Value of NAHB in 2018

Estimates Produced by the
NAHB Economics and Housing Policy Group

January 2018

Total Estimated Value in 2018
$9.444 Billion, or $7,500 per Housing Start*

This document provides an analysis of additional revenue and cost savings that NAHB members will realize in 2018 due to NAHB's advocacy efforts and other select member benefits.

To convert total dollar estimates for 2018 to dollars per start, all totals for the year in this document are divided by 1,254,500: NAHB's forecast for total housing starts in 2018 as of November 13, 2017.

1. OSHA Suspends Enforcement of Onerous Beryllium Rule

Estimated value: $2.03 billion in costs avoided in the home building industry in 2018 total. Approximately $1,600 per housing start.

On January 9, 2017, OSHA published its final rule on Occupational Exposure to Beryllium and Beryllium Compounds. Even though the proposed rule did not apply to the construction industry, the final rule did. NAHB filed a lawsuit challenging OSHA's authority issue such a rule under these circumstances. In response, OSHA announced that it would stop enforcing the rule in the construction industry. If not for NAHB's efforts, this rule would have been in effect and impacted all construction activity, including residential construction, in calendar year 2018.

OSHA's final economic analysis estimated the number of beryllium work sites affected and total annual cost (including costs of medical monitoring, written control plans, protective clothing and equipment, hygiene practices, training, and respirators) of the final regulation. OSHA's cost estimates do not appear to include recordkeeping costs, even though the rule has significant recordkeeping requirements. OSHA also did not estimate costs for very many construction work sites, even though the regulation was very broad and could be applied to a large number of common construction activities. As NAHB's comment letter to OSHA pointed out, beryllium may be present in soil, mineral and clay based materials, and many commonly used building products, including bricks, concrete block and cements.

OSHA's estimates imply annual costs per site of $570 in 2015 dollars ($598 in 2018 dollars, when inflated using NAHB's forecast of the change in the Consumer Price Index). The number of affected residential sites include 911,000 new single-family construction sites (based on NAHB's housing forecast) and 13,911 new multifamily construction sites (based on NAHB's housing forecast and the ratio of multifamily housing units to buildings completed in 2016 from the Census Bureau's series on characteristics of new housing). Some remodeling activity would also be impacted. At a minimum, large remodeling projects involving significant demolition or disturbing soil would have fallen under the rule. Categories of remodeling that seem likely to fall into this category include room additions, outside attachments and disaster repairs. According to the

Harvard Joint Center for Housing Studies' tabulation of data from the American Housing Survey (funded by HUD and conducted by the U.S. Census Bureau), professional contractors did 2.2 million remodeling projects of this type in 2015. This number is inflated by 29.3 percent, based on the NAHB's 2018 forecast of improvements to owner-occupied housing compared to actual spending on these improvements in 2015. Some of the projects may be done by contractors without employees who would not be subject to an OSHA rule, so the number is reduced by 13.4 percent, based on receipts of the 2.4 million construction businesses without employees in 2015, divided by that total value of construction for 2015.

The result is an estimate of just under 2.5 million remodeling sites that would have been subject to the rule. Added to new single-family and multifamily construction sites, this produces an estimate of 3.4 million residential construction site in total that would have been impacted by OSHA enforcement of the beryllium rule in 2018. Applying the $598 annual cost per site derived from OSHA's economic analysis in turn produces an estimate of $2.0 billion in costs avoided in the residential construction industry in 2018, due to the effective suspension of the rule in that industry. Dividing by NAHB's forecast of 1,254,500 housing starts for the U.S. in 2018 produces an estimate of approximately $1,600 per start.

2. Army Corp Halts Major Land Grab in Massachusetts

Estimated value: $49.5 million in additional new residential construction in 2018 total.

Last summer, the Army Corps of Engineers proposed a rule that would have illegally expanded Clean Water Act jurisdiction to include 900,000 acres of dry land in Massachusetts. The rule would have required builders and developers to notify the Corps and mitigate any environmental impacts when working within a 750-foot buffer surrounding isolated, seasonal ponds called vernal pools. Supported by NAHB's Legal Action Committee and State and Local Issues fund, the Home Builders and Remodelers Association of Massachusetts together with NAHB staff joined to fight this overreach. In response, the Corps issued a revised version that removes the expansive and illegal vernal pool buffer requirements

There are nearly 37,000 vernal pools across Massachusetts, and conservative estimates from a consultant employed by NAHB indicate that 17% of the commonwealth's landmass falls within the proposed vernal pool buffer. A state regulation already prohibits development within a 100-foot buffer. In the area between the 100-foot and 750-foot boundaries, the proposed rule would have, at a minimum, prohibited development on 75 percent of the area. Hence, the rule would have subtracted 11.4 percent from the amount of land available for development.

In order to estimate the impact this would have had, regression results from a previous NAHB analysis of a similar situation are applied. The analysis follows from the observation that reducing the supply of developable land relocates development to higher-density areas where house prices and rents tend to be higher. The NAHB regressions estimate the impacts of density on house prices and rents controlling for other factors (age of the homes, vacancy rate, race of the occupants, etc).

Assuming that 11.4 percent of starts are relocated from an area with no housing units to an area with the average housing density for a block group in Massachusetts generates an estimate that the proposed vernal pool rule would increase the average density of areas in which new homes are built by a little over 400 housing units per square mile. The coefficients in the NAHB regression imply that this, in turn, would raise prices of new homes built for sale by 1.09 percent and rents on new rental units by 0.35 percent.

NAHB's state forecast calls for 11,672 single-family and 5,584 multifamily starts in Massachusetts in 2018. Aggregate investment in these structures is based on the final permit value per unit reported by the Census Bureau for Massachusetts in 2018. The numbers are adjusted for site work not captured in permit value (based on the difference between the final lot cost in NAHB's latest Construction Cost Survey and the Census Bureau's "nonconstruction cost factor" for raw land) and for inflation (using NAHB's forecast for the Consumer Price Index). The results include estimates of $4.17 billion in investment spending on single-family homes and $1.17 billion on multifamily homes in the state in 2018.

Applying the estimated price and rent increases to aggregate single-family and multifamily investment, respectively, and assuming a conventional price elasticity of demand for housing of -1, produces estimates that the rule would have reduced investment in new single-family homes by $45.4 million and investment in new multifamily homes by $4.1 million. This is a total of $49.5 in total investment preserved in the state of Massachusetts in 2018.

3. Tax Reform – Reductions in Builder Taxes

Estimated value: $1.51 billion in lower taxes for owners of residential construction firms on income earned in 2018 total.
Approximately $1,200 per housing start

NAHB was involved from start to finish in the legislative debate over tax reform. On the housing side of the market, NAHB stopped a number of harmful provisions including major reductions for the mortgage interest deduction, limits for the principal residence gain exclusion, and elimination of the like-kind exchange rules. Proposals harming the Low-Income Housing Tax Credit and housing bonds were also turned back.

On the business side, NAHB worked to reduce taxes on business, including reductions for pass-thru entities, which resulted in lower tax rates and special pass-thru deduction intended to benefit small business. These provisions will increase the after-tax income of small business owners in the residential construction sector. However, the state and local income tax deduction, along with the property tax deduction, were limited as part of tax reform, to a maximum of $10,000 per year. The state and local income tax deduction is claimed by small business owners to offset the impact of local taxes on business income.

The following estimates for the impact tax reform on a business owners are calculated on a net basis, accounting for all the business changes made by tax reform. That is, the estimate includes tax benefits for a representative owner of single-family, multifamily and remodeling business from reductions in income tax rates for business income, with assumptions regarding owners' compensation and household status. The estimates also include the impacts of the capped state and local income/sales and property tax, as well as changes to the mortgage interest deduction and the elimination of the personal exemptions. Across business types, we conservatively estimate a tax savings on individual tax filings of approximately $8,600.

NAHB estimates that there are a little over 46,000 businesses in the U.S. for which the primary operation is new single-family construction. This estimate is based on counts of single-family businesses in the 2012 Economic Census (which the Census Bureau has told NAHB is the only reliable source of data with detail within the construction industry) inflated by the growth rate of residential construction establishments in the Quarterly Survey of Employment and Wages through 2016. To be conservative, no growth beyond 2016 (the final year, as of this writing, for which any relevant data are available) is assumed. Based on IRS statistics for the construction industry, the analysis assumes 3 owners for every single-family building firm. This works out to an estimate of approximately 139,000 owners of single-family home building firms. Multiplied by the average tax savings yields an aggregate estimate of $1.20 billion in lower taxes owners of single-family construction firms will pay on income earned in 2018.

Using the same method described above, NAHB also estimates that there are a little over 2,700 businesses for which the primary operation is new multifamily construction. Again assuming 3 owners for every business implies at total of approximately 8,200 owners of multifamily construction firms. To estimate their average tax savings under the recent reform, the average savings for a single-family business owner is adjusted using the ratio of median dollar value of business done by multifamily builders ($5.3 million) to the equivalent for single-family builders ($3.0 million) in NAHB's 2016 Member Census. In aggregate, this generates an estimate of $123.9 million in lower taxes owners of multifamily construction firms will pay on the business they do in calendar year 2018.

The average tax savings for owners of residential remodeling businesses is similarly estimated using the ratio of median volume of businesses done by remodelers ($770,000) and the equivalent figure for single-family builders mentioned above. Using the previously described method, NAHB estimates there are roughly 86,000 residential remodeling firms in the U.S. Due to their comparatively low business volume, the estimates assume only one owner per remodeling business. The result is an estimated aggregate of $189.3 million in lower taxes owners of residential remodeling firms will pay on income earned in 2018.

Total tax savings for owners of new single-family, new multifamily, and residential remodeling construction firms on income earned in 2018 is thus $1.51 billion. Dividing by NAHB's forecast of 1,254,500 housing starts for the U.S. in 2018 produces an estimate of approximately $1,200 per start.

4. Tax Reform – Protection of Builder Interest Deduction

Estimated value: $884.0 million in tax savings for residential construction firms on the business they will do in 2018 total.
Approximately $700 per housing start

The 2016 Better Way Tax Reform blueprint (published by the Ways and Means Committee as a starting draft for tax reform) proposed a complete elimination of the ability of businesses to deduct interest paid on business loans, including acquisition, development and construction loans. The residential construction industry is a debt-financed sector, and the elimination of this interest deduction would have reduced after-tax incomes of home builders and other residential construction firms and severely restricted loan access.

Due to NAHB advocacy efforts, the final tax reform legislation includes a special exemption for real estate businesses from the interest deduction limits imposed on the rest of the economy. To estimate the value of this advocacy win, we calculated the amount of interest paid for residential construction loans and residential land development loans using FDIC loan data and applied an average pass-thru tax rate to determine the tax benefit of the deduction.

Based on these considerations, the estimated aggregate value of this victory to residential construction firms on the business they are projected to do in 2018 is $884.0 million. Dividing by NAHB's forecast of 1,248,000 housing starts for the U.S. in 2018 produces an estimate of approximately $700 per start.

5. Tax Reform – Principal Residence Capital Gain Exclusion

Estimated value: $170 million in prevented reduction in buyers budgets
Approximately $100 per housing start

The tax reform bill released by the U.S. House of Representatives in November 2017 would have changed the longstanding preferential tax treatment of the sale of a home. Under current law, up to $500,000 of gain from the sale of one's principal residence can be excluded from taxable income. The House bill proposed to not only do away with that exclusion for upper-income households, but also require that the seller have lived in the home five of the previous eight years. As the current occupancy requirement is two of five years, the proposal would have locked potential buyers into their current home solely to avoid a potentially astronomical tax bill.

NAHB advocacy efforts ensured that the Senate tax bill did away with the proposed income phase-out of the exclusion. While House and Senate leaders worked to come to a "conference agreement" to resolve differences between their two bills, NAHB continued to champion current law treatment of the exclusion. As a result, both the proposed income limit as well as the harmful occupancy requirement were scrapped in the final bill.

Had they been signed into law, these proposals would have reduced buyers' willingness-to-pay by $170 million in 2018. To estimate the effect, we use the official revenue estimate provided by the Joint Committee on Taxation and apply the percentage of all home sales attributable to new homes (roughly 10 percent) to appropriately scale the effect. Dividing by NAHB's forecast of 1,254,500 housing starts for the U.S. in 2018 produces an estimate of approximately $100 per start.

6. Tax Reform – Housing Bonds

Estimated value: $991 million in prevented reduction in buyers budgets
Approximately $800 per housing start

The federal tax code allows state and local governments to use tax-exempt private activity bonds (PABs) to finance certain projects that promote home buying (mortgage revenue bonds) and affordable rental housing development (multifamily rental bonds and the 4% Low-Income Housing Tax Credit). According to the Congressional Joint Committee on Taxation, 30% of recent PAB issuance was connected to a housing purpose. The loss of these bonds would have had a severe impact on the construction and rehabilitation of affordable rental housing projects by reducing equity available for financing and effectively eliminating the 4% LIHTC program. The elimination of the tax-exempt status of mortgage revenue bonds (along with the elimination of the mortgage credit certificate program) would have reduced the availability of below-market rate mortgages issued by housing finance agencies, thereby reducing homeownership opportunities.

The House-passed tax reform legislation followed early tax reform plans by eliminating the tax-exempt PAB program. NAHB quickly identified this issue after House passage and demonstrated the policy loss that would occur for housing due to the House policy. As a result, the Senate passed tax reform proposal included protection for PABs, and this approach was ultimately adopted by the Conference adopted plan and signed into law.

According to the Joint Committee on Taxation, elimination of the PAB program would increase taxes by $38.9 billion over ten years. Using the estimated market share of these bonds for housing purposes, and assuming a supply elasticity of 0.85 to measure potential market response to the lost tax-exempt status, we estimate that the protection of the tax-exempt PAB program represented a savings of $991 million in housing production for 2018. Allocated across NAHB's 2018 housing starts forecast, this represents a value of $800 per housing start.

7. Seriously Flawed Duct Proposal Eliminated

Estimated value: $867.4 million in lower costs for home builders in 2018 total.
Approximately $700 per housing start

NAHB, along with HBA leaders in California and Nevada, strongly opposed a proposed change to the Uniform Mechanical Code (UMC) that would have limited the length of flex duct to five feet in residential applications in the 2018 edition of the UMC. Recently, the International Association of Plumbing and Mechanical Officials announced that it has decided not to approve this change.

Had it gone into effect, this requirement would have applied to all single-family and multifamily construction in 2018 in eight states: Alaska, California, Hawaii, Kansas, Nebraska, Nevada, New Mexico and Texas. NAHB's current forecast calls for a total of 235,291 single-family and 101,252 multifamily housing starts in these states. Over 80 percent of these single-family starts and 90 percent of these multifamily starts are confined to two states: California and Texas, the two largest states by far, in terms of population as well as area, in the West census region.

NAHB obtained an estimate from Villara Building Systems, a leading HVAC company in Northern California, showing that the cost of metal duct compared to flex in a typical size new single-family home in California was $5,196. Information from the 2017 Builder Practices Survey (BPS Home Innovation Research Labs) is used apply the Villara estimates states that would have been impacted. The BPS provides separate estimates of duct usage for single-family homes in California and Texas, and for multifamily homes in the West Census region, the closest proxies available for the eight-state area under consideration.

BPS percentages from these proxy areas applied to the starts forecast imply that there will be 232,261 ducted single-family and 76,673 ducted multifamily units built in the eight-state area in 2018. 64.0 percent of the linear feet of ducts in single-family homes will be flexible, which, applied to the Villara cost estimate, implies an average cost savings of $3,325 per ducted single-family home. The BPS also shows that ducted multifamily units have 34.9 percent the linear feet of duct as an average ducted single-family home, and that 68.5 percent of the linear feet of ducts in the multifamily units is flexible. These percentages, applied to the Villara cost estimate, imply an average cost savings of $1,241 per ducted multifamily unit.

Applying these average savings to the ducted units projected to be started in the eight-state area, produces an aggregate estimate of $867.1 million in reduced cost to builders in 2018 resulting from eliminating the UMC duct proposal. Dividing by NAHB's forecast of 1,254,500 housing starts for the U.S. in 2018 produces an estimate of approximately $700 per start.

8. HUD Rescinds Costly Flood Risk Standard

Estimated value: $60.8 million in lower costs for residential construction firms in 2018 total.

NAHB led an industry coalition in opposition to HUD's proposed rule, "Floodplain Management and Protection of Wetlands; Minimum Property Standards for Flood Hazard Exposure; Building to the Federal Flood Risk Management Standard" ("the proposal") HUD did not finalize this rule before President Obama's term expired, and the Trump Administration indicated they will not implement it. Moreover, President Trump repealed Executive Order 13690, which called for the Standard.

The proposed rule would have required single family homes purchased with FHA mortgage insurance to be elevated an additional two feet if built or substantially improved within the 100-year floodplain. HUD's Regulatory Impact Analysis (RIA) estimated that this would add between 0.29 and 4.36 percent to the cost of an average new FHA home, and that 2.03 percent of new single-family homes were built in the flood plain. Surprisingly, HUD was unable to correctly read the annual number of new homes with FHA insured loans from its own one internal file. NAHB estimated the number and construction cost of new FHA homes from the 2016 HUD/Census Bureau Survey of Construction, using permit value as a proxy for construction costs, then adjusted these numbers by NAHB's forecast for single-family starts and the Consumer Price Index in 2018 vs. 2016. Assuming the rule would increase cost by 2.33 percent (the midpoint of the range in HUD's RIA) produces an aggregate estimate of $5.8 million in extra costs for new single-family homes purchased with FHA loans.

The rule would also have imposed the new two foot elevation requirement on multifamily construction when using FHA mortgage insurance both within the 100-year floodplain and in a horizontally expanded 500-year floodplain area *for which maps do not exist*. Preliminary estimates developed through consultation with NAHB's multifamily members indicated that this would have increased construction costs by approximately 5.0 percent.

Data from FEMA and the HUD/Census Bureau Rental Housing Finance Survey and American Housing Survey can be used to show that 4.9 percent of multifamily units built after 2006 were located in a flood plain. Applied to HUD's Multifamily FHA data base implies 13 multifamily rental properties with an average of 145 apartments each are built or substantially rehabbed with FHA-insured loans in a 100-year flood plain annually. Averaged across 15 case studies commissioned by NAHB, the 500-year flood plain covered 55 percent more territory. Assuming a proportional distribution, had the Executive Order been implemented, it would have impacted an estimated 20 properties in 2018. Based on multifamily residential fixed investment per multifamily housing start in 2016 inflated to 2018 using NAHB's forecast of the consumer price index, the aggregate cost of these 20 properties would be roughly $465 million, adding 5 percent to this would have been an additional $23.2 million in costs paid by multifamily developers.

The additional cost of substantial rehab in flood zones financed with FHA-insured mortgages is based on the midpoint of the cost estimates in HUD's RIA. TO account for the expansion to a 500-year floodplain, the multifamily rehab is inflated by 55 percent as described above, rather than HUD's estimate. This number is adjusted to 2018 using NAHB's forecast of real improvements to owner-occupied housing and the Consumer Price Index. Finally, this is reduced by the ratio of home owner expenditures on do-it-yourself discretionary remodeling projects to all expenditures on discretionary projects (HUD/Census Bureau 2015 American Housing Survey, tabulated by the Harvard Joint Center for Housing Studies). The result is an estimate of

$31.8 million in additional costs for rehab projects conducted by professional remodelers and financed with FHA-insured loans.

Hence, the total estimate of extra costs that the rule would have imposed on residential construction businesses in 2018 is $5.8 million (new single-family) plus $23.2 million (new multifamily) plus $31.8 million (substantial rehab) or $60.8 million. The estimated total cost savings to the residential construction industry in 2018 is therefore $60.8 million.

9. Further Delay of DOL's Overtime Rule Saves on Labor Costs

Estimated value: $58.6 million in cost savings for the construction industry in 2018 total.

A final rule by the Department of Labor (DOL), which would have more than doubled the annual salary threshold for determining whether an employee can be exempt from receiving overtime pay—from $23,660 to $47,476—was initially scheduled to go into effect at the end of 2016.

However, NAHB has consistently lobbied against this rule, joined other business groups in filing a legal challenge to it. So far, the courts have consistently ruled against DOL, issuing injunctions that have preventing the rule from taking effect. DOL appealed a nationwide injunction against its rule, and the Fifth Circuit Court dismissed DOL's appeal. As of this writing, DOL is appealing the dismissal. While the litigation is ongoing, the overtime rule has not gone into effect.

Were it to go into effect, anyone earning under $47,476 would be due time-and-a-half pay if they worked more than 40 hours per week In the home building industry, the key occupation is one that DOL classifies as First-Line Supervisors of Construction Trades Workers. In the normal course of their jobs, these supervisors visit multiple sites which makes tracking the hours they worked very challenging. Based on data from DOL's Occupational Employment Statistics (OES), NAHB estimated that raising the threshold to $47,476 would impact 97,213 of these workers.

Responding to a 2015 NAHB survey, 27 percent of affected builders said they would react to the rule by raising the supervisor's salary to the new threshold. Thus, an estimated 27 percent of the 97,213, or 26,248 supervisors would have their salaries raised to $47,476 were the rule to take effect. To estimate the current annual wage for these workers, we chose a point halfway between the final threshold and 10th percentile wage for construction supervisors (the lowest percentile published in the OES and the only one below the threshold). This is an annual wage of $43,017. Thus, the estimated full-year potential savings to the industry is (47,476 - 43,017) × 26,248 = $117.1 million.

As of this writing, it is uncertain if the rule will ever go into effect. However, it certainly will not go into effect while the court is considering DOL's appeal. The appeal is currently in a preliminary phase, as briefs have not even been filed with the court yet. It is the opinion of NAHB's legal staff that a ruling is unlikely within the first six months of 2018.

Assuming that any possible future implementation is not retroactive, NAHB's efforts have already succeeded in delaying implementation of the rule for all of 2017. At a minimum, the delay should extend at least to the second half of 2018. Therefore, the estimated savings in 2018 is half or $117.1 million, or $58.6 million.

10. OSHA Delays Crane Operator Certification

Estimated value: $7.2 million in cost savings for the home building industry in 2018 total.

Under the repeated urging of NAHB, OSHA delayed its deadline for employers to have their crane operators certified by a third party. The delay is for one full year, until Nov. 10, 2018. NAHB has continued to state its position that no one should operate any crane that he/she doesn't know how to operate. However, given the size of cranes and the way they are used during the construction of a single-family home, NAHB believes that the third-party certifications OSHA is requiring are onerous, ineffective and unjustifiably costly. In its 2010 final rule, OSHA estimated the cost of the certification at $2,064 (this is the cost to the employer and includes the cost of wages paid to the employee while he or she is being trained).

During construction of single-family homes, the use of cranes is typically limited to the installation of roof trusses (which doesn't require a particularly large or heavy crane). NAHB's forecast calls for 911,000 single-family homes to be started in 2018. According to the 2017 Builder Practices Survey report from Home Innovation Research Labs, 70 percent of roof framing in single-family homes is done either with trusses or a combination of rafters and trusses, implying a crane would be used during the construction of roughly 638,000 single-family homes in 2018. Assume in this case each home uses a crane for one day, and that the average crane operator gets two weeks of vacation, implying that the single-family homes generate enough work to keep 2,835 different crane operators employed full time for the year.

This means that the home builders in 2018 would at a minimum need to cover the certification costs of 2,835 different operators if the certification was required during the entire year. OSHA's estimated cost of certification is adjusted for inflation between 2010 and 2018 (using NAHB's forecast of the Consumer Price Index) and increased by 27 percent to account for a mark-up from the subcontractor to the builder (based on residual profit, depreciation, capital and other operating expenses reported by specialty trade contractors in the 2012 Economic Census) yields an estimate of a minimum of $8.3 million in extra costs paid by home builders in 2018 had the certification been in place throughout 2018.

Because OSHA, so far, has delayed the requirement until November 10, the annual cost is pro-rated and an estimate of $7.2 million in savings is attributed to the success of NAHB's lobbying efforts.

11. OSHA's Extended Reporting Requirements (Volks Rule) Overturned

Estimated value: $11.6 million in cost savings for the home building industry in 2018 total.

The "Volks" rule was an attempt by OSHA to give itself the authority to cite employers for failing to record work-related injuries and illnesses properly over the entire 5-year period for which employers are required to maintain the records, substantially exceeding the six-month statute of limitations. NAHB led an effort to persuade Congress to nullify this onerous rule. This effort was successful, as Congress passed a bill doing just this, which was signed into law by President Trump in April.

OSHA tried to argue that the rule was costless, because it doesn't require employers to review or reassess existing records. However, in interviews with staff, NAHB members universally stated that if they could be cited over the entire 5-year period, they would, in fact, change their practices and review the records periodically to make sure they are in order.

At a minimum NAHB members said the Volks rule would cause them to review and reassess their recorded injuries and illnesses at least once a year. Estimates of the time it would take to review a recorded injury ranged from a low of 15 minutes up to one hour. Evaluating this at the midpoint pf 0.625 hours per record and applying the estimate of $46.72 per hour (used by OSHA in its initial proposal of the Volks rule) produces an estimate that the rule would cost residential construction businesses, on average, $29.20 per recorded injury at least once a year.

The Bureau of Labor Statistics (BLS) maintains an annual series on the number of OSHA recordable injuries in the construction industry overall. So far, OSHA has published these numbers through calendar year 2016. To estimate the number of recorded injuries in the residential segment of the industry, we use the ratio of employment in residential to overall construction from BLS's Occupational Employment Statistics. These employment statistics are available annually through 2016 and monthly for most of 2017. We use seasonally adjusted July numbers as a proxy for annual construction employment in 2017 and apply this number to the 2011-2016 average of 0.0327 injuries per construction worker per year to produce an estimate of injuries in residential construction businesses in 2017. The result is an estimate of 396,300 injuries recorded by residential construction businesses over the previous five years as of January 1, 2018.

Multiplying this by the average cost of $29.20 to review and reassess a record produces an estimate of an $11.6 million in cost for the residential construction industry in 2018 that has now been avoided due to NAHB's legislative victory.

12. Lower Cost Options Preserved in 2015 I-Codes

Estimated Value: $1.26 billion in cost savings for home builders in 2017 total.
Approximately $1,000 per housing start.

NAHB's Construction, Codes and Standards (CC&S) Department has an ongoing effort to keep unnecessarily costly provisions out of building codes. An important part of this is participating International Code Council (ICC) code development process. NAHB members have seats on ICC Code Development committees, and NAHB staff participate actively extensively in ICC hearings, testifying against proposals that would needlessly drive up construction costs. NAHB was successful in keeping a number of costly provisions out of the 2015 versions of the International Residential Code (IRC) and 2018 International Energy Conservation Code (IECC) in particular. NAHB builder members will benefit from these successes in 2018, as an increasing number of states and local jurisdictions have adopted that 2015 IRC and IECC. Below is a list of select items kept out of the 2015 I-Codes. The list is far from exhaustive: it is limited to items for which it was possible to obtain a reasonable estimate of the cost of the provision for an average single-family home:

Provisions Kept Out of 2015 Codes	Average Cost per Home	Number of New Homes Affected in 2018
A. Mandatory requirements for new homes to facilitate future solar energy system installations.	300	206,068
B. Fenestration-U-Factor in Climate Zones 5, 6, 7 and 8 increased to triple pane levels	3,057	88,185
C. No electric heat or ducts in conditioned space	1,528	161,665

D. High efficiency water heating equipment required	1,528	148,468
E. A provision that would have required draftstopping every 1,500 square feet in attics.	509	192,468
F. A provision that would have required motorized dampers connected to kitchen exhaust systems instead of gravity dampers.	255	182,845
G. Removal of the underside sheathing exemption for floors with joists 2x10 or larger.	2,018	39,310

The average cost figures were developed by NAHB's CC&S and Housing Policy Departments. The estimated number of homes impacted is based on NAHB's forecast of single-family housing starts for 2018 in the jurisdictions that have adopted the 2015 versions of the IRC and IECC as we approach the end of 2017.

The cost difference is not applied to all homes projected to be built in these jurisdictions in 2018, because a share of the homes (typically the more expensive ones) would have been built to these standards in the absence of the code provision, so the code provision has no effect on them.

Information on the share of new homes built to proposals B and G comes from the 2017 Builder Practices Survey Report from Home Innovation Research Labs. Information on the share of homes built to proposal C comes from the Survey of Construction of new single-family homes started in 2016, conducted by the U.S. Census Bureau with partial funding from HUD. Information on the share of new homes built to proposals A and D comes from special question on the monthly survey used to generate the NAHB/Wells Fargo Housing Market Index. The share of homes built to proposals E and F are based on estimates developed by NAHB's CC&S Department. Where CC&S provided a range, the upper (most conservative) end of the range was used to avoid overstating the value of a particular victory in the codes arena.

In total, estimated savings generated by avoiding the code provisions listed above equals $1.26 billion. Dividing by NAHB's forecast of 1,254,500 housing starts for 2018 produces an estimate of approximately $1,000 per start.

13. Duties on Canadian Lumber Reduced

Estimated Value: $389.6 million additional investment in new residential structures in 2018 total. Approximately $300 per housing start.

On April 25, the Department of Commerce (DOC) levied a preliminary 19.88 percent countervailing duty against Canadian softwood lumber imported into the U.S. On June 26, DOC imposed a preliminary 6.87 percent anti-dumping duty on top of the duty announced in April. Combined, the two preliminary duties imposed a 26.75 percent total tariff on Canadian lumber.

NAHB strongly opposed the duties, actively participating in proceedings of the U.S. International Trade Commission, where it supported the Canadian government in arguing that the duties were far too high, and launching an extensive media campaign to publicize the adverse effects of the duties on the U.S. economy.

When DOC announced its final decision on November 2, the average duties were reduced to a combined 20.83 percent. The effects of the 20.83 percent duty on the U.S. economy in 2018 were estimated by NAHB and published, along with a brief description of the methodology, in a December 7 *Eye on Housing* blog post. Readers are referred to that post for details. The same methodology and baseline assumptions can be used to estimate the effects of the higher preliminary duties.

Both sets of duties would increase prices U.S. consumers pay for softwood lumber; but, as you would expect, the increase is smaller under the lower duties—6.9 percent, compared to 9.0 percent had DOC maintained the higher, preliminary rates. As a result, estimated increases in prices of new homes and market values of new multifamily structures are correspondingly reduced. This, in turn, leads to smaller adverse effects on investments in residential construction. The bottom-line for the home building industry is an estimate that, compared to the preliminary duties, the final duties will result in $344.2 million additional investment in new single-family structures and $45.4 million in additional investment in new multifamily structures in 2018.

Dividing the combined investment of $389.6 investment in both types of structures by NAHB's forecast of 1,254,500 housing starts for 2018 produces an estimate of $310 per start.

14. Treasury Withdraws Rule That Would Limit Infrastructure Financing Options

Estimated value: $164 million in reduced housing costs for residential developers in 2018 total. Approximately $100 per housing start

NAHB has lobbied strongly against proposed Section 103 regulations on the definition of political subdivision. The proposed regulations would prohibit most development districts, which are used in many states to finance the construction of sewer systems, water lines and other infrastructure necessary to incorporate a new development into a city, from issuing tax-exempt municipal bonds. Builders in states such as Texas, California, Colorado, and Florida rely heavily on these bonds to fund new communities. The districts are generally a more a cost effective mechanism for funding the infrastructure needed for new development, as opposed to an alternative such as raising impact fees.

The rule would have rendered most new and existing builds ineligible for the tax-exempt bond financing that has long provided for development in rural and ex-suburban areas. The builders who could still afford to expand would have been forced to pay higher interest rates, and these rates would have been prohibitive to building and developing in many areas. NAHB achieved a substantial victory on October 4 when the Treasury announced plans to withdraw the regulation.

To estimate the value of this policy action, we conservatively estimated the permitted single-family market value of homes in the major states utilizing these bonds. We reduced this market value for only large community developments. The amount of additional financing that would be required to offset the loss of tax-exempt status was then estimated using current bond market rates. The estimate aggregate savings for builders as a result of protecting this financing is $164 million. Dividing by NAHB's forecast of 1,254,500 housing starts for the U.S. in 2018 produces an estimate of approximately $100 per start.

15. NAHB Designations Boost Members' Business

Estimated value: $369.1 million in additional business in 2018 total.
Approximately $300 per housing start.

NAHB members continue to invest time, effort and money to attain professional designations offered by NAHB. The association's latest consumer survey provides insight into the value of designations, as 79 percent of recent and prospective home buyers agreed that contractors with such specialized professional designations are "worth paying a higher price for."

A simple way to assign a rough value to a designation is to look at the revenue differential between businesses of members with and without a designation. It is possible to do this by matching records of builders and remodelers who have earned NAHB professional designations to other comparable builders and remodelers in NAHB's Member Census.

The results are as follows:

- Companies of builder members with one of NAHB's builder designations, Certified Graduate Builder, averaged $590,113 more than companies of builder members without that designation.
- Companies of members with the Graduate Master Builder designation had revenues that averaged $704,498 more.
- Companies of members with the Certified Green Professional™ or Master CGP designation averaged $578,027 more.
- Companies of remodeler members with a Certified Graduate Remodeler or Graduate Master Remodeler designation averaged $603,717 more than companies of remodeler members without one of these designations.
- Companies of members with the Certified Aging-in-Place Specialist designation averaged $691,464 more.

In 2017, 548 NAHB members earned one of these designations (based on administrative records for the first 10 months of the year, and assuming designations continue to be earned at a constant rate). This implies designations earned during the year will ultimately result in an aggregate value of $369 million per year, which we apply to 2018. Dividing by NAHB's forecast of 1,254,500 housing starts for 2018 produces an estimate of approximately $300 per start.

16. Council Members Earn More Revenue

Estimated value: $613.7 million in revenue in 2018 total.
Approximately $500 per housing start.

NAHB members continue to join and participate in NAHB councils that serve important subsets of the residential construction industry.

In addition to advocacy efforts on their behalf, councils provide business information, research and networking opportunities designed to strengthen their businesses.

A simple way to assign a number to the value of these benefits is to compare the revenue of members who specialize in the same aspect of the residential construction industry but who do or do not belong to the relevant NAHB council. This is possible by matching records of members who belong to NAHB Remodelers and NAHB's Multifamily Council with responses to NAHB's 2015 Member Census.

The results were as follows:

- Median revenue of remodelers who belonged to NAHB Remodelers was $509,907 higher than the median revenue of remodelers who did not belong to NAHB Remodelers.

- Median revenue of multifamily builders who belonged to NAHB's Multifamily Council was $9,075,395 higher than the median revenue of multifamily builders who did not belong to the Council.

In 2017, 825 new members joined NAHB Remodelers through October, and 11 new members joined NAHB's Multifamily Council through November.

Assuming the rates stay constant during the year implies 990 and 12 new members will have joined NAHB Remodelers and NAHB's Multifamily Council, respectively, in 2017 and will be able to realize a full year's worth of benefits in 2018.

Valuing the benefits at the median revenue differentials noted above produces an estimated aggregate benefit of $613.7 million in 2018. Dividing by NAHB's forecast of 1,254,500 housing starts for 2018 produces an estimate of approximately $490 per start.

17. Services Provided by Land Development

Estimated value: $4.0 million in products and services provided to the home building industry at no cost in 2018.

At last count in late 2017, NAHB's Land Development Department had completed 31 reviews of local ordinances for local HBAs. This projects to a rate of 34 reviews over the course of a calendar year. The flow of requests or reviews is fairly constant, so it should be reasonable to assume a similar rate of ordinance reviews in 2018.

Many of the reviews require not only expertise, but also multiple days of research to complete. Were an HBA to hire a consultant instead, the average cost of such a review would be in the neighborhood of $10,000.

A major product of NAHB Land Development is the Best in American Living publication, which previously cost $40 per year in hard copy but is now sent free in electronic form to roughly 63,000 industry participants. Another 48,000 receive access to the publication through blog emails. Assuming half of the blog email recipients overlap with the first list generates an estimate of 87,000 total recipients of the free publication.

The electronic publication is comparable in content and quality to the discontinued hard copy version, so it is reasonable to estimate its value at $40 per year.

Additionally, NAHB Land Development has contracted with Robinson+Cole to produce an Inclusionary zoning (IZ) calculator tool that, when completed, will allow a developer unable to avoid an IZ ordinance to show a local jurisdiction what incentives are required to make a project economically feasible. As of this writing, development of the tool is well under way and it is scheduled to be finished and made available to developers in 2018. In the absence of data on the impacts the tool may have, it is valued at its cost to NAHB of $140,000.

The aggregate market value of the above three items, all of which are now or will be available free of charge at some point in 2018, is $4.0 million.

* Detail may not add to total due to rounding.