

# Using the OES to Understand Wage Change by Occupation

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## BLS sources for construction wage information

- Current Employment Statistics (CES)
- Quarterly Census of Employment and Wages (QCEW)
- National Compensation Survey (NCS)
- Occupational Employment Statistics (OES)
- Current Population Survey (CPS)



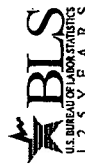
## Industry classification: NAICS

- Standard for Federal statistical agencies producing industry data
- Industry estimates provide data for multiple levels of industry detail
- NAICS code based on primary activity of the establishment, which may differ from current projects
- Similarly, location based on permanent address, not work site
- NAICS revised in 2007, no changes to construction industries



## NAICS Sector 23 – Construction 3, 4 and select 5-digit industries

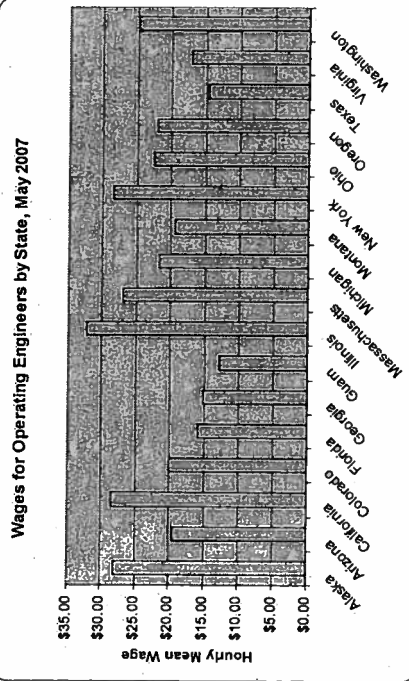
- NAICS 238000 - Construction of Buildings
- NAICS 238100 - Residential Building Construction
- NAICS 238200 - Nonresidential Building Construction
- NAICS 237000 - Heavy and Civil Engineering Construction
- NAICS 237100 - Heavy System Construction
- NAICS 237200 - Land, Air, and Waterway Construction
- NAICS 237300 - Highway, Street, and Bridge Construction
- NAICS 237900 - Other Heavy and Civil Engineering Construction
- NAICS 238000 - Specialty Trade Contractors
- NAICS 238100 - Foundation, Structure, and Building Exterior Contractors
- NAICS 238110 - Poured Concrete Foundation and Structure Contractors
- NAICS 238140 - Masonry Contractors
- NAICS 238160 - Roofing Contractors
- NAICS 238200 - Building Equipment Contractors
- NAICS 238210 - Electrical Contractors
- NAICS 238220 - Plumbing, Heating, and Air-Conditioning Contractors
- NAICS 238290 - Other Building Equipment Contractors
- NAICS 238300 - Building Finishing Contractors
- NAICS 238310 - Drywall and Insulation Contractors
- NAICS 238320 - Painting and Wall Covering Contractors
- NAICS 238900 - Other Specialty Trade Contractors







## Area wage comparison



## Example of three-year methodology

Estimates with May 2007 reference date were produced with the following panels:

- May 2007
  - November 2006
  - May 2006
  - November 2005
  - May 2005
  - November 2004
- Approximately 200,000 units each; total 1.2 million

■ Prior panel wages are aged to reflect current wages, employment totals are benchmarked to current area and industry levels



## Standard Occupational Classification System

- Workers are classified into occupations based on the Standard Occupational Classification (SOC) 2000
- The SOC system groups workers into 23 major groups
- Each major group is broken down into minor groups, broad occupations, and detailed occupations
- OES produces estimates for 22 major groups and 801 detailed occupations
- Construction occupations particularly well defined
- SOC 2010 revision published next year



## SOC construction occupations

Construction Supervisors	Employment
47-1011 First-Line Supervisors/Managers of Construction Workers	577,130
<b>Construction Trades Workers</b>	
47-2011 Boilermakers	18,650
47-2021 Brickmasons and Blockmasons	116,290
47-2022 Stonemasons	18,760
47-2031 Carpenters	969,670
47-2041 Carpet Installers	34,630
47-2042 Floor Layers, Except Carpet, Wood, and Hard Tiles	14,070
47-2043 Floor Sanders and Finishers	8,220
47-2044 Tile and Marble Setters	52,790
47-2051 Cement Masons and Concrete Finishers	213,850
47-2053 Terrazzo Workers and Finishers	5,920
47-2061 Construction Laborers	1,053,060
47-2071 Paving, Surfacing, and Tamping Equipment Operators	63,850
47-2072 Pile-Driver Operators	5,050
47-2073 Operating Engineers and Other Equipment Operators	403,620



## SOC construction occupations, cont

Occupation	Employment
Construction Trades Workers, cont.	
47-2081 Drywall and Ceiling Tile Installers	137,570
47-2082 Tapers	37,280
47-2111 Electricians	624,560
47-2121 Glaziers	50,800
47-2131 Insulation Workers, Floor, Ceiling, and Wall	29,690
47-2132 Insulation Workers, Mechanical	29,110
47-2141 Painters, Construction and Maintenance	260,260
47-2142 Paperhangers	5,970
47-2151 Pipelayers	56,890
47-2152 Plumbers, Pipefitters, and Steamfitters	435,010
47-2161 Plasterers and Stucco Masons	49,310
47-2171 Reinforcing Iron and Rebar Workers	28,270
47-2181 Roofers	123,180
47-2211 Sheet Metal Workers	167,730
47-2221 Structural Iron and Steel Workers	65,100



## SOC construction occupations, cont

Occupation	Employment
Helpers, Construction Trades	
47-3011 Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile Setters	57,870
47-3012 Helpers--Carpenters	96,180
47-3013 Helpers--Electricians	101,370
47-3014 Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	22,770
47-3015 Helpers--Pipefitters, Plumbers, Pipefitters, and Steamfitters	83,380
47-3016 Helpers--Roofers	21,250
47-3019 Helpers, Construction Trades, All Other	33,870
Other Construction and Related Workers	
47-4011 Construction and Building Inspectors	95,890
47-4021 Elevator Installers and Repairers	22,950
47-4031 Fence Erectors	26,650
47-4041 Hazardous Materials Removal Workers	39,530
47-4051 Highway Maintenance Workers	137,140
47-4061 Rail-Track Laying and Maintenance Equipment Operators	14,050
47-4071 Septic Tank Servicers and Sewer Pipe Cleaners	23,440
47-4081 Segmental Pavers	1,090
47-4099 Construction and Related Workers, All Other	58,040



## Staffing pattern -- top 10 occupations in Residential Building Construction

Occupation	Employment	Percent of Industry Employment
Carpenters	294,450	30.4%
Construction laborers	126,810	13.1%
First-line supervisors/managers of construction workers	83,430	8.6%
Construction managers	42,580	4.4%
Helpers--carpenters	38,300	4.0%
Office clerks, general	33,830	3.5%
Secretaries, except legal, medical, and executive	29,260	3.0%
Bookkeeping, accounting, and auditing clerks	28,000	2.9%
Cost estimators	18,860	1.9%
Executive secretaries and administrative assistants	18,040	1.9%

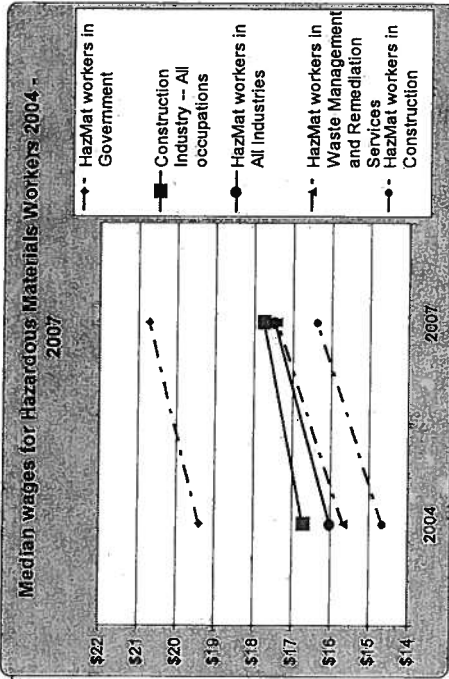


## Staffing pattern -- top 10 occupations in Building Finishing Contractors

Occupation	Employment	Percent of Industry Employment
Painters, construction and maintenance	183,910	18.2%
Carpenters	139,880	13.9%
Drywall and ceiling tile installers	120,390	11.9%
First-line supervisors/managers of construction workers	44,360	4.4%
Tile and marble setters	40,600	4.0%
Construction laborers	37,690	3.7%
Tapers	34,120	3.4%
Plasterers and stucco masons	33,160	3.3%
Insulation workers, floor, ceiling, and wall	22,570	2.2%
Office clerks, general	21,170	2.1%



## Occupation vs. industry



## OES and time series

- 3-year sample period means each release has 2/3 overlap with previous year's estimates
- Period allows for detailed area and industry comparisons but makes OES ill-suited for time series analysis
- Occasional revisions in area, occupation and industry classification systems also make comparisons over time difficult



## OES and time series

- Example: Changes in industry classification system
- Before NAICS, government agencies used Standard Industrial Classification (SIC 1987).
- OES converted from SIC to NAICS in 2002
- Construction SIC 2-digit and NAICS 3-digit match better than most, but still problematic
- All NAICS industries include construction management establishments, which were included with all management in SIC 87
- Mining and other industries mixed into NAICS 23 as well

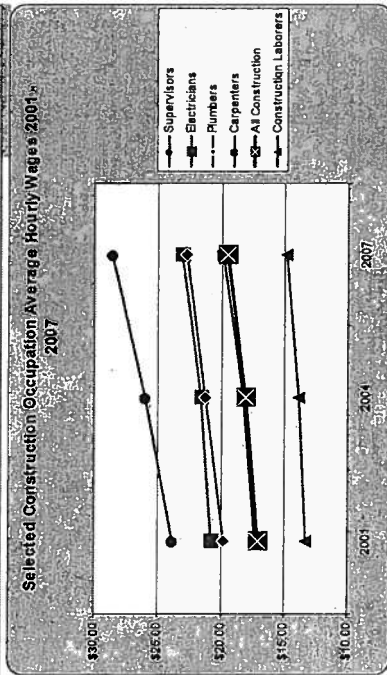


## OES and time series

- SIC 15 Buildings Construction > NAICS 236 Construction of Buildings
- 16 Heavy Construction > 237 Heavy and Civil Engineering Construction
- 17 Special Trade Contractors > 238 Specialty Trade Contractors
- Example: NAICS 237 also includes some establishments that were classified as Oil and Gas Extraction, Specialty Trade, Real Estate, or Management under the SIC



## OES construction wages



## Largest wage changes 2002 - 2007

Occupation	2002 Wage	2007 Wage	Wage Difference
Elevator installers and repairers	\$25.74	\$31.89	\$6.15
Boilermakers	\$20.46	\$24.72	\$4.26
First-line supervisors of construction workers	\$24.50	\$28.54	\$4.04
Construction and building inspectors	\$20.71	\$24.25	\$3.54
Terrazzo workers and finishers	\$14.82	\$18.17	\$3.35
Pile-driver operators	\$22.10	\$24.80	\$2.70
Paperhangers	\$16.21	\$18.67	\$2.46



## Wage changes in largest occupations

Occupation	2002 Wage	2007 Wage	Wage Difference
Construction laborers	\$13.73	\$14.88	\$1.15
Carpenters	\$17.71	\$19.84	\$2.13
Electricians	\$21.11	\$23.12	\$2.01
First-line supervisors of construction workers	\$24.50	\$28.54	\$4.04
Plumbers, pipefitters, and steamfitters	\$20.49	\$22.76	\$2.27
Operating engineers and other equipment operators	\$18.42	\$20.22	\$1.80
Painters, construction and maintenance	\$15.20	\$16.94	\$1.74



## Closing remarks

- ☐ While we do not promote the use of OES data in time series applications—
  - ☐ We have provided information on issues with such analysis.
  - ☐ Many data users will use OES this way.
  - ☐ With appropriate caveats and careful application it might provide useful insights.

## More information

- [www.bls.gov/oes](http://www.bls.gov/oes)
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- Contact—
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QUESTIONS?