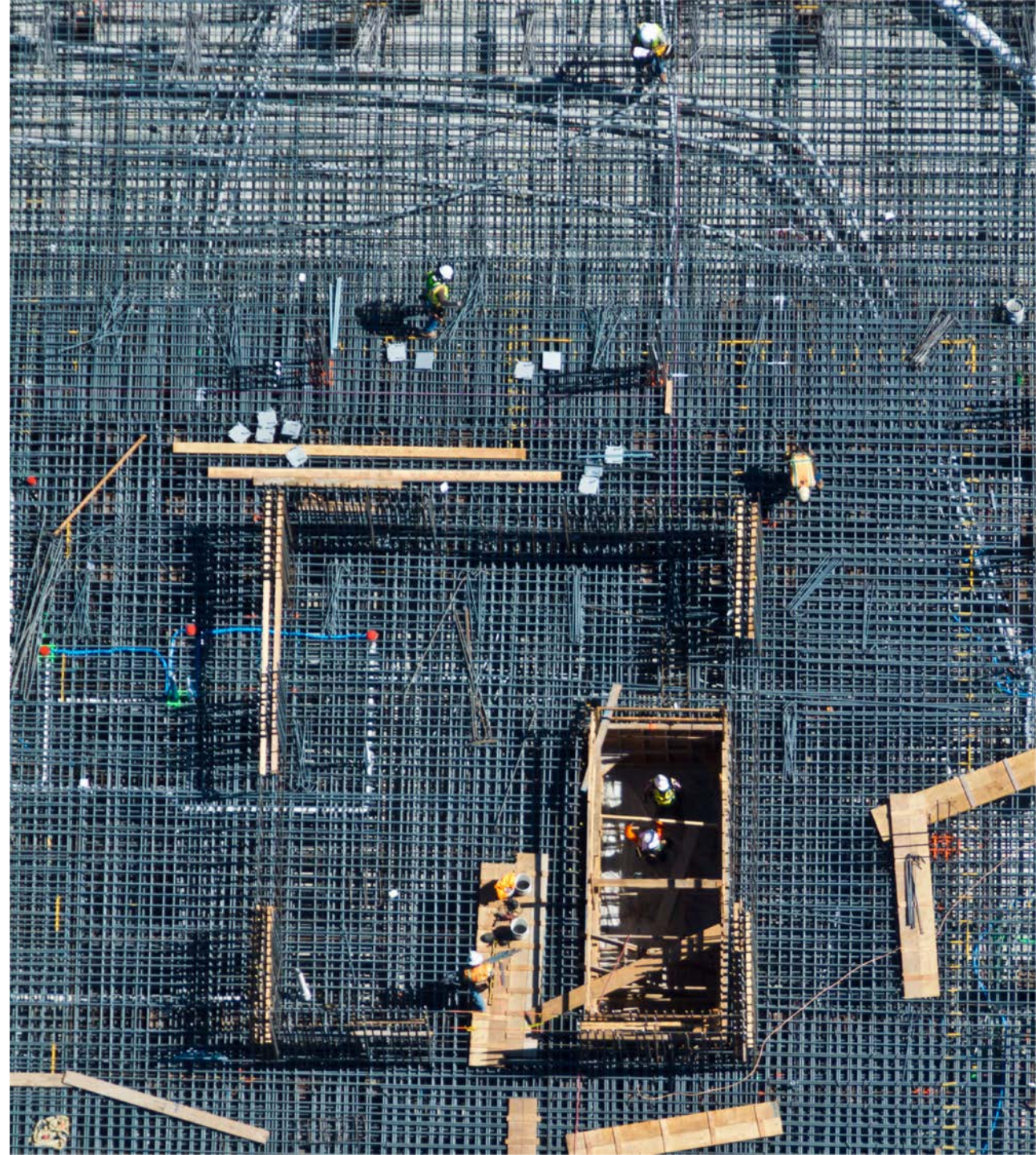


December 2021

Safety Management in the Construction Industry



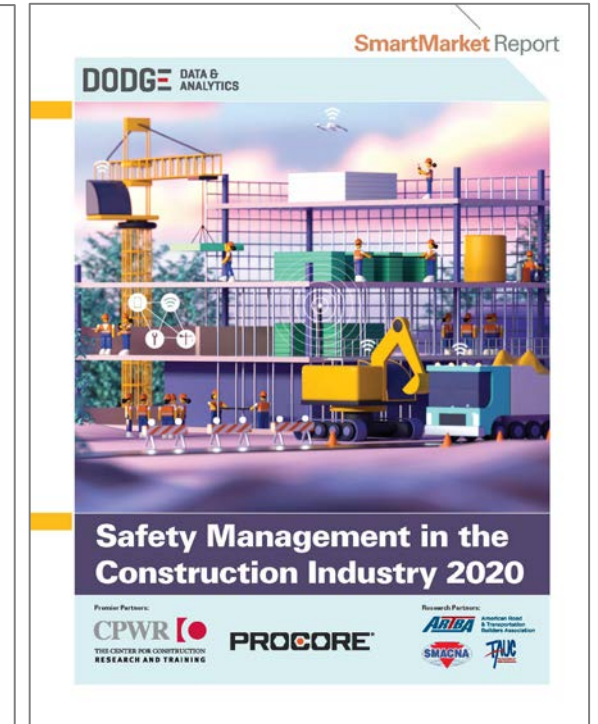
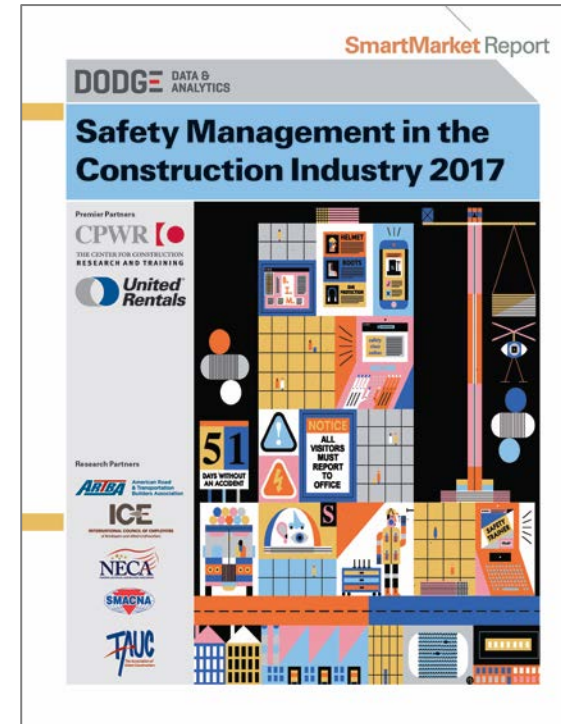
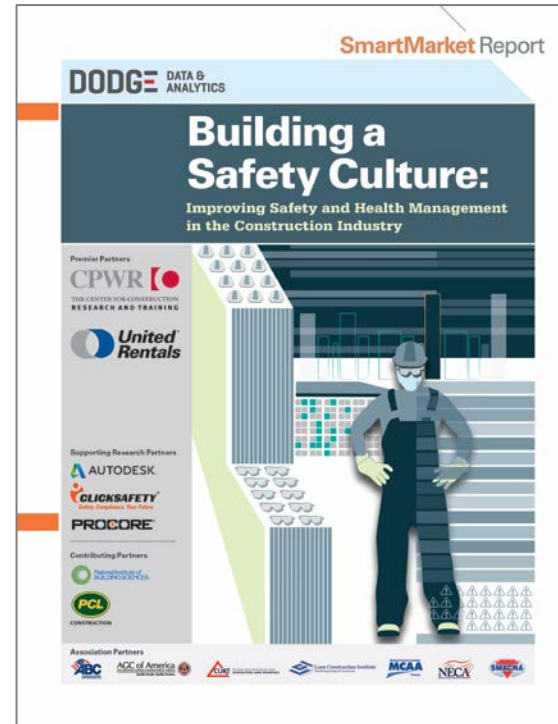
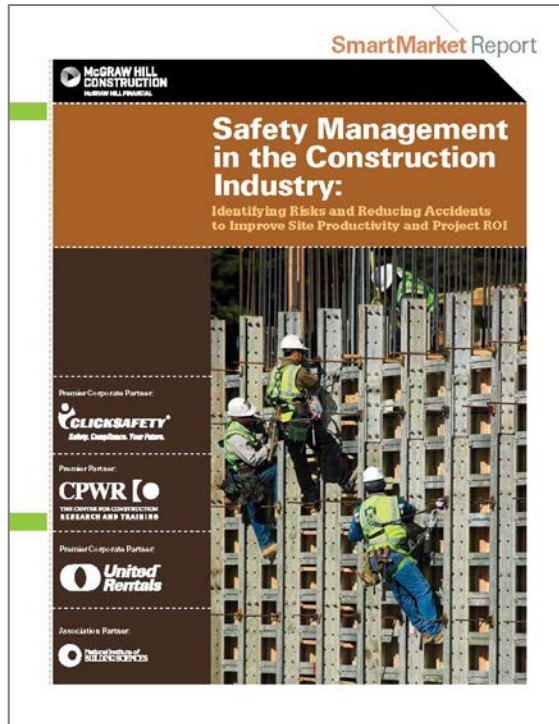
Donna Laquidara-Carr, Ph.D., LEED AP

Industry Insights Research Director

- ❑ Over 25 years experience in gathering and analyzing construction industry data with Dodge
- ❑ Ph.D. from Tulane University; MA from Boston University; BA from Middlebury College
- ❑ Managing Editor of the SmartMarket Report Series since 2010



- Since 2012, Dodge Data & Analytics has partnered with CPWR, using funding from NIOSH grants, to conduct research on Safety Management in the Construction Industry for a SmartMarket Report.
- Report findings are based on a survey of general and specialty trade contractors, but also include case studies, sidebar articles on critical topics related to safety and thought leader interviews.



DODGE CAPABILITIES MAP

ACCELERATE

Capture market share fueled by the industry's most accurate and complete Project Database



Stay ahead of competitors by analyzing local, regional, and national market demand

Develop relationships with key owners, developers, and contractors in key markets

OPTIMIZE

Streamline your operations by aligning teams through shared bid and estimate platforms - all integrated into your CRM



Manage your risk by analyzing subcontractor bid history and benchmarking labor utilization

DODGE
DATA & ANALYTICS

EVOLVE

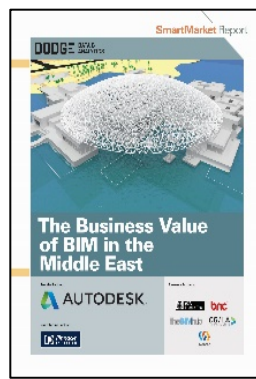


Make better decisions by leveraging powerful historical analytics, comprehensive forecasts, and detailed custom research

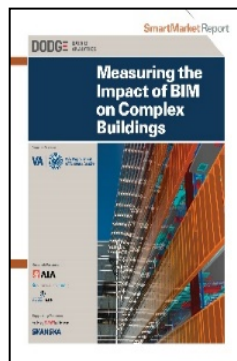
- 50+ free research reports at [construction.com/toolkit/reports](https://www.construction.com/toolkit/reports)

TECHNOLOGY/INNOVATION

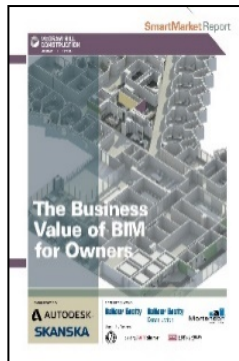
Data-Driven Performance BIM Middle East



Measuring BIM



BIM for Owners

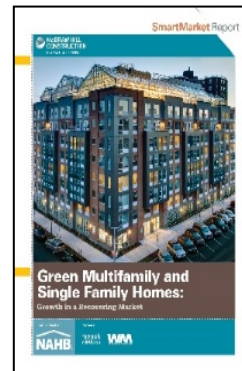


SUSTAINABILITY

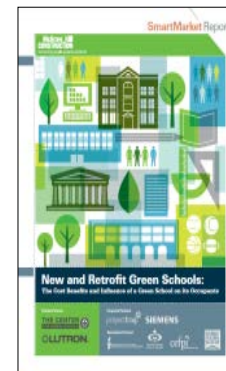
World Green Trends Design for Health



Green Homes

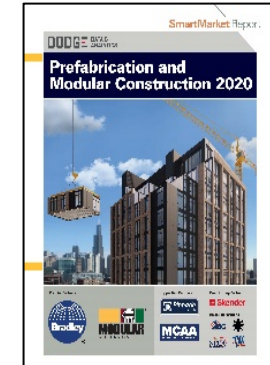


Green Schools

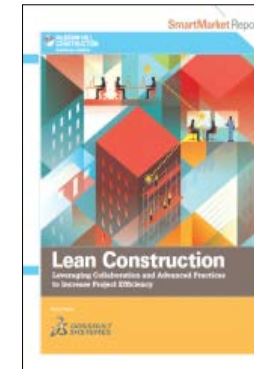


PRACTICES/PROCESSES

Managing Uncertainty Prefabrication/Modular



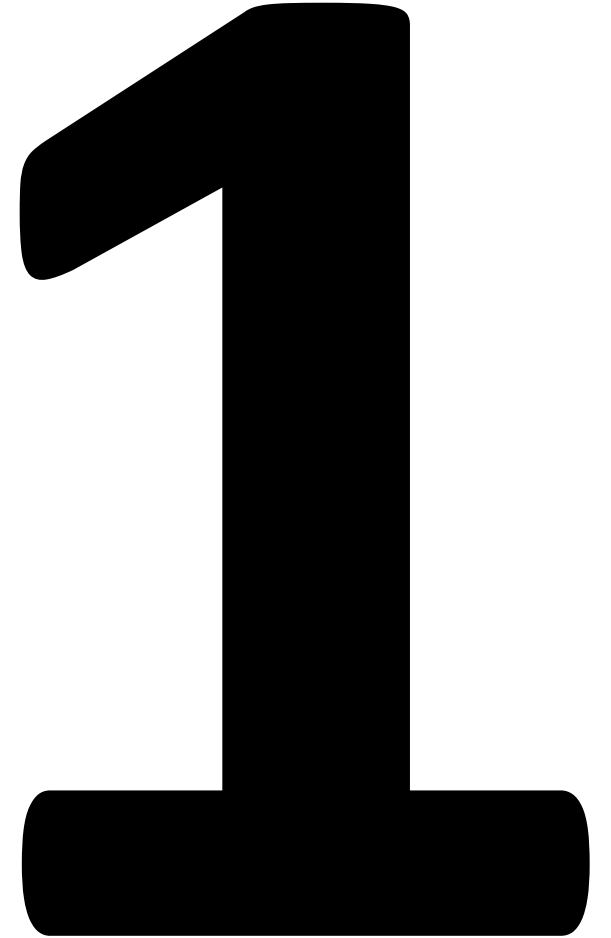
Lean



Safety



History and Methodology



2021 Research and Report

- Online survey conducted May 11–June 25, 2021
- 282 contractors participated from outreach to:
 - Dodge Data & Analytics Contractor Panel
 - AGC
 - MCAA
 - NAPA
 - NECA
 - SMACNA
 - TAUC



Available for free download:

www.construction.com/toolkit/reports

2021 Research and Report

- Online survey conducted May 11–June 25, 2021
- Company Types:
 - 141 GCs/CMs/Design-Builders (identified as GCs in the charts)
 - 141 specialty trade contractors
- Company Size:
 - Fewer than 20 employees: 25%
 - 20 to 99 employees: 40%
 - 100 or more employees: 35%



Available for free download:

www.construction.com/toolkit/reports

Supplemental Material

SIDEBARS

- The Prevention through Design National Initiative
- Trends in Safety Training
- A Data-Driven Culture of Safety
- The Psychology of Safety

CASE STUDIES

- Taking a Lean Approach to Safety: Tech Office Building
- A New Approach to Safety Training at KHS&S Contractors
- Implementing Predictive Analytics to Improve Safety at the Boldt Company

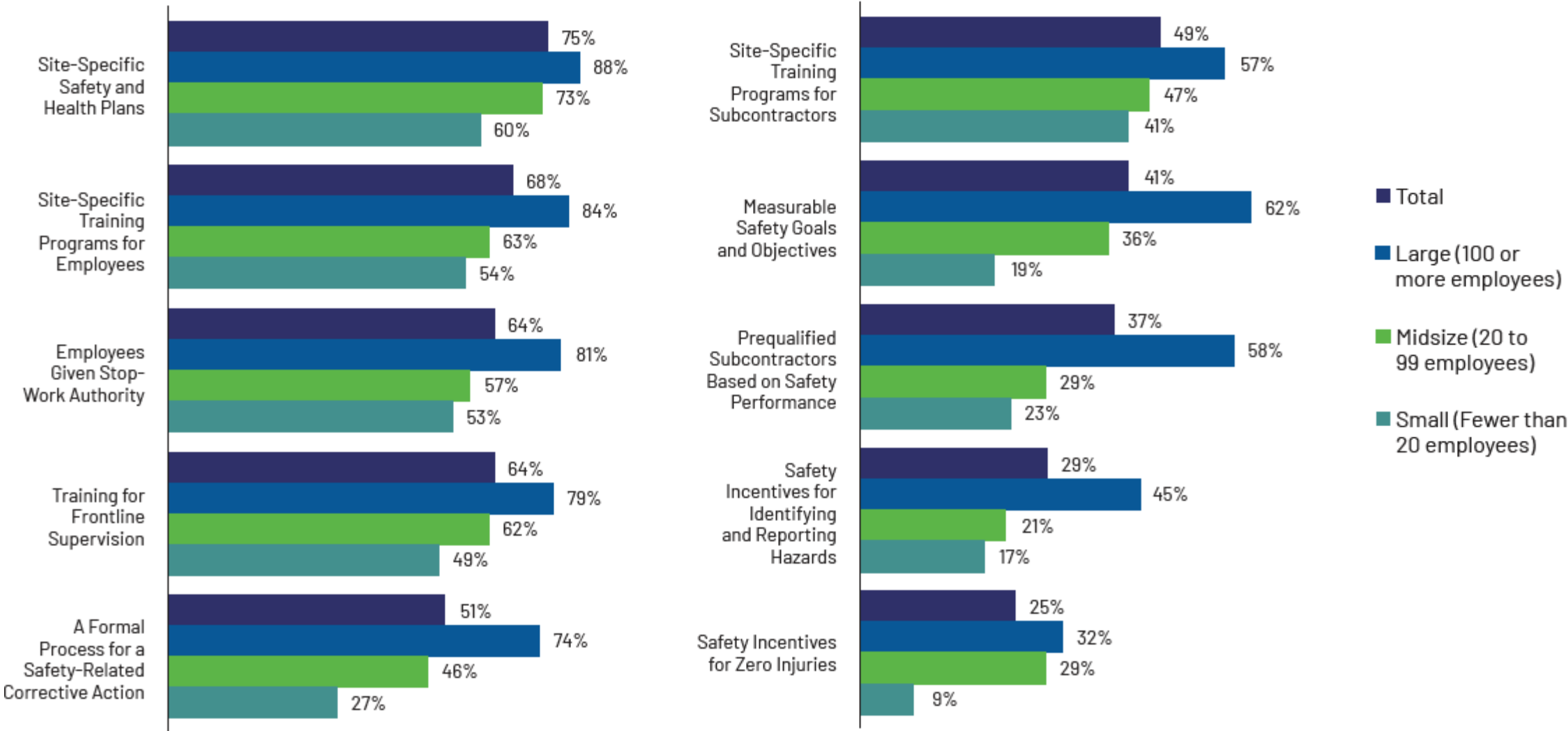
THOUGHT LEADER INTERVIEW

- Peter Simon, Director of Plans, Logistics, Risk Management and Med Tech, Total Safety Consulting

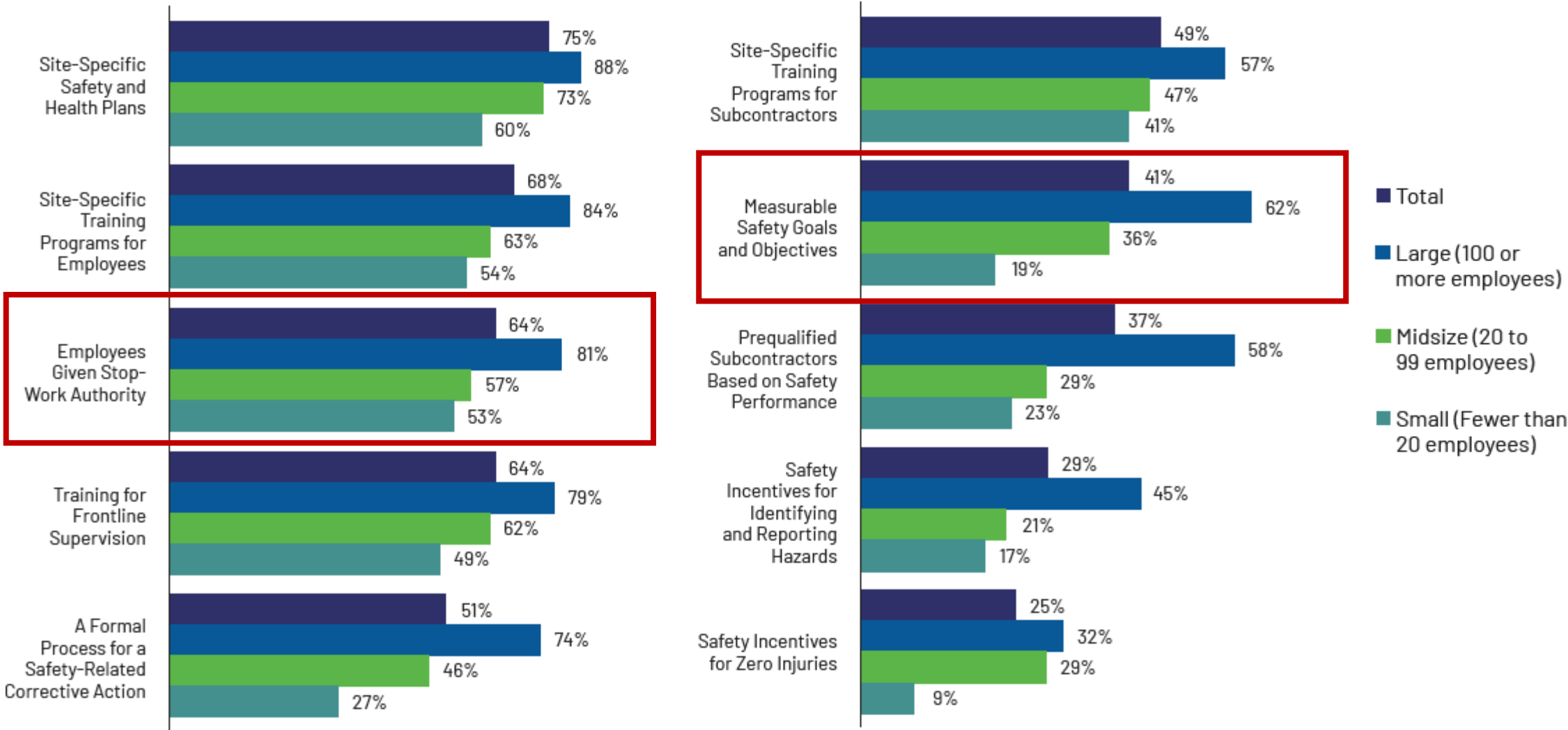
Safety Practices



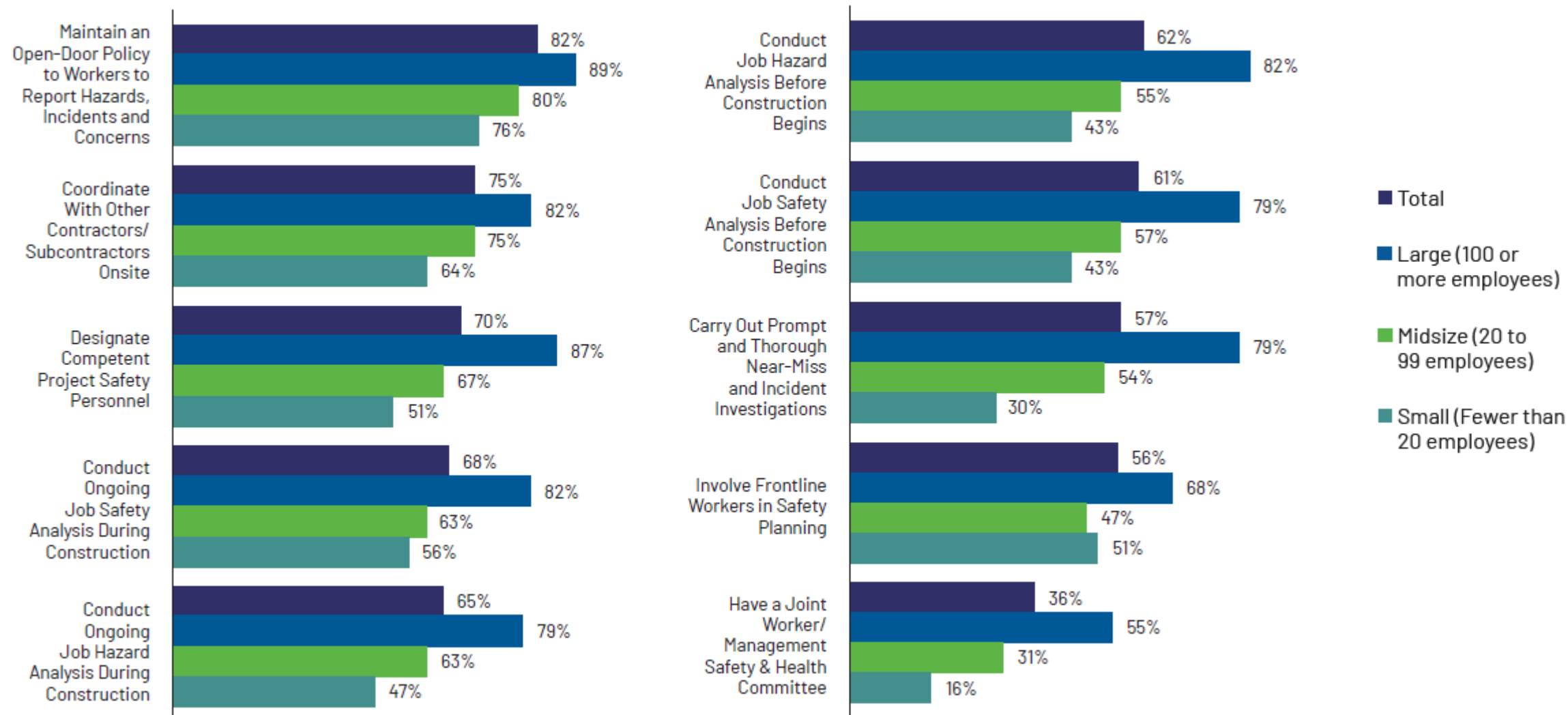
Use of Project/Site Related Safety Practices



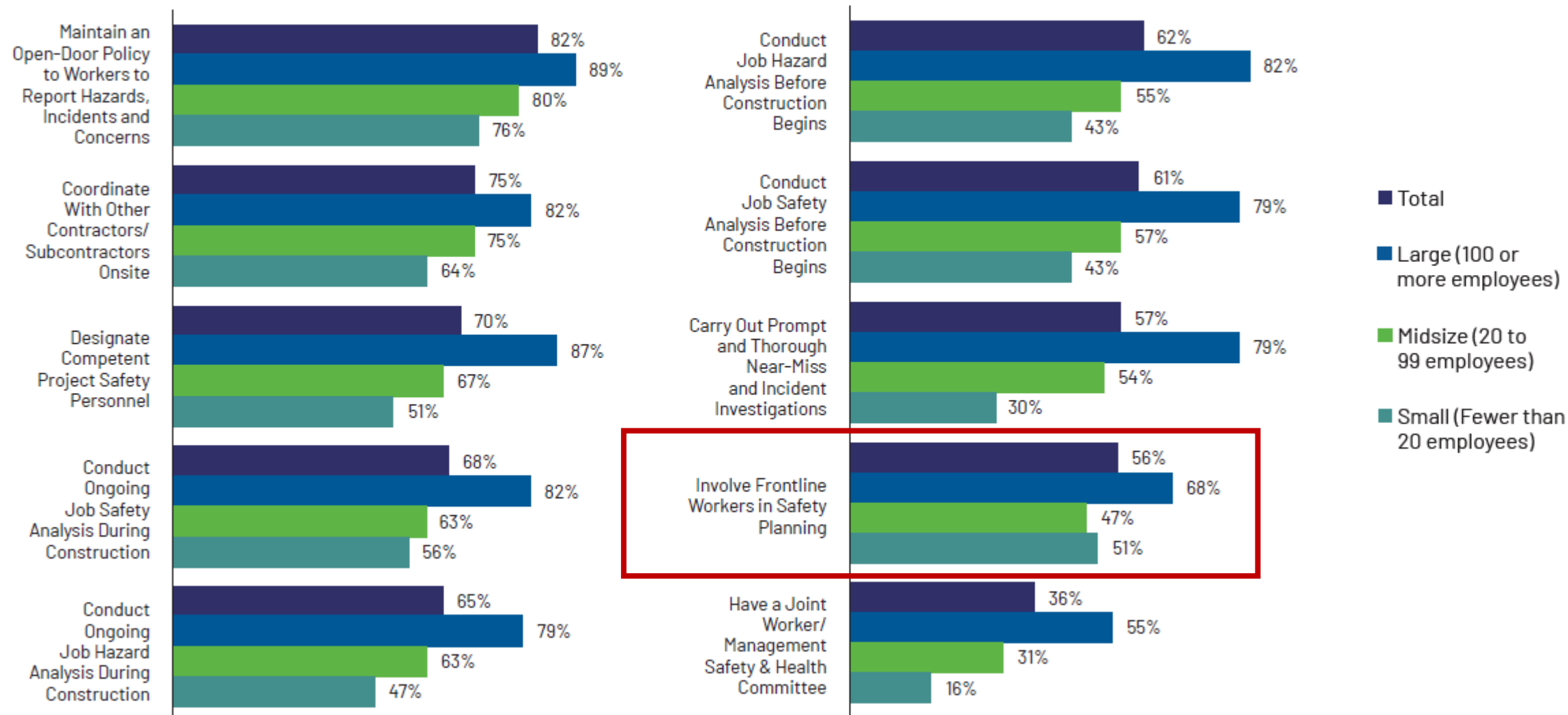
Use of Project/Site Related Safety Practices



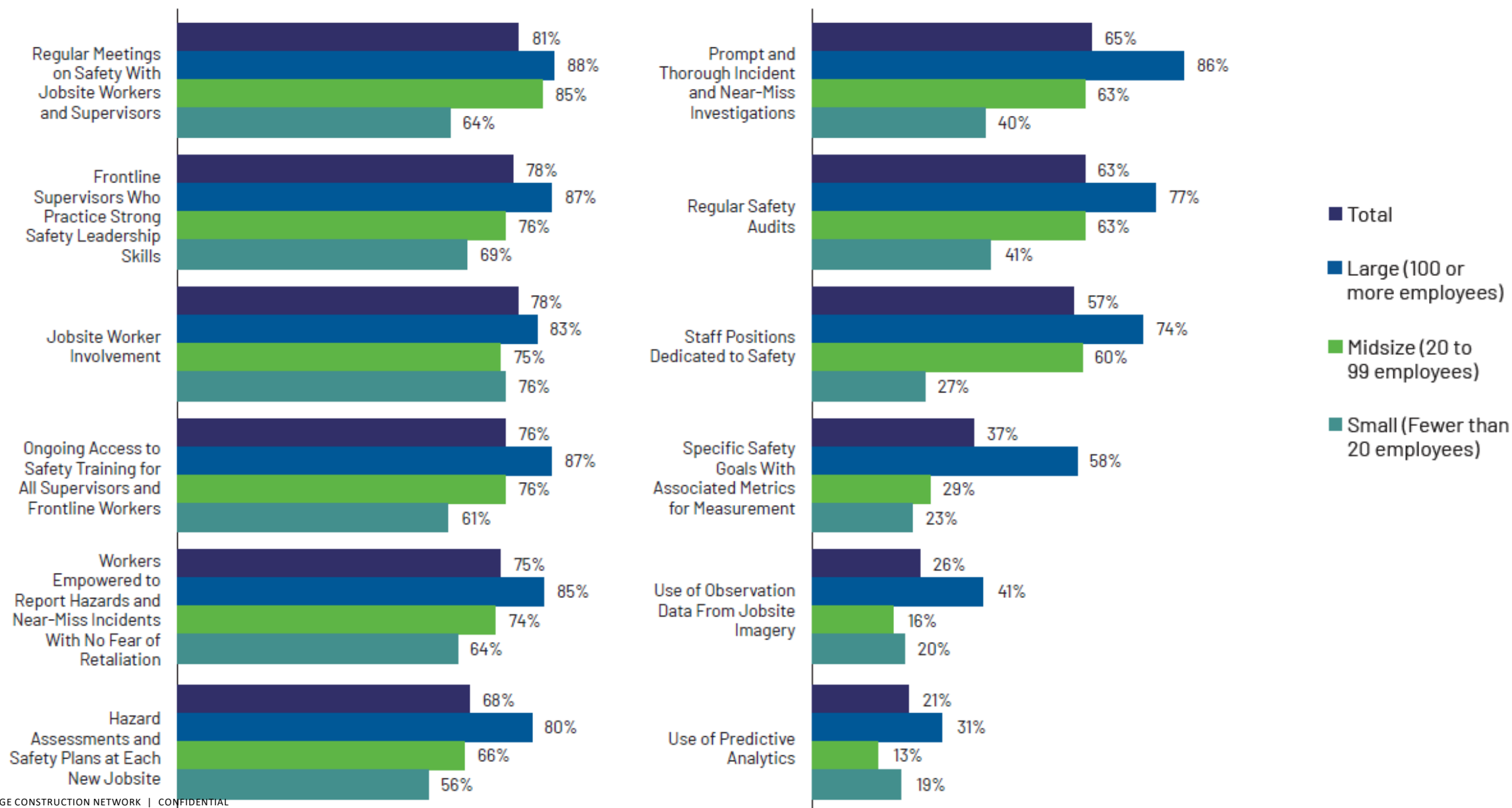
Use of Organizational Practices to Promote Safety



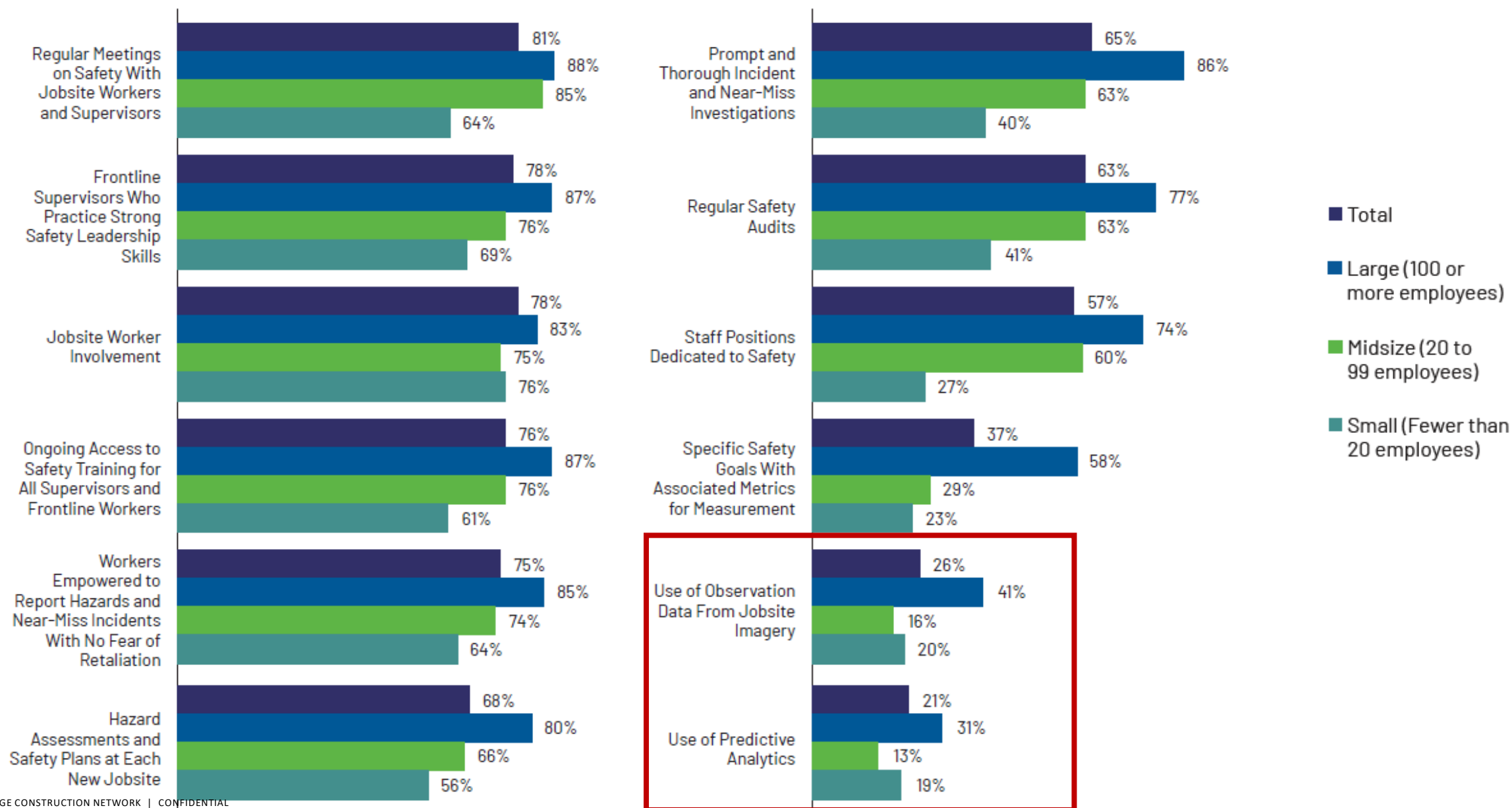
Use of Organizational Practices to Promote Safety



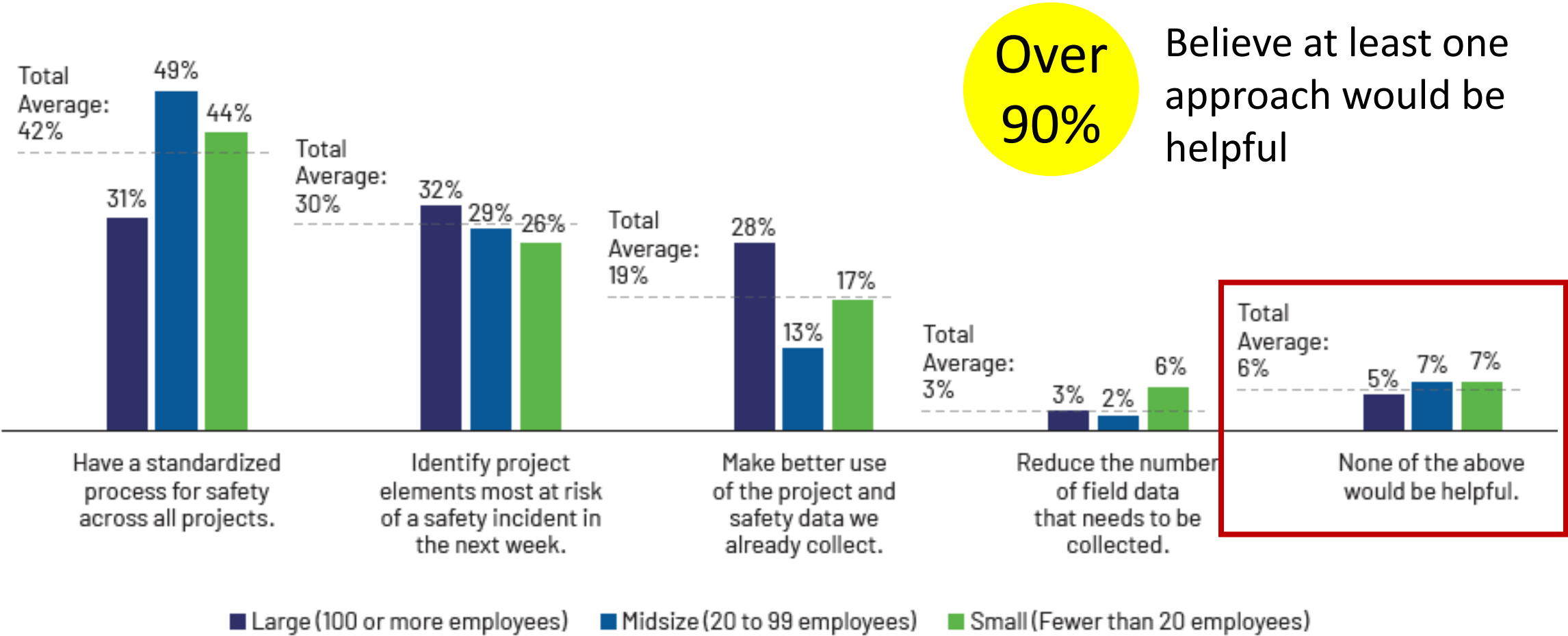
Elements of a World Class Safety Program



Elements of a World Class Safety Program



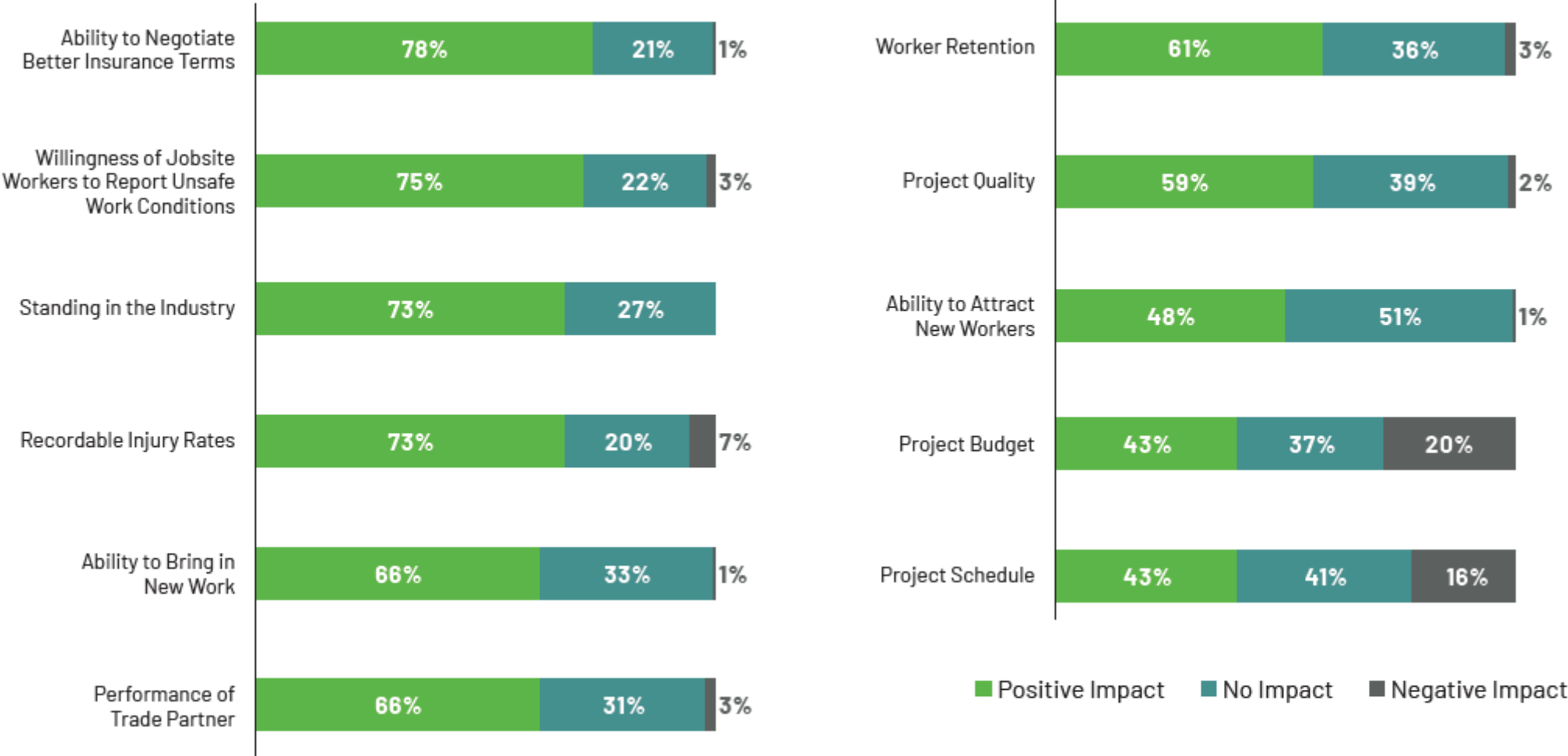
Ways to Improve Safety Programs



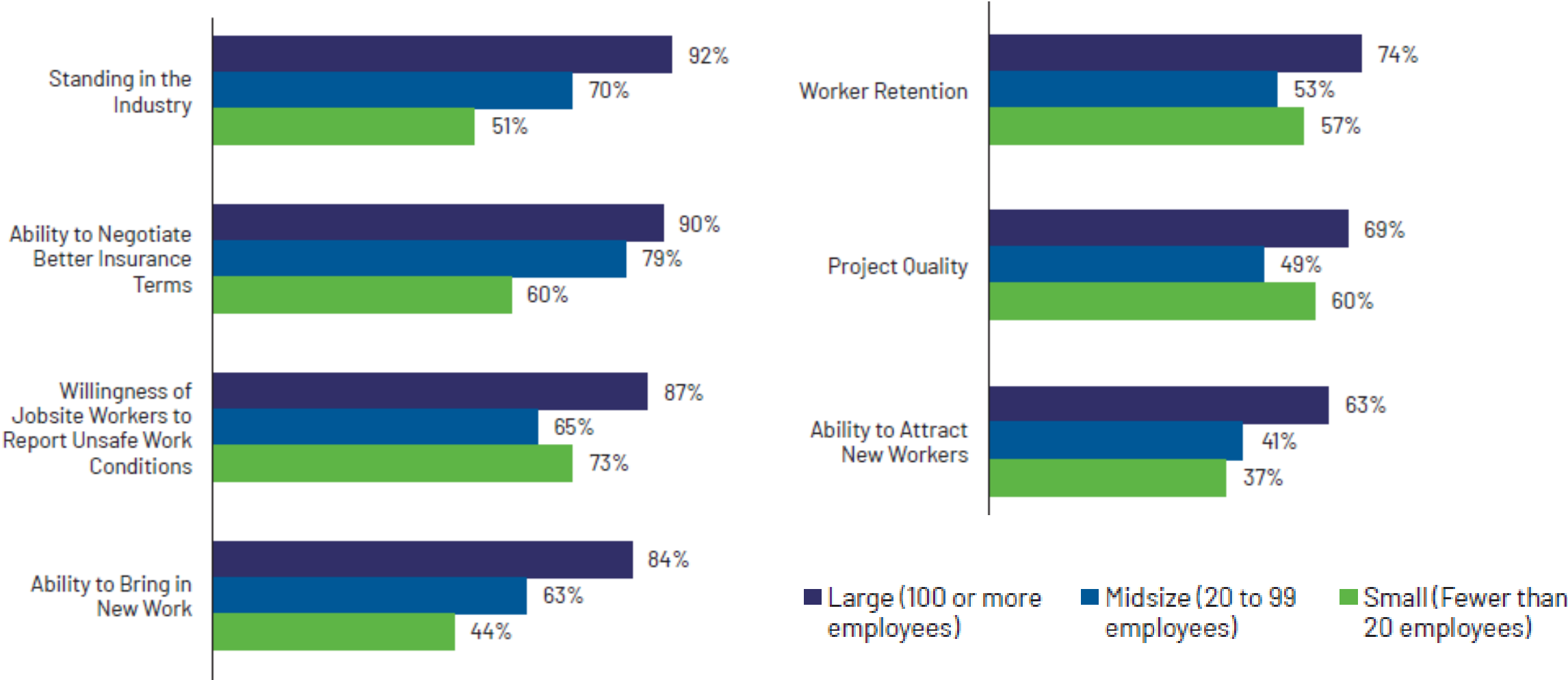
Impacts of Safety Programs

3

Impacts of Contractor Safety Programs



Impacts of Contractor Safety Programs



Large Tech Office Building in San Francisco

- 1.8 M sq-ft
- +/- 1,000 workers onsite at peak
- Lean methods led them to three years plus 180 days (and growing) without a recordable safety incident
 - Daily Huddles
 - Gemba Walks with all trades



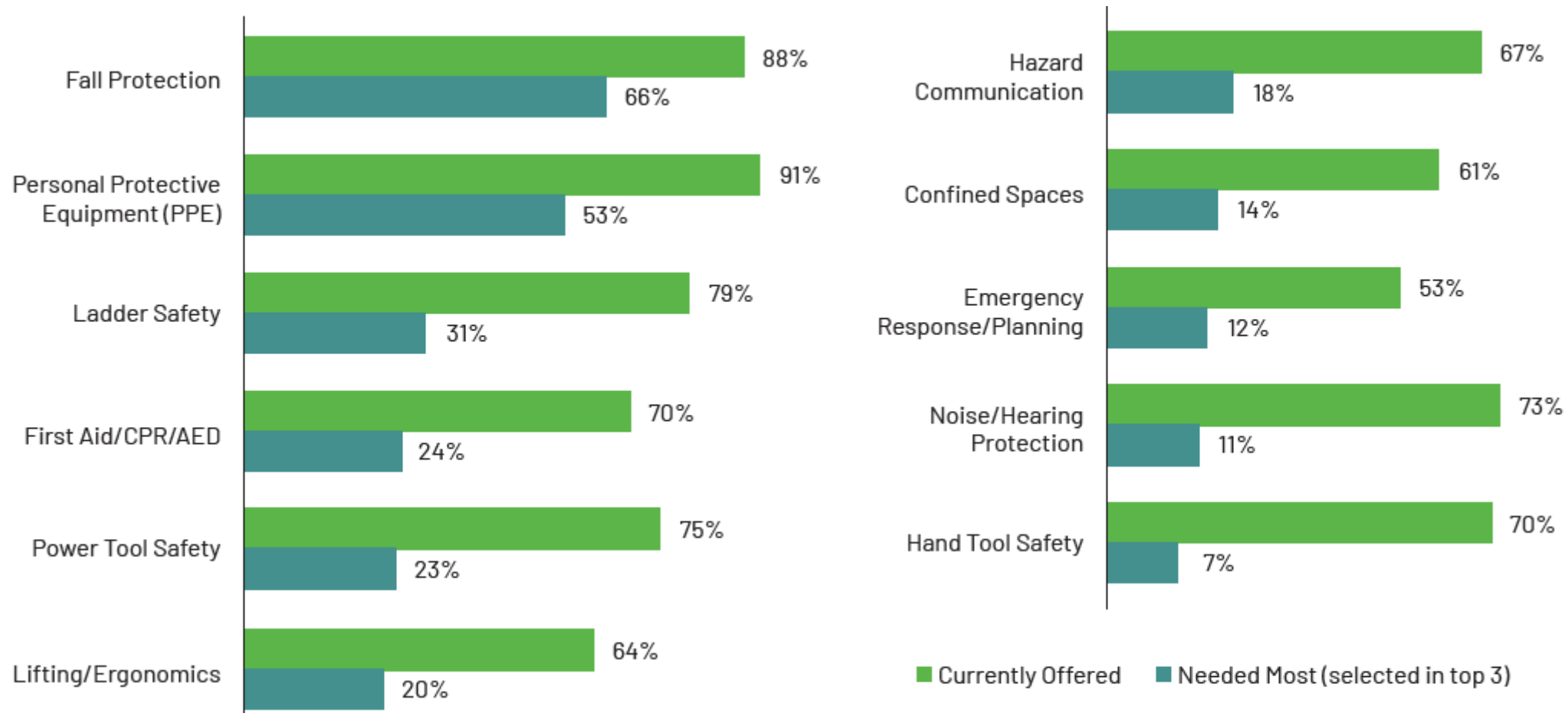
BBQ Safety Lunch Celebration:

“Lean construction forces people to say, ‘I can do it alone, but I can’t do it better alone. I need the person next to me.’” Henry Nutt III, preconstruction executive at Southland

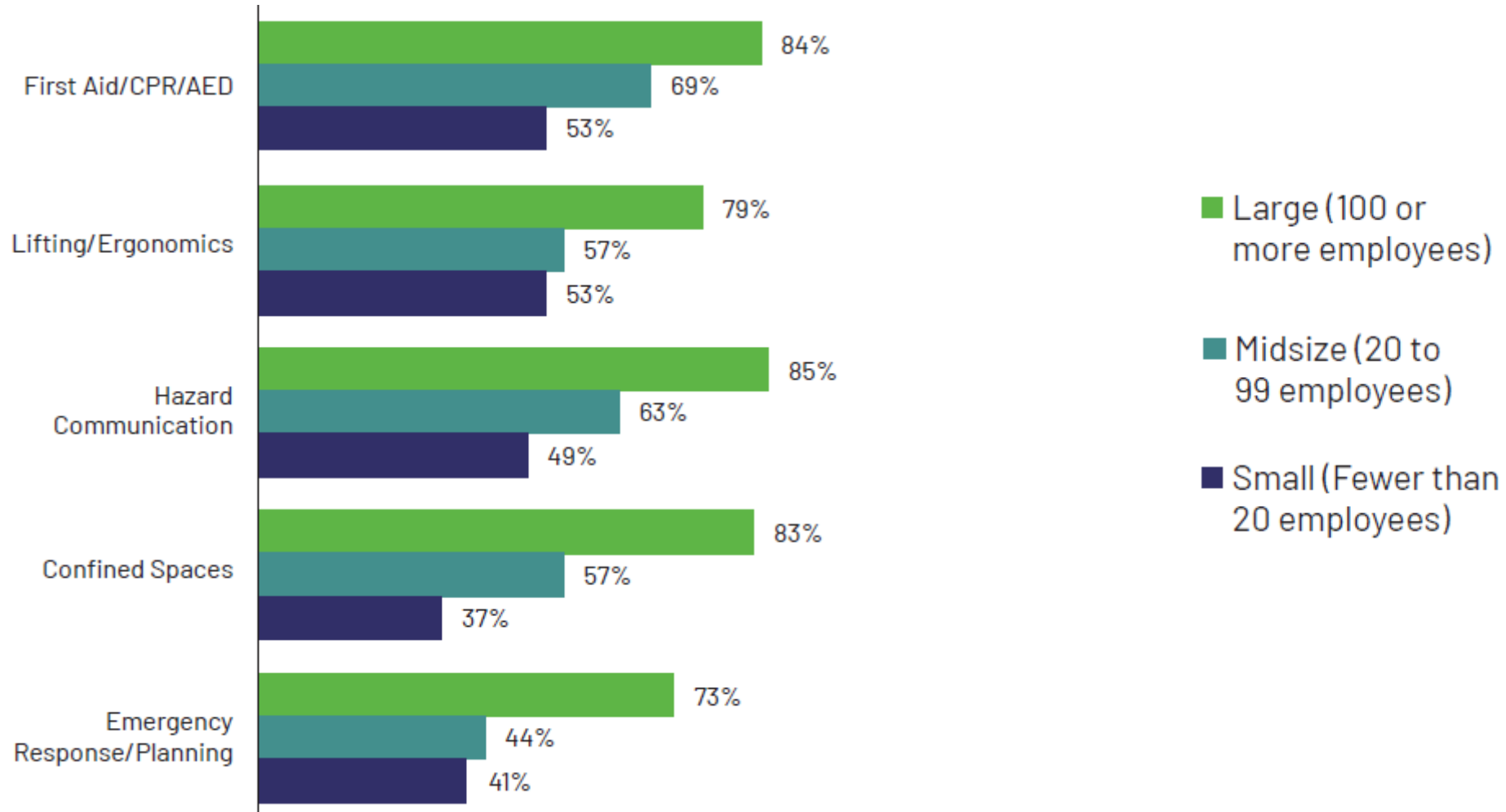
Training

4

Types of Training (Offered and Needed)



Types of Training Offered (Biggest Gaps by Size of Company)



Top Influential Factors on Type/Frequency of Training

Selected in the Top Three

Specific Jobsite Conditions/Needs



Meeting OSHA Standards



Need to Stay Current on New Regulations



Experience Level of Workers



Concerns About Worker Productivity



Requirements of Project Owner/User



Availability of In-Person Training Resources



Availability of Online Training Resources



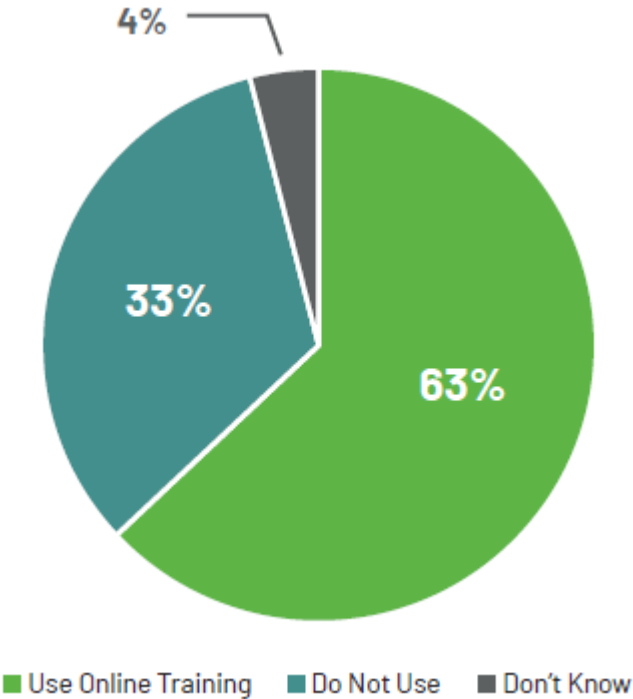
Leadership Priorities

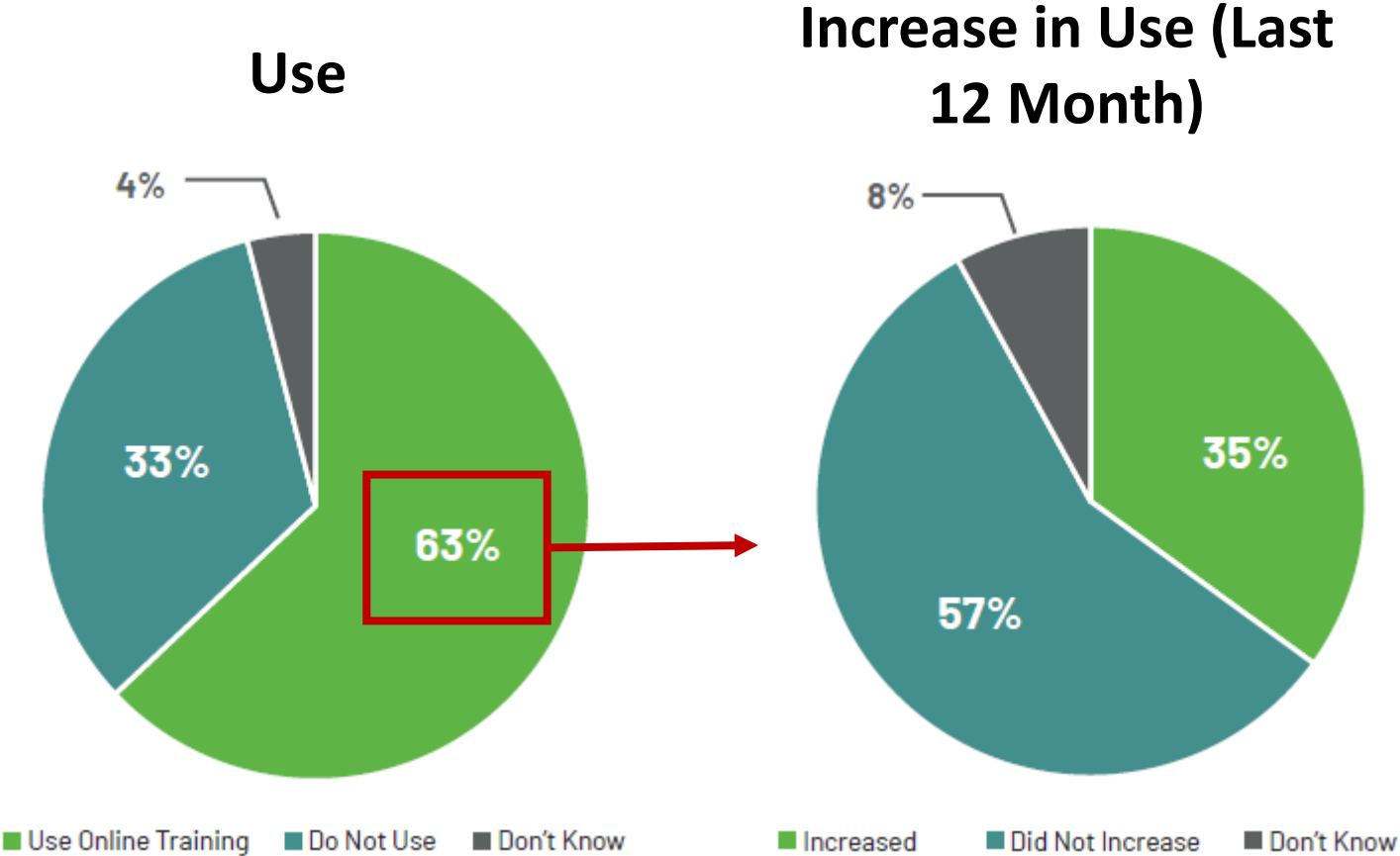


Recommendations From Unions/Associations, etc.

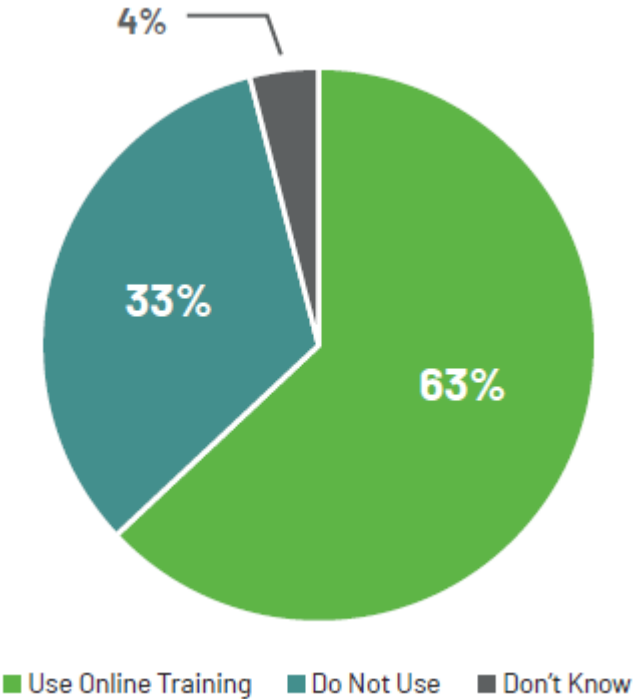


Use

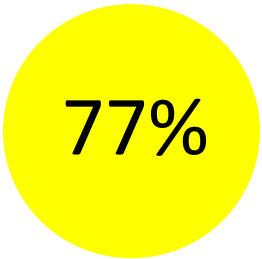
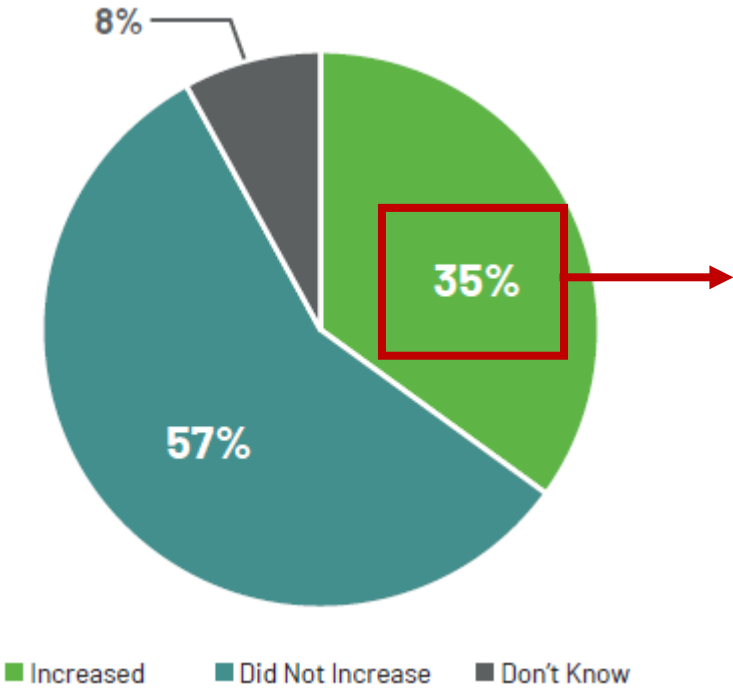




Use

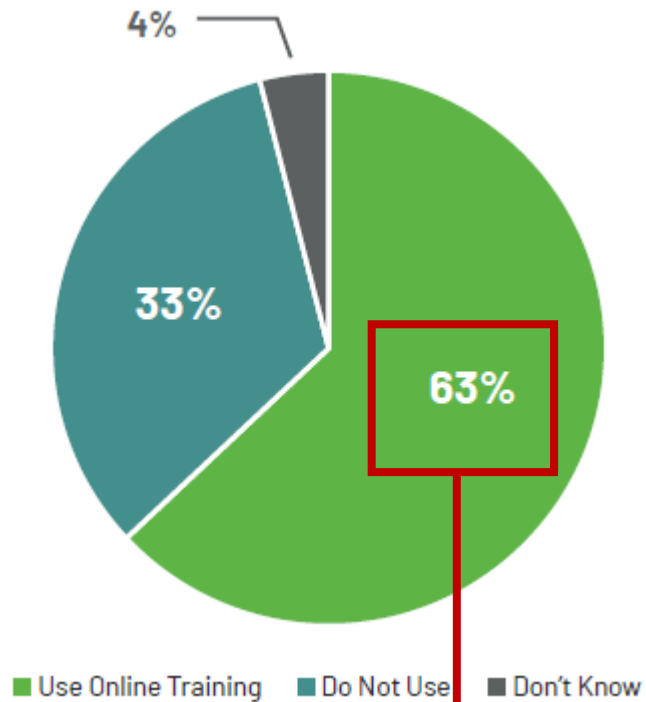


Increase in Use (Last 12 Month)

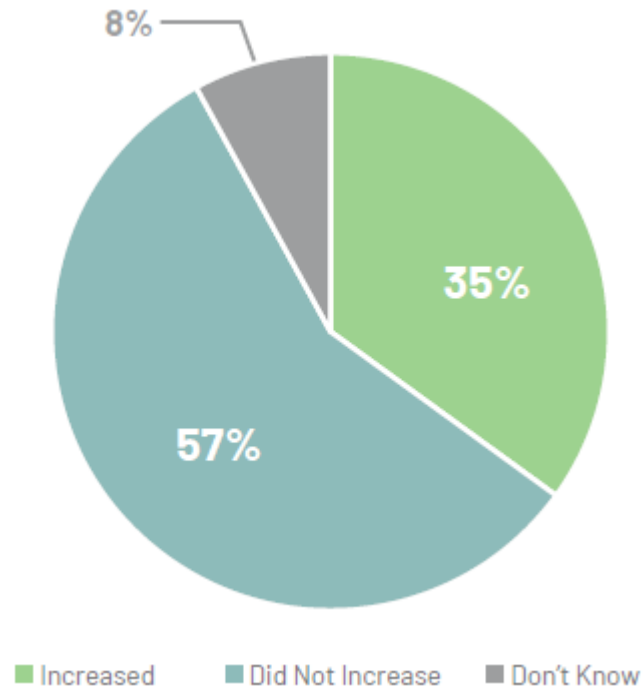


COVID-19 influenced increase in training

Use



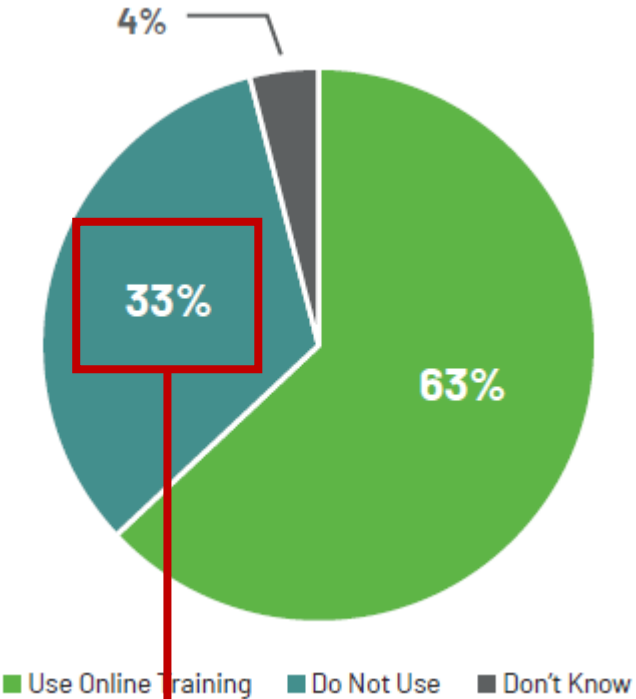
Increase in Use (Last 12 Month)



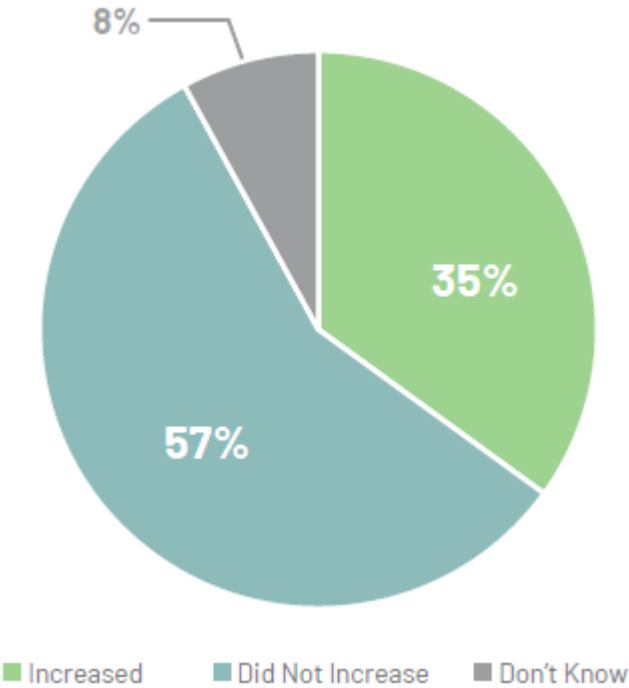
41%

Current users who plan to increase use of online training in the next 3 years

Use



Increase in Use (Last 12 Month)



24%

Nonusers who plan to use online training in the next 3 years

Means to Enhance Safety Training

Task-Specific Training Materials



Information on Emerging Hazards



Resources to Conduct Online Training



Toolbox Talks



■ Somewhat Enhance ■ Significantly Enhance

Created by Contractor

49%

OSHA Website

44%

Contractor Association

41%

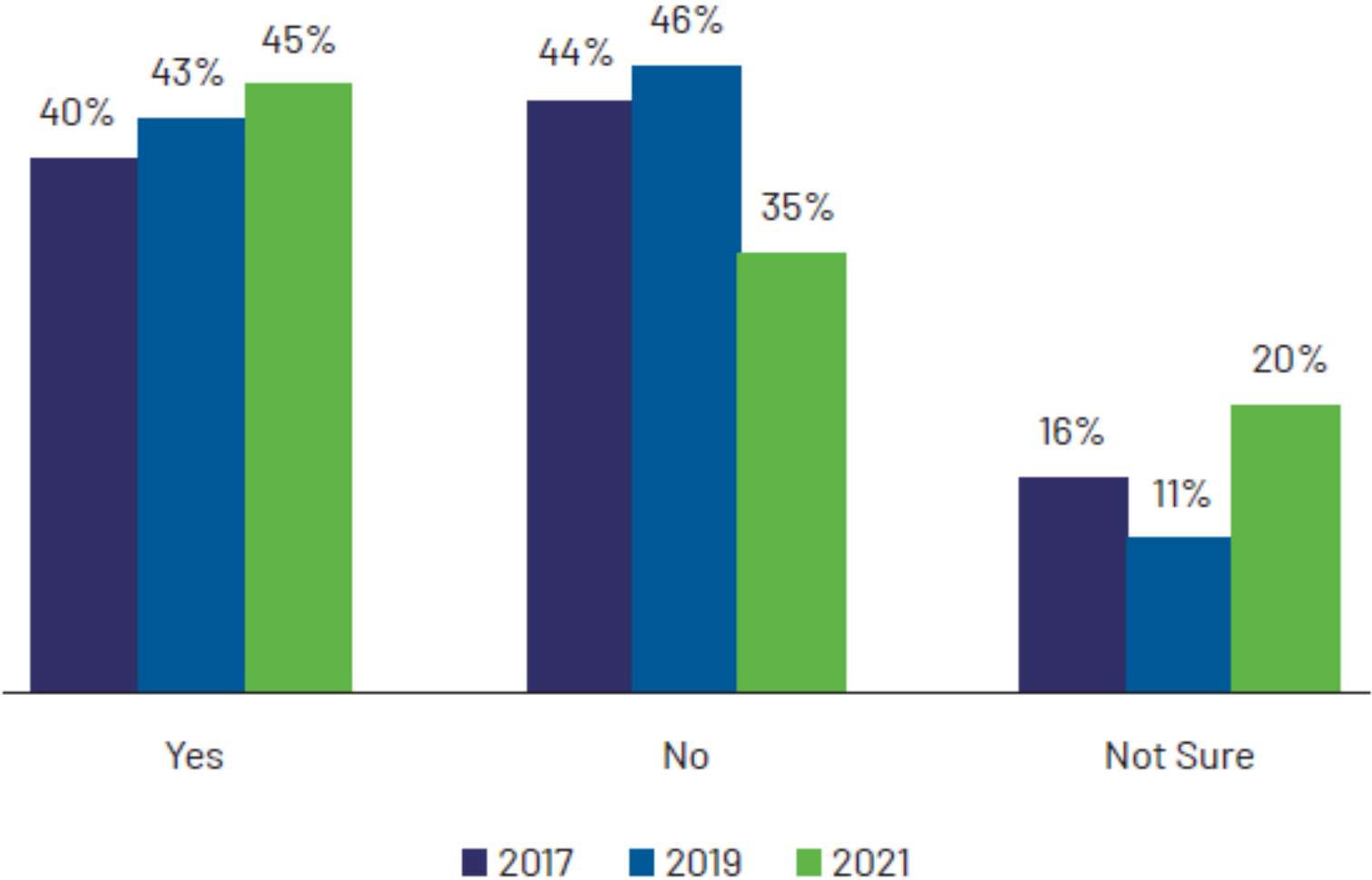
Insurance Company

31%

Supplier/Vendor/Manufacturer

26%

Foundations for Safety Leadership Training: Use Over Time



Safety Program Employing Visual Management at KHS&S Contractors: Bringing safety out of the manual and onto the site.

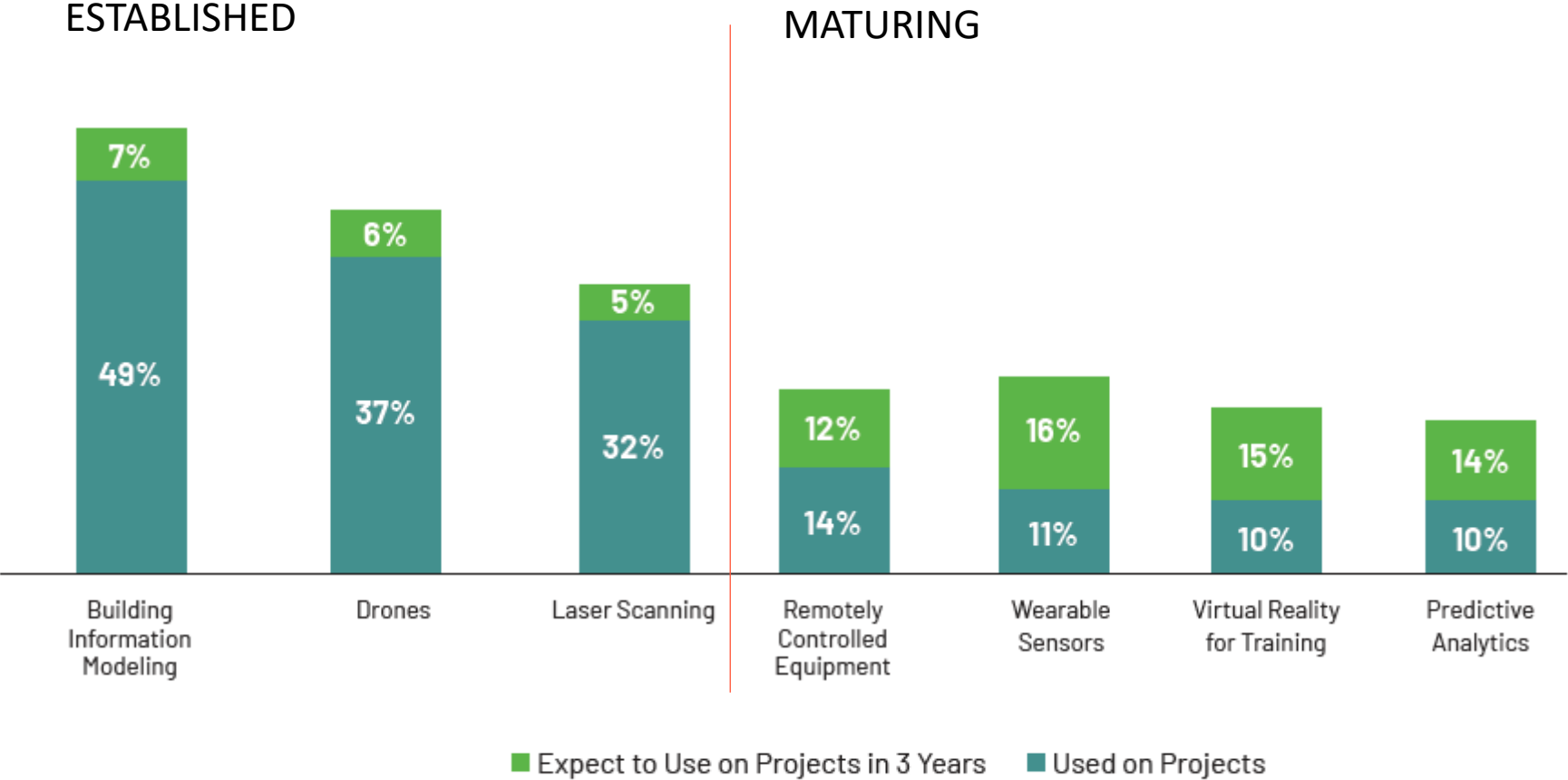
- Created series of icons and symbols for hazards and work conditions, rather than relying on manuals.
- Use icon stickers to indicate hazards on the drawings
- Constant feedback loop from workers helps them to create most effective icons
- Consistent decreases in incidents and injuries

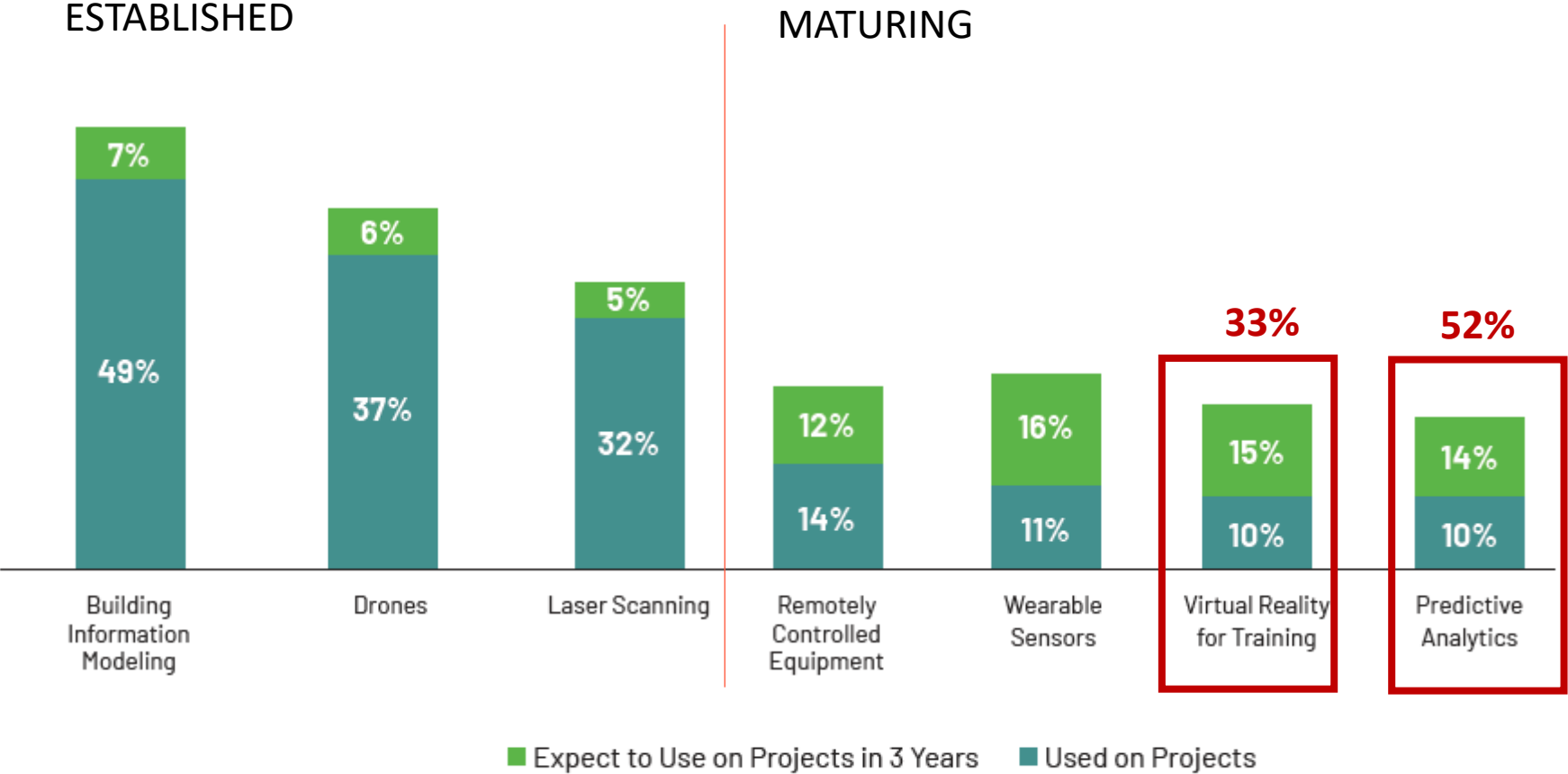


“How do we know [this program] is working? Because our employees tell us. They literally tell us.” Michael Cabrea, director of safety and risk control, KHS&S Contractors

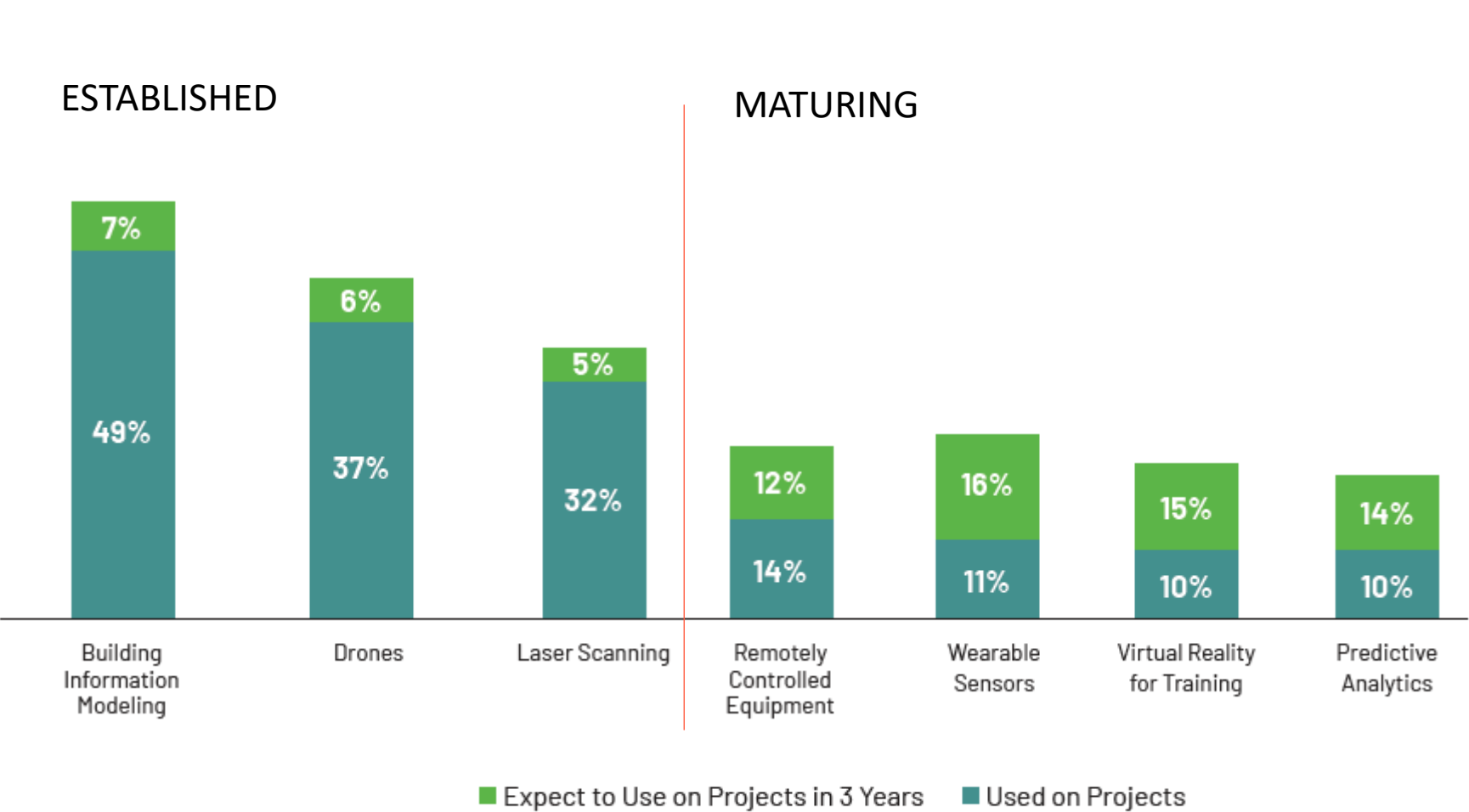
Technology

5





Users report frequent/very frequent use



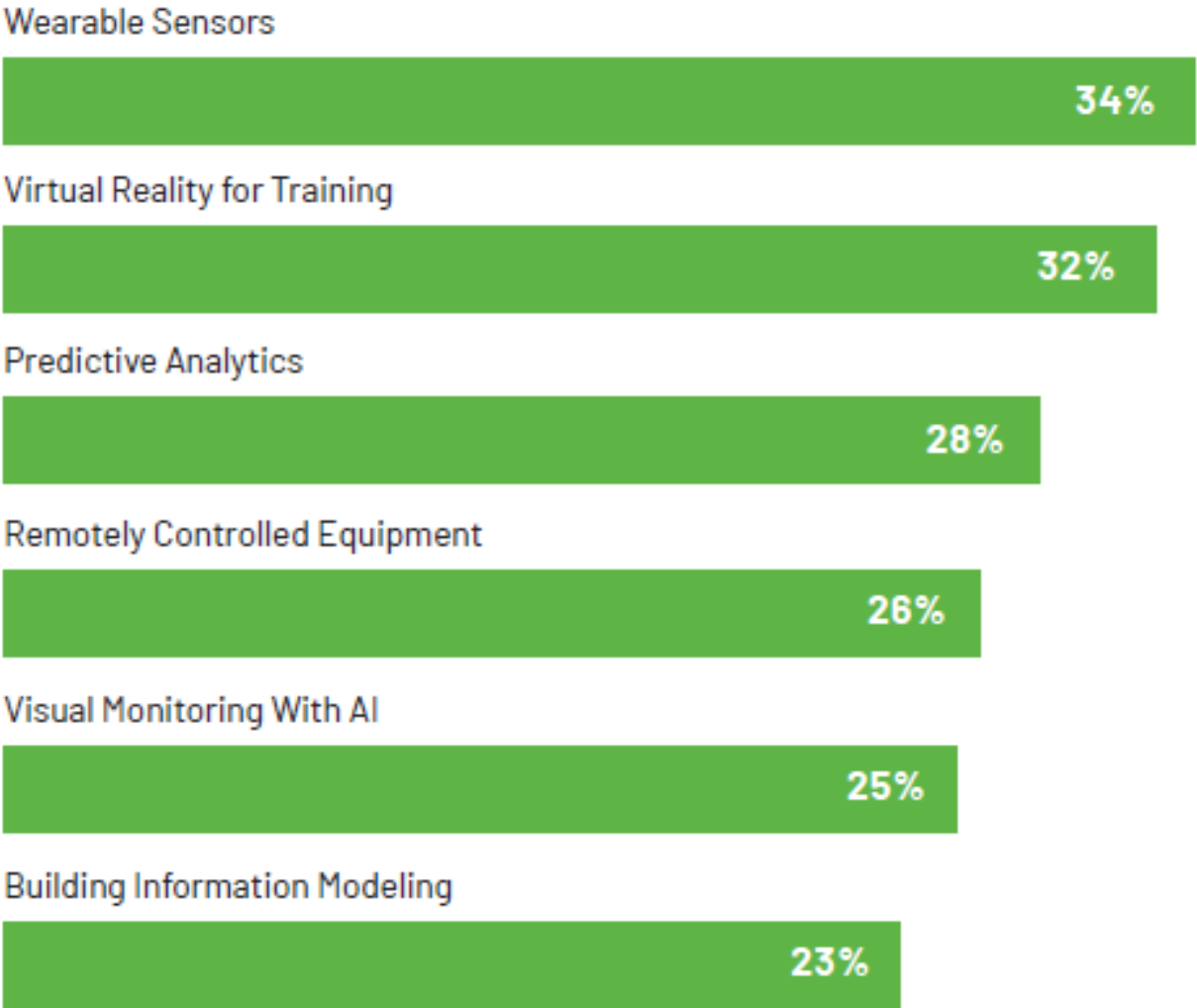
Emerging Technologies (used by 5% to 8%):

- 3D printing
- Photogrammetry
- Visual monitoring with AI*
- Augmented reality

* 9% expect to use in 3 years and 47% of users report using frequently/very frequently

Top Technologies That Will Positively Impact Health & Safety

Selected in the Top Three



Either do not use data at all in safety program or collects data but most goes unused



72% Small Companies

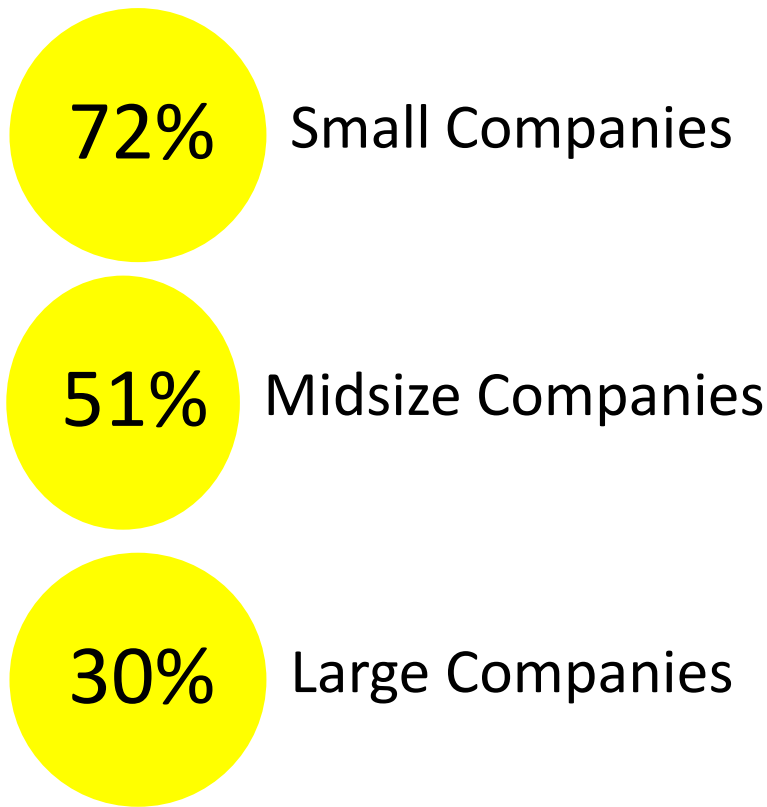


51% Midsize Companies

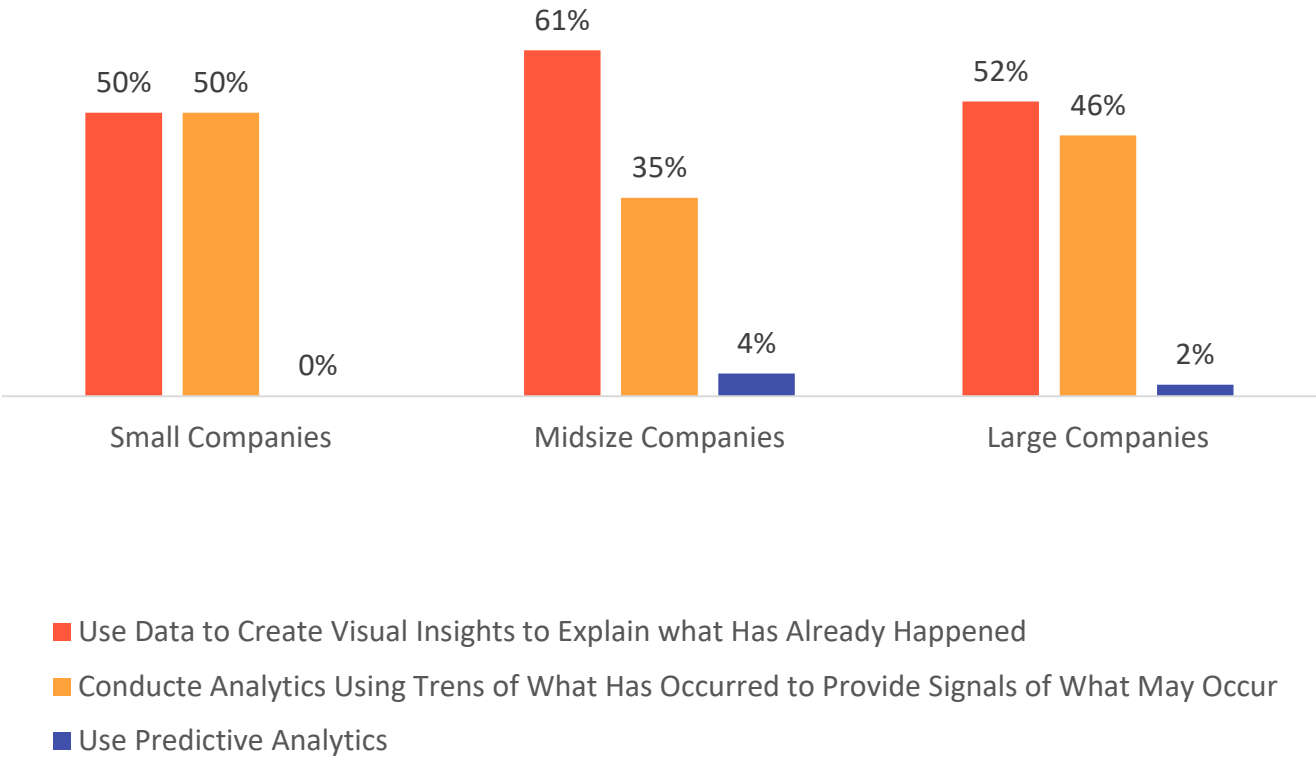


30% Large Companies

Either do not use data at all in safety program or collects data but most goes unused



How Those Using Data for Safety Are Doing So



The Boldt Company is using predictive analytics to use safety.

- Boldt is using AI to integrate predictive risk analytics into its project schedule
- Education of workforce is essential to set expectations about what you can get from predictive analytics.
- Software helps them get a “big picture” of safety issues rather than looking at it as a series of incidents.
- Benefits: Workers compensation costs cut by 75% and 10% reduction in total accident rate



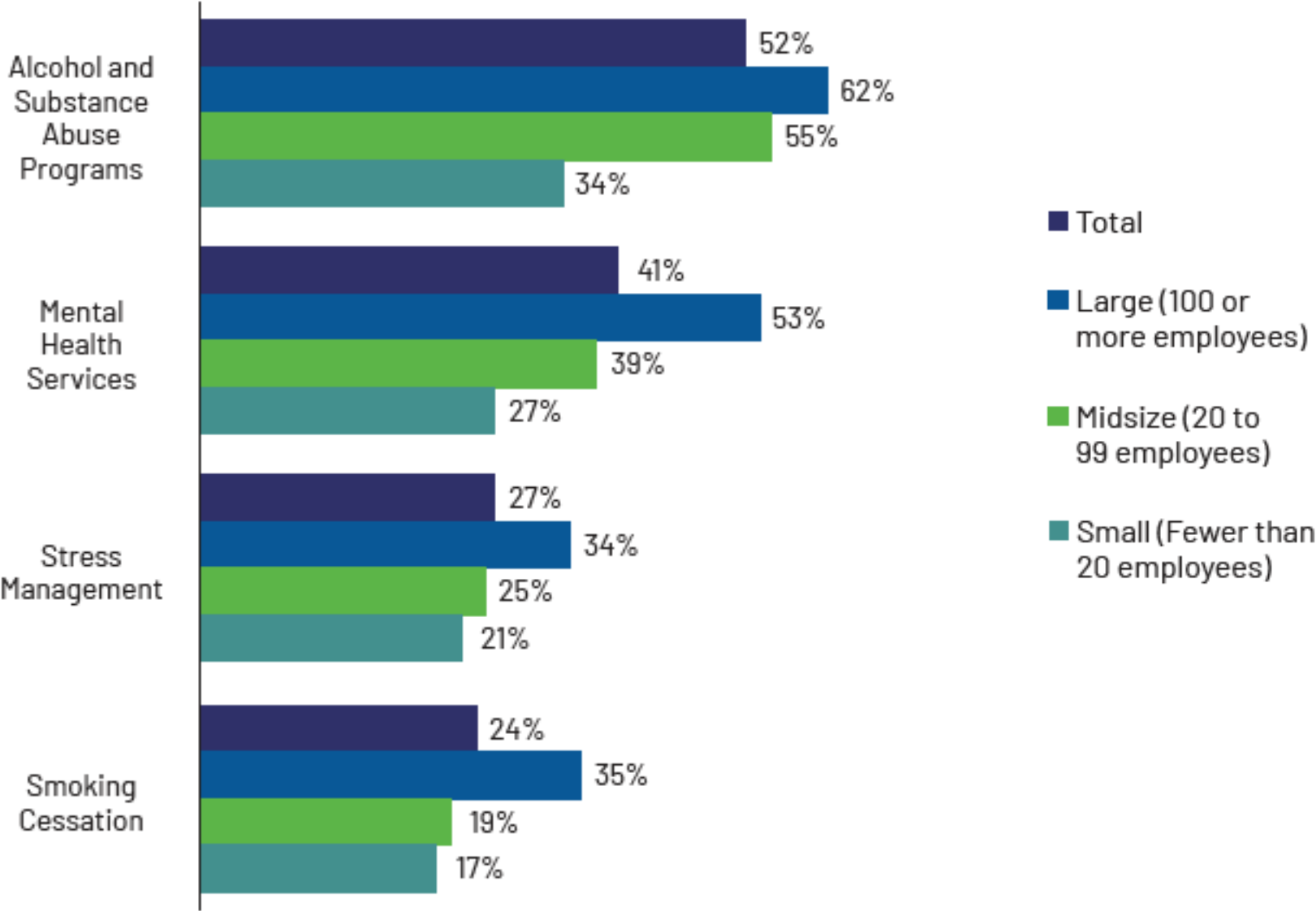
“Our project teams are hungry to get a better understanding of the risks they face.”

Scott Frazer, VP of corporate safety, the Boldt Company

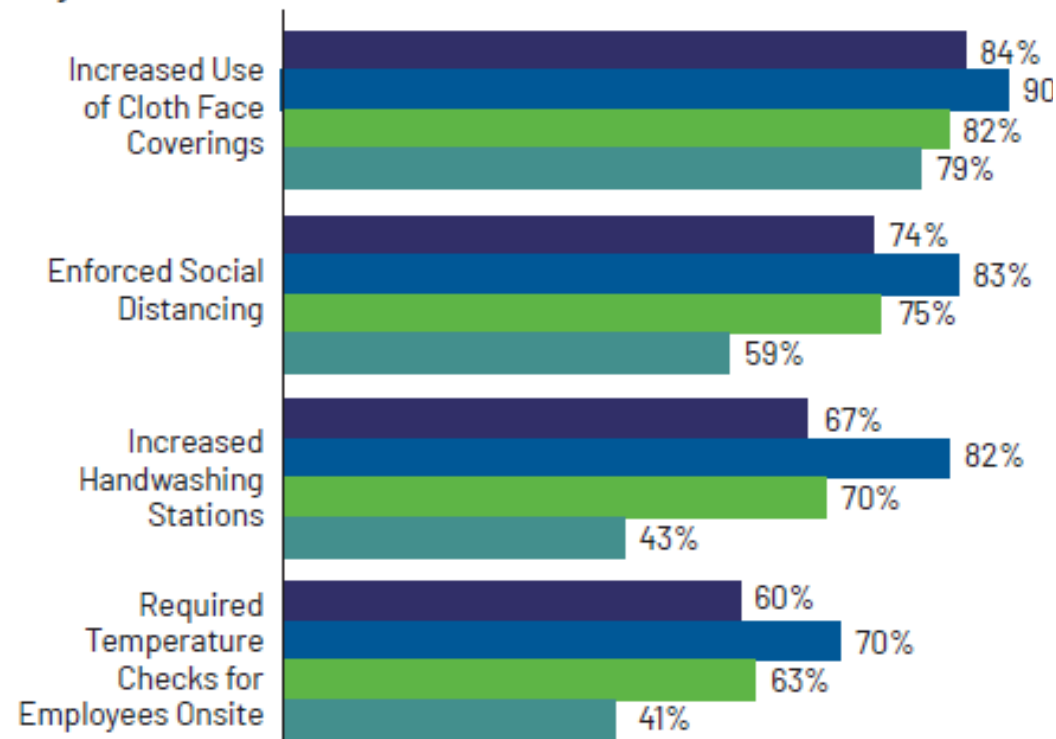
Health and Wellness

A large, bold, black number 6 is positioned on the right side of the slide. It is a simple, sans-serif font with a thick stroke.

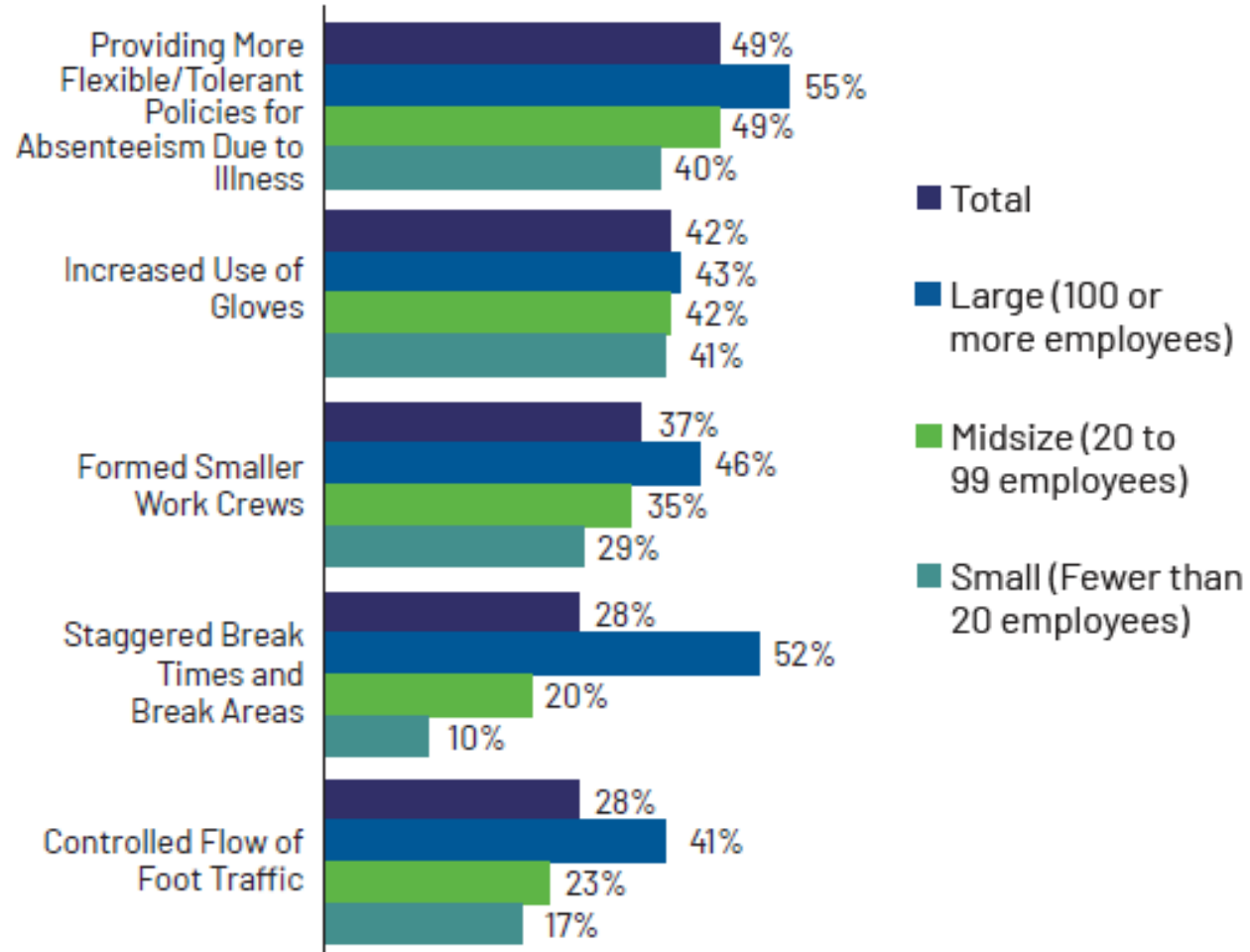
Provide Health/Wellness Programs to Jobsite Workers



Widely Used Practices

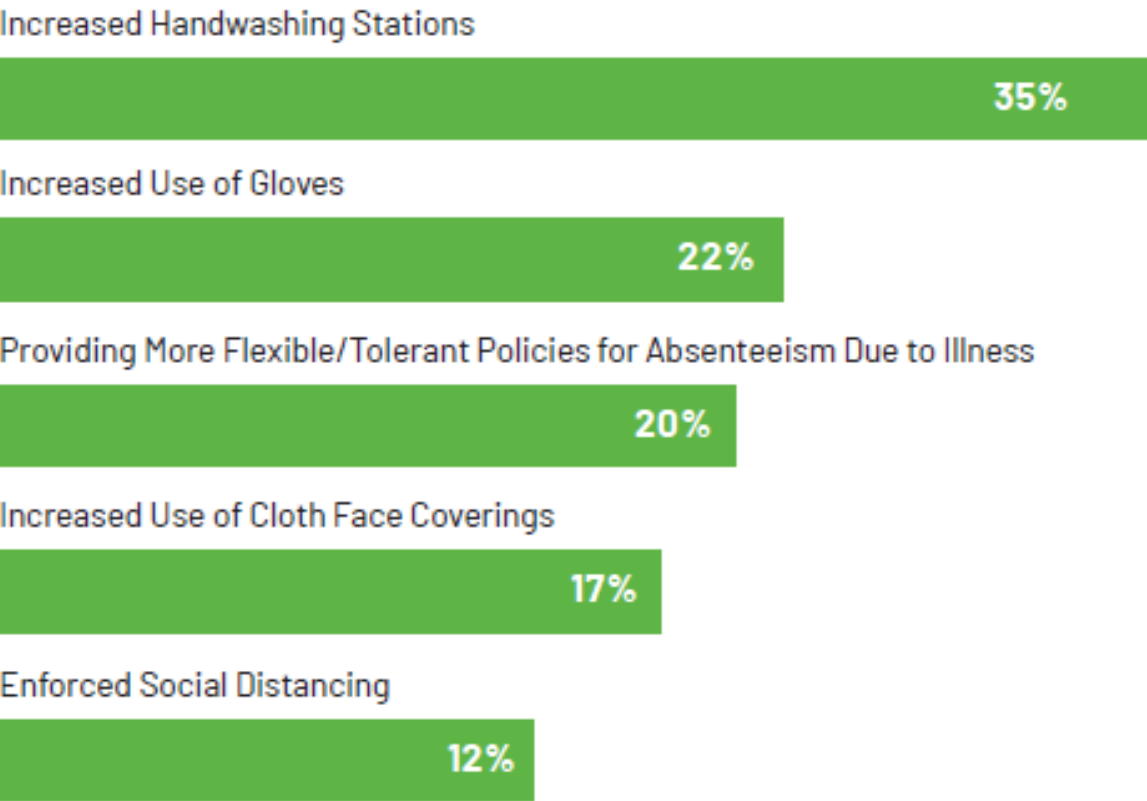


Practices in Moderate Use



Top Practices Contractors Plan to Continue Using Post-Pandemic

Dodge Data & Analytics, 2021



Top Findings



- Data-driven safety is still an emerging trend, but contractors are expecting to engage with many technologies that improve safety.
- Small companies still do not have as many formal safety practices and health programs in place, which suggests that more resources are needed from the industry.
- Engagement with online training grew during the pandemic and is expected to grow further.
- Safety programs continue to provide robust benefits to contractors.



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Thank you.

