prices. Further, if low quality labor results in weaker housing construction work, builders and owners face additional costs and time spent in rework, and through the necessity of selecting better performing, yet more expensive, subcontractors. Limited competition can cause issues with building material costs as well. Several regions in Virginia are supplied by only one or two main building materials suppliers, which allows them mark up their products to a higher degree. Further, strict building codes require newer, more expensive products to meet the code standards, such as insulation and sheathing. For example, shear wall bracing has become very important in the latest version of the building code, but this requires some contractors to use higher levels of sheathing as well as more nails and hardware to pass this code. Finally, some contractors have experienced a weak housing market or lack of buyers in their areas, due to factors such as a lack of jobs, an increase of existing houses on the market, or a decrease in the price point at which newer homes are built.

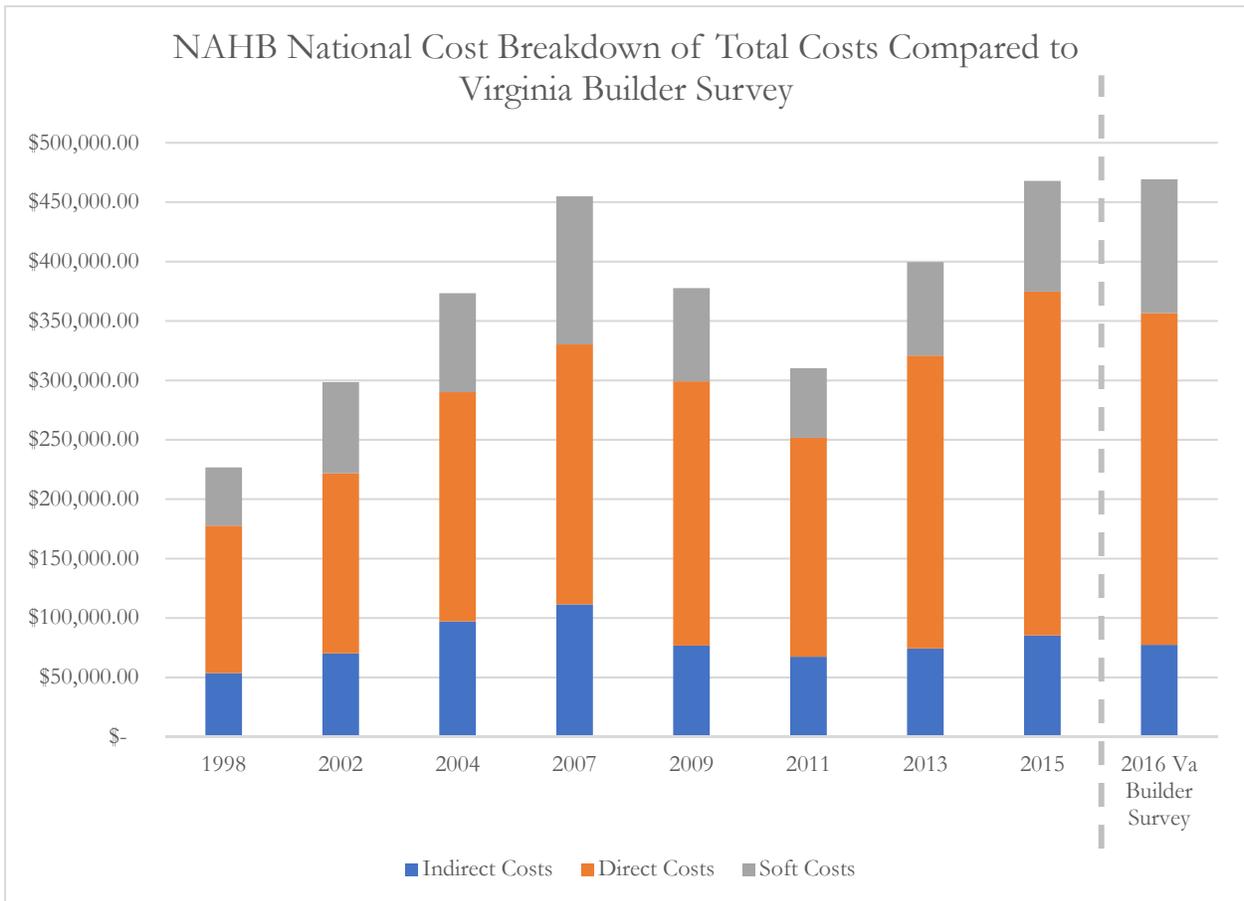


Figure 16: NAHB National Cost Breakdown of Total Costs Compared to Virginia Builder Survey
 Source: NAHB and HBAV Survey

Survey participants that reported that they built single family homes provided their average cost per square foot, the average square footage of their finished products, and their work breakdown in terms of percentage of indirect, direct, and soft costs. Responding firms were a mix of home builders and developers, but the following results report an average of the percentages of indirect, direct, and soft costs of all respondents. The average cost per square foot was \$144.37/ sq. ft. and the average house size was 3,250 sq. ft., for an average house price of \$ 469,186.14. This price breaks down to 16.5% indirect costs, 59.5% direct costs, and 24.0% soft costs. This total cost of a house is only slightly higher than the national average reported by NAHB in 2015, with the Virginia average home cost only \$868 higher than the national average. The breakdown of indirect, direct, and soft costs for Virginia builders are very close to the percentages reported by NAHB in 2015 as well, with slightly higher soft costs in Virginia, and slightly lower direct and indirect costs. Virginia appears to be experiencing the same trend of increasing costs as the rest of the US.

Based on the HBAV survey (aka the Virginia Builder's survey) regarding total costs shown in Figure 16, the report identifies the following trends in Virginia:

- ✓ The 2015 NAHB nationwide survey found that the total costs of a housing unit broke down to be 18% indirect costs, 62% direct costs, and 20% soft costs. The 2016 Virginia Builder's survey found very similar results. The survey showed that the total costs a housing unit in Virginia broke down to be 16.5% indirect costs, 59.5% direct costs, and 24.0% soft costs.
- ✓ The difference between the 2015 NAHB nationwide survey and the 2016 Virginia Builder's survey show that indirect costs are 1.5% lower in Virginia, or an average of \$7,818 less in indirect costs.
- ✓ The difference between the 2015 NAHB nationwide survey and the 2016 Virginia Builder's survey show that direct costs are 2.5% lower in Virginia, or an average of \$10,254 less in direct costs.
- ✓ The difference between the 2015 NAHB nationwide survey and the 2016 Virginia Builder's survey show that soft costs are 4% percent higher in Virginia, or an average of \$19,409 more in soft costs.

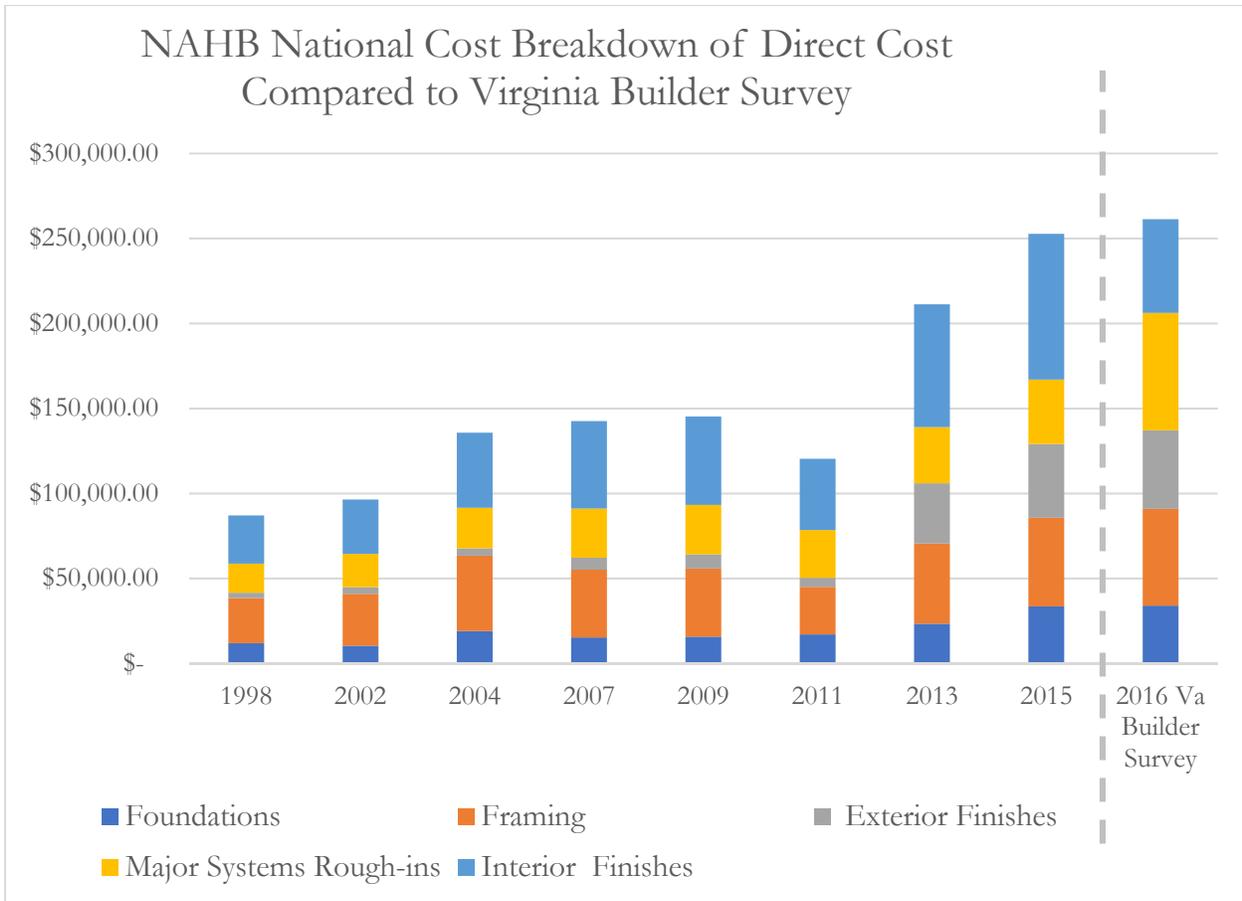


Figure 17: NAHB National Cost Breakdown of Direct Cost Compared to Virginia Builder Survey
Source: NAHB and HBAV

Survey responses provided the average percentage breakdowns for direct costs, including foundations, framing, exterior finishes, major system rough-ins, and interior finishes. Again, Virginia is only slightly higher than the direct costs reported in the 2015 NAHB national survey, with direct costs only \$8,675 higher in Virginia than the national average. The results show that Virginia had much higher costs for major system rough-ins, and much lower costs for interior finishes. This result is due in part to the contractors in the Virginia survey placing the full costs of the MEP systems into the rough-in category, and not counting a portion of these costs in the interior finishes category. The differences in these categories largely offset each other, so the higher costs in Virginia result mainly from higher costs for framing (\$4,819) and exterior finishes (\$2,785). These two categories are a larger percentage of direct costs in Virginia than the national average in labor, materials, and equipment, making overall direct costs in Virginia slightly higher than the costs reported in the 2015 NABH national survey.

Based on the HBAV questions regarding direct costs shown in Figure 17 above, the report identifies the following trends in the Commonwealth of Virginia:

- ✓ The 2015 National NAHB survey found that the average direct costs for a single family dwelling were \$252,659, whereas the 2016 Virginia Builder's survey found slightly higher costs of \$261,335.
- ✓ The 2015 National NAHB survey found that "Foundation Costs" equaled 13.3% of the total direct costs. The 2016 Virginia Builder's survey found that "Foundation Costs" equaled 13% of the total direct costs.
- ✓ The 2015 National NAHB survey found that "Framing" equaled 20.6% of the total direct costs. The 2016 Virginia Builder's survey found that "Framing" equaled 21.8% of the total direct costs.
- ✓ The 2015 National NAHB survey found that "Exterior Finishes" equaled 17.1% of the total direct costs. The 2016 Virginia Builder's survey found that "Exterior Finishes" equaled 17.7% of the total direct costs.
- ✓ The 2015 National NAHB survey found that "Major System Rough-ins" equaled 15% of the total direct costs. The 2016 Virginia Builder's survey found that "Major System Rough-ins" equaled 26.4% of the total direct costs. As stated above, this higher cost in this category is offset by the lower cost reported in "Interior Finishes" category, due to the way respondents categorized these costs.
- ✓ The 2015 National NAHB survey found that "Interior Finishes" equaled 33.9% of the total direct costs. The 2016 Virginia Builder's survey found that "Interior Finishes" equaled 15% of the total direct costs. As stated above, the lower cost in this category is offset by the higher cost reported in the "Major System Rough-ins" category, due to the way respondents categorized these costs.

Trends in perspective: comparing conditions in other states to Virginia

Based on national cost data, the cost to build in *Virginia* is approximately 13% below the national average. The states of New Jersey and Texas have the highest cost of construction in our sample. Compared to our neighbors, it is MORE expensive to build in **Virginia** than *North Carolina* or *South Carolina*, but LESS expensive to build in **Virginia** than *West Virginia*, *Washington DC*, *Maryland* and *Pennsylvania*.

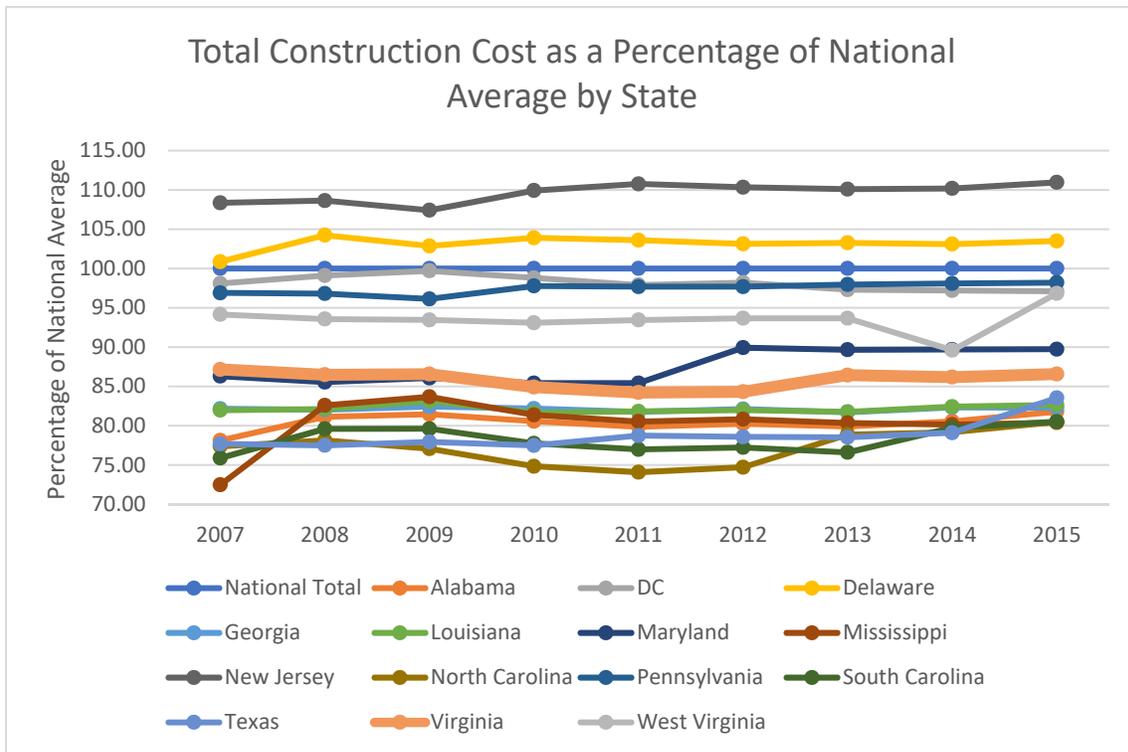


Figure 18: Total Construction Percentage of National Average per State
 Source: RS Means Construction Cost Data 2015