CONSTRUCTION INDUSTRY SAFETY COALITION

Informal Public Hearings for the Proposed Rule on Occupational Exposure to Respirable Crystalline Silica (Docket No. OSHA 2010-0034)

Construction Industry Safety Coalition

Comprised of 25 trade associations representing virtually every aspect of the construction industry

- American Road and Transportation Builders Association
- American Society of Concrete Contractors
- American Subcontractors Association
- Associated Builders and Contractors
- Associated General Contractors
- Association of the Wall and Ceiling Industry
- Building Stone Institute
- Concrete Sawing & Drilling Association

Construction Industry Safety Coalition

- Construction & Demolition Recycling Association
- Distribution Contractors Association
- Interlocking Concrete Pavement Institute
- International Council of Employers of Bricklayers and Allied Craftworkers
- Leading Builders of America
- Marble Institute of America
- Mason Contractors Association of America
- Mechanical Contractors Association of America

Construction Industry Safety Coalition

- National Association of Homebuilders
- National Association of the Remodeling Industry
- National Demolition Association
- National Electrical Contractors Association
- National Roofing Contractors Association
- National Utility Contractors Association
- Natural Stone Council
- The Association of Union Constructors
- Tile Roofing Institute

Overview

- Process issues
  - SBREFA Panel
  - ACCSH
- OSHA has not demonstrated that a PEL of 50 can be reached in construction in most operations most of the time
- OSHA has not demonstrated that a PEL of 50 is economically feasible in construction
- OSHA's proposed ancillary provisions are largely unworkable in the construction environment

Process Issues

- SBREFA panel
  - Initiated in 2003 – over ten years old
  - Table 1 very different from what was proposed
  - No indication of an action level of 25 for construction
- ACCSH
  - No firm indication of PEL given
  - No indication of an action level of 25
  - No explanatory “Notes” in Table 1
  - Very little time devoted to discussion

Technological Feasibility

- OSHA has not identified and evaluated all of the construction tasks that would be affected by the proposed rule
- OSHA is incorrect and unjustified in assuming for all exposure samples of less than full-shift duration that there is no exposure after the sampling period ends
  - Assumption is not the “best” available option
  - Ignores information and data related to work patterns in different trades
  - Fundamentally underestimates exposures and the effectiveness of controls
  - Runs counter to OSHA’s theory of change in the construction industry

Technological Feasibility (cont'd)

- OSHA's analysis does not consider the broad scope of tasks and environments affected

  "The construction industry presents several challenges that affect both exposure analysis and the task of controlling exposure. Important considerations include irregular schedules, variability in the silica content of work materials, different types of mechanical actions that generate silica-containing dusts, secondary exposure from adjacent activities, and the effect of weather (e.g., wind direction, rain, freezing temperatures) on work that is frequently performed outdoors." ERG Report, p. v.

Technological Feasibility (cont'd)

- OSHA's assumption about compliance on multi-employer worksites does not account for exposure effects
  - OSHA assumes full control "eliminating secondary exposures"
  - Adjacent sources may still influence exposure even if effectively controlled
  - This will, as a practical matter, push down the PEL to a lower level, to account for these additive effects
- OSHA's Table 1 unequivocally shows that the proposed rule is infeasible
  - Of the 13 operations in Table 1, eight provide for some form of respiratory protection

"These values suggest that workers would sometimes achieve levels below the proposed PEL with LEV. However, the Agency recognizes that elevated exposures occur even with the use of LEV in these operations based on the fact that 8 out of 13 samples collected exceed the proposed PEL." 78 FR 56458

Technological Feasibility (cont'd)

- OSHA's analysis includes *no* finding whatsoever that it is technologically feasible to reach the AL
  - To ensure compliance with PEL given the variety of exposure conditions, construction employers would need to actually reach levels below the action level
  - OSHA has made no finding – except for drywall finishing with silica-free joint compound – that any construction activity can reach below the action level
- OSHA's analysis of each individual construction activity is flawed

Rock Crushing Machine Operators and Tenders

- OSHA broadly concluded it is technologically feasible to achieve proposed PEL of 50 µg/m³ with a combination of
  - Climate-controlled protective enclosure
  - Effectively designed and maintained water spray system
  - When "the operator" is able to spend at least 85% of his/her shift in the enclosure

  PEA, IV-495

- OSHA further states that respiratory protection in the form of a half-mask may also be needed at times

Rock Crushing Machine Operators and Tenders

- Operators
  - OSHA relies on sample of stationary crusher, using fine mist water spray, with multiple water spray nozzles, which were checked frequently and replaced as needed
  - Sampling performed on a muddy day
  - Despite the above, exposures were still over the proposed PEL
  - OSHA also relies on an India study, but it is “unable to determine if similar water spray systems would be equally effective” on equipment used in the United States
  - OSHA has no data that LEV is effective at reducing exposures below 50

Rock Crushing Machine Operators and Tenders

- Tenders
  - Feasibility finding based on no data

"The exposure information available to OSHA for rock crushers is limited to workers either controlling the machine, or alternately controlling and tending the equipment to clear foreign or impacted material; no construction industry data are available for workers strictly tending crushing machines without also spending time operating them." PEA, IV-485

Tuckpointers and Grinders

- OSHA concluded not technologically feasible to meet the proposed PEL of 50
- OSHA considered non-ideal conditions in concluding that it was not technologically feasible to reach the proposed PEL
- OSHA identified a study that under ideal conditions suggested that a PEL of 50 could be met, but this was discounted by OSHA because “construction sites vary and generally include less-than-ideal conditions (e.g., overhead, curved surfaces, inner corners, substantial high or low spots, and outer edges where the shroud cannot be kept in full contact with the surface)”

Proposed Occupational Exposure Standard for Crystalline Silica for Construction -- Interim Report on Economic Analysis Issues

Stuart Sessions
President, Environomics, Inc.
Bethesda, Maryland

OSHA Public Hearing,

March 24, 2014

Background on My Testimony

- I am Stuart Sessions, President of Environomics, Inc., a consulting firm located in Bethesda, Maryland
- I'm an economist with more than 35 years experience in analyzing economic impacts of regulatory and policy issues involving the environment, occupational health, and energy. I have done analytical work relating to OSHA's standards or potential standards for crystalline silica, hexavalent chromium, beryllium and noise
- I am testifying on behalf of the Construction Industry Safety Coalition, which has supported my work
- My testimony addresses the costs and economic feasibility of the proposed standard for construction

Overview of My Testimony

- My testimony represents an interim report on work for the Coalition. I have not yet completed all the economic analysis work the Coalition has requested. I will complete the work and provide a final report in post-hearing comments
- Today I will report on:
  - 9 specific changes that I suggest OSHA should make in the Agency's methodology for estimating the costs for the construction industry to comply with the proposed standard
  - Our current draft estimate of compliance costs reflecting these 9 changes
  - Suggestions about how OSHA should proceed in assessing economic feasibility for individual construction industries
  - Initial report on comparison of compliance costs against revenues and profits for the affected industries

1. OSHA Omits 1.5 Million Construction Employees from the Cost Analysis

- Several large construction trades routinely perform dusty tasks on silica-containing materials, but OSHA omits them:
  - Plumbers and helpers
  - Roofers
  - Electricians and helpers
  - Plasterers and stucco masons
  - Tile and marble setters
  - Maybe HVAC installers also
- They drill, cut, grind, break and abrade concrete, brick, block, tile, plaster, stucco, stone, etc.
- Just like other trades that OSHA does include such as brick and stone masons, carpenters, concrete finishers, construction laborers

Evidence That These Omitted Trades Perform Construction Tasks That Generate Respirable Silica

- Discussions with these trades
- RS Means *Residential Cost Data* and RS Means *Repair & Remodeling Cost Data* cite silica-related jobs these trades perform. OSHA consulted only RS Means *Heavy Construction Cost Data* for representative jobs
- OSHA's Silica-Safe web site
- More than 120 exposure data samples for these trades for respirable crystalline silica and/or dust are cited in the PEA and Beaudry, *et. al.* (2013)

Adding These Trades to the Cost Analysis Would Increase Affected FTE by 16%

	Total # of Employees	% of Time "Key" on Silica Tasks	FTE at Risk: Key + Secondary
Some of OSHA's included occupations:			
Brickmasons and Blockmasons	111,585	22.5%	25,107
Cement Masons and Concrete Finishers	192,037	7.5%	14,403
Construction Laborers	823,733	3%	224,020
Drywall and Ceiling Tile Installers	119,489	25%	29,872
Construction Equipment Operators	295,758	75%	237,346
Carpenters (hole drilling for anchors)	783,255	1%	7,833
Total for all included occupations	3,237,406		636,583
Our additions:			
Plumbers and helpers	467,110	3%	14,013
Roofers and helpers	205,768	2%	4,115
Electricians and helpers	723,038	4%	28,922
Plasterers and stucco masons	69,442	27%	18,749
Tile and marble setters	53,662	26%	13,952
Carpenters (sawing, deconstruction, other holes)		+3%	+23,498
Total for our additions			103,249

2. OSHA's Cost Analysis Estimates Far Too Little Need for Engineering Control Equipment

- OSHA estimates costs for each engineering control for a length of time exactly equal to the estimated duration of the silica-generating activity requiring this control

- To the contrary, the control must be available and provided at all times when the silica-generating tool is available, which must be whenever/wherever the silica-generating task may need to be performed. If the tool sits idle for long periods, the control must be available (but idle) also

- Example: carpenter drilling into concrete or masonry to affix anchors. "Hole drilling using hand-held drills"

Too Little Cost is Estimated for Control Equipment – Example: Carpenters Drilling Holes for Anchors

Dust Shroud Vacuum System

	Purchase Cost	Cost/day
Dust extractor kit for drill	$215	$1.73
10-15 gallon vacuum w/HEPA	$725	$3.23
		$4.96/day

Who Drills?	# Employees	% of Time	FTE
Carpenter	783,255	1%	7,833
Carpenter helper	77,858	1%	779
Total:	861,113		8,611

OSHA's Estimated (sic) Equipment Costs/yr for These Controls:
8,611 FTE x 250 days/yr/FTE x $4.96/day = **$10,677,801**

How is this hole drilling work really performed?

- If 1% of all carpenters/helpers each spends 100% of his time doing this job and each has a drill, then OSHA's estimate could be appropriate
- If 100% of all carpenters/helpers each spends 1% of his time on this job and each has a drill, then OSHA's estimate is 100 x too low
- Or other possibilities in between. Information suggests toward 100%
- Key questions: What % of carpenters/helpers ever perform this job in a year? How many of them have drills?
- Suggested assumption for estimating costs: Drills can be shared, but every drill that might need to be used must have control equipment available

Too Little Cost is Estimated for Control Equipment – Further Considerations in Estimating How Many Controls Are Needed

- Should think about the fraction of all employees in a given job classification who do the dusty job at least 1 x in a year
- Should think about the size of the crew that does the job that needs the tool that must be controlled
- Should consider whether the tool (with controls) can realistically be shared between crews. Our tentative assumptions -- frequency of sharing of tool and control is inversely related to the amount of time the tool and control is required by a crew:
  - If the fraction of time the key occupation spends on the at-risk task is less than 10%, then 3 crews can share the tool + control
  - If the fraction of time is between 10% and 50%, then 2 crews can share
  - If the fraction of time is > 50%, then tool + control will be used exclusively by 1 crew

3. Costs for Control Equipment Are Underestimated When OSHA Switches From RS Means Wage Rates to BLS Rates

- In estimating control equipment share of project costs, OSHA uses high RS Means wage rates (union rate + fringe + overhead + profit)
  - Makes costs for control equipment a relatively small % of representative job cost
- Then when estimating "total value of silica tasks" OSHA switches to much lower BLS wage rates but applies the too-low equipment cost percentages estimated previously based on RS Means rates
  - Example: For hole drilling (see p. 8), cost for "dust shroud vacuum system" ($4.96/day) is 0.988% of total job cost when using RS Means wages, but would be about 1.2% if using (lower) BLS wages
  - Result is that OSHA actually estimates total national costs for this control of $8.8 million/yr, not $10.7 million/yr as the Agency presumably intended to estimate. About 17% lower
  - The # of controls for hole drillers that OSHA actually costs out is enough for only 7,088 hole driller FTEs, not 8,611 as OSHA intended

4. Re-Thinking Productivity Penalty Impacts from Dust Controls Leads to Higher Estimated Costs

- OSHA estimates a productivity penalty for each combination of task and control method:
  - The penalty for each task/control combination is expressed as a simple percentage (ranging from 0 to 5%) reflecting total impact of the control considering setup, takedown, cleanup, operation, maintenance
- We did surveys and interviews. Results:
  - Instead of single percentage, think of productivity impact as both
    - Fixed cost – typically daily – for setup, takedown, cleanup. Plus
    - Variable cost reflecting the percentage increase in time spent doing the task when using the control vs. not using it
  - Should reflect in the estimated penalty the frequency of occasional circumstances when the control is quite difficult to use, e.g.,
    - For LEV: when electricity supply is unavailable, difficult to access or insufficient amperage
    - For wet methods: when water is unavailable or difficult to access, and outdoors in cold weather

Changes we Suggest to OSHA's Estimated Productivity Penalties

At-Risk Task	Control Equipment and OSHA's Estimate of Percent of Time Used	OSHA's Productivity Penalty Estimate (Applied daily to at-risk FTE)	Our Productivity Penalty Estimates	
			Setup/ Breakdown/ Clean up (Applied every five days)	Operating and Maintenance (Applied daily to at-risk FTE)
Drywall finishers (includes Plasterers)	Dust Collection System – 20%	4%	30 minutes = 6%	4%
Earth drillers	Dust collection system –100%	zero	zero	Maintain and replace HEPA filter 10 minutes – 2%
Operators of tractors and other heavy construction vehicles and equipment	Enclosed cab with ventilation – 100%	zero	zero	Maintain and replace HEPA filter 10 minutes – 2%
Grinders and tuckpointers using hand-held tools	Dust collection system – 100%	5%	30 minutes = 6%	5%
Hole drillers using hand-held drills (includes Plumbers, Electricians and Roofers)	Dust shroud vacuum system – 100%	2%	30 minutes = 6%	2%

Changes we Suggest to OSHA's Estimated Productivity Penalties -- Continued

At-Risk Task	Control Equipment and OSHA's Estimate of Percent of Time Used	OSHA's Productivity Penalty Estimate (Applied daily to at-risk FTE)	Our Productivity Penalty Estimates	
			Setup/ Breakdown/ Clean up (Applied every five days)	Operating and Maintenance (Applied daily to at-risk FTE)
Millers using portable or mobile saws	Wet methods – 80%	2%	30 minutes = 6%	2%
Masonry cutters using portable saws (includes Tilers and Marble Setters)	Wet methods – 33%	2%	30 minutes = 6%	2%
Masonry cutters using stationary saws	Wet methods – 100%	2%	30 minutes = 6%	2%
Rock crushing machine operators and tenders	Wet methods – 100%	zero	zero	zero
Underground construction workers	Additional maintenance and dust suppression equipment – 100%	zero	zero	zero

5. Any Productivity Penalties Should Be Applied to Both Labor and Equipment Costs

- OSHA applies the productivity penalties only to the labor portion of project costs
- But a penalty that increases the time needed to complete a construction job will increase the duration for which control equipment is needed as well as increasing the amount of labor needed
- Will result in 0 – 5% or more increase in costs for control equipment

6. Employers Cannot Apply Controls for Dusty Tasks Only in Instances When Overexposures Would Occur

- OSHA estimates costs to apply controls in all instances when an at-risk task is performed, but then deletes the fraction of costs corresponding to exposures below the proposed PEL
- Employers cannot plan work and provide controls in this selective, all-knowing manner:
  - If using Table 1, it requires the employer always to have the operation performed in the prescribed manner, not to have it performed in the prescribed manner only when the PEL would have been exceeded
  - Potential exposure is so variable and so unpredictable for a particular worker who might perform a dusty task at a particular site that the employer cannot confidently determine beforehand whether an overexposure will occur and whether to provide controls. Exposure varies very widely with:
    - Fraction of the worker's shift spent performing the task
    - Silica content of the material being worked
    - Indoors, outdoors, confined spaces
    - Wind, weather, rain, worker technique, etc.

Employers Cannot Apply Controls for Dusty Tasks Only in Instances When Overexposures Would Occur -- continued

- The loss when an employer doesn't provide controls and an overexposure does occur is far greater than the gain when an employer doesn't provide controls and an overexposure doesn't occur

- The prudent employer will always provide controls not only when a task potentially resulting in overexposure is done, but even when there is a possibility that such a task will be done

- OSHA estimates that at-risk tasks result in exposures below the proposed PEL for about 65% of workers performing such tasks. OSHA would estimate costs about three times larger if the Agency didn't wrongly assume that employers will not provide engineering controls in these instances

7. OSHA Should Estimate and Use for Assessing Economic Feasibility the "Full" Costs of the Proposed Standard, not the "Incremental" Costs

# of Construction Industry FTEs Exposed at Different Levels

Group A: Exposed at > 0 ug/m^3 and < 50 ug/m^3	454,696
Group B: Exposed at ≥ 50 ug/m^3 and < 250 ug/m^3	137,770
Group C: Exposed at ≥ 250 ug/m^3	59,563
Total	*652,029*
# exposed above current PEL (Group C)	*59,563*
# exposed above proposed PEL (Groups B+C)	*197,332*

1) Estimate the engineering control costs to reduce exposures for all FTEs exposed above proposed PEL (197,332 in groups B and C) to below proposed PEL = "FULL" costs
2) However, the existing standard already requires exposure reduction for the 59,563 FTE in group C exposed > current PEL
3) The "INCREMENTAL" engineering control costs attributable to the proposed new standard are the costs only for the 137,770 in group B. These are what OSHA shows as the engineering control costs of the Proposed Standard in the Preamble and PEA

"Full" vs. "Incremental" Costs for Engineering Controls – A Technical Note

- In my view, OSHA does not in fact estimate the incremental engineering control costs attributable to the proposed regulation because the Agency estimates and then excludes the costs for group C to reduce exposures all the way down below the proposed PEL. The existing regulation does not require this much exposure reduction for group C; instead the existing regulation requires only that exposure for group C be reduced to below the existing PEL, not to below the proposed PEL
- Also, as discussed in Issue #6 previously, I believe under the proposed regulation including Table 1, that employers cannot effectively distinguish group A from group B. The proposed standard would induce employers to implement Table 1 controls for both groups A and B, and "full" engineering control costs should be estimated in a manner so as to address all of groups A, B and C

"Full" Costs are Relevant in Assessing Economic Feasibility, not "Incremental" Costs

- Even if OSHA had accurately defined and estimated "incremental" costs, they represent only a hypothetical compliance burden, not the real burden that employers will face
- The real economic feasibility question is whether employers can afford to get all the way from where exposures are now to exposures compliant with the proposed PEL
- If an affected industry cannot afford to improve from the current situation to compliance with the proposed PEL and ancillary requirements, then the proposed standard is not economically feasible for that industry
- So one should compare "full" compliance costs, not "incremental" compliance costs, against revenues and profits in assessing economic feasibility

8. Improvements Needed in OSHA Cost Estimates for Respirators and Ancillary Requirements

- Respirators:
  - 56% current usage assumption far too high
  - Assumption that 56% of employers with at-risk employees have programs is too high
  - Cannot perform this analysis on FTE basis; need to address individual workers who may occasionally perform a task requiring respirator
- Exposure assessment:
  - Requirements for initial assessment “in each work area” and additional assessments “whenever a change” will necessitate much more monitoring
- Several unit cost assumptions for individual elements of the various program requirements are significantly lower than our survey responses
- We have not yet revised OSHA’s cost estimates to reflect changes regarding respirators and ancillary requirements. Will do so for post-hearing comments

9. Add the Costs to Construction Industry When Self-Employed Construction Workers Meet Table 1 Requirements

- The estimated 2.5 million self-employed construction workers ("nonemployers") will likely have to meet Table 1 requirements if OSHA promulgates the proposed standard
  - Though they are not directly regulated by the standard, they will be induced to conduct silica-generating activities consistent with the control requirements in the standard
    - Concerned, self-interested self-employed workers will recognize the standard as the safe way to perform work
    - Construction general contractors will demand that anyone working for them do the job safely and in conformity with requirements
    - Regulated construction trade contractors will demand a level playing field relative to their self-employed competitors
    - Other (regulated) construction workers working nearby will demand that they not suffer increased silica exposures from inappropriate practices by self-employed workers
- Self-employed workers will absorb some of their costs to meet requirements, and some will be passed on to general contractors. In either case, these should be counted as costs of the regulation

Costs to Construction Industry When Self-Employed Construction Workers Meet Table 1 Requirements

- We have estimated engineering control costs for self-employed workers to meet Table 1 engineering control requirements similarly as we do for covered workers in the same construction occupations (e.g., carpenter, cement mason)
  - We've not yet estimated costs for self-employed to meet respirator requirements
  - We presume that self-employed will not be induced to meet other ancillary requirements
- We assume self-employed workers in a NAICS are distributed among construction occupations in the same percentages as employed workers are distributed

Impact of Adding Self-Employed Construction Workers to the Analysis

NAICS	Industry	Employees	Self-Employed
236100	Residential Building Construction	966,198	571,240
236200	Nonresidential Building Construction	741,978	87,066
237100	Utility System Construction	496,628	8,460
237200	Land Subdivision	77,406	15,606
237300	Highway, Street, and Bridge Construction	325,182	7,375
237900	Other Heavy and Civil Engineering Construction	90,167	20,209
238100	Foundation, Structure, and Building Exterior Contractors	1,167,986	289,917
238200	Building Equipment Contractors	1,940,281	277,395
238300	Building Finishing Contractors	975,335	701,529
238900	Other Specialty Trade Contractors	557,638	549,217
999000	State and Local Governments	5,762,939	0
	Totals	13,101,738	2,528,014

- Results in adding about 19% more workers beyond those directly covered by the OSH Act and proposed standard

Comparison of Compliance Cost Estimates – OSHA's vs. Ours Including Most of the 9 Changes

Estimated Compliance Costs for Proposed Silica Regulation for Construction Industry

(in Millions of Dollars Annually)

	OSHA Estimate	Our Estimate
Engineering Controls	242.6	2,193.0
Program Requirements		
Respirators	84.0	489.8
Exposure Assessment	44.6	105.6
Medical Surveillance	76.0	188.3
Training	47.3	123.7
Regulated Areas	16.7	69.2
Program Subtotal	*268.6*	*976.6*
Total	511.2	3,169.5

Comparison of Compliance Cost Estimates – Detail by Industry

Total Estimated Costs by Industry

($ per year)

	OSHA Estimate			Our Estimate		
	Controls	Program Req'ts	Total	Controls	Program Req'ts	Total
Residential Building Construction	14,610,121	8,678,760	23,288,881	205,285,500	121,513,591	326,799,091
Nonresidential Building Construction	16,597,147	23,067,767	39,664,914	112,823,907	106,188,175	219,012,081
Utility System Construction	30,877,799	15,840,363	46,718,162	212,039,982	32,443,164	244,483,146
Land Subdivision	676,046	434,743	1,110,789	8,520,981	2,390,759	10,911,740
Highway, Street, and Bridge Construction	16,771,688	14,036,174	30,807,862	153,184,973	38,796,363	191,981,336
Other Heavy and Civil Engineering Construction	4,247,372	2,916,838	7,164,210	51,914,640	6,528,595	58,443,235
Foundation, Structure, and Building Exterior Contractors	66,484,670	149,422,541	215,907,211	259,546,887	298,601,216	558,148,102
Building Equipment Contractors	3,165,237	1,736,902	4,902,139	153,783,328	113,181,454	266,964,781
Building Finishing Contractors	34,628,392	15,630,847	50,259,239	325,498,580	117,341,011	442,839,591
Other Specialty Trade Contractors	43,159,424	24,844,554	68,003,978	580,352,283	71,125,521	651,477,804
State and Local Governments	11,361,299	11,976,934	23,338,233	130,041,107	68,446,225	198,487,333
Total	242,579,194	268,586,424	511,165,618	2,192,992,167	976,556,073	3,169,548,240

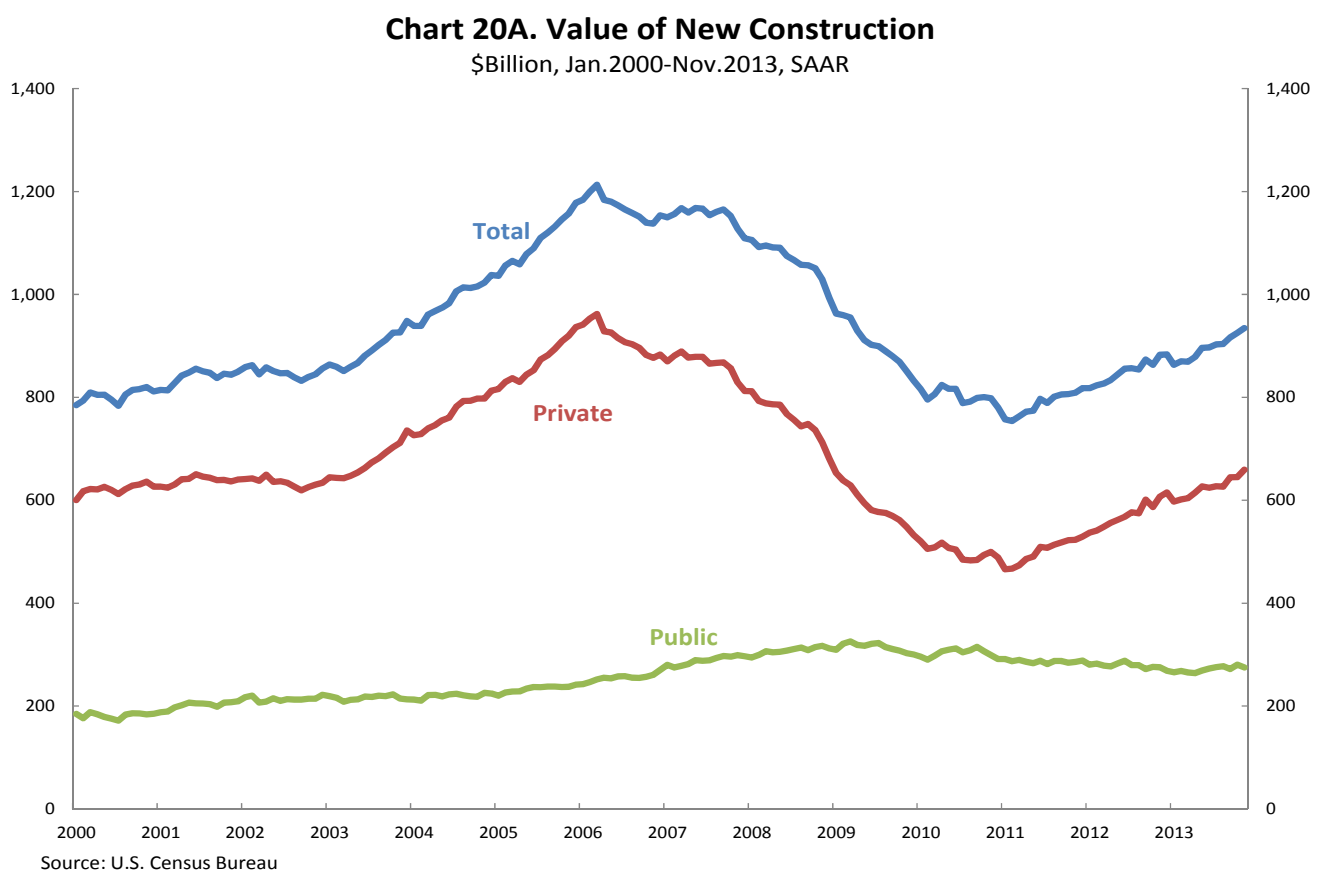
Key Step in Assessing Economic Feasibility: Compare Estimated Compliance Costs Against Revenues and Profits for the Affected Industries

- OSHA's benchmarks: if estimated compliance costs for an industry are less than:
  - 1% of that industry's revenues; and
  - 10% of that industry's profits, then
- If costs exceed either of these thresholds, then the proposed standard may not be feasible for the industry, and further analysis is needed
- Costs are typically estimated as annualized costs, recurring each year forever
- Revenues and profits are typically estimated as annual figures, for a representative recent year or an average across several recent years

Faults in OSHA's Comparisons of Compliance Costs Against Revenues and Profits for the Affected Industries

- Compliance costs are greatly underestimated
- "Full" costs (to get all the way from current status to compliance with Proposed Standard) should be considered in assessing economic impacts, not "incremental" costs as OSHA has done
- OSHA's revenue and profits estimates are old and not representative of these industries' current abilities to bear compliance costs
  - Revenue data are for 2006
  - Profits data are averages across 2000 - 2006
- These data miss the impact of the recession and the continuing construction downturn. 2000 – 2006 were unusually good years for most of these industries
- There are additional shortcomings in OSHA's choice of particular data sources and procedures for estimating revenues and profits. I will discuss these in further testimony on OSHA's Preliminary Economic Analysis scheduled for March 26

2006 Was Not a Representative Year for the Construction Industry



Faults in OSHA's Comparisons of Compliance Costs Against Revenues and Profits for the Affected Industries -- Continued

- OSHA conducts this analysis only for large, aggregated 4-digit NAICS construction industries
  - Aggregated 4-digit industries lump unaffected activities with highly affected activities, thus diluting perceived impact
  - Example: OSHA analyzes 4-digit "Foundation, Structure and Building Exterior Contractors", missing much more significant impact on the underlying 6-digit industry "Masonry Contractors"
  - Other more precisely defined and highly affected industries could include: demolition contractors, segmented pavers, concrete sawing and drilling, tile roofing, etc.
- OSHA fails to estimate all costs for the construction industry that will result from the proposed rule. In addition to direct costs, there will be:
  - Costs to comply with General Industry standard passed on to construction industry
  - More pass-through costs if MSHA adopts OSHA silica standard
  - Costs for self-employed construction workers

Our Progress To-Date in Comparing Compliance Costs Against Revenues and Profits – Better Estimates for Costs and Profits

NAICS	Industry	Full Annualized Costs; Ours	Incremental Annualized Costs; OSHA	Estimated Profitability; OSHA	Estimated Profitability, Revised*
236100	Residential Building Construction	$326,799,091	$23,288,881	4.87%	2.37%
236200	Nonresidential Building Construction	$219,012,081	$39,664,914	4.87%	2.37%
237100	Utility System Construction	$244,483,146	$46,718,162	5.36%	3.25%
237200	Land Subdivision	$10,911,740	$1,110,789	11.04%	-0.38%
237300	Highway, Street, and Bridge Construction	$191,981,336	$30,807,862	5.36%	3.25%
237900	Other Heavy and Civil Engineering Construction	$58,443,235	$7,164,210	5.36%	3.25%
238100	Foundation, Structure, and Building Exterior Contractors	$558,148,102	$215,907,211	4.34%	3.35%
238200	Building Equipment Contractors	$266,964,781	$4,902,139	4.34%	3.35%
238300	Building Finishing Contractors	$442,839,591	$50,259,239	4.34%	3.35%
238900	Other Specialty Trade Contractors	$651,477,804	$68,003,978	4.48%	3.36%
999000	State and Local Governments	$198,487,333	$23,338,233	N/A	N/A
	Total or weighted average:	$3,169,548,240	$511,165,618	4.48%	3.36%

* "Revised" profits extend the averaging period for profits from 2000 - 2006 (OSHA) to 2000 - 2010 (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)

- OSHA's incremental compliance cost estimate vs. our full cost estimate reflecting 9 changes
  - Still the same aggregated industries; haven't yet added costs from Gen'l Industry
- Still using OSHA's inappropriate revenue estimates, but have compiled better profits data

Results in Comparing Compliance Costs Against Profits Using This Better Data

NAICS	Industry	Our Costs as a Percentage of Profits	Our Costs as a Percentage of Revised* Profits	OSHA Costs as a Percentage of Profits	OSHA Costs as a Percentage of Revised* Profits
236100	Residential Building Construction	6.06%	12.44%	0.43%	0.89%
236200	Nonresidential Building Construction	1.35%	2.77%	0.24%	0.50%
237100	Utility System Construction	4.37%	7.22%	0.84%	1.38%
237200	Land Subdivision	0.73%	-21.06%	0.07%	-2.14%
237300	Highway, Street, and Bridge Construction	3.49%	5.76%	0.56%	0.92%
237900	Other Heavy and Civil Engineering Construction	5.27%	8.71%	0.65%	1.07%
238100	Foundation, Structure, and Building Exterior Contractors	7.68%	9.94%	2.97%	3.84%
238200	Building Equipment Contractors	19.38%	25.07%	0.36%	0.46%
238300	Building Finishing Contractors	9.52%	12.32%	1.08%	1.40%
238900	Other Specialty Trade Contractors	16.25%	21.66%	1.70%	2.26%
999000	State and Local Governments	N/A	N/A	N/A	N/A
	Total or weighted average:	6.02%	10.17%	0.97%	1.64%

* "Revised" profits extend the averaging period for profits from 2000 - 2006 (OSHA) to 2000 - 2010 (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)

- Compliance costs exceed 10% of revised profits for 5 of the 10 aggregated construction industries
- Further work on costs, revenues and profits will show larger impacts
- The proposed standard raises significant economical feasibility issues for many construction industries

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