



Testimony of

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**On Behalf of the
National Association of Home Builders**

**Before the
United States House of Representatives
Education and Workforce Committee
Subcommittee on Workforce Protections**

**Hearing on
“Reviewing Recent Changes to OSHA’s Silica Standards.”**

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Chairman Walberg, Ranking Member Wilson, members of the committee, I appreciate the opportunity to appear before you today to discuss OSHA's new crystalline silica standard. My name is Ed Brady, and I am a home builder from Bloomington, Illinois, and the 2016 Chairman of the Board of the National Association of Home Builders (NAHB).

I have nearly 30 years of experience in the housing industry. Like many in this industry, mine is a family business. My father, William Brady Sr., founded the company in 1962. I have served as the president of Brady Homes for the past 15 years. We primarily build single-family homes, but we have also constructed several light commercial projects.

I am also here today representing the over 140,000 NAHB members involved in single-family and multifamily building and remodeling, as well as other aspects of residential and light commercial construction. Each year, NAHB's builder members construct approximately 80 percent of all new housing in America. To do so, they must navigate, at considerable cost, an ever-growing and increasingly complex thicket of government regulations. On average, regulations imposed at all levels of government account for 25 percent of the final price of a new single-family home.¹ This is particularly concerning in an industry with thin margins² and acute consumer sensitivity to price fluctuation.

I would like to thank the Committee for taking a closer look at OSHA's new rule on crystalline silica. Eighty-five percent of the businesses affected by this rule are involved in construction or construction-related activities. NAHB is a founding member of the Construction Industry Safety Coalition (CISC), 25 trade associations representing members from all facets of the construction industry. The coalition was formed so the construction industry could work collectively with OSHA as it drafted the new rule. Unfortunately, OSHA failed to address many of the concerns of the construction community in the final rule.

My business, like so many in the construction industry, thrives because our most valued asset is our employees. They are our friends, sometimes our family, and occasionally both. Sensible regulations play a vital role in ensuring their health and safety. But those rules must be practical and feasible, economically and technically, to be truly effective.

We strongly urge OSHA to re-examine and reassess how its final rule will harm the construction industry, job growth, consumers and the economy while doing little to improve the health and safety of industry workers. However, it is unlikely that the agency will change course. Therefore, we believe that Congress must take the lead and move swiftly to craft legislation that will keep this fundamentally flawed rule from taking effect.

¹ <http://www.nahb.org/generic.aspx?genericContentID=161065&channelID=311>

² In FY2014, builders realized, on average, a pre-tax, net profit margin of 6.4%.

<http://eyeonhousing.org/2016/03/whats-the-average-profit-margin-of-single-family-builders/>

OSHA's Crystalline Silica Rule: The Most Significant Health and Safety Rule Ever Issued for Construction

Silica is everywhere. It is a basic component of soil, sand and granite. Quartz is the most common form of crystalline silica, while cristobalite and tridymite are two other forms. Although the percentage of silica content varies, it may be present in many commonly used building products such as mortar, cement, stucco, plaster, bricks, concrete blocks, tile, rock, stones, granite, insulation, roofing felt and shingles, grout, foundation and basement waterproof coatings, fiber-cement board; fiber-cement siding; and even in the soil that homes are built on. Because silica is ubiquitous and makes up a core component in many building materials, the industry is unable to use substitutes.

On a typical jobsite, nearly every activity involves workers interacting with silica-containing materials. Because silica is found in soil, clearing, grading and excavating land, digging trenches, landscaping, and foundation work are all affected by this rule. Cutting brick or stone, installing roofing materials, tile work, and even installing granite counter tops involves potential silica exposure. As an industry, we have a responsibility to keep our workers safe, and we already take steps to ensure that our workers are not exposed to excessive levels of silica.

Based on current protective practices, crystalline silica is measured by a Permissible Exposure Limit (PEL), which is the maximum amount of respirable (breathable) silica dust a worker may be exposed to during an 8-hour shift of a 40-hour week. OSHA's PEL for silica exposure in construction is generally calculated to be 250 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$). Employers are required to ensure that employees are not exposed to silica levels above the PEL by using administrative or engineering controls, such as a dust collection system, wet-cutting, or local exhaust ventilation. In addition, if administrative or engineering controls are not feasible to keep workers' exposure below the PEL, they must still be used and supplemented with protective equipment (*i.e.*, respirators).

OSHA's new silica rule will reduce the PEL to $50 \mu\text{g}/\text{m}^3$, which means that over the course of any 8-hour work shift, the average worker exposure to respirable crystalline silica cannot exceed $50 \mu\text{g}/\text{m}^3$. The rule also incorporates an action level of $25 \mu\text{g}/\text{m}^3$ for an 8-hour time weighted average.³ Once an exposure reaches the action level, additional exposure assessments are required. The rule also requires employers to measure worker exposure to silica. The exposures will have to reflect each shift, each job category, and each designated work area over an 8-hour time weighted average.

OSHA is also mandating recordkeeping and retention of air monitoring and objective data on employee exposure. These records must be maintained for at least 30 years.

For construction, employers are able to choose one of two compliance options: (1) use a control method provided in Table 1 of the standard;⁴ or (2) conduct exposure assessments to measure their workers' exposure to silica and independently decide which dust controls work best in their workplaces. Due to

³ 81 Fed. Reg. at 1687

⁴ 81 Fed. Reg. at 16876

the difficulty of constantly measuring a workers' exposure to silica, NAHB anticipates most builders will be forced to rely on the control methods provided in Table 1.

Within Table 1, the construction standard matches common construction operations with engineering and work practice control methods, and respiratory protection. These include using the following equipment: stationary masonry saws; handheld power saws; handheld power saws for cutting fiber-cement board; walk-behind saws; drivable saws; rig-mounted core saws or drills; handheld and stand-mounted drills; dowel drilling rigs for concrete; vehicle-mounted drilling rigs for rock and concrete; jackhammers and handheld powered chipping tools; handheld grinders for mortar removal (i.e., tuckpointing); handheld grinders for uses other than mortar removal; walk-behind milling machines and floor grinders; small and large drivable milling machines; crushing machines; and heavy equipment and utility vehicles used to abrade or fracture silica containing materials (e.g., hoe-ramming, rock ripping) and for tasks such as grading and excavating but not including: demolishing, abrading, or fracturing silica-containing material.⁵

Employers choosing to follow the engineering and work practice control requirements of Table 1 would be considered to be in compliance with the new PEL exposure limits and would not be required to conduct exposure monitoring activities. Unfortunately, the engineering and workplace practice control requirements are often technologically infeasible.

The Rule is Not Technologically Feasible

OSHA's final silica rule demonstrates a fundamental lack of understanding for how the construction industry and in particular, residential construction operates. OSHA developed a rule designed for workers who perform the same tasks on the same sites every day. That is not the pattern on jobsites where workers perform many and varied tasks in a variety of different environments. The net result is a rule that, particularly for the small builders that make up NAHB's core membership, will at best be impracticable to comply with on a residential construction site, and at worst impossible to comply with.

For example, Table 1 would require the use of water as a dust suppression method when cutting roofing tiles. Yet doing so may create a greater hazard for the employee performing that function. Imagine installing tiles on a slippery, wet roof. This practice would also create quality-control issues by introducing water to areas of the roof not designed for moisture. Furthermore, when working indoors, or in freezing weather, using a water suppression system will not be possible. But from a practical standpoint, even if the builder can deal with the safety and quality-control issues, we do not typically get a water meter hooked up for use on our jobsite for at least 2 to 3 months *after* construction is started. The local municipality controls when water service is provided, and it is often delayed well into the construction process. Any silica controls requiring a continuous water source would not be feasible during this time. In spite of all of this, the final version of Table 1 does not allow for dust collection

⁵ Ibid.

systems (i.e. vacuum with a HEPA filter) to be used and only allows the use of wet methods (i.e., saw equipped with integrated water delivery system).

Additionally, the final version of Table 1 requires the operation of heavy equipment for tasks such as grading and excavating to: 1) Apply water and/or dust suppressants as necessary to minimize dust emissions; or 2) operate equipment from within an enclosed cab that is free from dust; heated, cooled, and HEPA-filtered; under positive pressure maintained through the continuous delivery of fresh air; and, has door seals that are working properly. Such equipment with an enclosed cab with heating/air conditioning may exist, but rarely are they fitted with an airtight door seal or HEPA-filtered positive pressure enclosure.

One final example looks at remodelers and the level of absurdity they will face in an effort to comply with this rule. Suppose a remodeler is selected for a job that involves the demolition of a concrete wall along with some framing and drywall activities. Given demolition is not an activity included in Table 1, remodelers will be forced to ensure their teams are complying with the PEL. That means remodelers will have to contract with a licensed industrial hygienist to conduct exposure assessments – not an inexpensive proposition and one that will eat away significantly (or completely) at the profitability of the job. What’s more, the samples will likely not be returned before they have moved onto another job, thus defeating the entire purpose of monitoring while doing nothing to improve worker safety and health.

The Rule is Not Economically Feasible

OSHA’s final economic analysis estimates that the total costs of the final rule are just over 1 billion dollars annually. That estimate, which is higher than the agency’s estimate in the preliminary economic analysis, is still woefully below the true costs of the final rule. The CISC estimated that the total costs of the rule would be nearly 5 billion dollars annually. While we are still reviewing the extensive final economic analysis, it is clear that significant problems underlying OSHA’s preliminary economic analysis resulted in final estimates that are not reflective of the true costs of the rule.

OSHA’s supporting documentation does not portray the true economic impacts of the rule, especially for the home building industry. First, the economic arguments which were used to support this rule, OSHA’s Preliminary Economic Analysis (PEA), failed to recognize the fundamental structure of residential construction, such as the distinction between new construction and remodeling, or the relationship between a general contractor and its subcontractors. OSHA also overlooked a number of different job titles, and most bizarrely, lumped single-family and multifamily together, although the size of the projects and materials and techniques used may differ.

In fact, residential building construction consists of several distinct categories of activities—new single-family construction, new multifamily construction and remodeling. The median price of a new single-

family home sold in 2012 was \$245,000.⁶ In contrast, nearly half (46 percent) of the dollar volume of NAHB Remodelers comes from remodeling jobs under \$25,000 and 19 percent from jobs under \$5,000.⁷ Multifamily projects tend to be much larger.

The differences are apparent in NAHB's builder member census for 2012. For example, median annual revenue was \$1.8 million for single-family builders, \$4.4 million for multifamily builders, and under \$600,000 for residential remodelers. The median number of construction employees was 2. The ratio of employees to revenue varies widely across categories, largely because of differential reliance on subcontractors, who do most of the work in residential construction. These calculations are critical because OSHA's test for economic feasibility is 1 percent of revenue or 10 percent of profit. Fudging the math by lumping all residential construction together skews the basic data underpinning the agency's analysis.

The PEA also identified the following job categories in construction as being affected: abrasive blasters; heavy equipment operators; hole drillers using hand-held drills; jackhammer and impact drillers; masonry cutters using portable saws; masonry cutters using stationary saws; millers using portable or mobile machines; rock and concrete drillers; rock-crushing machine operators and tenders; tuckpointers and grinders; and underground construction workers. While these activities might be found on construction sites, from the perspective of creating a credible PEA, none of these job categories correspond to occupations in BLS's Occupational Employment Statistics (OES) Survey or North American Industry Classification System (NAICS) trade contractor categories. In order to estimate industry impacts, the PEA maps the above tasks first to "representative" jobs based on RS Means Heavy Construction Cost Data—which includes highways, bridges, utilities, rails and marine projects, but not residential.

Another problem with this method of mapping tasks to industries is that it is very narrow and limited, showing a relatively small subset of construction employees being affected, and this does not reflect the broad and general language in the rule. For example, the mapping produces no costs for electrical or plumbing and HVAC contractors—two large subcategories of the specialty trades each with hundreds of thousands of employees. Yet these workers face exposure to silica in performing their jobs. There is nothing in the rule that exempts either plumbers, HVAC contractors or electricians, so this data should have been considered.

Subcontractors represent a large share of the total cost to builders. For that reason, it is impossible to analyze labor-associated costs in Residential Building Construction in any meaningful way without accounting for increased costs to subcontractors and passing these costs downstream to the builders and remodelers who obviously bear them. Because the PEA ignores the implications of subcontracting, all its cost estimates for the residential building construction industry are fundamentally flawed and not credible.

⁶ U.S. Census Bureau, *Characteristics of New Single-Family Houses Sold*, available at <http://www.census.gov/construction/chars/sold.html>

⁷ Remodeling Market Index, Third Quarter 2011, report available on request from NAHB's Economics and Housing Policy Group.

Failure to Account for the Assessment and Recordkeeping Costs

There is nothing in OSHA's silica rule that limits applicability exclusively to builders, remodelers or subcontractors. Rather, the language tends to be extremely broad and general:

Each employer covered by this section shall assess the exposure of employees who are or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level. Except as provided for in paragraph (d)(8) of this section, each employer covered by this section shall assess the exposure of employees who are or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level.⁸

The rule thus places all burdens on the employer and offers no guidance on how to determine if employees may reasonably be expected to be exposed. In the absence of such guidance, the employer's only option is to perform health screening at a cost that the PEA estimated at \$377.77 to \$396.90 per screening.

The BLS data the PEA is using shows about 3.2 million construction workers. As noted above, virtually all construction employees will cut and drill during the course of their work, often not knowing the silica content of the material they are working on. Construction employees often also sweep, and do not always know the precise origin of dust. If each construction employee required only one screening per year at \$377.77, the total cost would be roughly \$1.2 billion.

In response to a SBREFA commenter, the PEA argues that only a fraction of employees require assessment:

OSHA notes that the proposed standard, at paragraph (d)(1)(iii), permits representative sampling of employees who are or may be exposed to respirable crystalline silica at or above the action level. Specifically, proposed paragraph (d)(1)(iii) requires: 8-hour TWA employee exposures [to be determined] on the basis of one or more samples that reflect the full-shift exposures on each shift, for each job classification, in each work area. Where several employees perform the same job tasks on the same shift and in the same work area, the employer may sample a representative fraction of the employees in order to meet this requirement. In representative sampling, the employer shall sample the employee(s) who are expected to have the highest exposure to respirable crystalline silica. (emphasis added) Consistent

⁸ See, e.g., 78 Fed. Reg. at 56487, 56494

with the language in the proposed standard, Eastern Research Group (ERG) estimated that one out of every four workers would be sampled.⁹

This mischaracterizes the situation in the construction industry—especially in residential construction, where projects tend to be relatively small and subcontractors often visit multiple dissimilar sites during the course of a week, or even a day. Workers rarely work in regular shifts in the same work area next to the same co-workers for an entire year. This means that the typical employee in residential construction (most often working for a subcontractor) is likely to require more than one assessment. This also seems clear from the broad and general language in the rule:

The employer shall conduct additional exposure assessments as required under paragraph (d)(3) of this section whenever a change in the production, process, control equipment, personnel or work practices may reasonably be expected to result in new or additional exposures at or above the action level.¹⁰

The situation is particularly acute in remodeling, where millions of projects costing only a few thousand dollars apiece are undertaken every year, and contractors often don't know the nature of building products they are replacing and can't predict at the start of a project how many surfaces they will eventually need to cut or drill into. There is nothing in the regulation that exempts residential remodelers or limits the amount of assessments.

Nor is there anything that exempts general contractors from OSHA's multi-employer citations, which have the effect of making general contractors responsible for the actions of their subcontractors. The simplest way for many general contractors to comply may be to perform assessments for all workers on their sites, resulting in multiple employers performing assessments for the same worker. This also potentially brings non-employers (businesses without payroll employees) into play. According to the Census Bureau's latest estimates, there are 2.4 million non-employers in construction, 1.7 million of them specialty trade contractors. Although these specialty trade contractors are technically outside the scope of the silica rule, general contractors will have trouble distinguishing among small subcontractors depending on whether or not they have payrolls.

Even if it were possible for general contractors and subcontractors to avoid performing multiple assessments for the same employee and avoid performing assessments on the hundreds of thousands of non-employers in the construction industry, this would require a substantial new accounting system beyond the current state in the industry. In any event, the rule places a significant recordkeeping burden on contractors:

⁹ PEA at 812.

¹⁰ 78 Fed. Reg. at 56495.

The employer shall maintain an accurate record of all exposure measurement results used or relied on to characterize employee exposure to respirable crystalline silica, as prescribed in paragraph (d) of this section.¹¹

The record must include at least the following:

(A) The date of measurement for each sample taken; (B) The operation monitored; (C) Sampling and analytical methods used; (D) Number, duration, and results of samples taken; (E) Identity of the laboratory that performed the analysis; (F) Type of personal protective equipment, such as respirators, worn by the employees monitored; and (G) Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.¹²

These are only the recordkeeping requirements for air monitoring. The rule also has specific requirements for tracking materials and processes:

(A) The crystalline silica-containing material in question; (B) The source of the objective data; (C) The testing protocol and results of testing; (D) A description of the process, operation, or activity and how the data support the assessment; and (E) Other data relevant to the process, operation, activity, material, or employee exposures.¹³

There are also substantial requirements for maintaining medical surveillance records where required, but the rule places no limits on the requirements listed above. They appear to apply to all employers and cover all workers on all construction sites.

Despite the fairly obvious onerous nature of the accounting requirements, the PEA has no explicit analysis for recordkeeping costs. The PEA identifies 477,476 affected establishments in the construction industry. If you assume a minimal cost for routine bookkeeping services of \$200 per month to comply with the regulation, it would work out to an aggregate cost of about \$1.1 billion per year.

The bottom line is that reasonable back-of-the-envelope calculations produce cost estimates orders of magnitude greater than those estimated in the PEA.

Use of Inappropriate Assumptions and Non-representative Profit Data When Analyzing Economic Feasibility

OSHA has established a minimum threshold of 1 percent of revenue, or 10 percent of profit, below which the agency assumes economic viability of an industry is not threatened. In Residential Building

¹¹ 78 Fed. Reg. at 56501.

¹² *ibid*

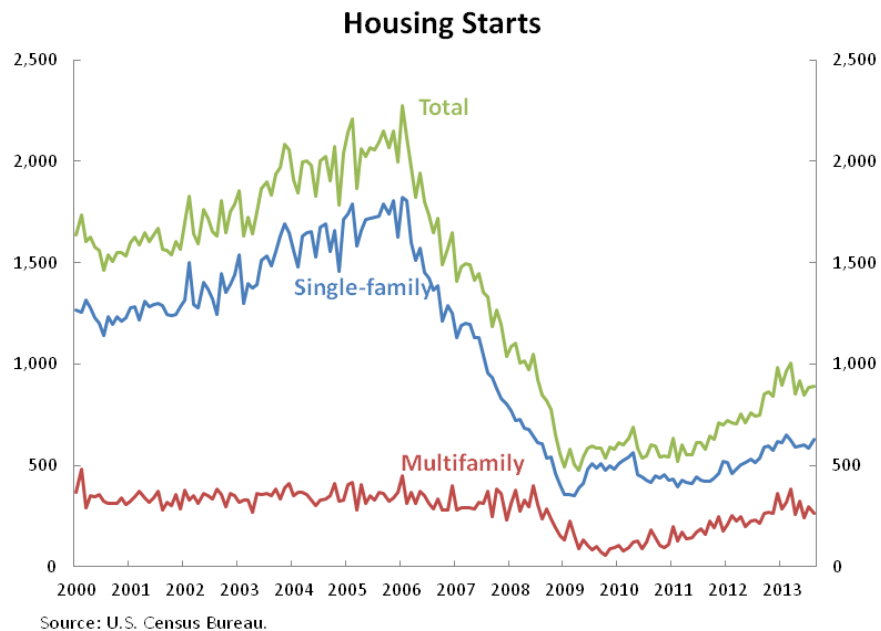
¹³ *ibid*

Construction, however, most of the work and labor-related costs are associated with subcontractors. In fact, increased costs to subcontractors and manufacturers of building products would typically be passed onto the businesses in residential building construction with a mark-up to account for overhead and a normal rate of profit. Because the PEA ignores increased costs of building products and subcontractors, none of its ratios of cost to revenue or profit for the Residential Building Construction industry are valid.

To calculate costs as a percentage of profits, the PEA uses rates from the Internal Revenue Service (IRS) Corporation Source Book, using average profit rates over the seven-year period 2000-2006.

One issue is that these profits are based on balance sheet data for C corporations (or certain other business entities that choose to be taxed as C corporations). However, approximately 80 percent of NAHB's members are structured as pass-through entities, meaning this excludes the majority of businesses in residential building construction that are organized as S corporations or sole proprietorships or partnerships. Nonetheless, the corporate profit rates are applied across the board without consideration of other entities.

However, the main problem with the profit data is the time period from which it is drawn, which is a period of atypically high production and associated profits. The PEA's justification for the 2000-2006 period is "because of the weakness of the profitability data (e.g., missing data points) and the desire to average out short-term profit swings over a full business cycle."¹⁴ In residential construction, 2000-2006 comes nowhere near capturing a business cycle. In the four decades between 1960 and 2000, total housing starts averaged about 1.5 million per year. In 2000-2006, starts were above 1.5 million every year, and above 1.8 million for the last four of those years.



¹⁴ PEA at 1128

In contrast, 2008, 2009, 2010, 2011, 2012 and 2013 have been the six worst years for housing starts since World War II. This severe downturn was accompanied by a decline in nominal house prices at the national level, something that was also unprecedented since World War II.

The drastic changes in the industry after 2006 are also apparent in the average profit rates (owner’s compensation and net income before taxes as a share of revenue) from NAHB’s *Cost of Doing Business Study*:

Average Profit for Home Builders

2000	2002	2004	2006	2008	2010	2012
8.1%	9.9%	9.3%	9.0%	-1.3%	2.1%	5.7%

Source: NAHB Cost of Doing Business Study, various years

Not only did profit rates decline markedly for the home building industry as a whole after 2006, the relationship between large and small builders reversed itself (larger builders tended to be more profitable through 2006, smaller builders thereafter).

Average Profit for Single-family Home Builders, Based on Number of Starts

	2002	2004	2006	2008	2010	2012
Small Volume Builders (<26 starts)	10.3%	7.9%	6.7%	1.4%	4.7%	6.0%
Production Builders (26+ starts)	10.7%	9.5%	9.4%	-2.6%	1.2%	5.6%

Source: NAHB Cost of Doing Business Study, various years

Thus, the PEA uses C corporation profit from a 6-year boom period, mischaracterizes it as a full business cycle, applies the same rate indiscriminately to pass-through entities, and ignores the drastically different state of the industry that has prevailed since 2006. For this reason, the economic feasibility section of the PEA for the Residential Construction Industry is not credible.

The construction industry estimates that compliance with OSHA’s standard would cost the construction industry nearly \$4.9 billion per year (\$718 million per year for “Residential Building Construction”), an amount nearly ten times larger than OSHA’s initial estimate.¹⁵ OSHA has grossly underestimated the costs that construction employers will incur to comply with the proposal. Furthermore, the construction industry re-analysis shows that seven of the ten construction industries defined by OSHA—including the residential construction industry—in its aggregated manner that dilutes and reduces the calculated impact of the regulatory costs) will face compliance costs from the rule that exceed the revenue/profits threshold typically utilized by OSHA in determining economic feasibility.

¹⁵ The Construction Industry Safety Coalition (CISC), of which NAHB is a member, retained Environomics, Inc., to analyze OSHA’s economic estimates and develop other re-estimates, both for engineering controls (wet methods, local exhaust ventilation (LEV), etc.) and for the proposed ancillary requirements. Environomics is an economic consulting firm that provides analysis on the benefits, costs, economic feasibility, economic impacts, and cost effectiveness of policies, programs, regulations, and legislation involving the environment, energy, and occupational safety and health.

Estimated Total Costs Exceed 10% of Profits for 8 of 10 Construction Industries

NAICS	Construction Industries	Total Costs (CISC) as a % of Revised* Profits	OSHA Costs as a Percentage of Revised* Profits
236100	Residential Building Construction	23.63%	0.94%
236200	Nonresidential Building Construction	7.37%	0.53%
237100	Utility System Construction	10.96%	1.43%
237200	Land Subdivision	-12.28%	-0.62%
237300	Highway, Street, and Bridge Construction	9.19%	0.96%
237900	Other Heavy and Civil Engineering Construction	12.44%	1.11%
238100	Foundation, Structure, and Building Exterior Contractors	15.15%	3.90%
238200	Building Equipment Contractors	38.62%	0.47%
238300	Building Finishing Contractors	15.96%	1.42%
238900	Other Specialty Trade Contractors	25.97%	2.30%
999000	State and Local Governments	N/A	N/A
	Total	15.52%	1.70%

* "Revised" profits extend the averaging period for profits from 2000 - 2006 (OSHA) to 2000 - 2011 (revised) and calculate profitability for an industry across all corporations in that industry, not only those that were profitable in the year in question (as OSHA did)

The PEA misses the mark for residential construction time and time again. This is not nitpicking small data errors, but rather the difference of whether small builders and subcontractors can continue to operate in light of the huge financial burden imposed by this rule.

Conclusion

OSHA has not met its obligation of producing a technologically and economically feasible standard with its new crystalline silica rule. The final rule demonstrates a fundamental lack understanding of the construction industry, and residential construction in particular. The engineering and work practice controls offered in Table 1 will be impractical at best and, in some cases, impossible for small builders to implement. The alternative exposure control measures are no suitable substitute and constitute the bulk of the the true expense of this rule that will be devastating for the construction industry.

NAHB joins OSHA in its stated goal of reducing workplace illnesses and disease. We are not questioning the need to protect our workers. The debate is over how to protect our workers. Unfortunately, this one-size-fits-all rule is more likely to protect residential construction workers by putting them out of work.

I urge Congress to consider ways to forstall the implementation of this deeply flawed rule until such time as OSHA has revisited the potential burden this rule will set upon small businesses. Thank you again for the opportunity to share my views with you today.