

# Building a Safety Culture:

*Improving Safety and Health Management in the  
Construction Industry*

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Dodge Data & Analytics

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## SUSTAINABILITY

Green Homes



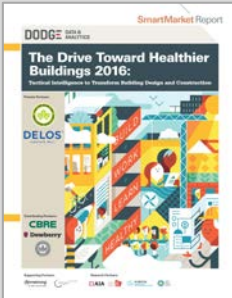
World Green Trends



Green Schools



Health

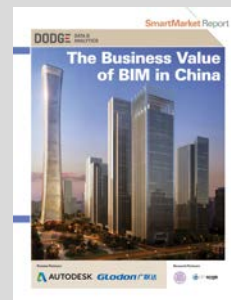


## TECHNOLOGY/INNOVATION

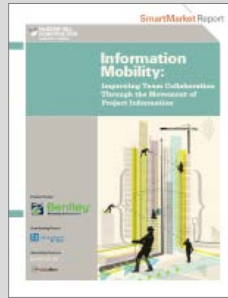
Measuring BIM



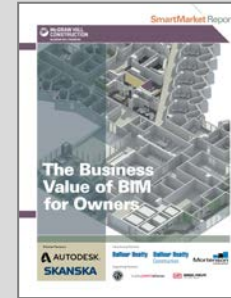
China BIM



Information Mobility



BIM for Owners



## PRACTICES/PROCESSES

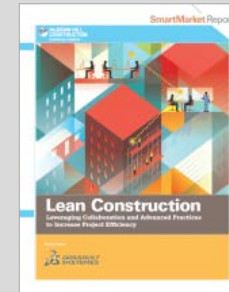
Managing Uncertainty



Safety



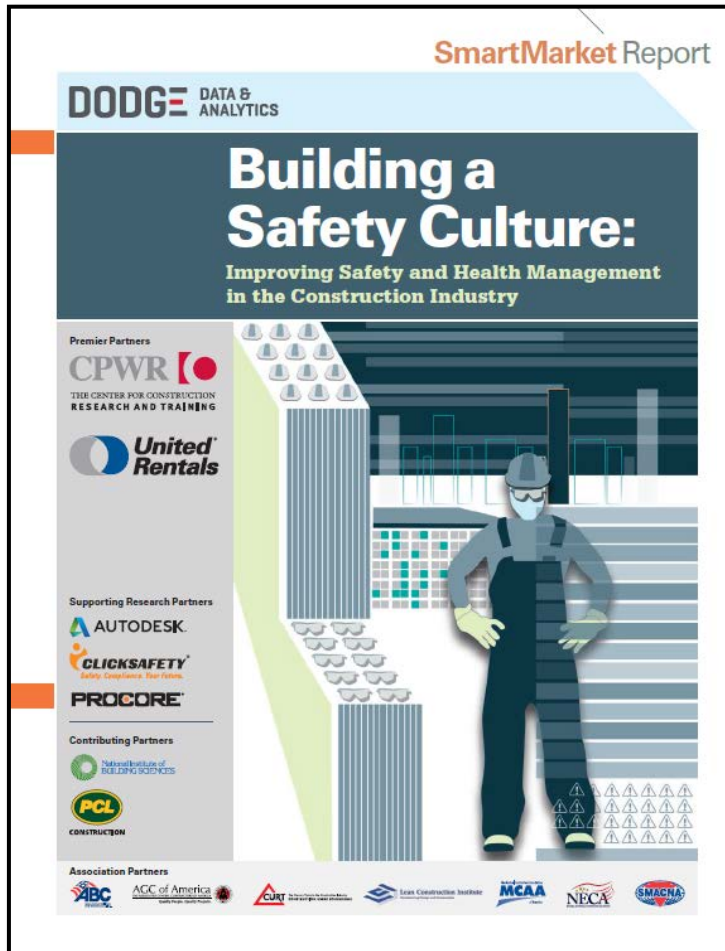
Lean



Delivery Systems



# About the SmartMarket Report



- Study conducted in fall of 2015
- Follow-up to 2012 Safety SMR
- 264 survey respondents:
  - 111 general contractors (44%)
  - 115 specialty contractors (45%)
  - 8 design-build contractors (3%)
  - 19 construction management firms (8%)
  - 1 engineering firm (.4%)
- Company size by number of employees:
  - Less Than 10 (11%)
  - 10 to 49 (32%)
  - 50 to 99 (16%)
  - 100 to 499 (20%)
  - 500 or More (21%)

# Agenda

## Report Highlights

- **Safety Culture Spectrum**
- Practices
- Business Impact
- Influence Factors
- Training Practices and Communication

## Questions

# Safety Culture Indicators

**33 indicators of a safety culture in seven categories:**

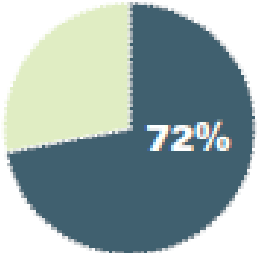
- 8** Management commitment
- 4** Safety and health as a fundamental company value
- 3** Accountability on projects
- 6** Worker involvement in jobsite safety
- 3** Supervisory leadership
- 4** Effectiveness of communications
- 5** Company owner involvement

# 1. Management commitment to safety and health

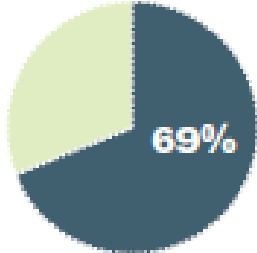
## Use of Practices That Indicate Management Commitment to Safety and Health (All Respondents)

Dodge Data & Analytics, 2016

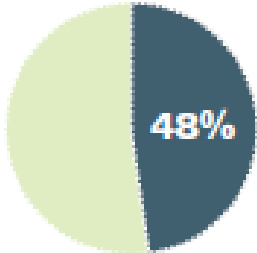
### Formal Process for Safety-Related Corrective Action



### Safety/Health Is a Key Part of Strategic Planning



### Company Has Joint Worker/Management Safety and Health Committee

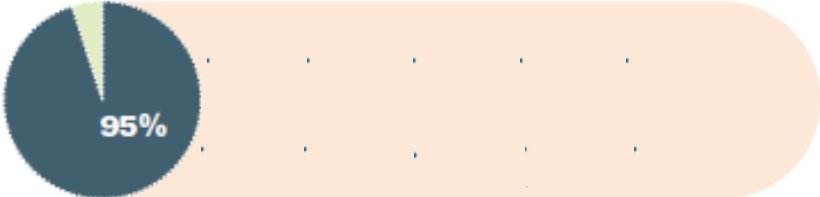


# 1. Management commitment to safety and health

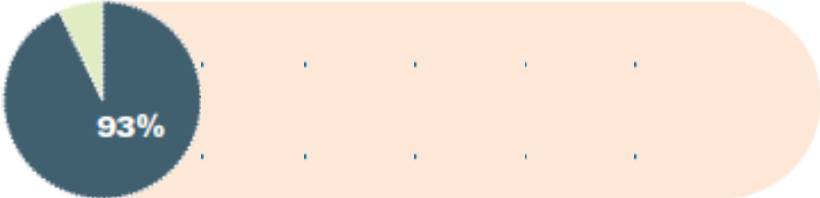
## Level of Use of Practices That Indicate Management Commitment to Safety and Health (All Respondents)

Dodge Data & Analytics, 2016

### Safety/Health Is a Top Agenda Item at Meetings



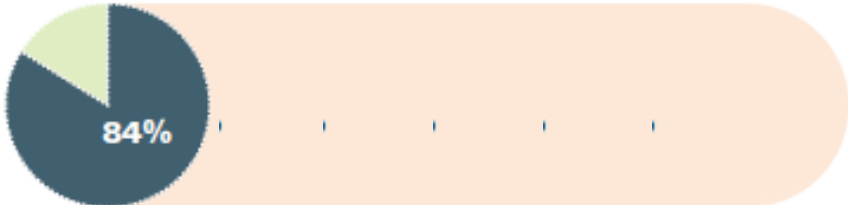
### Clearly Defined Health and Safety Expectations



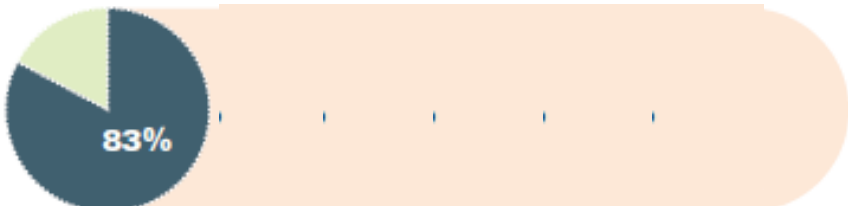
### Management Participation in All Safety and Health Meetings on Jobsite



### Practice Prevention Through Design



### Safety/Health Data Used for Improvement



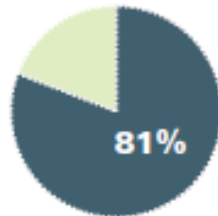


## 2. Recognition of safety and health as fundamental company values

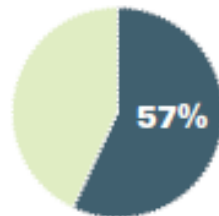
### Use of Practices That Indicate That Safety and Health Are Fundamental Company Values (All Respondents)

Dodge Data & Analytics, 2016

#### Value Safety and Health at Least as Much as Productivity



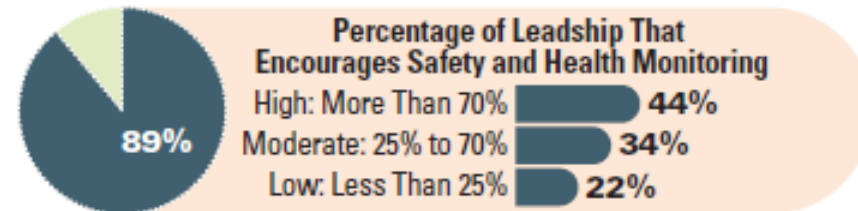
#### Recognize/Reward Safety and Health Participation



### Level of Use of Practices That Indicate That Safety and Health Are Fundamental Company Values (All Respondents)

Dodge Data & Analytics, 2016

#### Encourage Safety and Health Mentoring



#### Factor Safety and Health Into Planning and Bidding

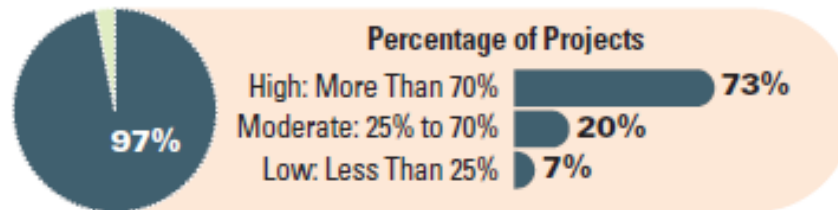


# 3. Accountability for safety and health on projects

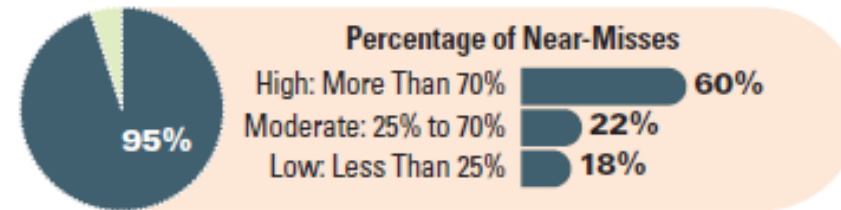
## Use of Practices That Create Accountability on Projects for Safety and Health (All Respondents)

Dodge Data & Analytics, 2016

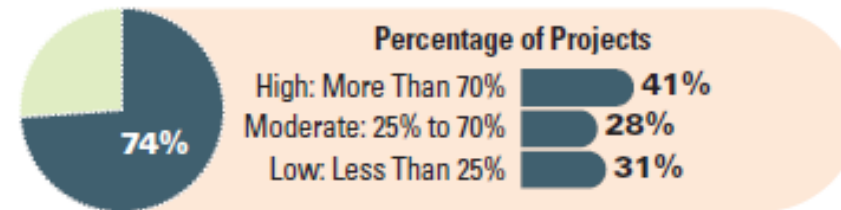
### Hold Everyone Accountable for Safety



### Near-Misses Taken Seriously and Investigated



### Use External Safety and Health Audits

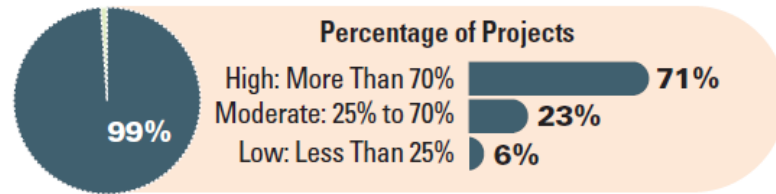


# 4. Worker involvement in jobsite safety and health

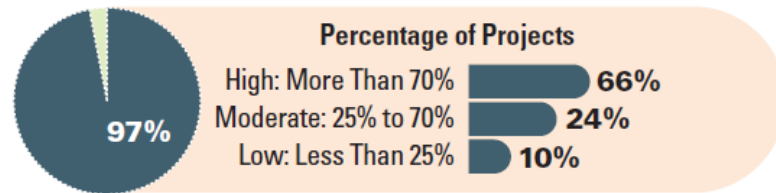
## Indicators of Worker Involvement in Jobsite Safety and Health (All Respondents)

Dodge Data & Analytics, 2016

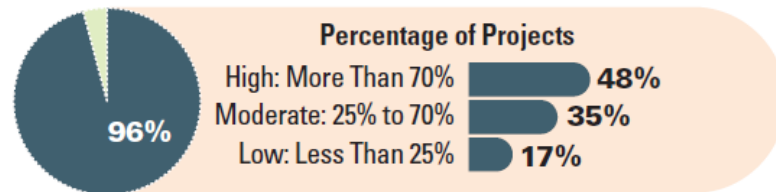
### Workers Encouraged to Report Unsafe Conditions



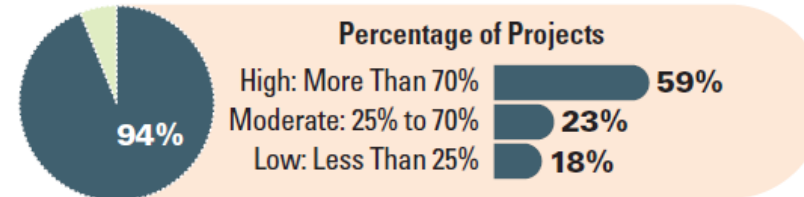
### Workers Encouraged to Report Near-Misses



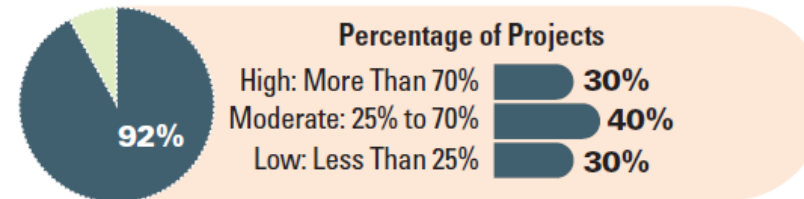
### Workers Asked for Input on Site Safety and Health Conditions



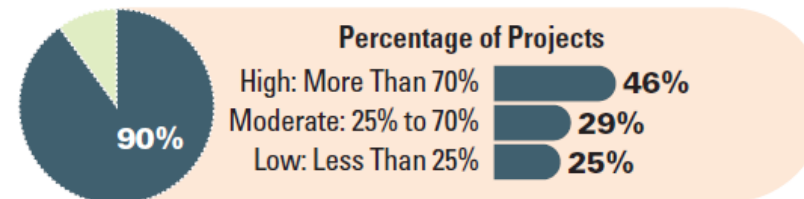
### Workers Given Stop-Work Authority



### Workers Involved in Safety and Health Planning



### Workers Involved in Job-Hazard Analyses

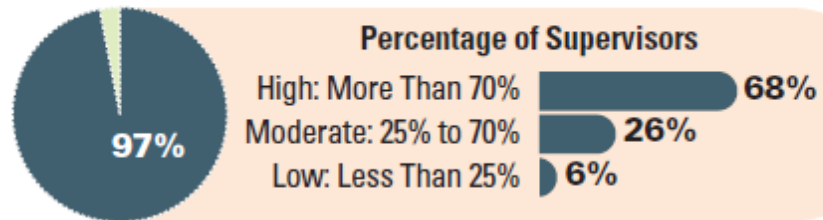


# 5. Supervisory safety and health leadership

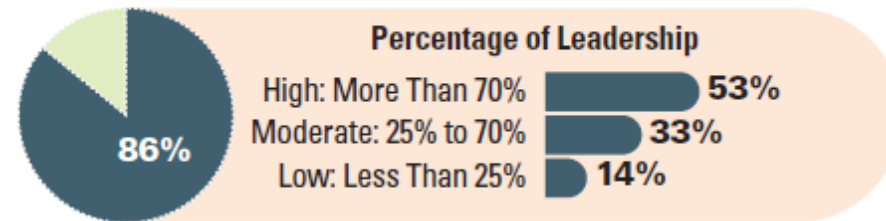
## Use of Practices That Demonstrate Supervisory Leadership on Safety and Health (All Respondents)

Dodge Data & Analytics, 2016

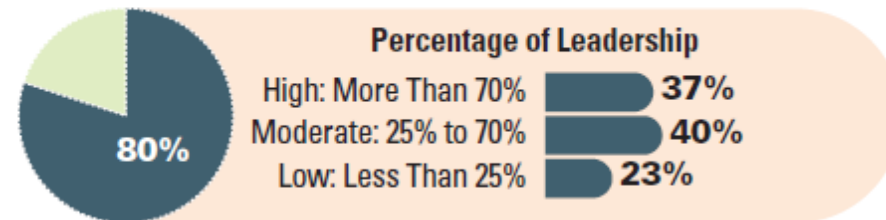
### Supervisors Lead by Example



### Subcontractors Monitored on Safety Practices



### Subcontractors Mentored on Safety Practices

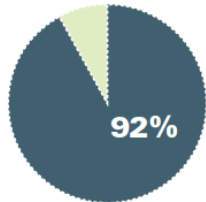


# 6. Effectiveness of company communications

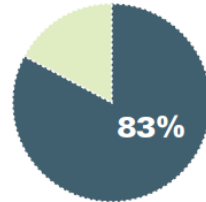
## Communication Practices That Are Indicators of a Safety Culture (All Respondents)

Dodge Data & Analytics, 2016

**Safety and Health Policies Communicated Clearly to All Employees**



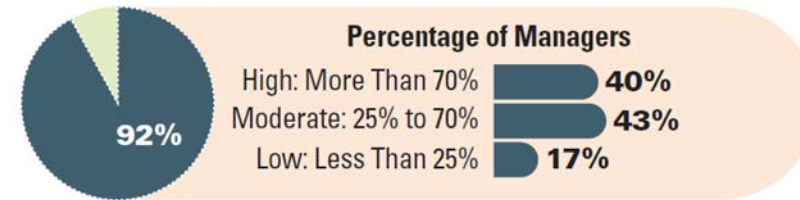
**Safety and Health Policies Communicated Consistently**



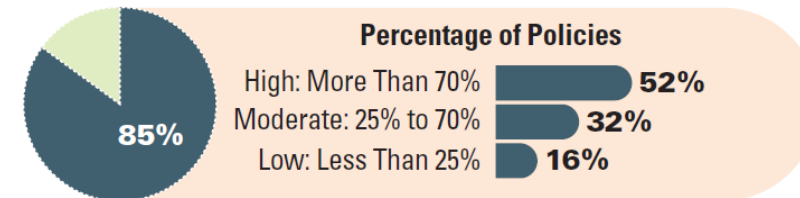
## Type and Degree of Communication About Safety and Health (All Respondents)

Dodge Data & Analytics, 2016

### Managers Regularly Engage With Workers One-on-One



### Safety and Health Policies Coordinated With All Subcontractors



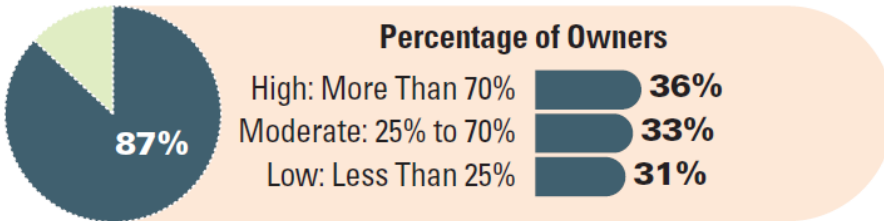
# 7. Owner involvement in safety and health

## Indicators of Owner Involvement in Safety and Health Measures on Projects

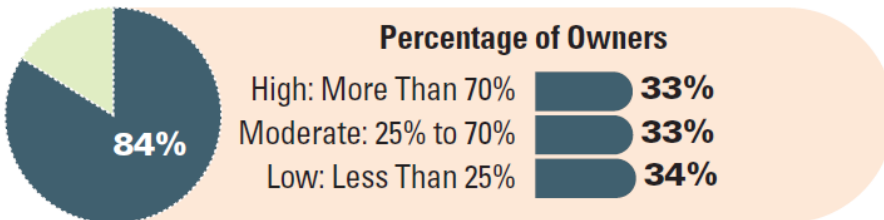
(All Respondents)

Dodge Data & Analytics, 2016

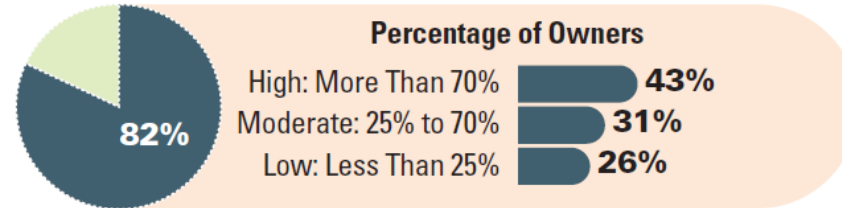
### Owners Monitor Onsite Safety and Health Performance



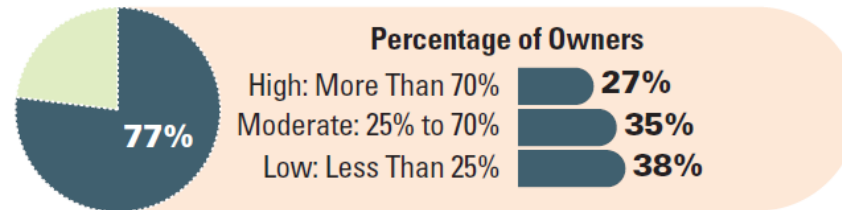
### Owners Participate in Safety and Health Activities



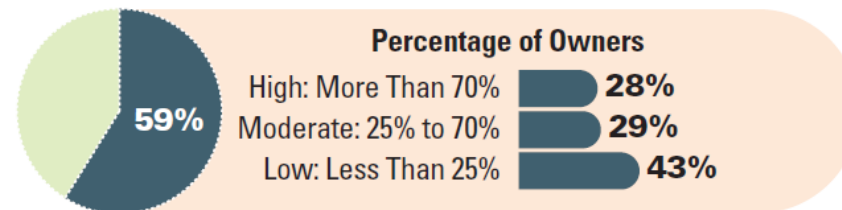
### Owners Support Safety and Health Audits



### Owners Require Safety and Health Precertification of All Bidders



### Owners Provide Incentives for Safety and Health Performance

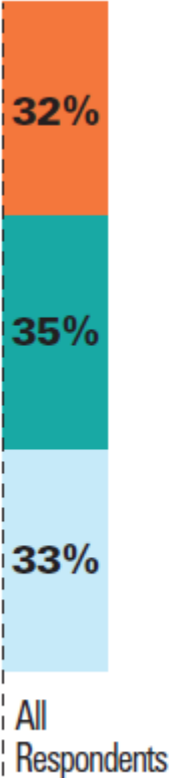


# Safety Culture Spectrum

## Degree of Use of Safety Culture Indicators (All Respondents)

Dodge Data & Analytics, 2016

- High (20 or More Indicators)
- Moderate (12 to 19 Indicators)
- Low (11 Indicators or Less)

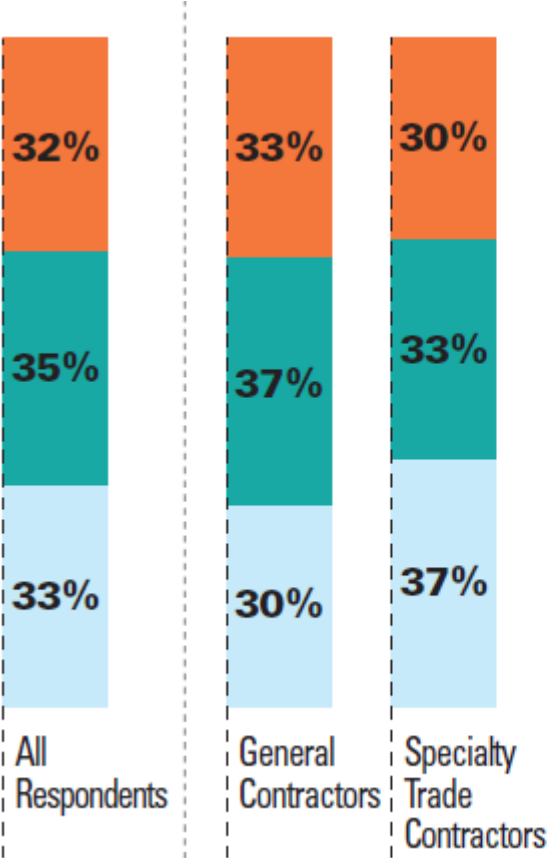


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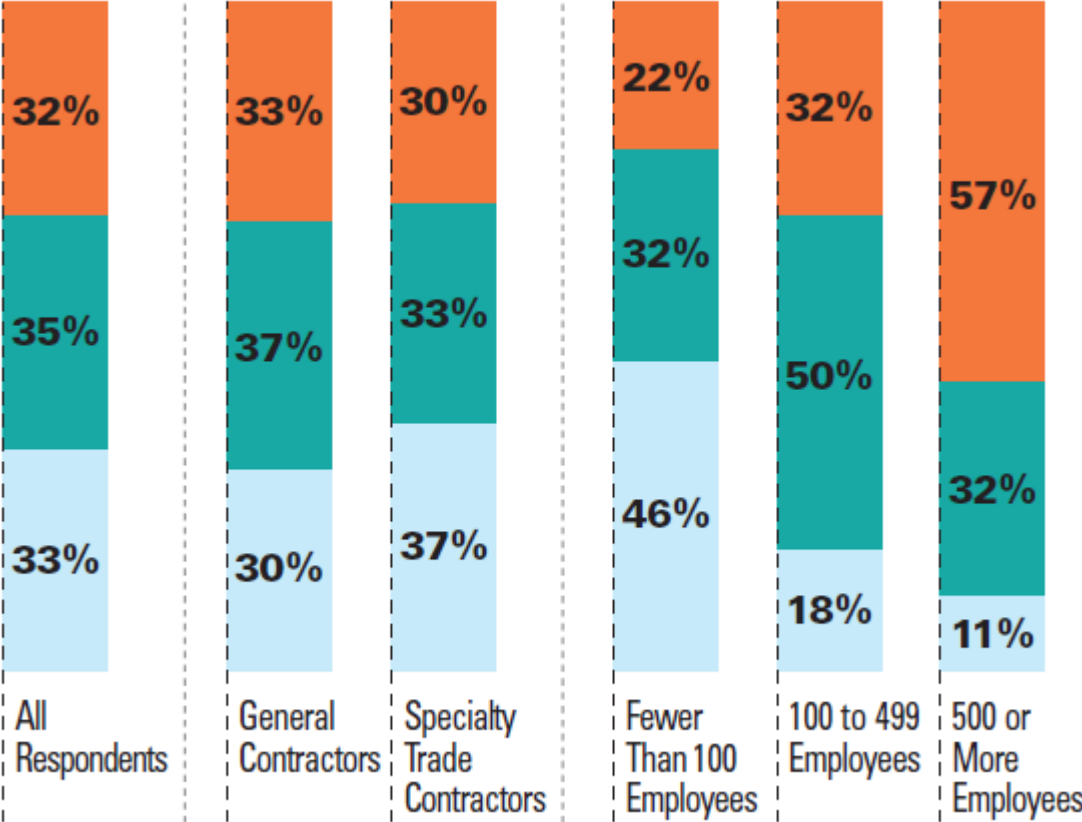


# Safety Culture Spectrum

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Dodge Data & Analytics, 2016

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# Agenda

## Report Highlights

- Safety Culture Spectrum
- **Practices**
- Business Impact
- Influence Factors
- Training Practices and Communication

## Questions

# Practices Used on Projects to Promote Safety

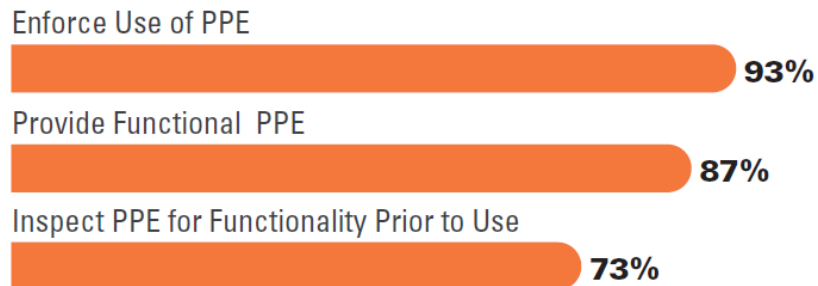
## Use of Safety Practices

Dodge Data & Analytics, 2016

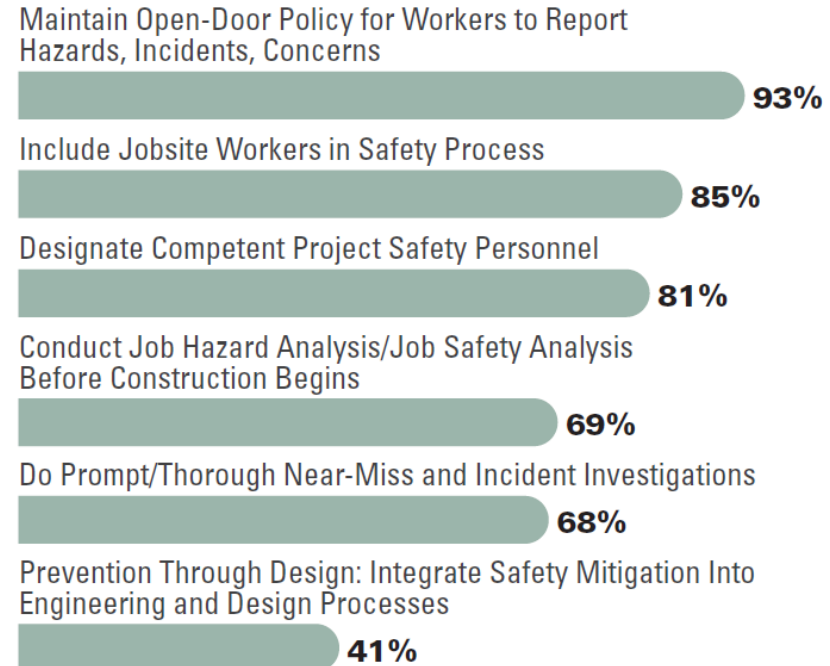
### Safety Policies



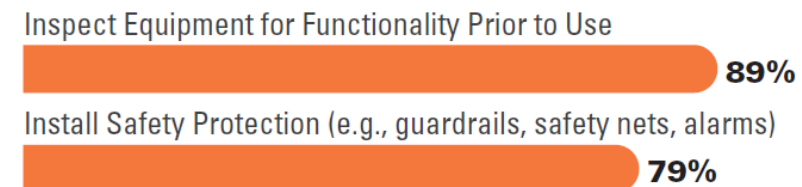
### Safety Practices Involving Personal Protective Equipment (PPE)



### Organizational Safety Practices



### Safety Practices Involving Equipment



# Most Effective Safety Practices

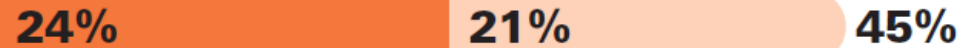
## Most Effective Safety Practices

(All Respondents)

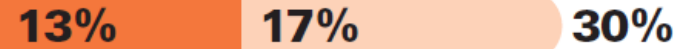
Dodge Data & Analytics, 2016

- Ranked First
- Ranked Second or Third

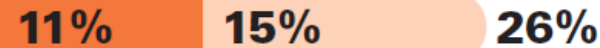
Enforce Use of PPE



Conduct Job Hazard Analysis/Job Safety Analysis Before Construction Begins



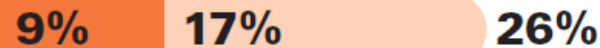
Provide Functional PPE



Include Jobsite Workers in Safety Process



Establish Site-Specific Training Programs for Supervisors, Workers, Specialty Contractors



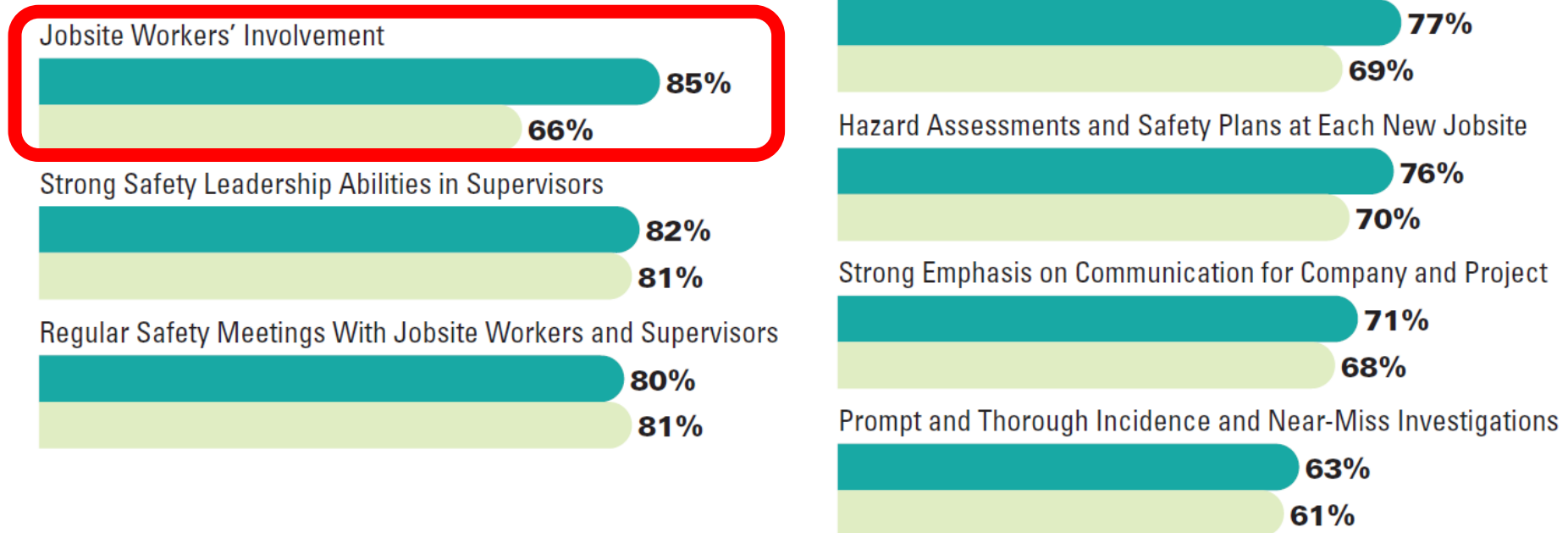
# Aspects of a World-Class Safety Program

## Essential Aspects of a World-Class Safety Program

(By Year)

Dodge Data & Analytics, 2016

2015 2012



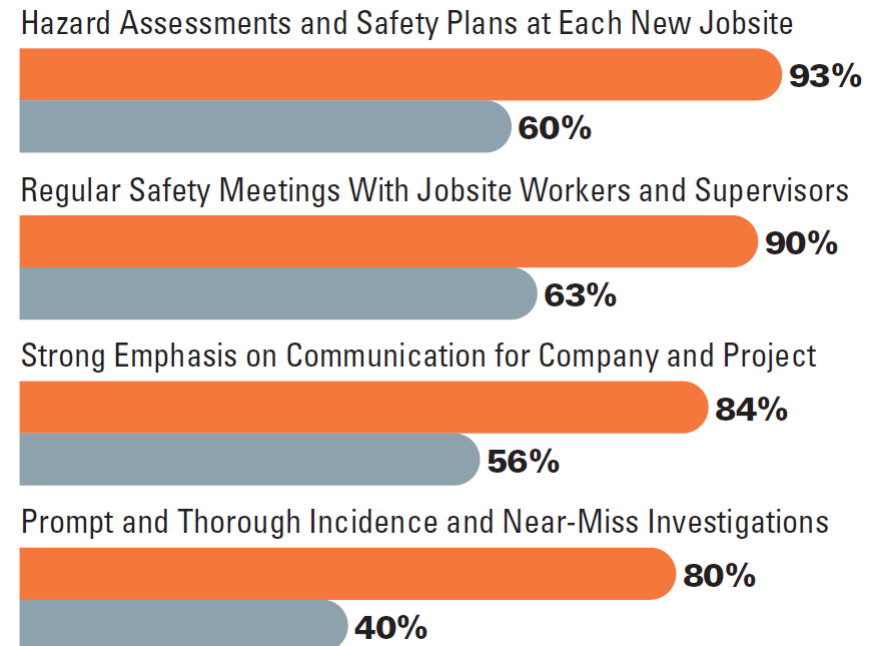
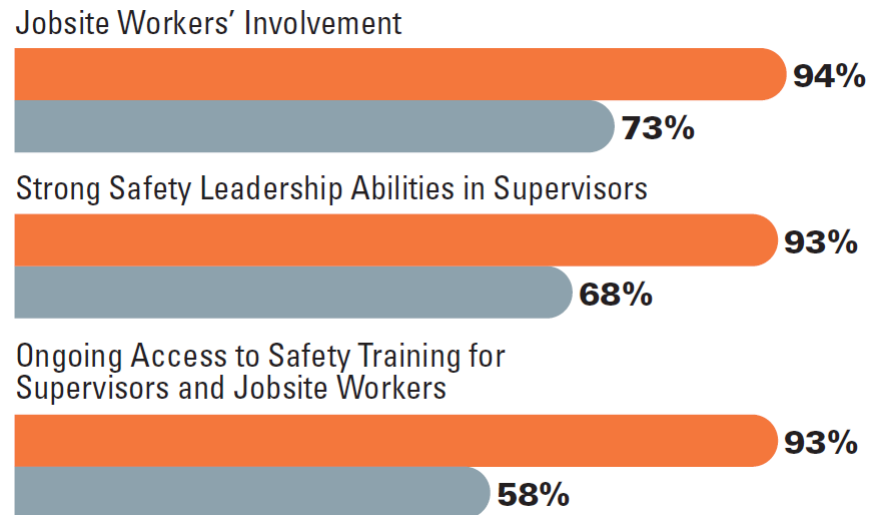
# Aspects of a World-Class Safety Program (2015)

## Essential Aspects of a World-Class Safety Program (By Companies at the Low and High Ends of the Safety Culture Spectrum)

Dodge Data & Analytics, 2016

High Use of Safety Culture Indicators

Low Use of Safety Culture Indicators



# Agenda

## Report Highlights

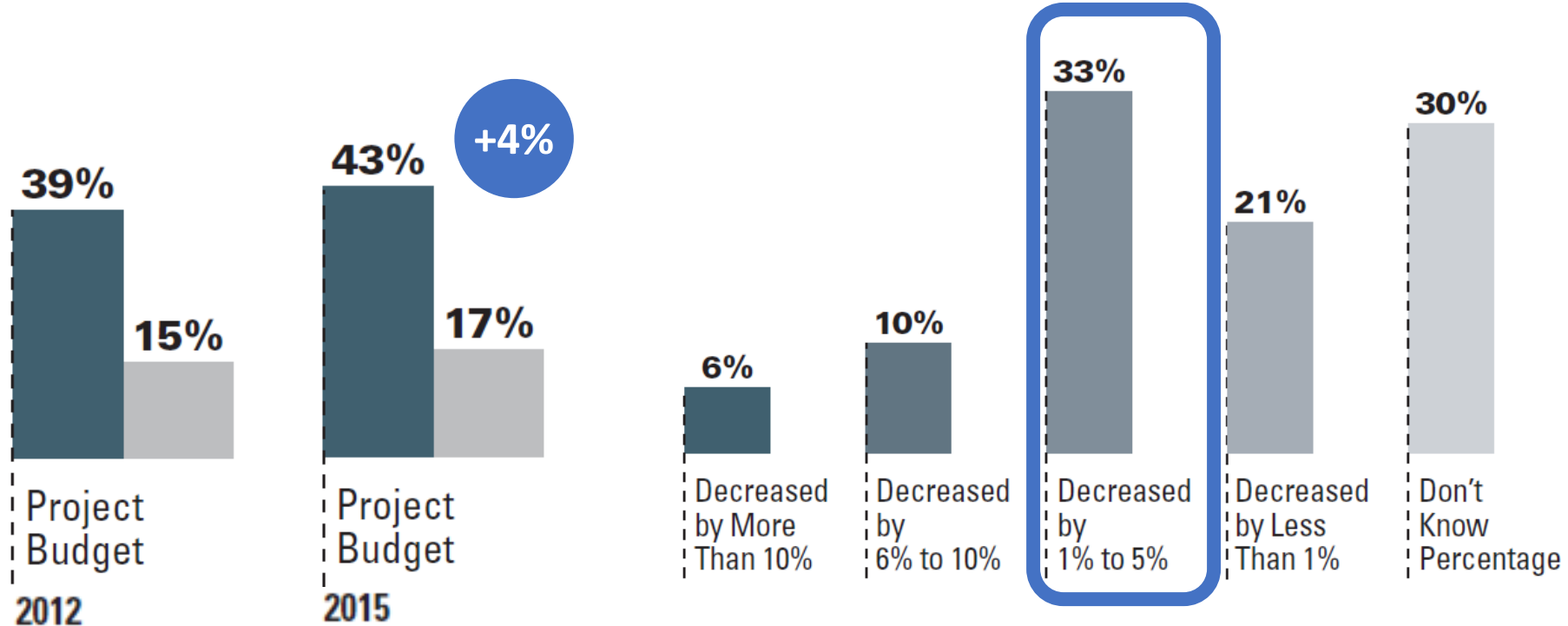
- Safety Culture Spectrum
- Practices
- **Business Impact**
- Influence Factors
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## Questions

# Business Impact: Budget (2012 and 2015)

■ Positive Impact   ■ Negative Impact

How Much Improvement?



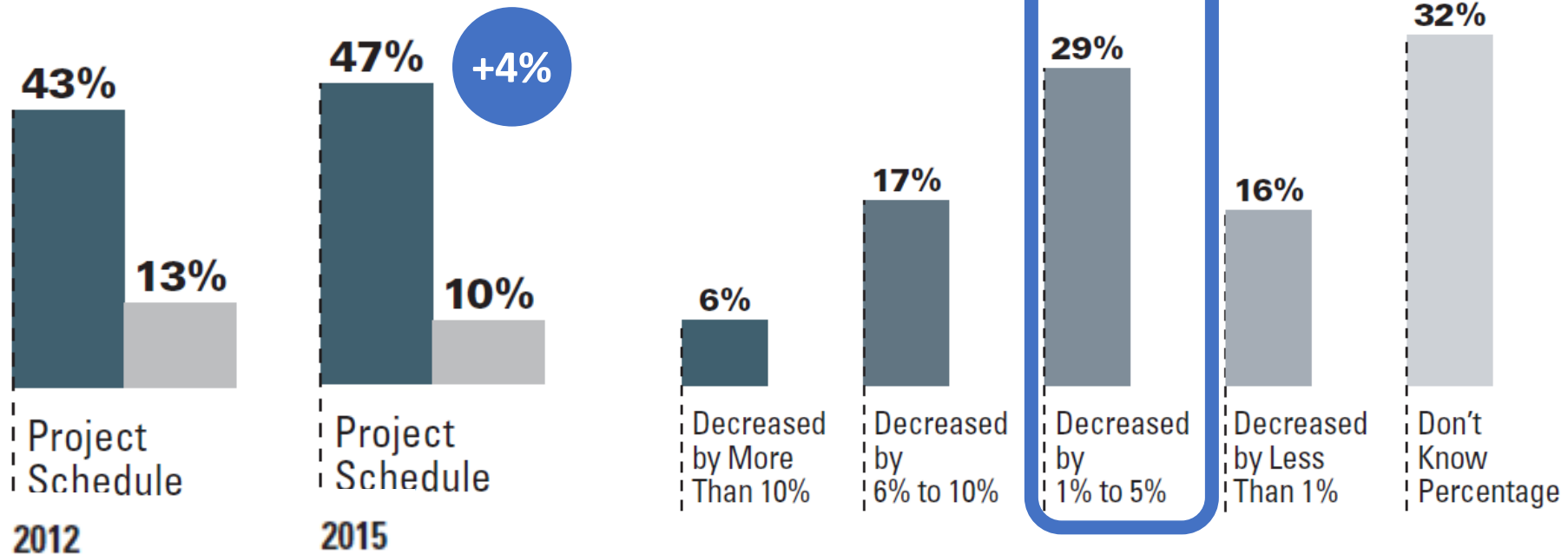
(Does not include "Neutral Impact")



# Business Impact: Schedule (2012 and 2015)

■ Positive Impact   ■ Negative Impact

How Much Improvement?

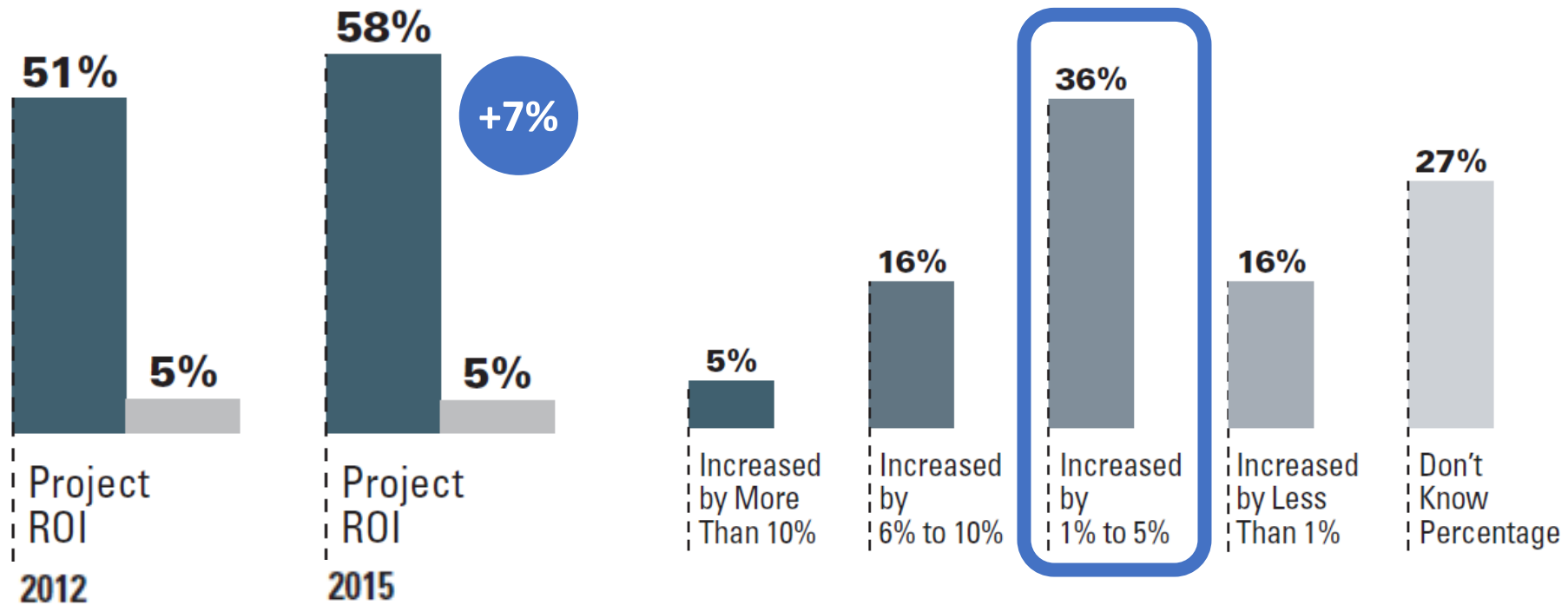


(Does not include "Neutral Impact")

# Business Impact: Project ROI (2012 and 2015)

■ Positive Impact   ■ Negative Impact

How Much Improvement?

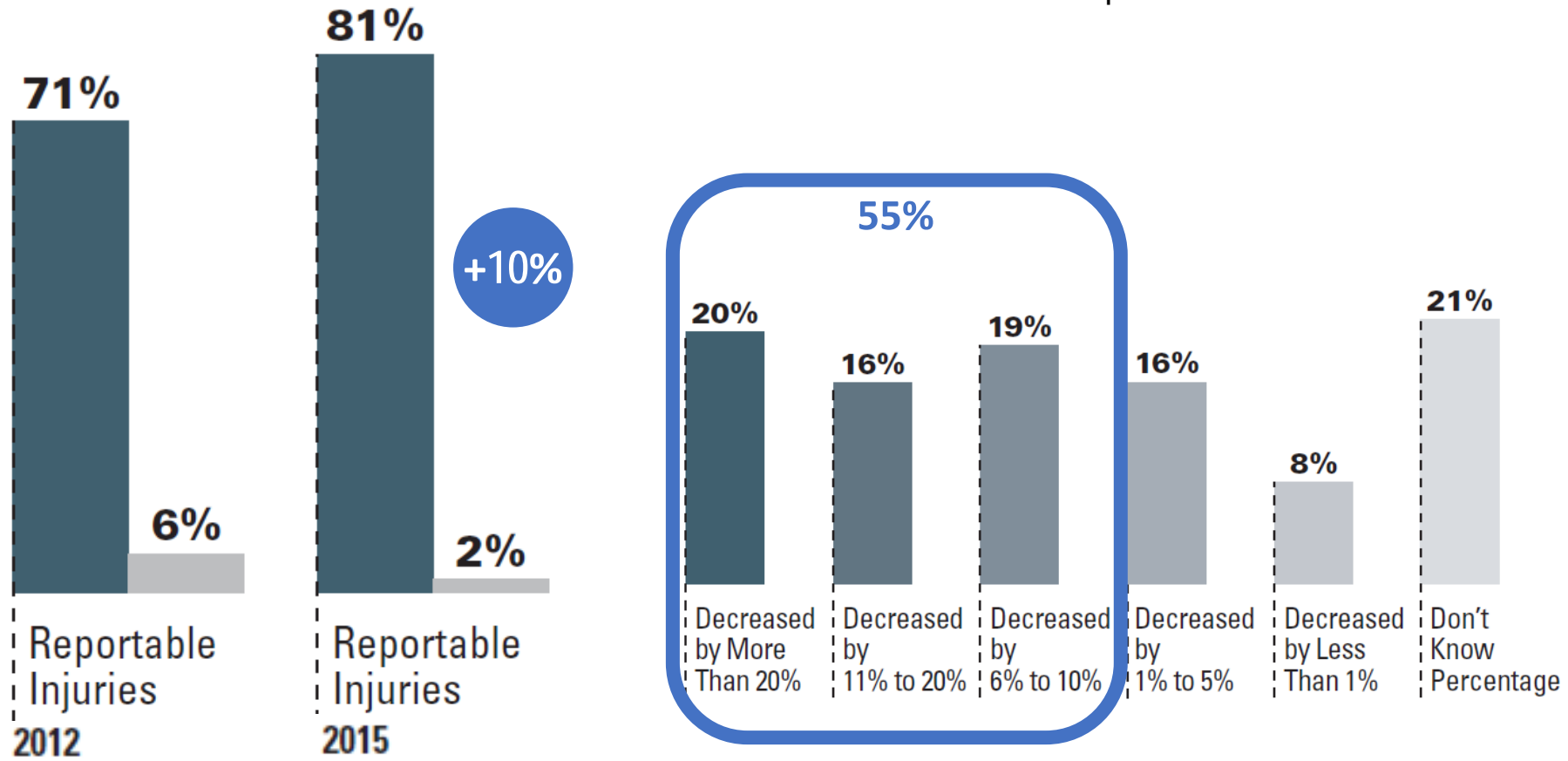


(Does not include "Neutral Impact")

# Business Impact: Reportable Incidents (2012 and 2015)

■ Positive Impact ■ Negative Impact

How Much Improvement?



(Does not include "Neutral Impact")

# Impact of Safety Practices on Project/Business Success Factors (Among Positive Respondents)

## Impact of Safety on Project and/or Business Success Factors (Respondents Who Report a Positive Impact by Year)

Dodge Data & Analytics, 2016

■ 2015 ■ 2012 (ranked by 2015 order)

Willingness of Jobsite Workers to Report Unsafe Conditions



Ability to Contract New Work



Standing in the Industry



Project Quality



Staff Retention



Ability to Attract New Staff



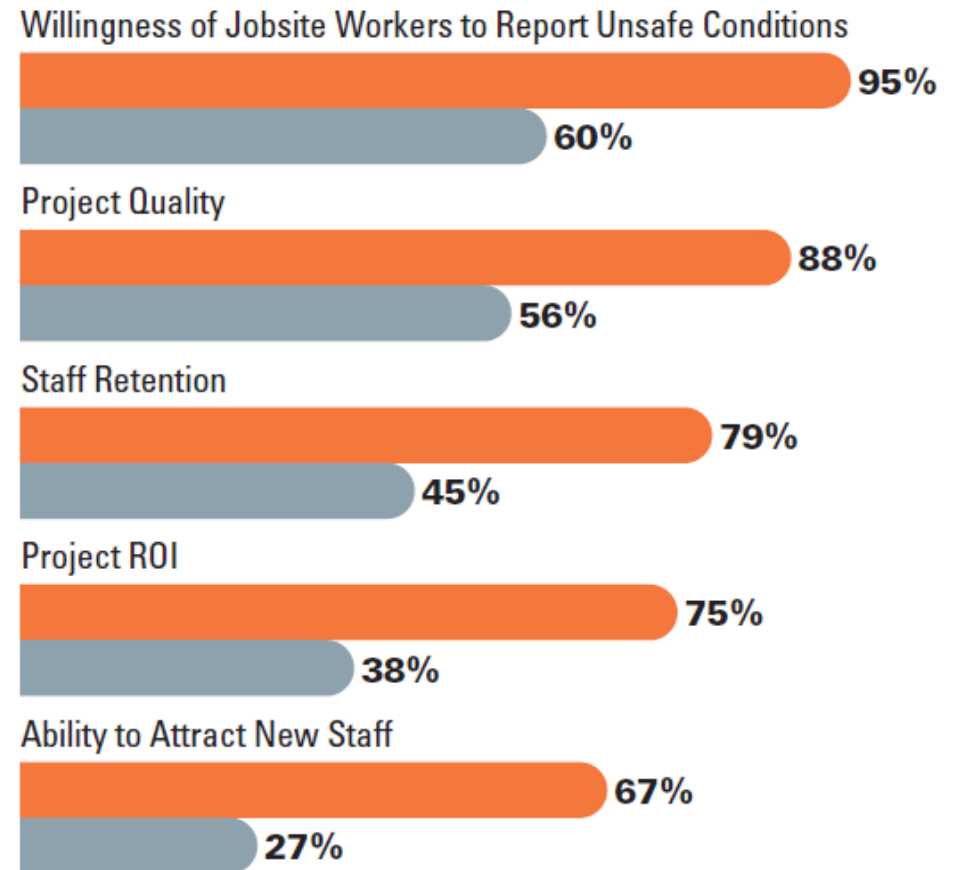
# Top 5 Success Factors Most Impacted by Safety Culture Spectrum

**Positive Impact of Safety on Contractor Success Factors** (Factors With the Greatest Difference in Percentage Reporting Positive Impact Across the Safety Culture Spectrum)

Dodge Data & Analytics, 2016

- High Use of Safety Culture Indicators
- Low Use of Safety Culture Indicators

(ranked by High group)



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- Safety Culture Spectrum
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- Training Practices and Communication

## Questions

# Most Influential People/Positions for Improving Safety

## Most Influential People/Positions for Improving Safety (Based on Rankings by All Respondents)

Dodge Data & Analytics, 2016

- Ranked First
- Ranked Second or Third

### Construction Company Owners

31% 9% 40%

### Company Leadership

29% 34% 63%

### Jobsite Workers

18% 46% 64%

### Project Management Team

9% 48% 57%

### Safety Personnel

6% 35% 41%

# Factors That Drove Adoption of Current Safety Management Practices

## Factors That Influenced Companies to Adopt Current Safety Management Practices

(By Year)

Dodge Data & Analytics, 2016

■ 2015 ■ 2012

Concern About Worker Health and Safety\*\*



Liability Concerns



Insurance Costs



Avoiding Potential Business Disruptions



Past Incidents Involving Worker Health and Safety\*\*



Industry Leadership in Overall Safety Culture



Regulatory Requirements



Owner/Client Demand



Competitive Advantage



Desire to Improve Productivity



\*\* In 2012, the phrase "Health and Well-Being" was used rather than "Health and Safety."



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# Impact of Safety Training by Role

## Impact of Safety Training by Role

(Percentage Selecting Highly Positive Influence in 2012 and 2015)

Dodge Data & Analytics, 2016

■ 2015 ■ 2012

Jobsite Workers



Supervisors



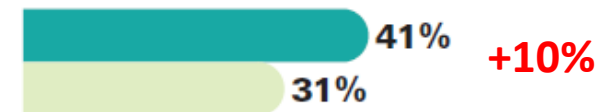
Project Management Team



Company Leadership



Estimators

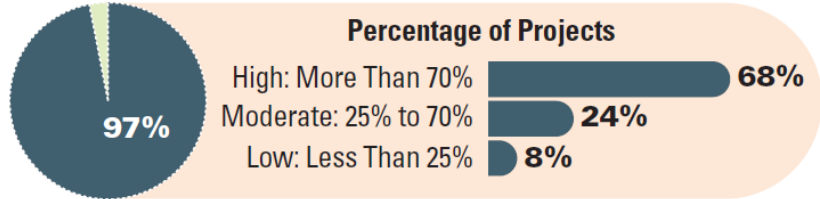


# Safety Training Availability and Requirements

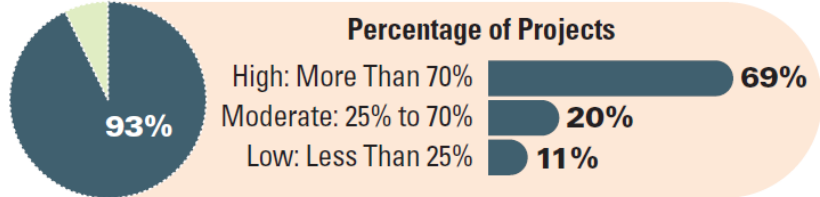
## Safety Training Availability and Requirements

Dodge Data & Analytics, 2016

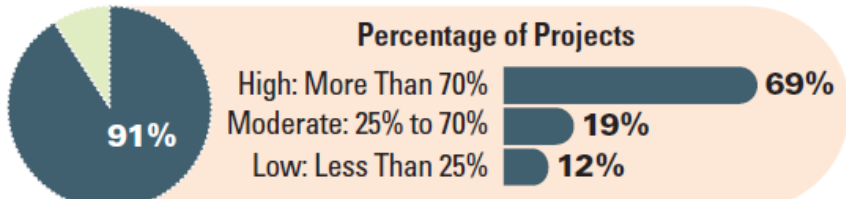
### Safety and Health Training Provided for Supervisors and Jobsite Workers



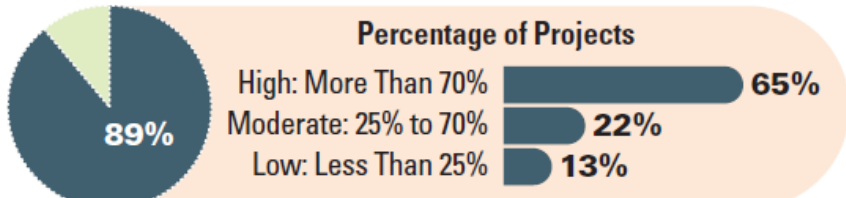
### All Employees Receive Orientation Training When Starting Work on a New Site



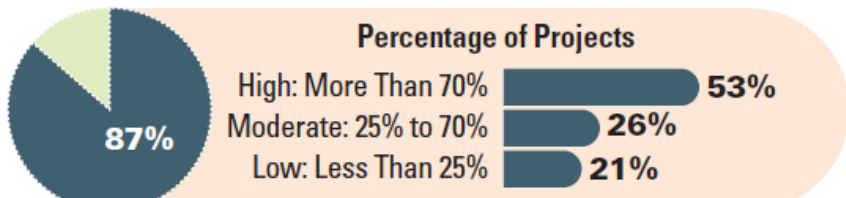
### Supervisors Required to Have Basic Safety and Health Training



### Supervisors Required to Have Safety and Health Leadership Training



### All Jobsite Workers Required to Have Basic Safety and Health Training



# Communicating Safety Messages to Jobsite Workers

## Most Effective Means of Communicating Safety Messages to Jobsite Workers

(Ranked First By Year)

Dodge Data & Analytics, 2016

■ 2015 ■ 2012

Toolbox Talks



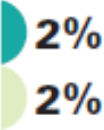
Training



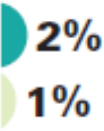
Chain of Command



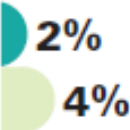
Email Alerts



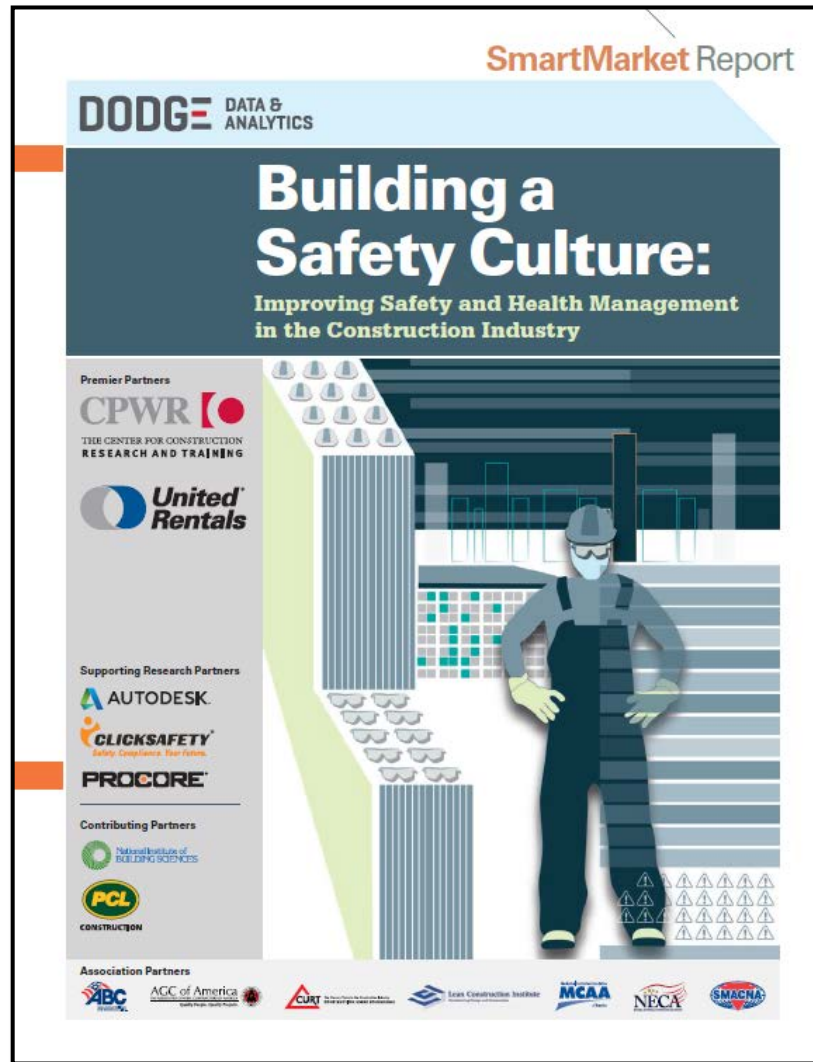
Text Alerts



Flyers With Paychecks



# Building a Safety Culture: *Improving Safety and Health Management in the Construction Industry*



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