## CPWR Research on Industry and Fatality Trends in Construction

**OSHA Alliance Program Construction Roundtable** *The Changing Face of Construction: What's Next for the Industry* 

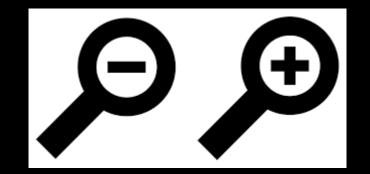
> Rick Rinehart, ScD September 20, 2018



THE CENTER FOR CONSTRUCTION RESEARCH AND TRAINING

## Intent

 To zoom out on construction industry trends and zoom in on trends of fatal injuries, with a focus on establishment size.



## **Construction industry trends**

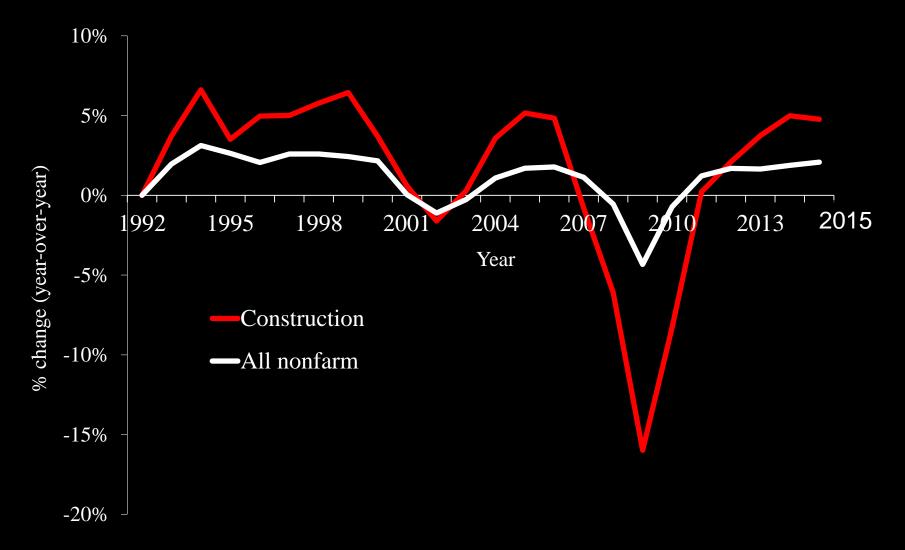
The unemployment rate in construction dropped from a peak of 27.1% in February 2010, to 7.5% by the end of 2015, the lowest level since 2007

### Monthly unemployment rate, construction versus all nonfarm industries, 2005-2015 (Not seasonally adjusted; private wage-and-salary workers)



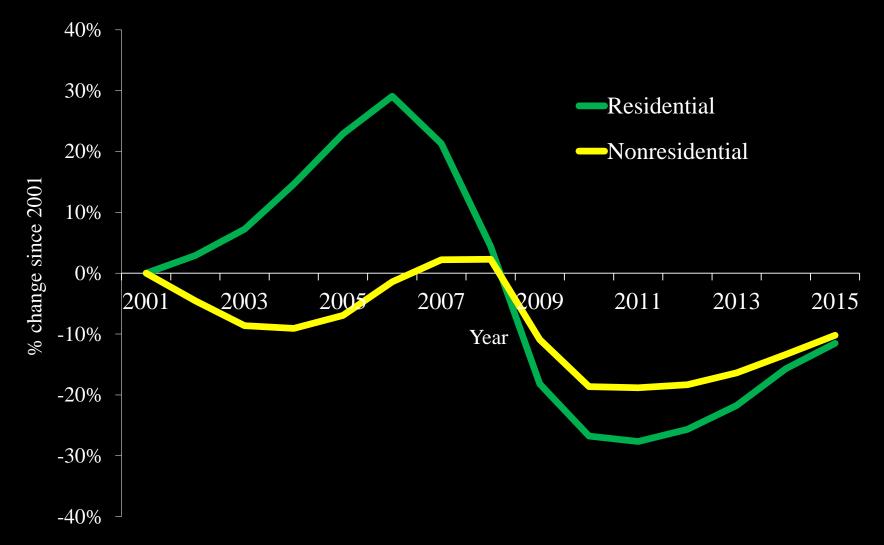
Source: CPWR, 2018. The Construction Chart Book, 6<sup>th</sup> edition (chart 20f).

## Year-over-year change in payroll employment, construction versus all nonfarm industries, 1992-2015



Source: CPWR, 2018. The Construction Chart Book, 6<sup>th</sup> edition (chart 20b).

## Percent change in payroll employment since 2001, residential versus nonresidential building construction, 2001-2015

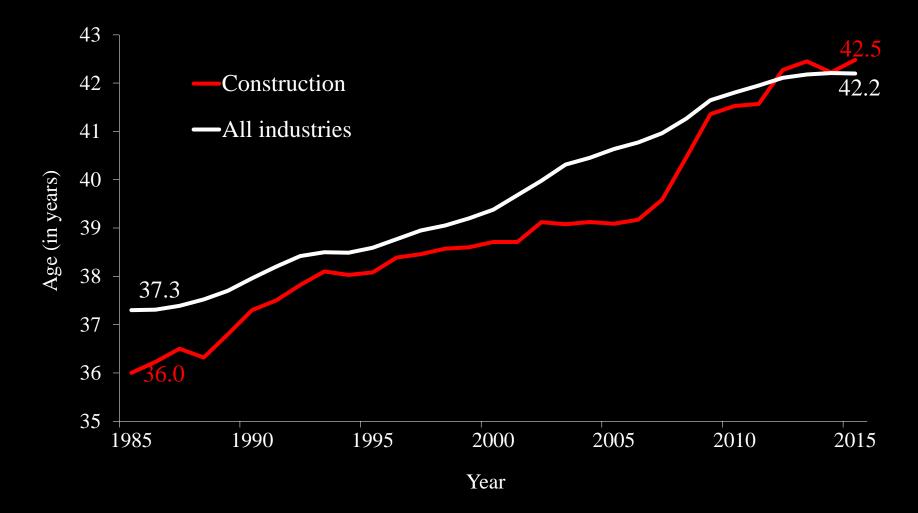


Source: CPWR, 2018. The Construction Chart Book, 6th edition (chart 20d).



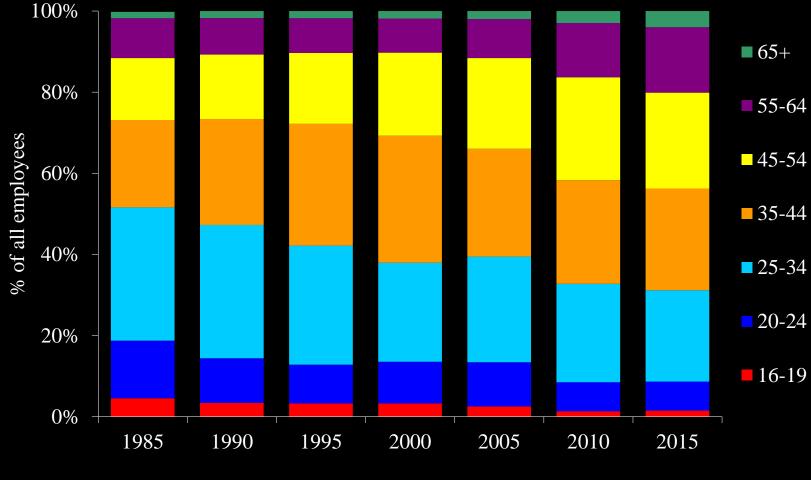
Between 1985 and 2015, the average age of construction workers moved from 36.0 to 42.5 years, exceeding the average age for all industries

## Average age of workers, construction versus all industries, 1985-2015 (All employment)



Source: CPWR, 2018. The Construction Chart Book, 6th edition (chart 13a).

### Age distribution in construction, selected years, 1985-2015



Year

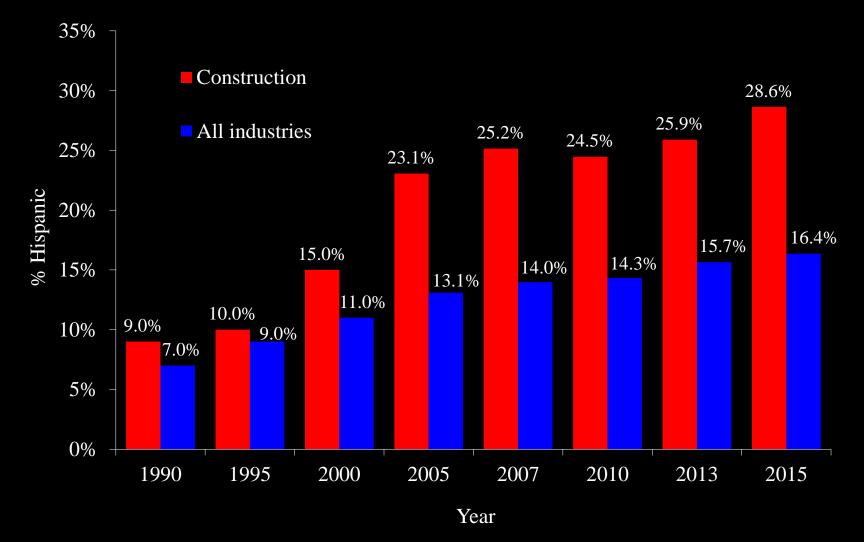
Source: CPWR, 2018. The Construction Chart Book, 6th edition (chart 13c).

# 3

The share of Hispanic workers more than tripled in the construction industry from 1990 to 2015, from 9.0% to 28.6%.

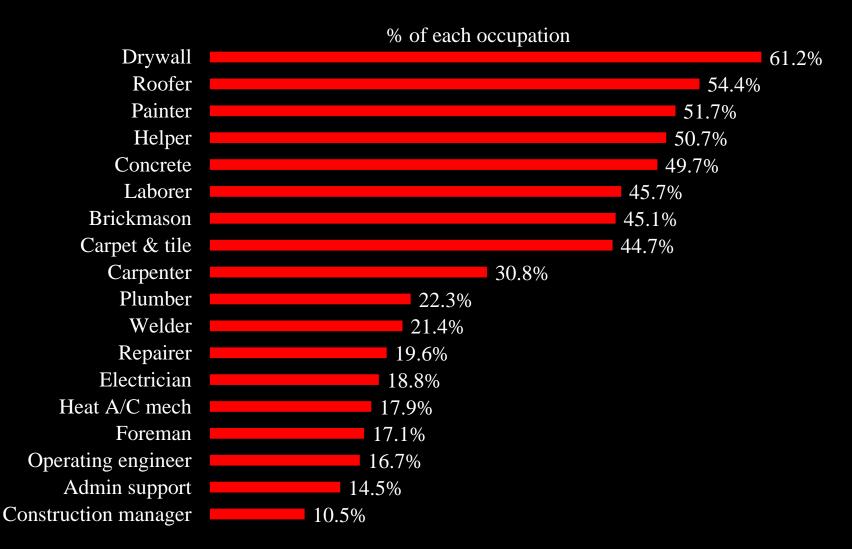
Within some occupations, more than half of the workers were Hispanic in 2015.

## Hispanic workers as a percentage of the workforce, construction versus all industries, selected years, 1990-2015 (All employment)



Source: CPWR, 2018. The Construction Chart Book, 6th edition (chart 16a).

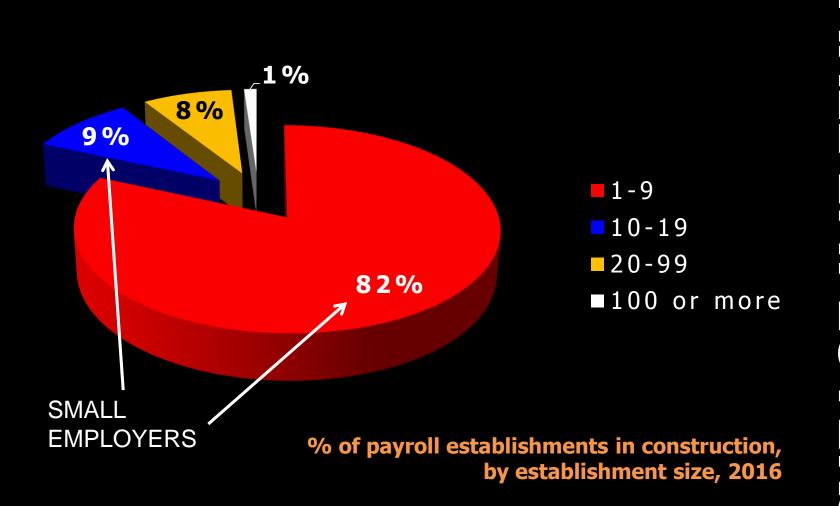
## Hispanic workers as a percentage of the workforce, selected construction occupations, 2013-2015 average (All employment)



Source: CPWR, 2018. The Construction Chart Book, 6th edition (chart 17c).

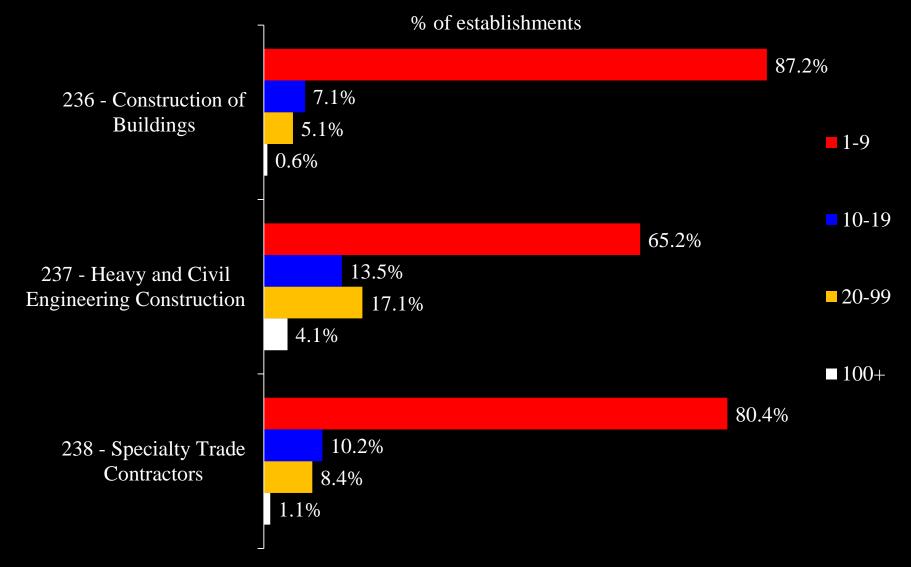
In 2016, about 82% of payroll establishments in construction had fewer than 10 employees, and another 9% had 10-19 employees.

## **Construction establishments are mostly**



Source: U.S. Census Bureau. 2016 County Business Patterns. Calculations by the CPWR Data Center.

## Percentage of construction payroll establishments by construction subsector and establishment size, 2016



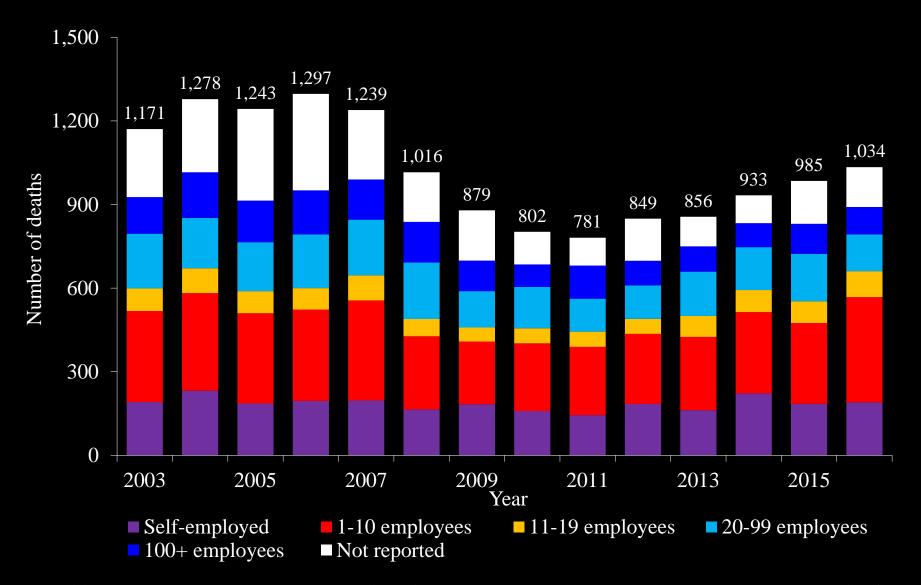
Source: U.S. Census Bureau. 2016 County Business Patterns. Calculations by the CPWR Data Center.

Trends of fatal injuries, with a focus on establishment size

# 5

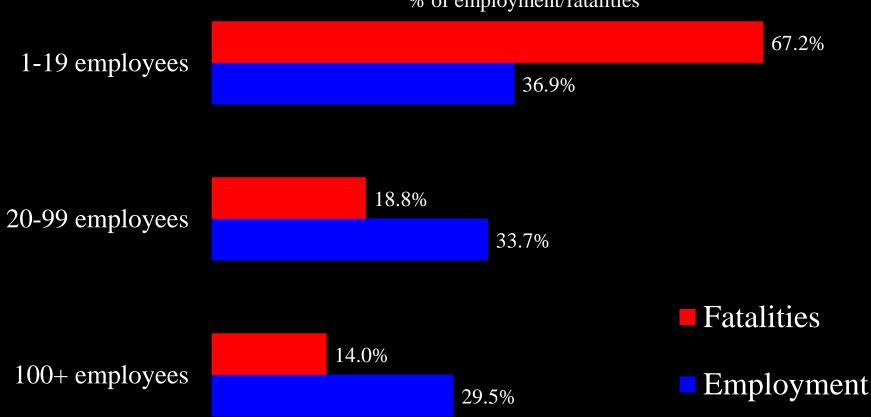
In 2016, 67% of fatalities among wageand-salary workers occurred in establishments with <20 employees, while they employed only 37% of wage-andsalary workers in construction.

### Number of fatalities in construction, by establishment size, 2003-2016



Source: Fatal injury data were generated by the CPWR Data Center with restricted access to BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.

### **Distribution of construction fatalities and employment, by establishment size,** 2016 (Wage-and-salary workers)

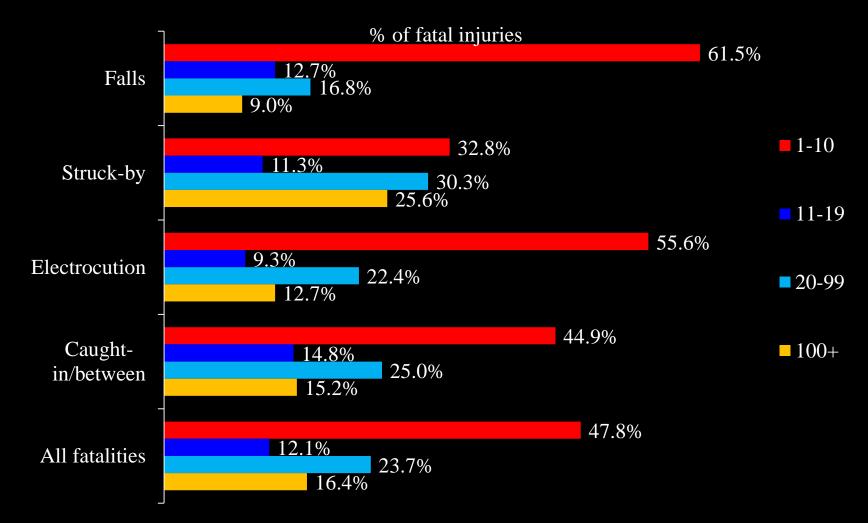


% of employment/fatalities

Note: Deaths without establishment size information were excluded.

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS. Employment data were from the County Business Patterns. Calculations by the CPWR Data Center.

## Fatal injuries in construction, by leading causes and establishment size, sum of 2011-2016 (Wage-and-salary workers)



Note: Deaths without establishment size information were excluded.

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.



From 2008 to 2016, the rate of fatalities for establishments with <20 employees rose 57% to 24.4 per 100,000 wage-and-salary workers, while the rate decreased by 30% among establishments with  $\geq$ 20 employees.

### Risks of fatal injuries in construction, by establishment size, 2008-2016 (Wage-and-salary workers)



Note: Around 20% of cases didn't have information on establishment size. Therefore, employment data were adjusted in rates calculation assuming the information was missing at random.

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS. Employment data were from the County Business Pattern. Calculations by the CPWR Data Center.

78% of fatal injuries in the Residential
Building subsector occurred at
establishments with 1-10 employees.
73% of fatalities among roofers were in
establishments with 10 or fewer employees.

## Percentage of fatal injuries among selected construction subsectors, by establishment size, sum of 2011-2016 (Wage-and-salary workers)

Residential Building	77.6	9.3
Siding Contractors	75.7	16.2
Framing Contractors	75.0	11.0
Painting and Wall Covering	72.9	11.5
Roofing Contractors	70.7	8.8
Masonry Contractors	65.6	12.5
Drywall and Insulation	56.3	13.8
Plumbing, Heating, and Air-Conditioning	52.1	13.3
Structural Steel and Precast Concrete	49.5	9.7
Electrical Contractors	47.4	9.1
Site Preparation	47.2	13.8
Poured Concrete Foundation and Structure	44.1	11.7
Nonresidential Building	39.4	15.8
Utility System	28.3 14.9	
Highway, Street, and Bridge	19.3 11.2	
1-10 employees	11-19 employe	ees 20+ employees

Note: Deaths without establishment size information were excluded.

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.

## Percentage of fatal injuries among selected construction occupations, by establishment size, sum of 2011-2016 (Wage-and-salary workers)

Roofer	73.3			8.9		
Painter	70.5			8.6		
Brickmason	65.2			10.9		
Drywall	65.0			17.5		
Carpenter	64.9			1	3.5	
Sheet Metal	60.0					
Laborer		53.2	10.8			
Heat A/C mech		53.2	12.7			
Electrician	4	7.9	8.4			
Welder	42.	6	11.8			
Foreman	41.0	)	15.5			
Plumber	40.8	3	16.7			
Ironworker	35.1	10	.8			
Truck Driver	34.7	1	7.1			
Op. Engineer	34.4	<u>    11</u> .	7			
Power-line installer	27.1	10.0				
Construction manager	20.9	18.6				
ghway maint. worker	17.1 12	2.4				
1-10 employ	oyees	<b>1</b> 1-19 e	mployee	S	<b>2</b> 0+ e	mployees

Note: Deaths without establishment size information were excluded.

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## **Closing Question**

## How might construction alliances with OSHA increase impact on hundreds of thousands of small establishments?

# Thank You

### Acknowledgements

## Sue Dong and her team at the CPWR Data Center

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