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WELCOME & THANK YOU FOR JOINING…

CPWR's 2025 r2p Seminar & Partnership Workshop

June 4, 2025

Advancing Heat Safety in Construction

CPWR 2025 r2p Seminar & Partnership Workshop

Gavin West, MPH

Director, Health Research

CPWR – The Center for Construction Research & Training

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I would like to thank my colleagues and acknowledge their great work!

Official Research Team

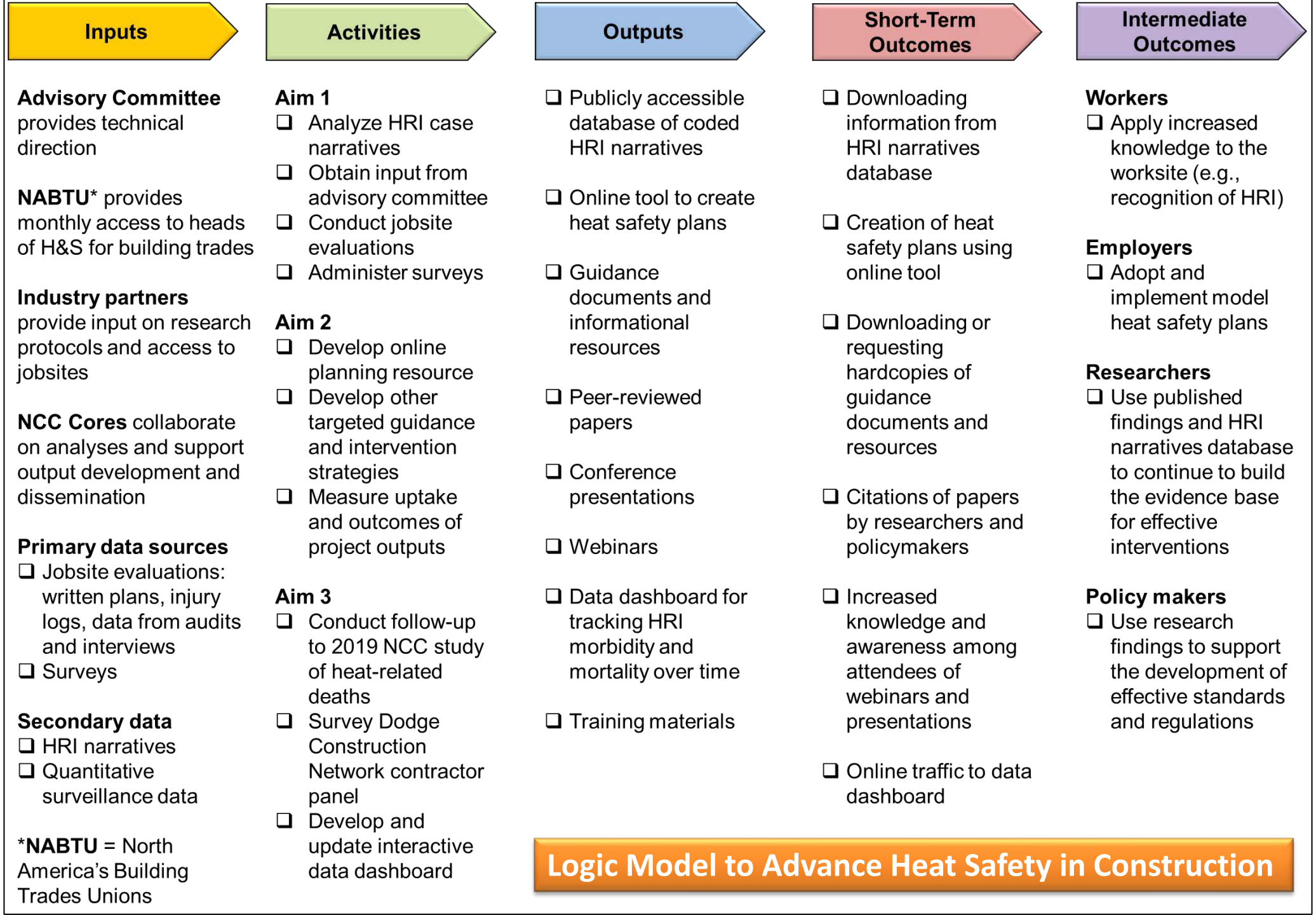
- Gavin West
- Cora Roelofs
- Rosa Greenberg
- Walter Jones

Extended CPWR Family

- Jessica Bunting
- Amber Trueblood
- William Harris
- And more…

The project has three specific aims paraphrased here:

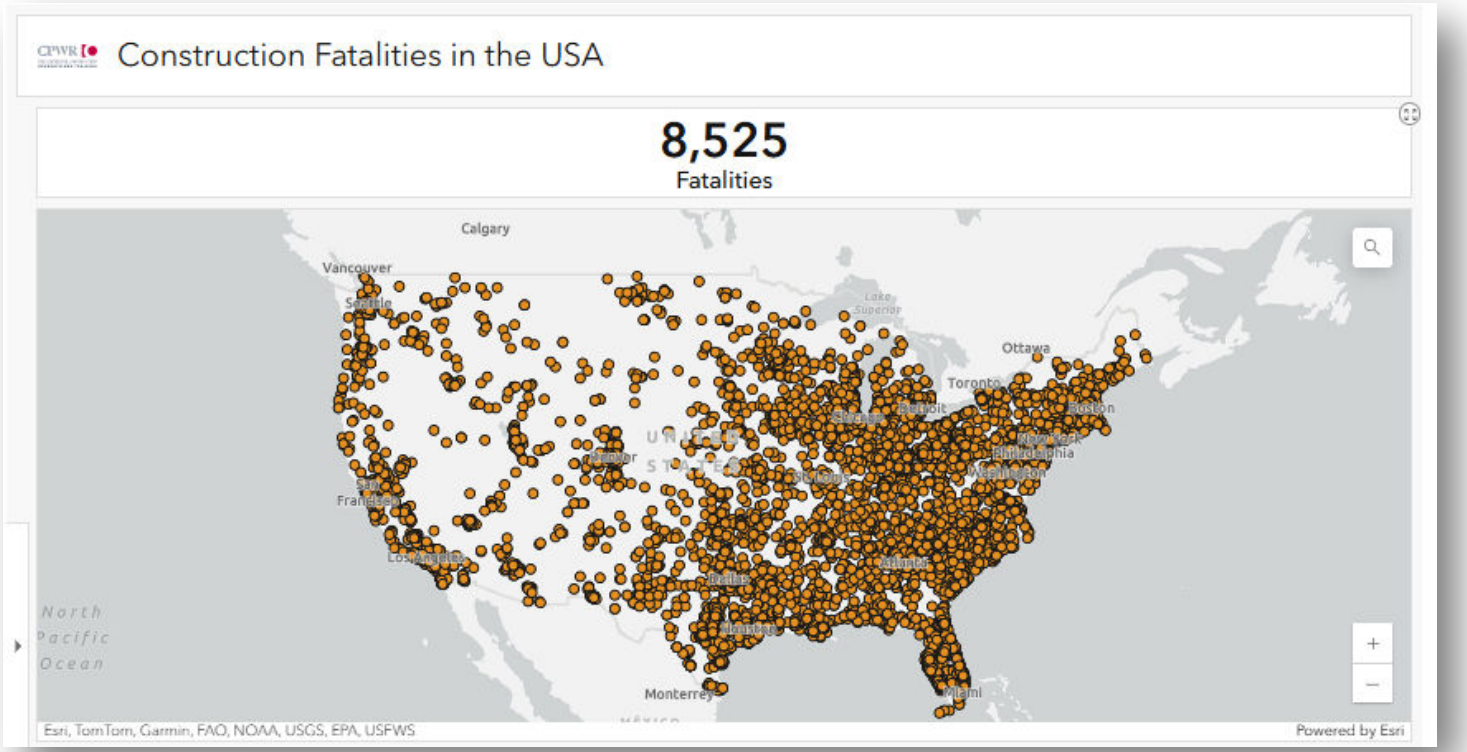
1. Identify construction activities that pose a high risk of heat stress and collect info on the use of new and existing heat stress solutions
2. Develop guidance, resources, and intervention strategies
3. Measure heat-related morbidity, mortality, and adoption of heat stress solutions sector over time


Inputs
Activities
Outputs
Short-Term Outcomes
Intermediate Outcomes
Advisory Committee provides technical direction
NABTU* provides monthly access to heads of H&S for building trades
Industry partners provide input on research protocols and access to jobsites
NCC Cores collaborate on analyses and support output development and dissemination
Primary data sources
❑ Jobsite evaluations: written plans, injury logs, data from audits and interviews
❑ Surveys
Secondary data
❑ HRI narratives
❑ Quantitative surveillance data
*NABTU = North America's Building Trades Unions
Aim 1
❑ Analyze HRI case narratives
❑ Obtain input from advisory committee
❑ Conduct jobsite evaluations
❑ Administer surveys
Aim 2
❑ Develop online planning resource
❑ Develop other targeted guidance and intervention strategies
❑ Measure uptake and outcomes of project outputs
Aim 3
❑ Conduct follow-up to 2019 NCC study of heat-related deaths
❑ Survey Dodge Construction Network contractor panel
❑ Develop and update interactive data dashboard
❑ Publicly accessible database of coded HRI narratives
❑ Online tool to create heat safety plans
❑ Guidance documents and informational resources
❑ Peer-reviewed papers
❑ Conference presentations
❑ Webinars
❑ Data dashboard for tracking HRI morbidity and mortality over time
❑ Training materials
❑ Downloading information from HRI narratives database
❑ Creation of heat safety plans using online tool
❑ Downloading or requesting hardcopies of guidance documents and resources
❑ Citations of papers by researchers and policymakers
❑ Increased knowledge and awareness among attendees of webinars and presentations
❑ Online traffic to data dashboard
Workers
❑ Apply increased knowledge to the worksite (e.g., recognition of HRI)
Employers
❑ Adopt and implement model heat safety plans
Researchers
❑ Use published findings and HRI narratives database to continue to build the evidence base for effective interventions
Policy makers
❑ Use research findings to support the development of effective standards and regulations
Logic Model to Advance Heat Safety in Construction

Timeline of activities		YR1	YR2	YR3	YR4	YR5
Aim 1	Phase 1: Analyze HRI case narratives	**x**	x			
	Phase 2: Meet with advisory committee bi-annually	**x**	x	x	x	x
	Phase 3: Conduct jobsite evaluations	**x**	x	x	x	
	Phase 4: Develop and administer online surveys		x	x	x	
Aim 2	Develop and launch online planning tool			x	x	
	Enroll study participants to use and evaluate online planning tool				x	
	Develop and disseminate other guidance and educational resources				x	x
Aim 3	Conduct follow-up to 2019 CPWR study of heat-related deaths	**x**	x	x		
	Dodge Construction Network Construction Safety Management Survey		x			x
	Create and continue to update interactive data dashboard	**x**	x	x	x	x

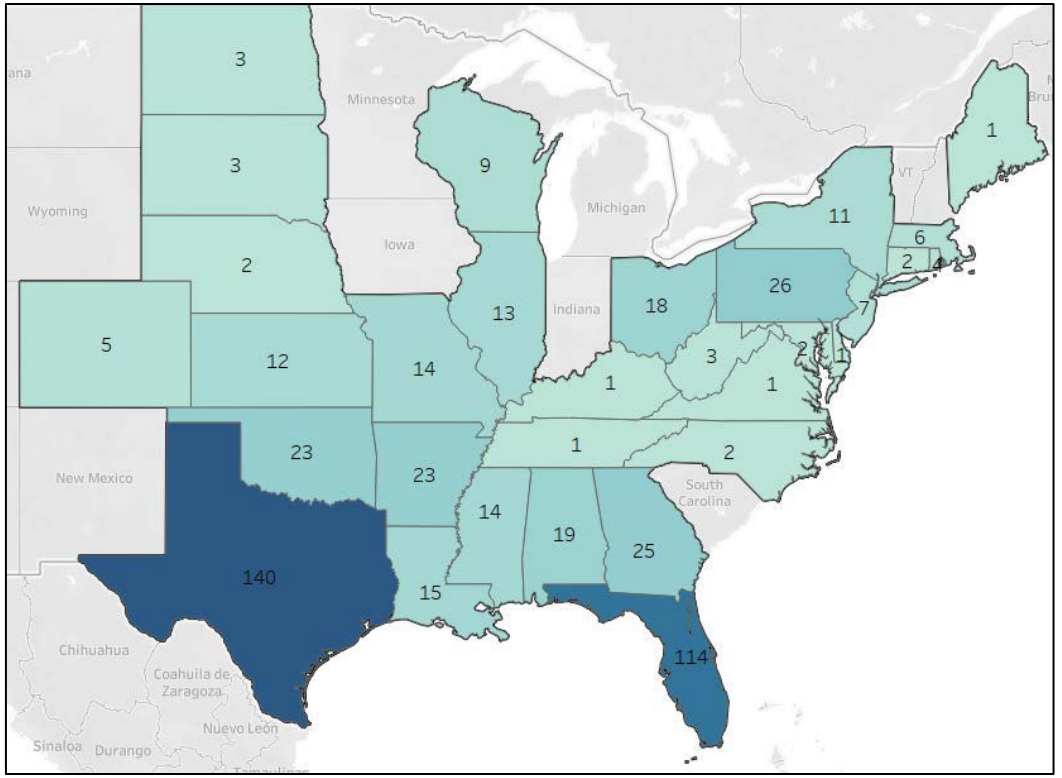
We have been coding and analyzing heat-related illness and injury narratives from three data sources

1. OSHA Severe Injury Reports
2. CPWR Fatality Map
3. NIOSH FACE Reports



Selected preliminary results from the coding and analysis of federal OSHA Severe Injury Report Narratives (2015-2023):

- 524 heat-related severe injuries reported
- Heat-relatedness uncertain in 10% of cases
- Occurred in all areas of the country subject to federal OSHA reporting requirements
- 31.5% involved an OSHA inspection
- 13.5% indicated a delayed response to signs and symptoms
- 54 severe fall injuries identified where heat may have been a contributing factor
- Ambient temps ranged from 72 to 110 (°F)
- Ambient heat indexes ranged from 82 to 111 (°F)



We are working with a large contractor to schedule our first site visit possibly as soon as next week

- Visit 3-4 sites each summer
- Conducted by 2-3 staff members
- Assess site conditions and heat safety practices on 2 or 3 separate days
- Survey and interview upper management, supervisors, workers
- Strive to cover different geographic regions
- Compare what works well for different employers (e.g., large vs. small)

Research questions for the site visits:

How do workers and management describe the impacts of heat?	Health Operations Other
How are heat illness prevention strategies and procedures being implemented at the worksite?	Feasibility Effectiveness Challenges
What are the impacts of these strategies and procedures?	Health Operations Other
How could heat illness prevention strategies and procedures be improved?	Supports needed Technology innovations Readiness for change

Site visit instruments are undergoing IRB review

Contractors: Help Researchers Find Ways to Keep Your Workers Safe in Hot Weather

CPWR–The Center for Construction Research and Training is conducting a research study to understand and improve heat safety to better protect construction workers.

Project Goal: Develop and share strategies to prevent heat-related illnesses and save lives.

Research Questions

1. What are the impacts of extreme heat?
2. How is extreme heat managed at the job site?
3. What is working well to manage the effects of heat on workers and what areas remain challenging?
4. What are the opportunities for improvement?

Who Can Participate?

We are looking for construction firms, preferably with active worksites in Maryland or the Washington DC metro area, to participate in the study.

Study Process and Expectations[1]

Researchers will visit the site on two to three days during the summer of 2025 to collect information about the implementation and impact of heat illness prevention plans. This will include:

- A kickoff meeting to introduce the study and outline the process
- A walk-through of the site to observe heat illness prevention practices
- Management interviews to learn about supervisors' experiences, challenges, and needs with heat safety
- Brief worker surveys to gather their insights and experiences
- Wrap up meeting to report findings and answer questions

Ethical Considerations

Your company name will not be used without permission. Participation is voluntary and confidential. Participants may choose to withdraw from the study at any time.

[1]Details related to scheduling, walk-throughs, safety procedures, etc. will be discussed prior to enrollment.

To learn more, contact:
Project Director, Gavin West
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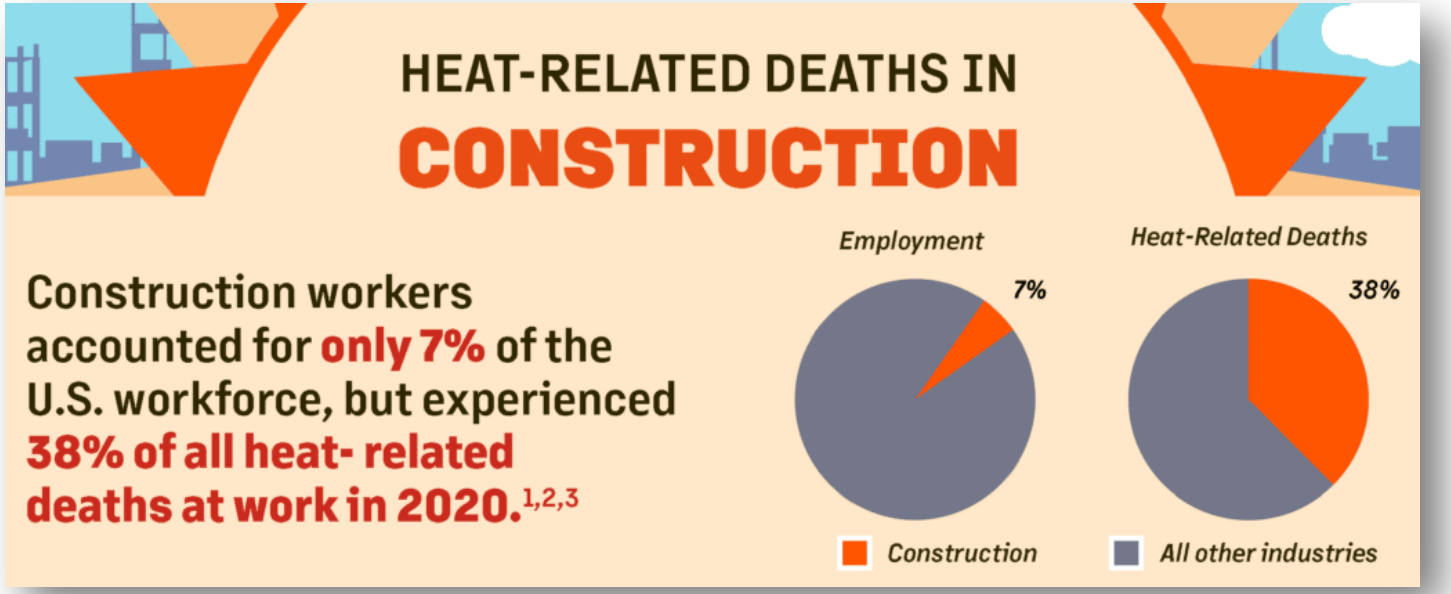
cpwr.com/heat

1. Informed Consent Form / Information Sheet
2. Contractor Pre-Site Visit Questionnaire
3. Contractor On-Site Questionnaire
4. Site Walkthrough Form
5. Qualtrics Online Worker Survey
6. Worker Interview Guide
7. Recruitment flyer for Contractors
8. Recruitment flyer for Workers

We continue to work closely with our Data Center colleagues on Aim 3 activities

- Prepared and submitted BLS proposal to analyze heat-related deaths reported in the CFOI
- Developing a CPWR Data Bulletin and accompanying interactive Data Dashboard to be published in August
- Publishing findings from the narrative coding and analysis in a peer-reviewed journal



r2p activities and dissemination efforts thus far include

Invited Presentations:

1. International Finishing Trades Institute Health & Safety Symposium
2. National Work Zone Management Conference
3. Inaugural Occupational Health in Maryland Forum at UMD School of Public Health
4. NASCC: The Steel Conference
5. Michigan Safety Conference

Other Activities:

- Helped develop & review **Professional Development Course (PDC) for AIHA Connect 2025** coordinated by the Construction and Thermal Stress committees
- Compiled and shared **info on real-world best practices in response to a request for information** from Larry Sloan (AIHA CEO) and the National Commission on Climate and Workforce Health
- Provided **technical support to North America's Building Trades Unions (NABTU) on Federal OSHA's heat rulemaking**

Thanks! Questions?

Gavin H. West, MPH

Director, Health Research

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Built to Last

Toolkit

Centers for Health, Work & Environment
colorado school of public health

CPH-NEW
Center for the Promotion of Health in the New England Workplace

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Our Team

Natalie Schwatka

Principal Investigator

Liliana Tenney

Co-Investigator

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Project Coordinator

Jennifer Cavallari

Co-Investigator

Suzanne Nobrega

Co-Investigator

Serena Rice

Co-Investigator

Centers for Health, Work & Environment

colorado school of public health

UNIVERSITY OF CONNECTICUT 1881

UMASS LOWELL

Advisory board

Nick Williams	CEO, American Subcontractors Association of Colorado
Joaquin Diaz	Former Sr Construction EHS Manager, Microsoft
Kyle Zimmer	Jr Director of Health & Safety & Members Assistance Program, International Union of Operating Engineers Local 478
Daniel Lavoie	Technical Director - Construction & Energy, Liberty Mutual Insurance
Jason Wardrip	Business Manager FST, Colorado Building & Construction Trades Council
Erin Flynn	Director, Outreach Operations, Oregon Institute of Occupational Health Sciences
Heather Gilmartin	Associate Director, Dissemination & Implementation Research Core, CCTSI, Assistant Professor, CU Anschutz
Bob Kunz	Corporate Safety Director, Dimeo Construction Company

Challenges in current safety and health practices

- Limited Adoption
- Focus on Behavior, Not Systems
- Mental Health = Afterthought
- Low Engagement & Leadership Buy-in

Adapt and integrate successful interventions to address these challenges

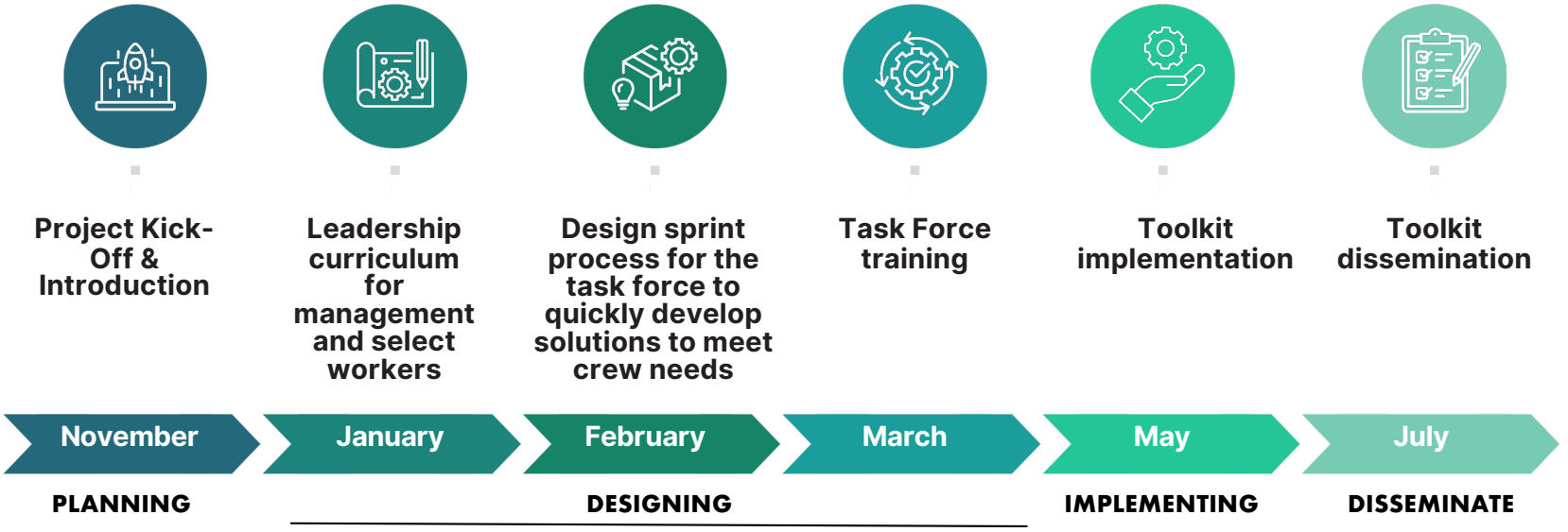
Healthy Worker Participatory Program

Project Goals & Aims

Goal: To help contractors adopt and implement solutions that enhance safety and mental health and well-being with leadership support and crew ownership and leadership.

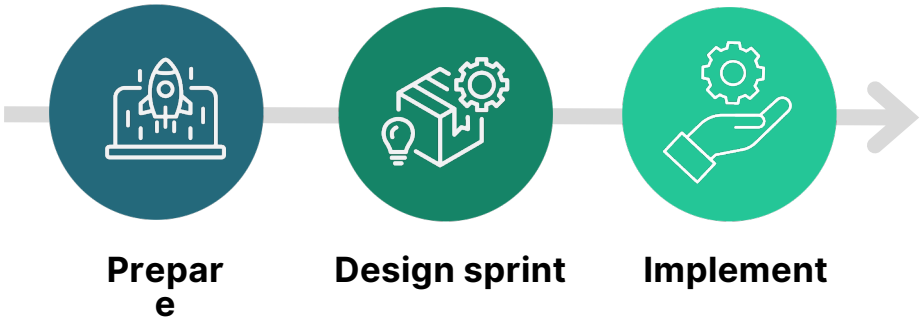
Development process with advisory board

Meet to provide feedback on each of the following stages of toolkit development



Year 1: 2024 - 2025

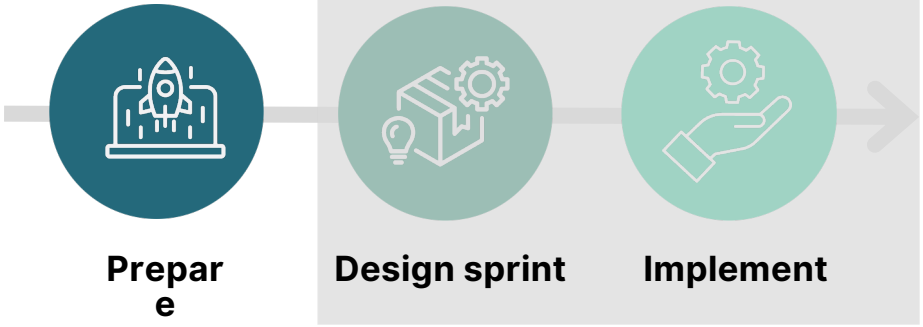
What is the Built to Last (BTL) Toolkit?



🏗️ Built for construction

👷👷 Builds leadership and crew ownership and voice

🧠 Links safety and mental health

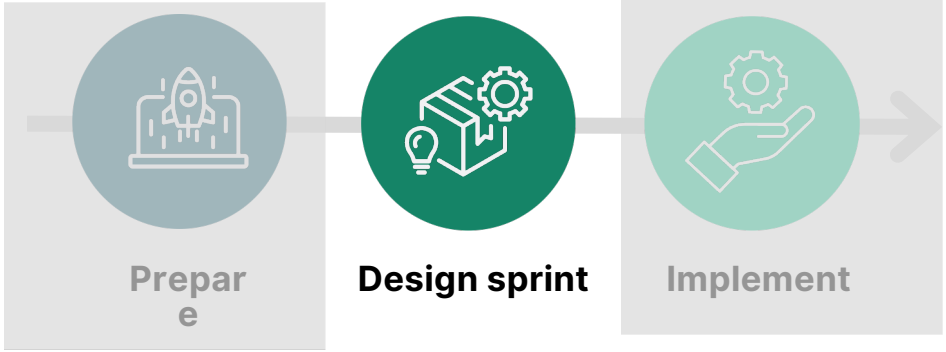


Built to Last Toolkit

Activity	Duration	Focus
Leadership training	2-3 hours	Skills + applied scenarios
Facilitator support	90 mins	Facilitation skills, TWH approach, and design sprint process
Task force orientation	60 mins	Roles, teamwork, rust, TWH approach, and design sprint process

Built to Last

Toolkit



Toolbox Talk

Discuss Needs

Session 1

Identify concerns

Session 2

Develop solutions

Session 3

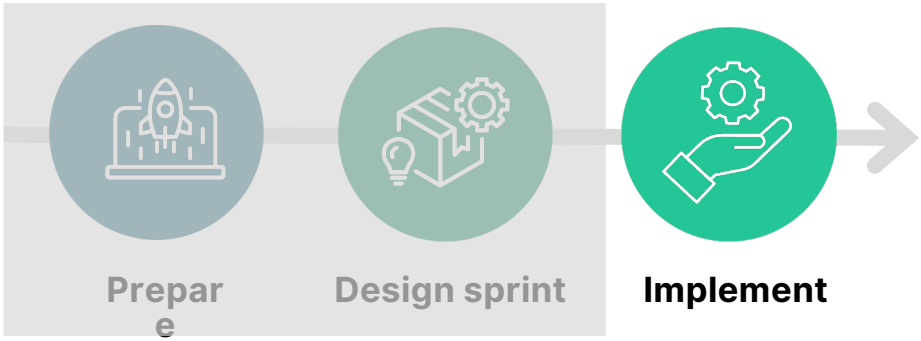
Analyze Solutions

Session 4

Finalize & prioritize solutions

Session 5

Select final solutions



Built to Last Toolkit

Activity	Duration	Focus
Implement	1-3 months	Use solution implementation plan created during sprint to implement solutions

Who uses the toolkit on site?

Leaders who will support facilitators and task force along the way and support implementation of solutions

Facilitators (~2) who guide the process, such as a safety professional and a crew member

A **“task force”**, including:

~3-5 management representatives
~3-5 worker representatives

No one with direct supervisory relationships

When & who would they use the toolkit?

- ✅ Starting new programs
- ✅ Fixing old ones
- ✅ Building leadership
- ✅ Upskilling safety and health committees

USERS

Sub-contractors

General contractors, internally & with subs on jobsites

Other users? E.g., unions, workers' comp

Advisory board feedback
May 2025

🛠️ **Toolkit strategy:** Promote entire toolkit, with early steps to build value and understanding

📋**Engagement levels:** Low, medium, & high touch points

👷**Users:** Primary users, early adopters, consider company size

📣 **Messaging**: Simple, actionable, value-focused

🤝 **Outreach**: Trusted networks

🚧 **Barriers**: Time, cost, & buy-in

Opportunities for next steps

📋 **Pilots & feedback:** Continue piloting toolkit and refining as we go

🎙️ **Presentations:** Industry presentations

📈 **Scalability:** Other use cases, industries, etc?

Thank you!

Questions?

Contact:

Natalie Schwatka, PhD MS
natalie.schwatka@cuanschutz.edu

Extra

Core pieces of the toolkit

Built to Last Toolkit

Prepare

- Leadership training
- Facilitator & task force training
- Needs assessment

Design sprint

A structured, time-constrained process to solve critical business challenges, test ideas and create innovative solutions within just five sessions.

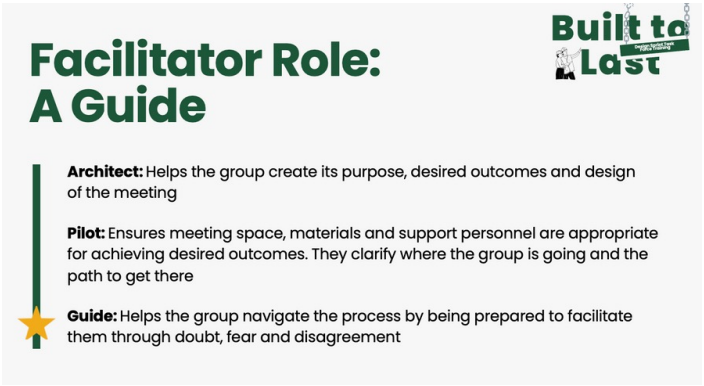
Implement

Implement solutions using plan created during the last design sprint session

Leadership training for jobsite leadership, facilitators, and task force members

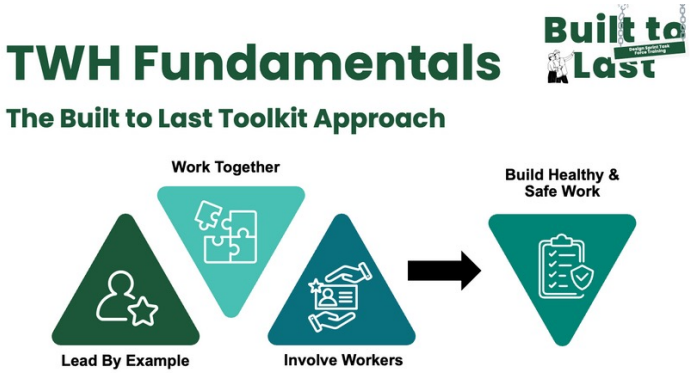
- Provide leadership support before investing in identifying hazards, designing solutions, and implementing solutions
- 2-3 hours
- Training includes:
  - "The why", 5 key leadership skills, and application via scenarios

Facilitator support



- Provide support for key personnel facilitating workers and supervisors through the design sprint process
- 90 minutes
- Training includes:
  - Key facilitation skills, Total Worker Health approach fundamentals, and overview of the design sprint process

Task force orientation



- Orientation for the task force who would gather information on workforce needs and conduct a design sprint to develop solutions to meet the needs
- 60 minutes
- Training includes:
  - Roles and responsibilities, group dynamics/trust/engagement, Total Worker Health approach fundamentals, and overview of the design sprint process

Design sprint guide

- Structured process to quickly develop solutions to meet workforce needs
- 5-session (2-hours each)
- Sessions include:

COMMUNICATIONS CORE

Bill Wright

Sharretta Benjamin

JoyLynn Keeton

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r2p Seminar

Washington, DC

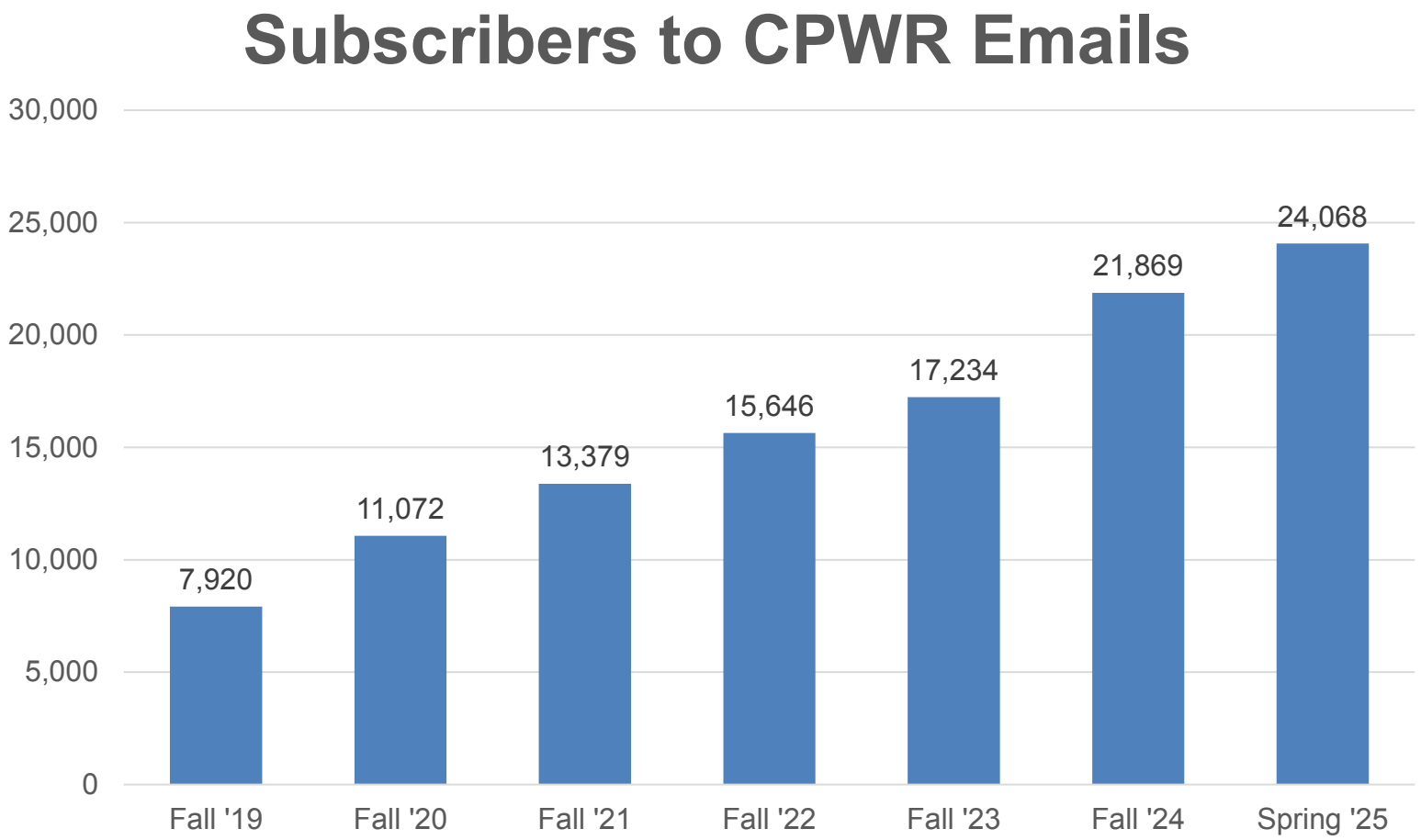
6/4/2025

Overview

1. Progress on Aims

2. Other Work

Aim 1: Expand and improve the CPWR contacts database



List Growth

9/19-8/20	+40%
9/20-8/21	+21%
9/21-8/22	+17%
9/22-8/23	+10%
9/23-8/24	+27%
9/24-6/25	+10%

Bounce Rate

5/25 Update	6%
Industry Avg.	10%

Spanish

Total: 3,457

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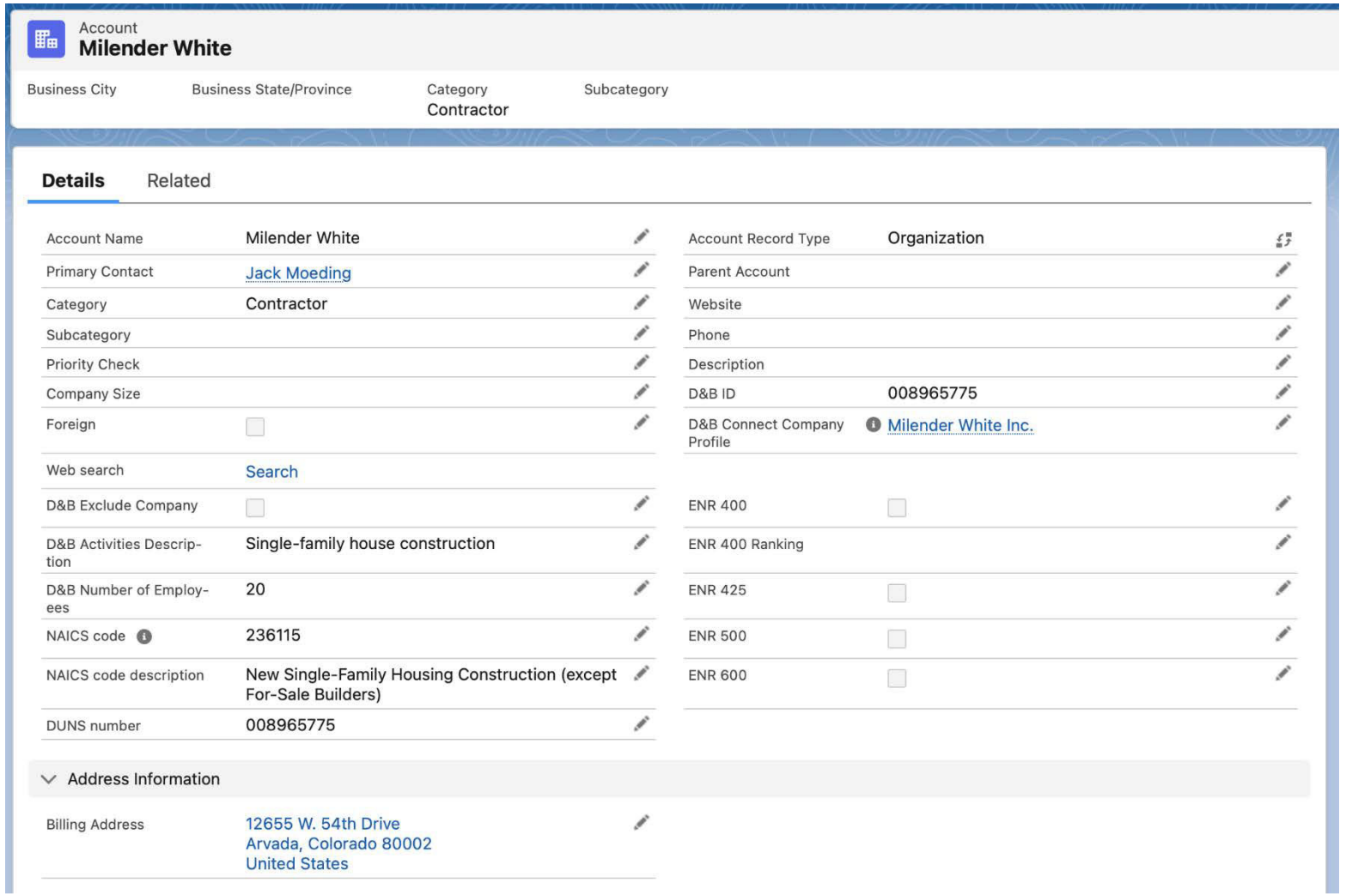
Aim 1: Expand and improve the CPWR contacts database



Account
Milender White

Business City	Business State/Province	Category	Subcategory
		Contractor	

Details | Related

Account Name	Milender White	Account Record Type	Organization
Primary Contact	Jack Moeding	Parent Account	
Category	Contractor	Website	
Subcategory		Phone	
Priority Check		Description	
Company Size		D&B ID	008965775
Foreign	☐	D&B Connect Company Profile	Milender White Inc.
Web search	Search		
D&B Exclude Company	☐	ENR 400	☐
D&B Activities Description	Single-family house construction	ENR 400 Ranking	
D&B Number of Employees	20	ENR 425	☐
NAICS code	236115	ENR 500	☐
NAICS code description	New Single-Family Housing Construction (except For-Sale Builders)	ENR 600	☐
DUNS number	008965775		

Address Information

Billing Address	12655 W. 54th Drive Arvada, Colorado 80002 United States

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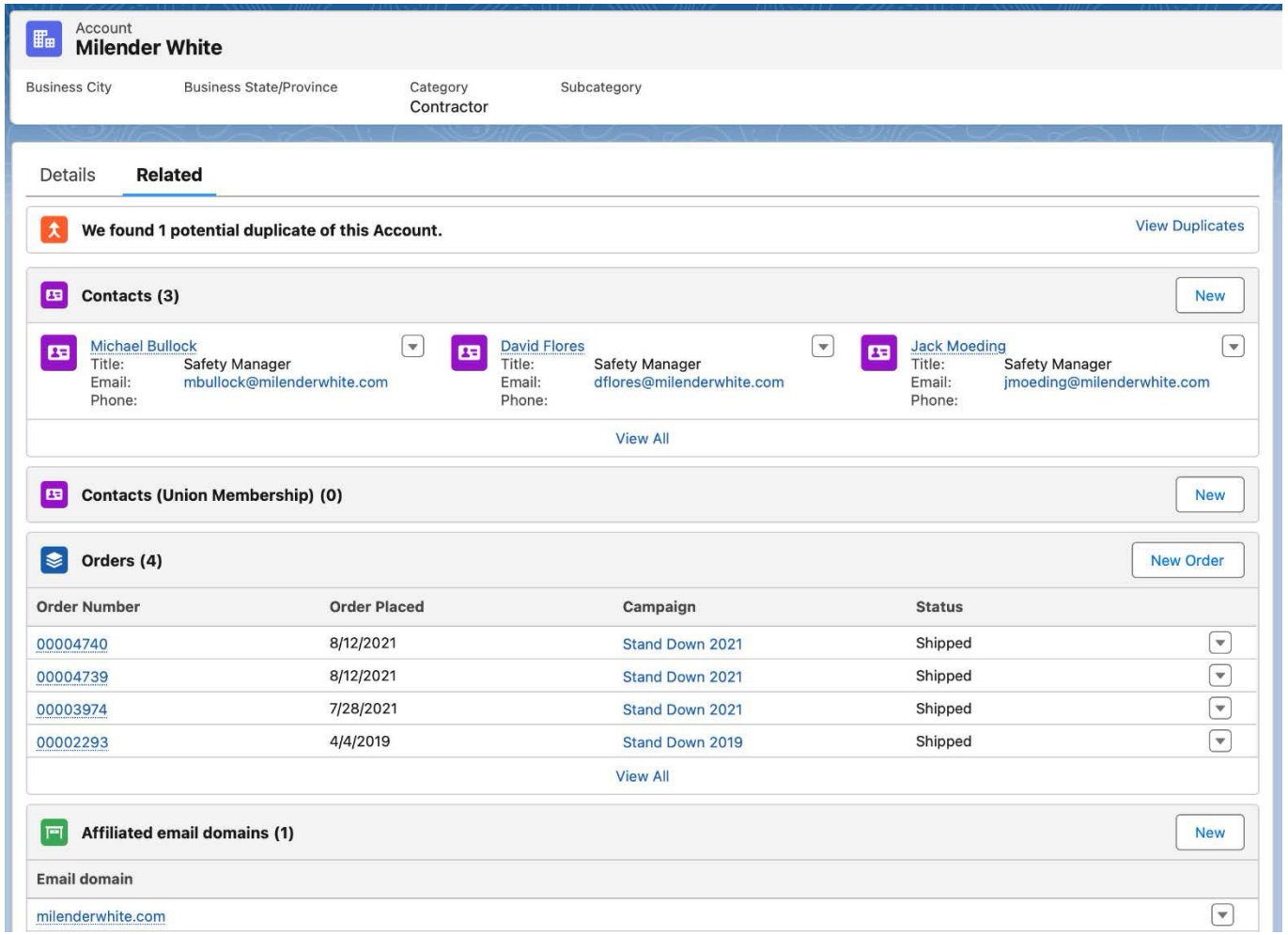
Aim 1: Expand and improve the CPWR contacts database



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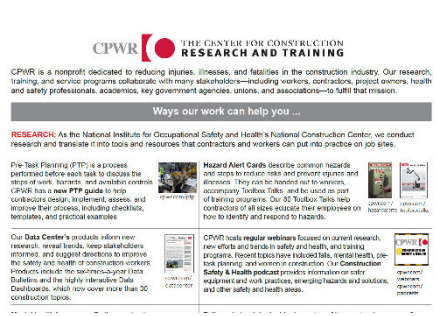
Aim 2: Employ multiple channels—including email, websites, media placements, direct mail, social media, and webinars—to share research findings and translational products.

Media Placements -- On pace for approximately 85, similar to last year

Direct Mail -- Promotional mailing (7,000)
- Academics
- Safety and health professionals
- Trainers

Annual Report (12,000)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CPWR is a nonprofit dedicated to reducing injuries, illnesses, and fatalities in the construction industry. Our research, training, and service programs collaborate with many stakeholders—including workers, contractors, project owners, health and safety professionals, academics, key government agencies, unions, and associations—to fulfill that mission.

Ways our work can help you ...

RESEARCH: As the National Institute for Occupational Safety and Health's National Construction Center, we conduct research and translate it into tools and resources that contractors and workers can put into practice on job sites.

Pre-Task Planning (PTP) is a process performed before each task to discuss the steps of work, hazards, and available controls. CPWR has a **new PTP guide** to help contractors design, implement, assess, and improve their process, including checklists, templates, and practical examples

Hazard Alert Cards describe common hazards and steps to reduce risks and prevent injuries and illnesses. They can be handed out to workers, accompany Toolbox Talks, and be used as part of training programs. Our 52 Toolbox Talks help contractors of all sizes educate their employees on how to identify and respond to hazards.

Our **Data Center's** products inform new research, reveal trends, keep stakeholders informed, and suggest directions to improve the safety and health of construction workers. Products include the six-times-a-year Data Bulletins and the highly interactive Data Dashboards, which now cover more than 30 construction topics.

CPWR hosts **regular webinars** focused on current research, new efforts and trends in safety and health, and training programs. Recent topics have included falls, mental health, pre-task planning, and women in construction. Our **Construction Safety & Health podcast** provides information on safer equipment and work practices, emerging hazards and solutions, and other safety and health areas.

Social Media -- Post 10 times a week per platform

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Aim 3: Evaluate and improve Center products and outreach methods through engagement metrics, market surveys, and interviews.

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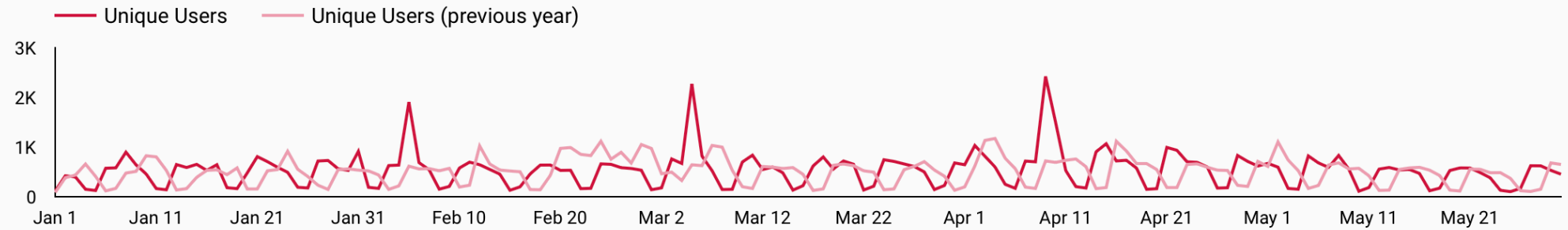
Comparison charts

click here to change date range

Jan 1, 2025 - May 30, 2025

Unique users	Total Sessions	Views	Average engagament time	Engagement rate
58,043	94,012	178,733	00:01:37	56.74%
↑ 3.2%	↑ 3.2%	↑ 2.1%	↑ 15.8%	↑ 5.3%



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Aim 3: Evaluate and improve Center products and outreach methods through engagement metrics, market surveys, and interviews.

Followers

Fall 2024	Spring 2025	Change
3,786	3,922	+3.6%
5,256	5,744	+9.2%
811	915	+12.8%

Impressions

Fall 2024	Spring 2025	Change
259	386	+49%
16,106	18,999	+17.9%
54	315	+483%

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Other projects

Ongoing Support

- Interactive Chart Book
- Publications – Small Studies, Key Findings
- Materials – Hazard Alert Cards, Toolbox Talks
- REASON Newsletter

Prevention through Design study – owner attitudes

Communications

Questions?

CPWR's Data Center Update

r2p Seminar 2025

June 4, 2025

Amber B. Trueblood, DrPH

William Harris, MS

Derek Dufoe, MS

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Specific Aims

Track and characterize	Specific Aim 1: Track and characterize hazards, exposures, injuries, illnesses, disabilities, and worker and industry characteristics.
Text mining	Specific Aim 2: Develop and evaluate a process for characterizing the content of injury narratives, as well as extracting this data to obtain information beyond structured data.
Evaluate and improve	Specific Aim 3: Evaluate and improve Data Core activities/services/products.
Share	Specific Aim 4: Share data and disseminate research findings in a variety of formats.

New Products: Data Bulletins

Musculoskeletal Disorder (MSD) Trends in Construction

Construction Worker Injuries, Overdoses, and Suicides

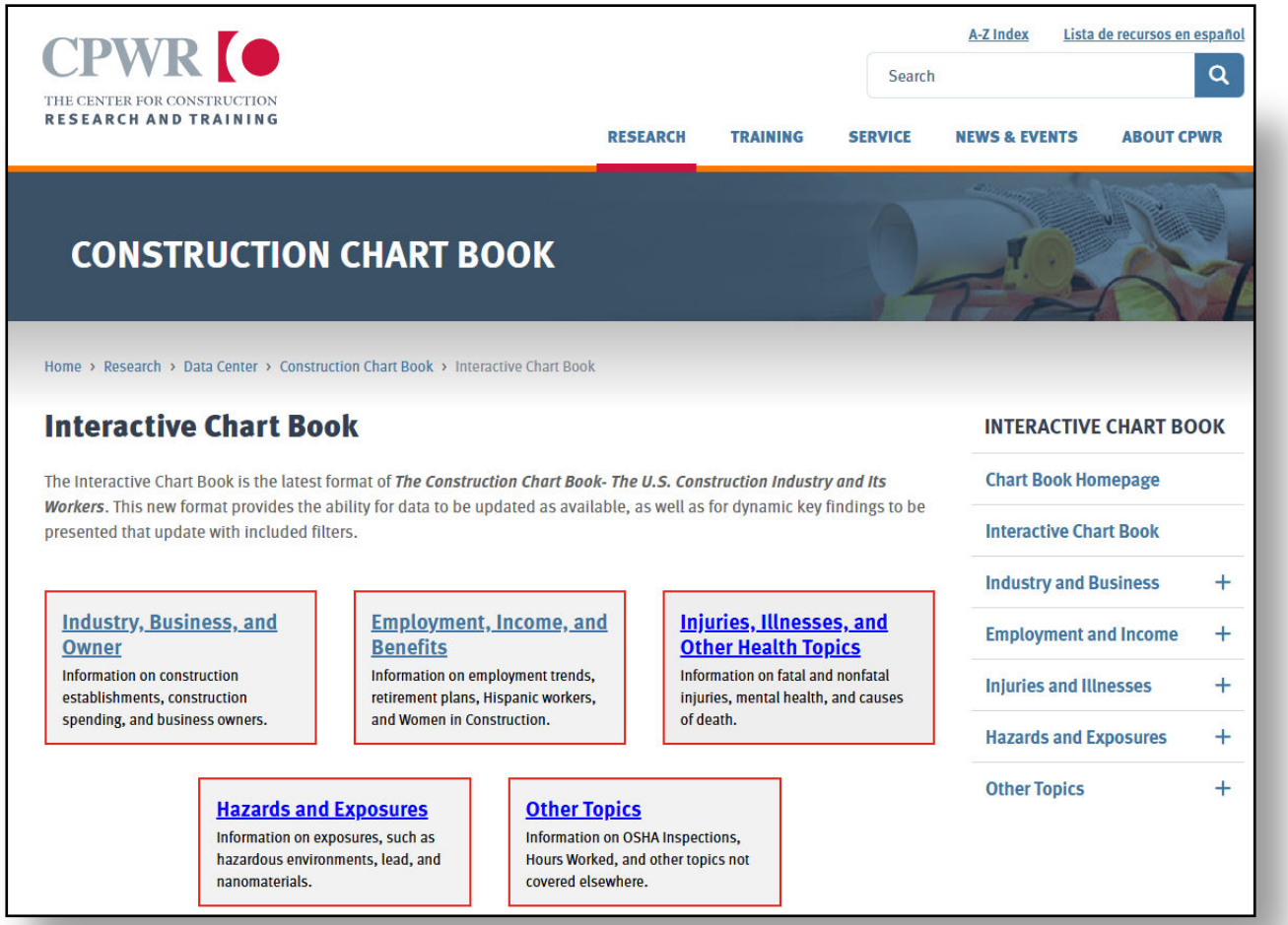
Aging and Retirement Trends in the Construction Industry

Hispanic Construction Workers: Employment, Business Ownership, and Injury Trends

Mental Health Trends in the Construction Industry: A Look at Anxiety, Depression, Psychological Distress, Suicides, and Overdoses

Fatal Injury Trends in the Construction Industry, 2011-2022

New Products: Interactive Construction Chart Book Dashboards



Link: CPWR–The Center for Construction Research and Training. [n.d.].Interactive Chart Book. https://www.cpwr.com/research/data-center/the-construction-chart-book/interactive-7th/

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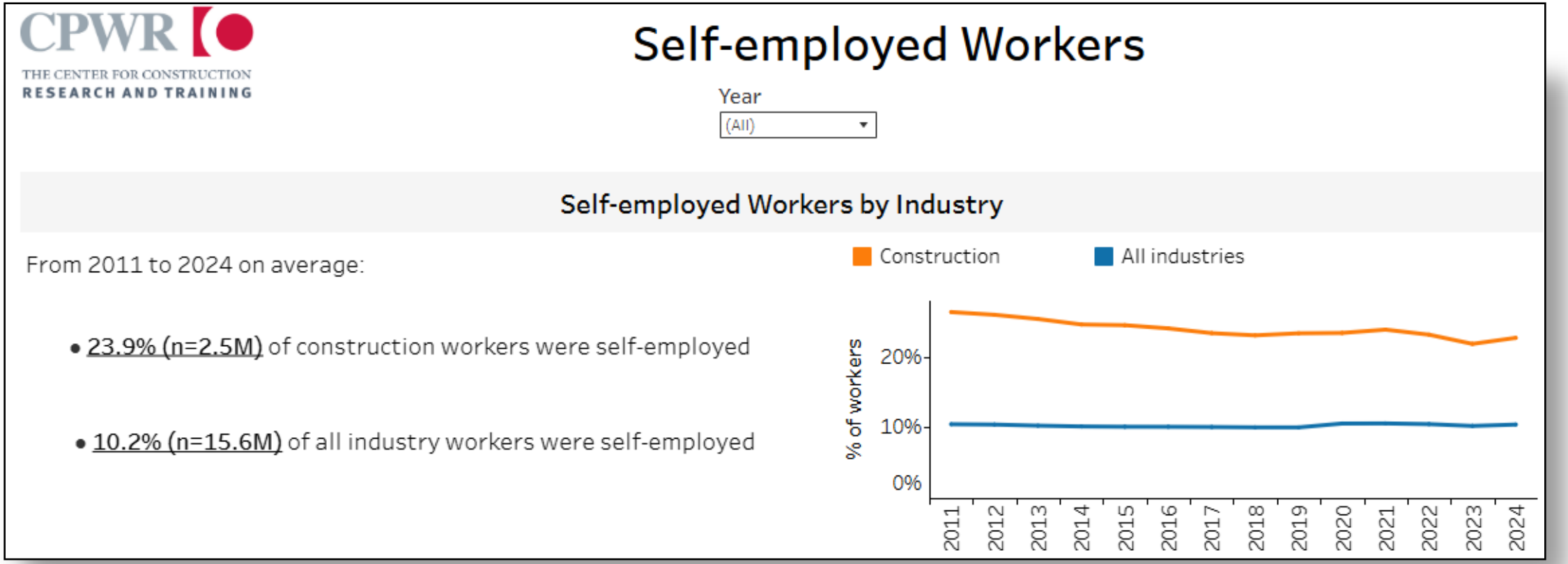
New Products: Interactive Construction Chart Book Dashboards



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Product Highlight #1

Harris, W., Trueblood, A. B., Yohannes, T., Rodman, C. P., & Rinehart, R. (2025). Suicides among construction workers in the United States, 2021. *American journal of industrial medicine*, *68*, S144-S151. https://onlinelibrary.wiley.com/doi/10.1002/ajim.23632.

Abstract

Background

Construction workers have the second highest suicide death rate; despite this, there is limited literature examining suicides in the industry, which is necessary to identify those at higher risk of death by suicide. The objective of this study was to examine the characteristics of those who died by suicide in construction to address this knowledge gap.

Methods

Data from the National Center for Health Statistics National Vital Statistics System 2021 public use Mortality Multiple Cause-of-Death file were used to identify deaths by suicide, while denominator data for rates come from the 2021 Current Population Survey.

Results

In 2021, construction workers were disproportionately affected by suicide deaths. Almost a fifth (17.9%) of deaths by suicide with a reported industry code were in construction, despite construction workers accounting for only 7.4% of the workforce. Male construction workers accounted for a majority (97.8%) of suicide deaths. The highest percent of deaths by suicide were among individuals who were white, non-Hispanic, completed high school or equivalent, and single, across construction and all industries for males and females.

Discussion and Conclusions

Male and female construction workers had the highest rates of suicide across all characteristics when compared to all industries. Our findings support the need for ongoing prevention efforts within the industry. Future research is needed to understand suicide risk among certain characteristics and occupations. In addition, the work environment or other work-related factors should be studied to understand how the unique nature of the construction industry may be associated with higher suicide rates.

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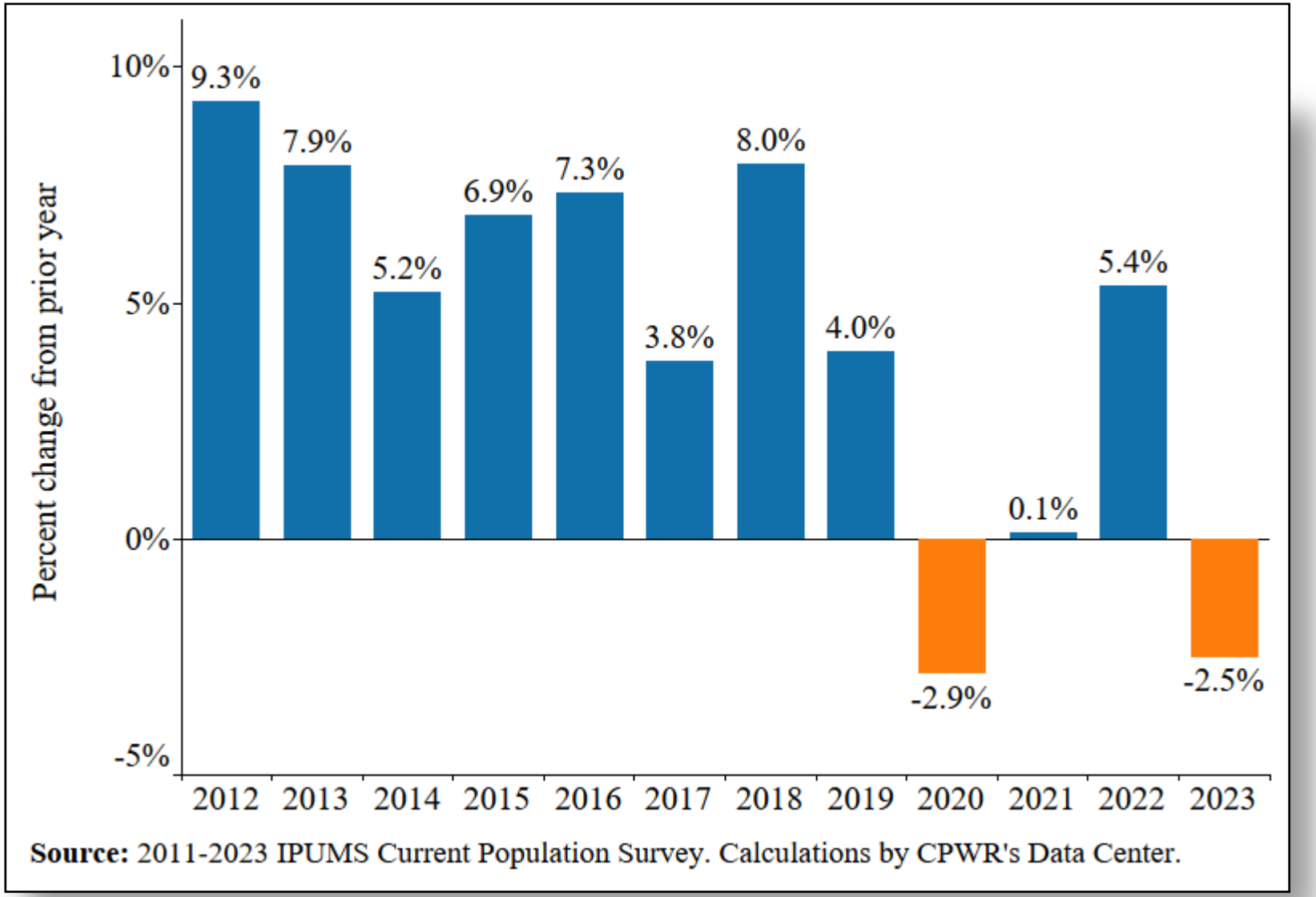
Product Highlight #2

Brooks, R.D., Trueblood, A.B., Dufoe, D., Harris, W. (2025, February). Aging and Retirement Trends in the Construction Industry. https://www.cpwr.com/wp-content/uploads/DataBulletin-February2025.pdf.



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Thank you!

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Contact us at:
datacenter@cpwr.com

Developing a national roadmap to reduce per- and polyfluoroalkyl (PFAS) exposures among construction painters and allied trades

The Boston Globe

UMass Lowell to conduct study on exposure to PFAS, or 'forever chemicals,' among construction workers

"There is no way for anyone to look at a can of paint and say, this one has PFAS, how much of it, or what types."

By Nathan Metcalf Globe Correspondent, Updated March 8, 2025, 2:36 p.m.

CLM
FURTHERING THE HIGHEST STANDARDS OF CLAIMS AND LITIGATION MANAGEMENT

earch Focuses on Construction Industry

Researchers target sources of exposure to forever chemicals

April 29, 2025

Like 0 Share Tweet E-Mail

Researchers at the University of Massachusetts Lowell (UMass Lowell) are conducting a new study to assess per- and poly-fluoroalkyl substances (PFAS) in construction materials and the exposure levels among construction workers, bringing new attention to this issue

Researchers to Identify 'Forever Chemicals' in Commonly Used Products

Dhimiter Bello, Anila Bello and Kushal Biswas '21, research assistant and Ph.D. Pharmaceutical Sciences alumnus, are analyzing PFAS exposure among construction workers.

11/14/2024
By Karen Angelo

Workers in the construction trades use a variety of products such as paints, varnishes, adhesives and glues, all of which contain dangerous per- and poly-fluoroalkyl substances (PFAS). Known as "forever chemicals" for their propensity to persist in the environment and accumulate in the human body, PFAS are linked to adverse health effects such as kidney disease and a range of cancers.

The amount of PFAS exposure among construction workers is not yet known, but a new study aims to assess the extent and sources of PFAS exposure to inform safer industry practices.

Assoc. Dean for Research and Graduate Studies Dhimiter Bello and Public Health Research Assoc. Prof. Anila Bello, both of the Zuckerberg College of Health Sciences,

PFAS in construction

A wide range of materials in the construction

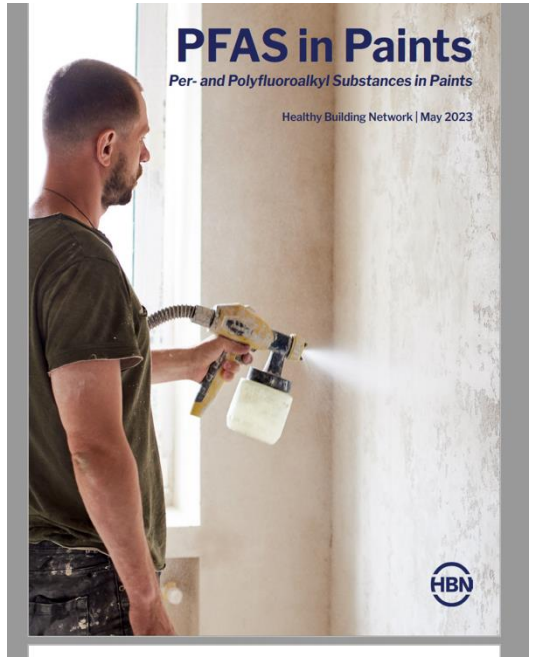
- Concrete mixtures
- Tiles
- Floor waxing
- Wood sealants
- Adhesives used in roofing, flooring, and carpeting
- Metal structure coating products

Limited data on PFAS content and often proprietary!

SDS do not report PFAS!!!

Healthy Building Network report

- 94 Paints from 8 major manufacturers
- 65% of the paints and coatings market share in North America
- 50% of paints contained Total Fluorine (maker for PFAS) at concentrations 42-688 ppm.



Serum Concentration of Selected Per- and Polyfluoroalkyl Substances (PFAS) by Industry and Occupational Groups Among US Adult Workers, NHANES 2005–2014

Ja K. Gu[1] | Luenda E. Charles[1] | Chol Seung Lim[2] | Anna Mnatsakanova[1] | Stacey Anderson[3] | Lisa Dzubak[3] | Erin McCanlies[1]

"Among 21 industry groups, the highest geometric mean PFAS levels (ng/mL) were observed in Construction (PFOS = 12.61 ng/mL, PFOA = 3.76, PFHxS = 2.10, PFNA = 1.23, and PFDA = 0.33)"

Project Goals and Specific Aims

The long-term goal of the project is to reduce and, where possible, eliminate PFAS exposures at the source, ultimately minimizing health risks among construction painters and allied trades.

Aim 1. Identify construction trades with the highest PFAS burden via serum and urinary biomonitoring.

- Assess PFAS burden through serum and urinary biomonitoring among painters and allied trade workers.

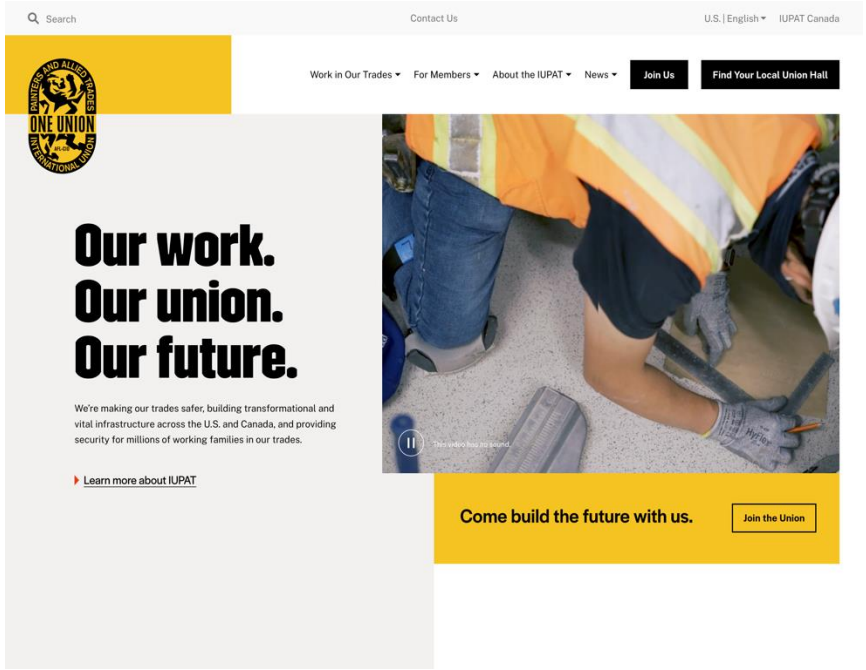
Aim 2. Assess PFAS occupational exposure sources among painters and allied trades through product characterization, inhalation and dermal exposure measurements, and matched blood and urine biomonitoring.

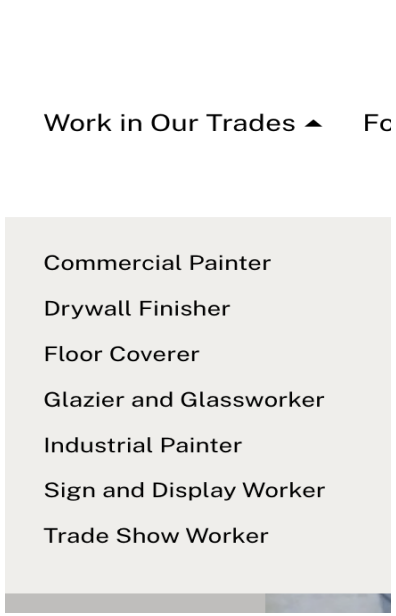
- Determine PFAS species and their concentrations in products used by painters and allied trades workers via independent chemical analyses.
- Identify major PFAS occupational exposure sources and pathways through simultaneous assessment of airborne and dermal exposure with matched blood and urine biomonitoring.

Aim 3. Translate and disseminate the findings (e.g. guidelines for clinicians)

Collaborators

Our main Partner: [IUPAT - International Union of Painters and Allied Trades]



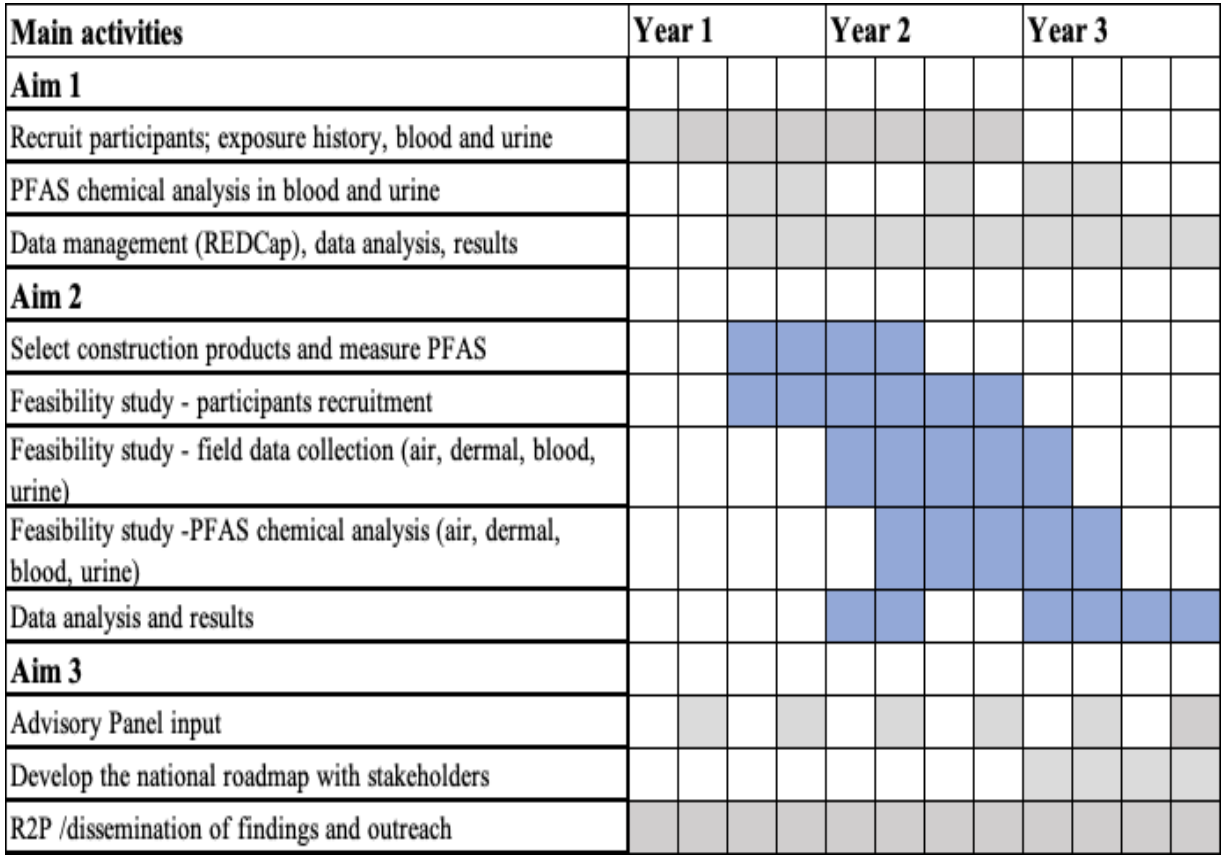


IUPAT DC 35

An advisory board with representatives from NIOSH, IUPAT, and Industrial Hygienists

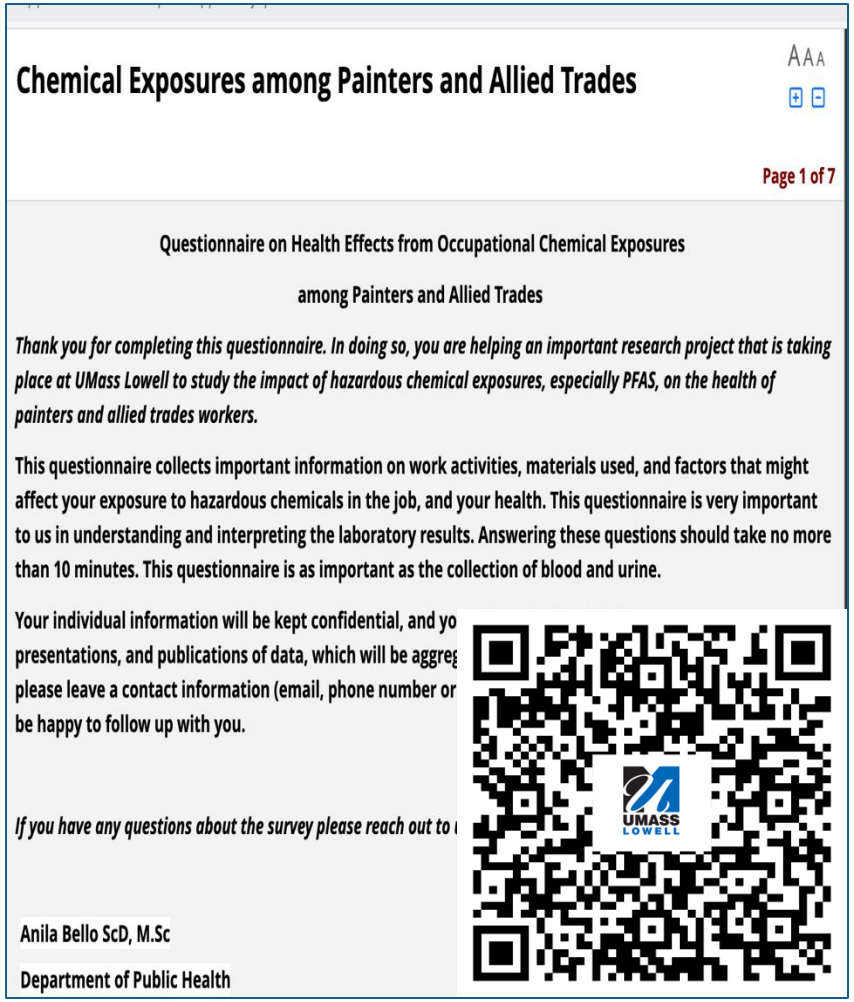
Study Design - Methods - Timeline

- Survey health outcomes and exposure history – nationwide
- Field studies (locally)
  - Recruitment
  - Biomonitoring (blood and urine)
  - Survey administration (short version)
- Database of construction products by trade
- PFAS chemical analysis
  - The LC-MS/MS analytical method has been developed in our lab for 50 PFAS species (long chain, short, and ultrashort chain)
  - Untargeted analysis of PFAS



Survey Development

- The survey was developed
  - Based on a literature review and consultation with our European collaborators and NIOSH
  - The draft was reviewed by the health and safety trainers at IUPAT; and CPWR.
  - Feedback from experienced industrial hygienists.
- The survey was entered into REDCap (Research Electronic Data Capture)- an online platform to build and manage surveys
- The survey contains 4 parts :
  - Part 1: General information about work history and sociodemographic information
  - Part II: Specific activities, products, materials, used as work, training, and PPE use (painters, allied trades, and retired – subcategories)
  - Part III: PFAS lifestyle exposures (adapted from ATSDR survey)
  - Part IV: Health outcomes



Chemical Exposures among Painters and Allied Trades

AAA

Page 1 of 7

Questionnaire on Health Effects from Occupational Chemical Exposures

among Painters and Allied Trades

Thank you for completing this questionnaire. In doing so, you are helping an important research project that is taking place at UMass Lowell to study the impact of hazardous chemical exposures, especially PFAS, on the health of painters and allied trades workers.

This questionnaire collects important information on work activities, materials used, and factors that might affect your exposure to hazardous chemicals in the job, and your health. This questionnaire is very important to us in understanding and interpreting the laboratory results. Answering these questions should take no more than 10 minutes. This questionnaire is as important as the collection of blood and urine.

Your individual information will be kept confidential, and yo
presentations, and publications of data, which will be aggreg
please leave a contact information (email, phone number or
be happy to follow up with you.

If you have any questions about the survey please reach out to

Anila Bello ScD, M.Sc

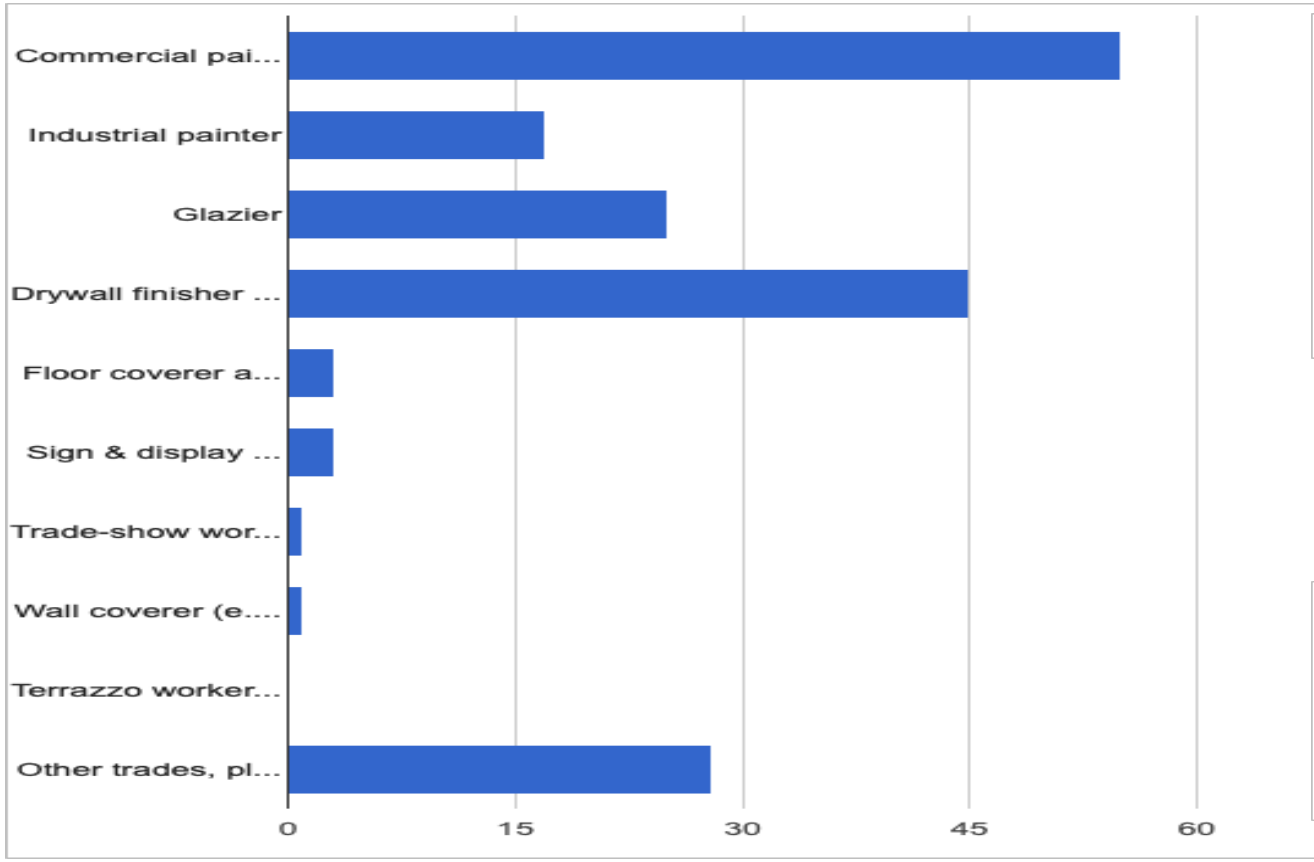
Department of Public Health

Ongoing Field Study

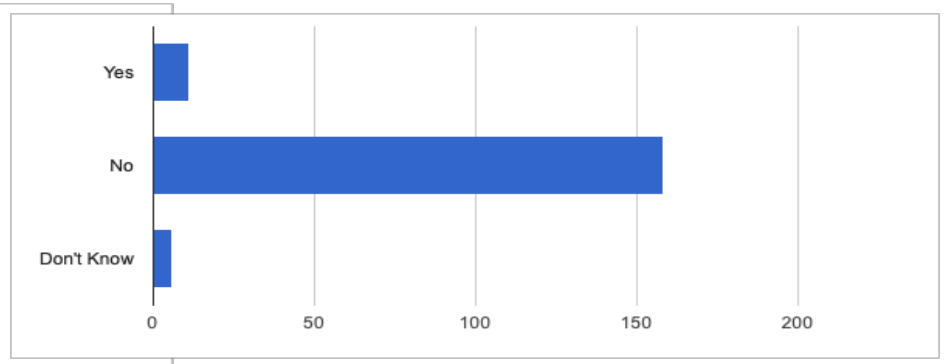
- 203 participants recruited as of May 31, 2025
  - Re-purposed budget lines to prioritize participant recruitment
    - $100/ per individual
    - $21k total investment
  - Collected 4 blood tubes/worker * 202 workers = 808 blood tubes
  - Collected 202 urine samples
- Biobanking for long-term storage and multiple purposes
  - Blood has been processed, aliquoted, and properly stored in -80 °C
  - Urine has not been processed
  - UML IRB and IBC-compliant protocols
- Survey was completed by 203 participants
  - Demographics, exposure histories, trades, health status
- Data are stored in REDCap

Preliminary data - survey results

Participating trades

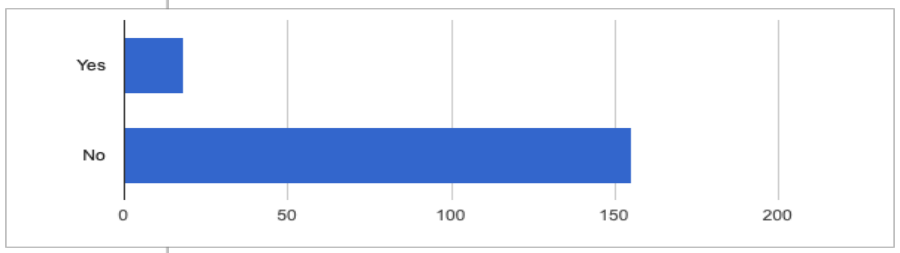


Have you ever been diagnosed by a doctor with any type of skin allergy or eczema?



Counts/frequency: Yes (11, 6.3%), No (158, 90.3%), Don't Know (6, 3.4%)

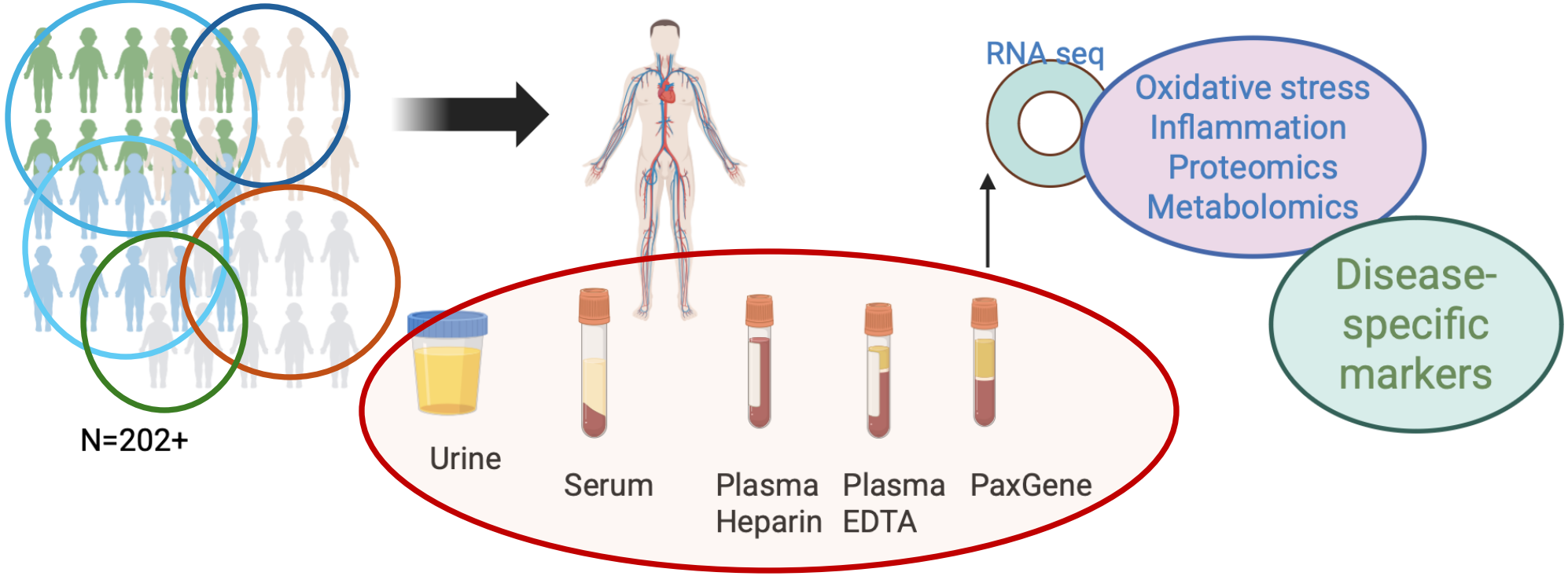
Asthma

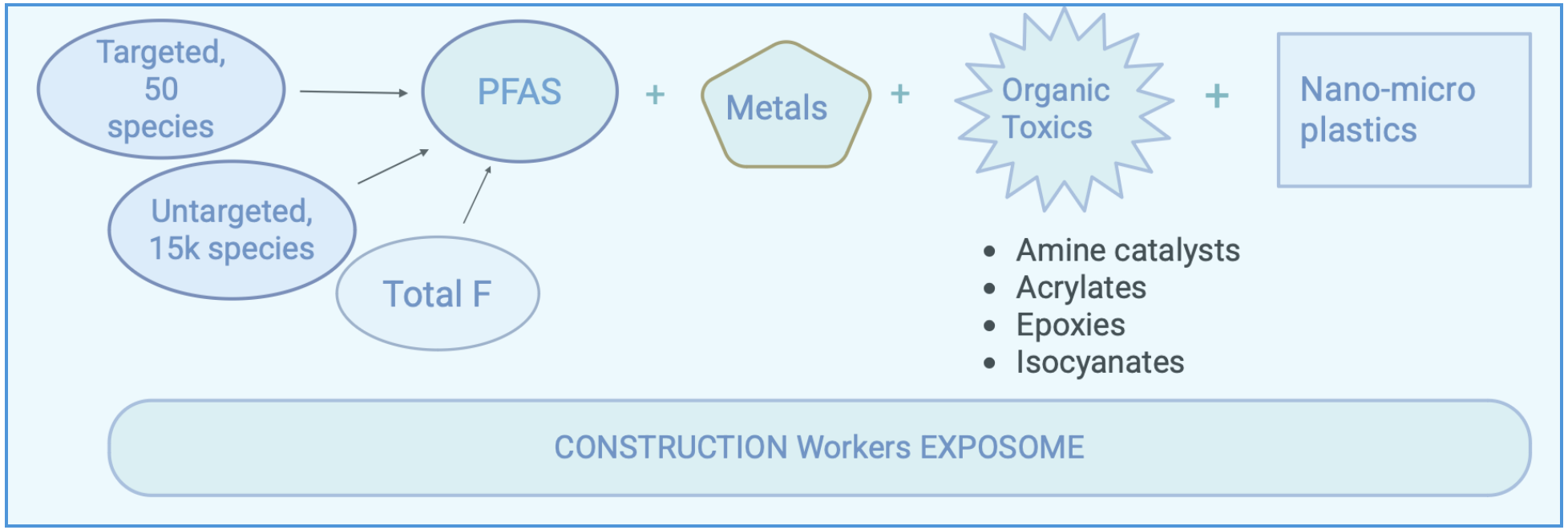


Counts/frequency: Yes (18, 10.4%), No (155, 89.6%)

Defining the construction workers' exposome
I. PFAS

CONSTRUCTION WORKERS EXPOSOME



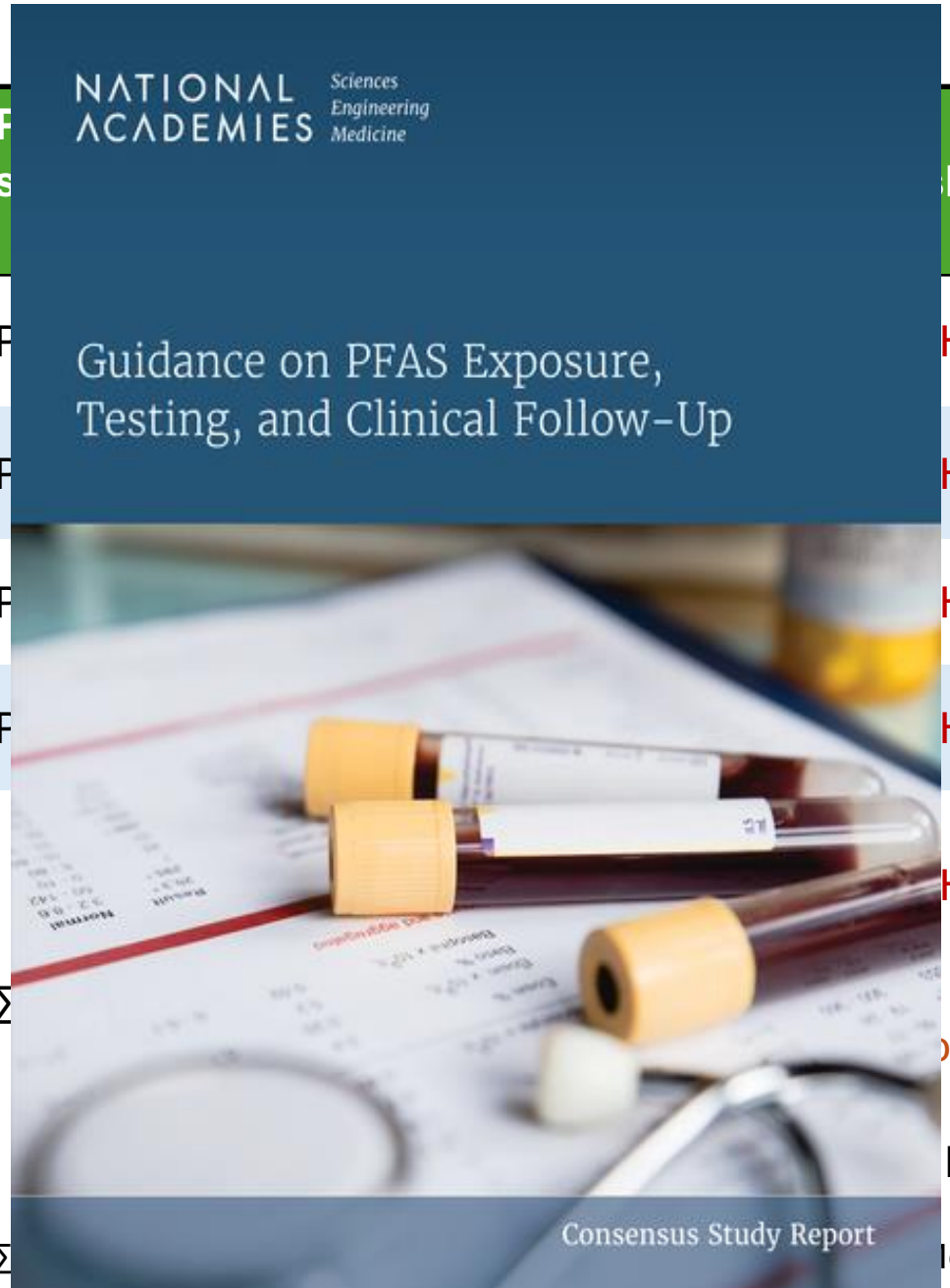


PFAS in serum – preliminary data

ID	TRADE	Total PFAS Identifie	Total PAFS (ng/mL)	Total NASEM PFAS	PFPrA (ng/mL)	PFBA (ng/mL)	PFBS (ng/mL)	PFHxA (ng/mL)	PFHxS (ng/mL)	PFHpA (ng/mL)	PFOA (ng/mL)	PFOS (ng/mL)	PFOSA (ng/mL)	PFNA (ng/mL)	PFDA (ng/mL)	PFUnA (ng/mL)	GenX (ng/mL)	6:2 FTS (ng/mL)
S02P05					3.96	12.4		6.21		66.6	0.55	1.40	7.33	0.34			47.3	9.1
S03P03					12.4	14.5		14.3		1.21	1.09	2.50	0.46	1.63	0.25	0.84		69.8
S03P02					17.3	17		9.89		2.22	1.69	5.50	0.10	2.17	0.24	0.6		52.17
S02P12					1.01	9.53		1.44		34.6	1.30	1.90	1.09	0.58			15.1	6.12
S03P66					57.4	1.04			0.94		1.38	3.80	1.83	0.42	0.15			3.2
S01P56					57.5						1.91	1.80	1.12	0.19		0.36	0.36	
S03P65					3.21				0.28	0.273	2.68	19.00		5.77	0.6	0.52		2.8
S01P22					5.07		2.8				1.00	4.60	1.07	0.45				
S01P09					14.4	6.28	2.86		3.2									
S03P08					3.44			0.162	1.8		0.69		0.92	0.11				15.7
S01P18					9.14		3.1				1.03	2.62	0.88	0.59				
S01P01					4.5	1.02	2.71		3.2		2.36	4.20	1.10	0.38	0.5	0.18		
S03P31					2.86	0.414					0.80	2.21	9.92	0.29				2.2

NASEM criteria PFAS: PFOA, PFOS, PFNA, PFHxS, PFDA, PFUnDA, MeFOSAA

Translation: PFAS in blood & NASEM Clinical Guidelines



P… s…	…k Level	CLINCIAL FOLLOW-UP (NASEM)
P…	High	Cancer screening
P…	High	Cancer screening
P…	High	
P…	High	
	High	Source reduction & screening: Lipids, THS, kidney cancer, urine analysis, testicular cancer, ulcerative colitis
Σ…	…derate	PFAS source reduction, lipid panel (+/4-6 yrs), hypertension, breast cancer screening
	Low	Normal care
Σ…	…leFOSAA)	

Next Steps

- Complete a nationwide survey of exposures and health outcomes
  - We aim to deploy the survey for 6-12 months
  - Analyze the data to identify specific health concerns for different trades
- Analyze PFAS in 203 blood and urine samples – develop risk bands
- Communicate findings and develop intervention to reduce PFAS body burden and detox PFAS and other toxins!
- Analyze 100 representative products
- Identify and communicate PFAS exposure sources

- Apply for additional funding to:
  - Expand PFAS biomonitoring nationwide !
  - Establish a baseline of adverse health effects and document intervention efficacy and impact through highly sensitive and integrated omics – deep RNA seq, proteomics, metabolomics, urinary exposome and adductome…

OUR RESEARCH TEAM

Anila Bello and Dhimiter Bello, PIs

Kushal Biswas, PhD candidate; Abimbola Ojo, ScD candidate; Suresh Bhandari, PhD candidate

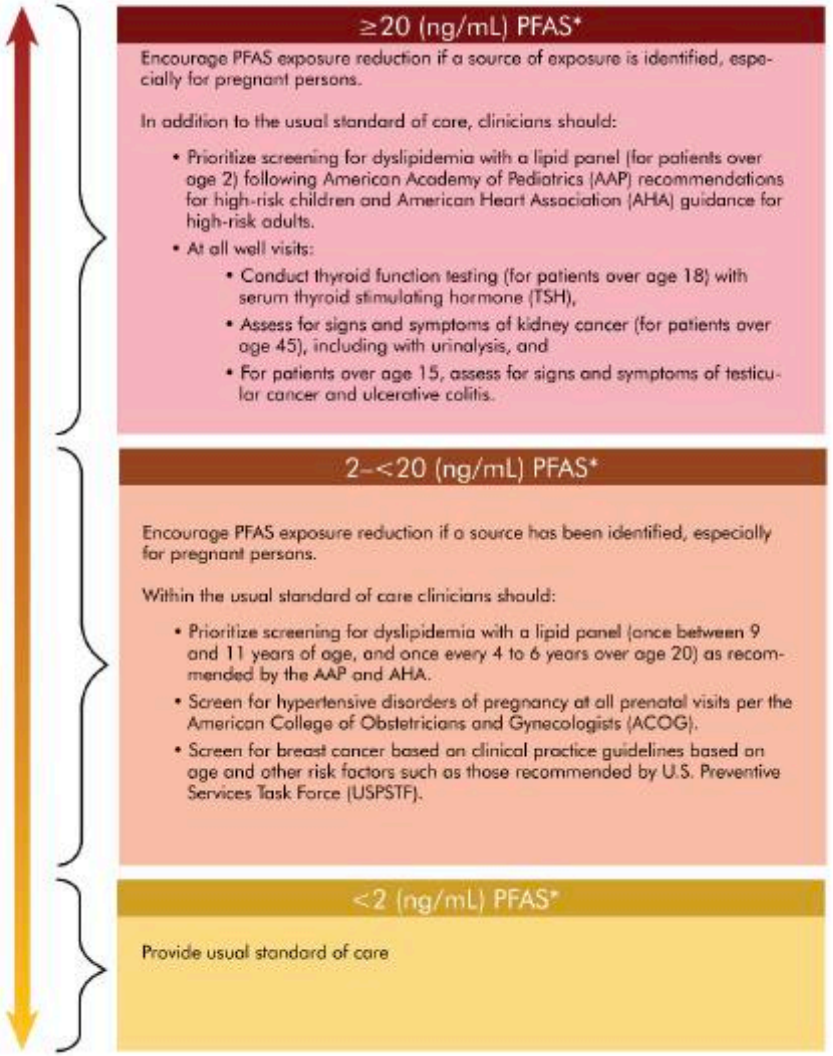
Noemi D, a talented phlebotomist, Marlee, Talita, Mike, Bernie

After a long day of sampling (70 participants)

Last day of sampling – participant #203

Thank you for your attention and support!

- **Screen for breast cancer based on clinical practice guidelines based on age and other risk factors such as those recommended by the U.S. Preventive Services Task Force (USPSTF).**



* Simple additive sum of MeFOSAA, PFHxS, PFOA (linear and branched isomers), PFDA, PFUnDA, PFOS (linear and branched isomers), and PFNA in serum or plasma

FIGURE S-6 Clinical guidance for follow-up with patients after PFAS testing.
NOTE: MeFOSAA = methylperfluorooctane sulfonamidoacetic acid; PFDA = perfluorodecanoic acid; PFHxS = perfluorohexane sulfonic acid, PFNA = perfluorononanoic acid; PFOA = perfluorooctanoic acid; PFOS = perfluorooctanesulfonic acid; PFUnDA = perfluoroundecanoic acid.

PFAS Toxicology

STRONG EVIDENCE

1. Hypertension
2. Dyslipidemia
3. Hyperuricemia – high levels of uric acid in urine – strong human epi evidence
4. Kidney cancers
5. Testicular cancers

Evaluation and Improvement of OSHA 10-Hour Construction Safety Training

2025 R2P SEMINAR &

PARTNERSHIP WORKSHOP

June 4, 2025

Mark Fullen - West Virginia University – Safety & Health Extension
Kimberly Rauscher - Boise State University - Department of Community and Environmental Health
Wayne Lundstrom - West Virginia University – Safety & Health Extension
Douglas Myers - Boise State University - Department of Community and Environmental Health
Brandon Takacs – Formerly West Virginia University – Safety & Health Extension
Eric Lundstrom – Former Graduate Research Assistant, West Virginia University, Epidemiology, West Virginia University

WV EXTENSION

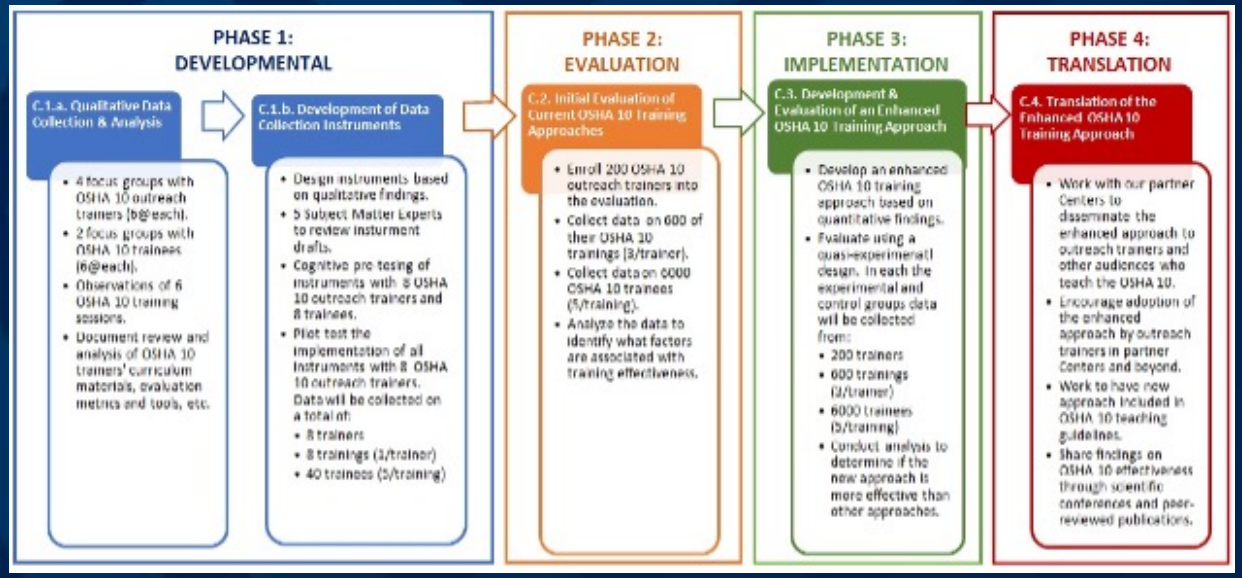
Safety and Health

Refresher on the Project

- Study Objectives
  - To understand the current approaches used by Outreach Trainers when teaching the OSHA 10
  - Evaluate the quality of these approaches and identify areas in need of improvement
  - Develop an enhanced OSHA 10 training approach that addresses current areas of weakness
  - Translate the new approach into practice among Outreach Trainers.

Refresher

- 5-year, mixed-methods study in four phases (Developmental, Evaluation, Implementation, Translation)
- Curriculum review, student and trainer interviews and surveys, training evaluations, and student knowledge assessments
- Recruited OTIEC's, OSHA 10 authorized outreach trainers and trainees.



The Most Effective Safety Training

- The best evidence-based approach to train adults is to use:
  - Interactive
  - Learner-centered methods that incorporate real-world applications
  - Build on learners' prior knowledge
  - Promote active engagement through discussion, problem-solving, and hands-on practice

OSHA Training Requirements

- Outreach Training Program training must meet adult learning needs and include interactive activities.
- Training must include workshops, case studies, exercises, and demonstrations that involve student participation and interaction
- Videos cannot comprise more than 25% of the instructional time spent on OSHA Outreach Training Program."
- OSHA's publication "Resource for Development and Delivery of Training to Workers" states that: Activity-based learning should fill at least two-thirds of training hours (no more than one-third is lecture).

Emerging Themes from the evaluation phase of the study

- Trainers are confident and comfortable and the see value in conducting engaging, hands-on activities with their students.
- Classes often delivered with a minimal amount of preparation time and customization.
- Classes often delivered in training facilities not conducive to conduct hands-on activities.
- Trainers most often utilize pre-developed curriculum from OSHA.gov, lecture with slides and videos with little engagement

Training content available from OSHA

- Much of the material does not meet the learning objectives set forth by OSHA.
- For a trainer to ensure that they meet the learning objectives they must make decisions about what and how they will embed hands on activities into the training material.
- Trainers don’t tend to have the time or desire to do this, and even if they do, the material is not easy to find and sift through.

Student Satisfaction Survey Results

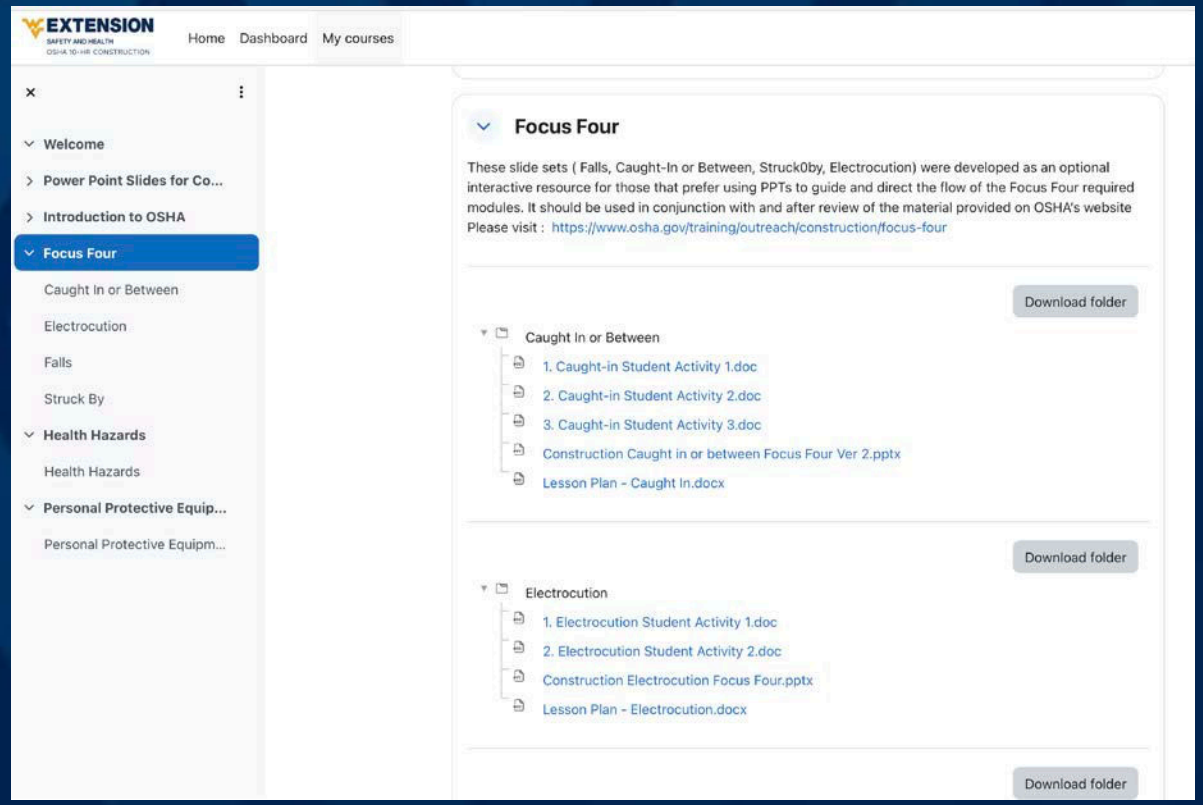
- 48% of students reported listening to lectures and/or watching videos for 7 to 8 hours out of the 10 hours of class.
- 25% of students reported that less than 1 hour was spent in interactive activities or small group exercises and 17% reported only 1 to 2 hours.

Current Status of Project

- Based on our findings and meeting OSHA learning objectives, we developed new and revised some existing OSHA 10 mandatory topics curriculum. This included:
  - Revising the “Introduction to OSHA” presentation and embedding the required hands-on activities to make it seamless for the trainer.
  - Embedding hands-on activities into the existing PPE and Health Hazard modules. These modules already met the learning objectives.
  - Developing new Focus Four training material and hands-on activities and embedding hands-on activities that guide both the trainer and the student.
  - Developing new lesson plans for each module.

Current Status of Project

- Instructions, Curriculum and Lesson Plans available online at: https://constructionosha10.org/
- continue to collect pre and posttests, satisfaction surveys and trainer questionnaires.
- Sharing this website with our OTIEC partners.



Next Steps

- Disseminate the training material.
- Complete analysis of data collected:
  - Compare what the trainer reported that their training preferences are with what they actually do while training across multiple classes
  - Compare what the trainers reported they did with what the students reported was done
  - Determine if the learning objectives were met with the analysis of the pre- and post-knowledge assessment
- Publish the results
- Meet with OSHA about adopting.
- As an OTIEC, we will provide this new material to our existing and new OSHA 500 students.
- Encourage other OTIECs to do so as well.

Enhancing the Long-Term Acceptance, Usability, and Effectiveness of Passive Exoskeletons among Construction Workers who Vary by Sex, Age, and Injury Status.

UCSF/UC Berkeley

Carisa Harris, PhD
Alan Barr, MS
Caesar Chavez
Eric Chu
Elizabeth Epifania Perez-Lopez
David Rempel, MD

Virginia Tech

Maury Nussbaum, PhD
Sunwook Kim, PhD
Henry Carey

VIRGINIA TECH

CPWR THE CENTER FOR CONSTRUCTION RESEARCH AND TRAINING

Burden of MSDs among Construction Workers

Construction workers continue to experience high rates (32.5 per 10,000FTEs) of work-related musculoskeletal disorders (WMSDs) - 11% higher than all other industry sectors in 2016[1,2].

The back and the shoulder were the most impacted body regions

Back injuries account for 43% of all cases, with a median of 8 lost work days[1].	Shoulder injuries account for 16% of all cases, with a median of 25 lost work days[1].

1. Bureau of Labor Statistics. Nonfatal Occupational Injuries and Illnesses Requiring Days Away from Work. 2018.
2. Wang X, Dong XS, Choi SD, Dement J. Work-related musculoskeletal disorders among construction workers in the United States from 1992 to 2014. *Occup Environ Med*. 2017;74(5):374-380.

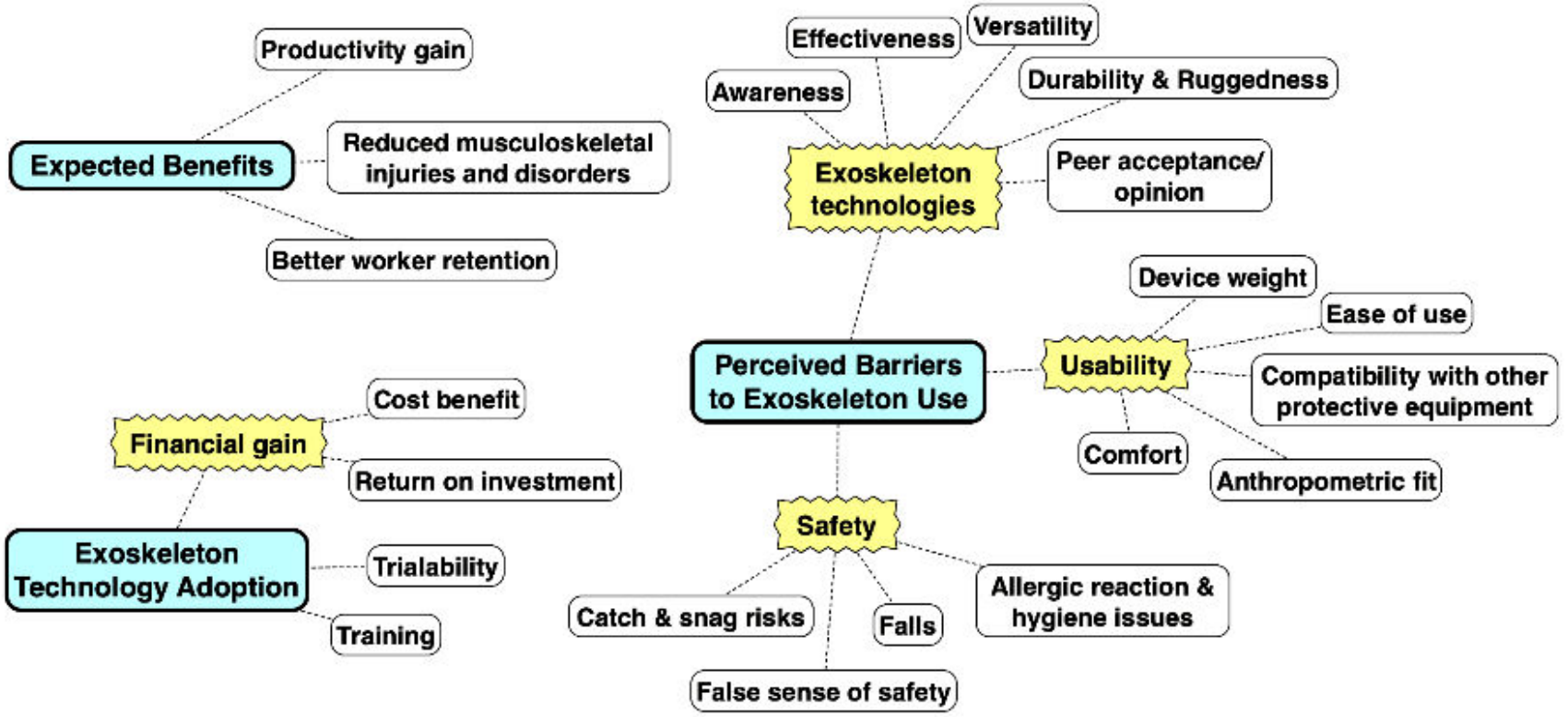
Background

- Occupational exoskeletons may reduce the risk of WMSDs
- EXOs have been shown to lower muscle activity of the shoulder[1]
- EXOs have been used on manufacturing lines such as in the automotive industry

Variations in construction tasks, environments, companies, and worker demographics present challenges to the implementation of ASEs.

Van Engelhoven L, Poon N, Kazerooni H, Rempel D, Barr A, Harris-Adamson C. Experimental Evaluation of a Shoulder-Support Exoskeleton for Overhead Work: Influences of Peak Torque Amplitude, Task, and Tool Mass. *IISE Transactions on Occupational Ergonomics and Human Factors*. 2019;7(3-4):250-263.
Kim S, Nussbaum MA, Smets M, Ranganathan S. Effects of an arm-support exoskeleton on perceived work intensity and musculoskeletal discomfort: An 18-month field study in automotive assembly. Am J Ind Med. 2021 Nov;64(11):905-914. doi: 10.1002/ajim.23282. Epub 2021 Aug 6. PMID: 34363229.

Background



Sunwook Kim, Albert Moore, Divya Srinivasan, Abiola Akanmu, Alan Barr, Carisa Harris-Adamson, David M. Rempel & Maury A. Nussbaum (2019) Potential of Exoskeleton Technologies to Enhance Safety, Health, and Performance in Construction: Industry Perspectives and Future Research Directions, IISE Transactions on Occupational Ergonomics and Human Factors, 7:3-4, 185-191, DOI: 10.1080/24725838.2018.1561557

Evaluation of Exoskeletons for Construction-Laboratory Studies 2019-2024

Aim 1

Obtain input from construction industry stakeholders

Aim 2

Determine the efficacy

Aim 3

Assess the perceived safety, effectiveness, and acceptability

Example Guidelines

Tips and tricks for using exoskeletons safely and effectively in construction.

WORK SMARTER

Not Harder.
Learn more.

In partnership with CPWR, researchers at the University of California and Virginia Tech have been studying the impact of exoskeletons on construction workers and have compiled resources for you and your team.

- the right fit
- the right task
- the right support
- safety cautions
- contraindications

MORE INFORMATION

Quick Tips

ARM SUPPORT EXOSKELETON
SET UP GUIDE FOR CONSTRUCTION

When performing **overhead tasks**, consider setting the exoskeleton to **100%** of your arm and tool weight (visit www.tiny.url/exofit).

When performing **forward reach tasks**, consider setting the exoskeleton to **75%** of your arm and tool weight (visit www.tiny.url/exofit).

You will need **extra clearance and time** to maneuver through scaffolds or other constrained spaces.

Balance is minimally impacted while walking, even on beams, whether the device is on or off.

Be CAUTIOUS when wearing an Exo while climbing as it can impact your sense of balance and safety when reaching overhead.

Visit www.tiny.url/exofit to generate your individualized support settings based on your sex, height, weight, type of exoskeleton, and task that you will be performing.

Dissemination

Papers

- 4 published, 3 Under Review, 3 for Submission
  - Wearing an arm support exoskeleton does not affect balance by may decrease dynamic stability during a step-down maneuver.
  - Optimizing passive exoskeleton torque for dynamic overhead work: Phase-specific analysis on muscle activity and perceived exertion
  - Evaluating back-support exoskeletons in simulated construction-relevant tasks: Effects on task completion time and aspects of usability.

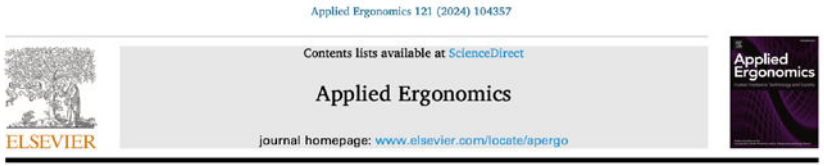
Conferences

- Over 30 Presentations at Scientific and Trade Conferences

Webinars

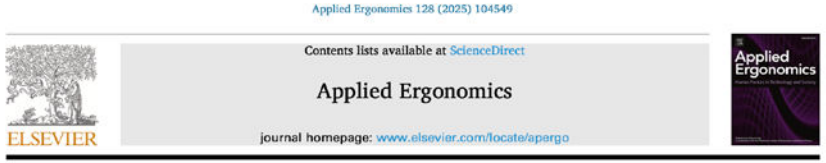
https://youtu.be/OgwXly8n8Ys

https://youtu.be/9EuJmoCFf6Q


Applied Ergonomics 121 (2024) 104357
Contents lists available at ScienceDirect
Applied Ergonomics
journal homepage: www.elsevier.com/locate/apergo
ELSEVIER

Shoulder kinematics during cyclic overhead work are affected by a passive arm support exoskeleton

Giulia Casu [a,*], Isaiah Barajas-Smith [d], Alan Barr [b,d], Brandon Phillips [d], Sunwook Kim [c], Maury A. Nussbaum [c], David Rempel [b], Massimiliano Pau [a], Carisa Harris-Adamson [b,d]


Applied Ergonomics 128 (2025) 104549
Contents lists available at ScienceDirect
Applied Ergonomics
journal homepage: www.elsevier.com/locate/apergo
ELSEVIER

Passive back support exoskeletons do not effectively reduce physical demands during simulated floor tiling

Ahmad Raza Usmani [a], Mohammad Sadra Rajabi [a], Aanuoluwapo Ojelade [b], Sunwook Kim [a], Carisa Harris-Adamson [c,d], Alan Barr [c,d], Maury A. Nussbaum [a,*]


International Journal of Industrial Ergonomics 107 (2025) 103732
Contents lists available at ScienceDirect
International Journal of Industrial Ergonomics
journal homepage: www.elsevier.com/locate/ergon
ELSEVIER

Understanding the drivers of and barriers to adopting passive back- and arm-support exoskeletons in construction: Results from interviews and short-term field testing

Mohamad Behjati Ashtiani [a], Wallace Morris [a], Aanuoluwapo Ojelade [b], Sunwook Kim [a], Feyisayo Akinwande [a], Alan Barr [c], Carisa Harris-Adamson [c,d], Abiola Akanmu [e], Maury A. Nussbaum [a,*]

Enhancing Long-Term Acceptance, Usability, and Effectiveness of EXOs in Construction

Aim 1

Develop and evaluate effective training protocol

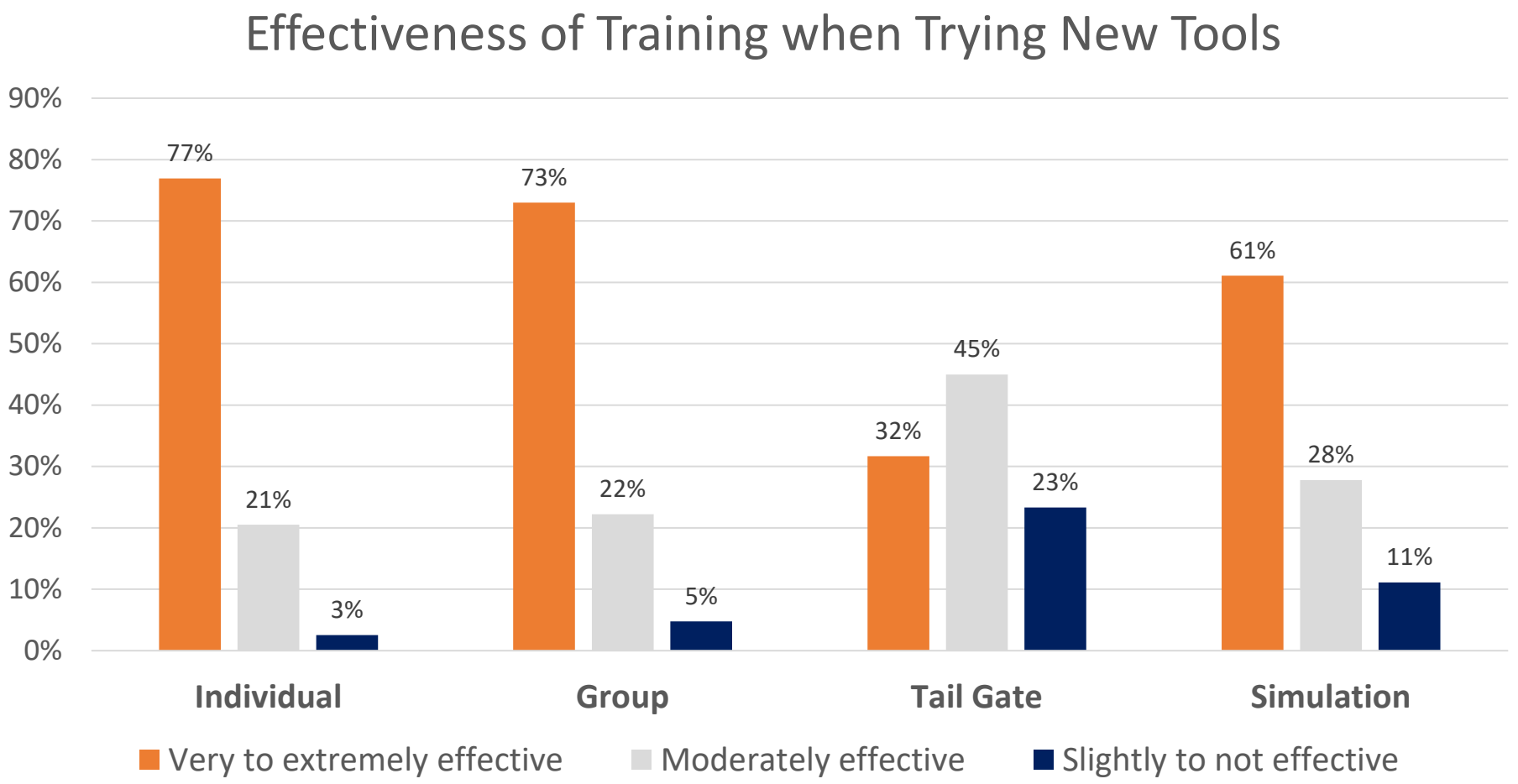
Aim 2

Determine the medium-term (2-4wk) effectiveness in diverse trades and populations

Aim 3

Determine the long-term (3-4 months) effectiveness in diverse trades and populations

Effectiveness of Training



Training Materials in Development

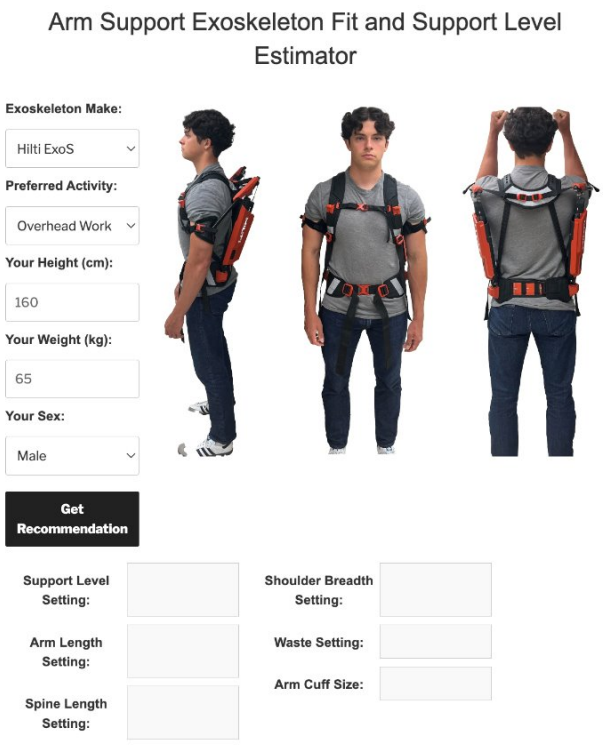
- **Goal:** Safe, effective exoskeleton use
- **Training Modes**
  - In-person sessions (hands-on)
    - Online modules as a reference
  - Online modules alone
    - Safety Personnel
    - Construction workers
- **Online Platform**
  - Articulate Rise 360
  - Benefits: flexible, accessible, practical learning

Core Training Modules

Essential topics for effective, safe operation:

- **What and EXO is & what it Does (Purpose)**
- **Passive Exoskeleton Overview (Components & Design)**
- **Use Cases**
- **Fitting & Adjusting (Comfort & Effectiveness)**
- **Setting Support Levels (Tailoring Assistance)**
- **Removing the Exoskeleton (Doffing)**
- **Safety Information (Critical Guidelines)**
- **Summary & Next Steps**
- **FAQ**

Creating the Interactive ASE Guide



The Ekso EVO User Guide will teach you to adjust the exoskeleton for optimal performance and stay safe while using your new tool. Before we begin, grab your exoskeleton and get ready to follow along in adjusting the settings, trying on, and testing the Ekso EVO.

Assessing Understanding & Proficiency

- **Assessment ensures trainee competence & confidence**
- **High-Level Evaluation Categories**
  - *Knowledge*: Recall facts, explain concepts
  - *Application*: Describe/demonstrate proper use
  - *Attitude/Value*: Understand safety importance, feel confident
- **Specific questions developed to evaluate each category**

Evaluating the Trainings

	User Guide	**Hilti Exo S**
Learnability	Correctly identify different parts of the Exoskeleton	Proper adjustment of the exoskeleton was achieved without intervention
Efficiency	Total time to complete User Guide	Total time to don, doff, and adjust to user-specific measurements
Memorability	Score on five-question quiz given after guide completion	Proper adjustment and fitting were achieved without intervention
Errors	Errors made while navigating the User Guide (misclicks)	Total Errors made while adjusting and donning the exoskeleton
Satisfaction and Usability	SUS Score for the User Guide	SUS Score for the exoskeleton

Evaluation Methods

- **Intermittent training module questions (quiz)**
  - Pre-training: Baseline knowledge
  - Post-training: Knowledge gain & comprehension
- **Self-Assessment**
  - Pre-training: Perceived confidence/skill.
  - Post-training: Shift in confidence post-training & initial use.
- **Questionnaires**
  - After training & initial use: Feedback on material quality/relevance.
- **Brief Interview**
  - After training & initial use: Understanding specific challenges.

Current Partners

- **At UCSF/UC Berkeley**
  - Northern Cal. Labor Training Center
  - LiUNA!
  - Local companies of various sizes
- **At Virginia Tech**
  - Allan Myers, Inc.
  - Skanska

Timeline

- **Completed:**
  - IRB approval obtained
  - Exoskeletons purchased
- **June:**
  - Evaluate the training and approach
  - Finalize training and evaluation materials
  - Recruit additional partners
- **July-August:**
  - Data Collection
  - Data Analysis
  - Reporting

THANK YOU!

We would like to acknowledge CPWR, The Center for Construction Research and Training, for their support of this project (U60-OH009762-11).

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https://www.ergo.berkeley.edu/research-projects
https://bit.ly.cpwrexo
https://www.facebook.com/UCErgoResearch/posts/3766397566725967

Preventing Suicide and Promoting Mental Health in Construction Workers

Bradley Evanoff, MD, MPH

Ryan Lindsay, MSW, LCSW

Sami Tayeb, MA

Washington University in St. Louis
School of Medicine
Healthy Work Center

Research to Practice Workshop
June 4, 2025

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Study Aims

- **Adapt** the Australian suicide prevention program “MATES in Construction” for application in the US construction industry to improve awareness, help-seeking, help-offering, & referral
- **Implement** the program in six regional construction companies
- **Evaluate** changes in worker attitudes, program implementation, and perceived effectiveness
- **Disseminate** the program to reach a wide audience in the industry

Study Rationale

- Construction workers have >two-fold excess risk of suicide compared to other male workers
- Construction workers are approximately five times more likely to die from suicide than from a workplace injury
- Organizational and cultural factors in construction increase the risk of mental health problems
  - Long working hours, precarious work, high injury rates
  - Cultural norms and stigma inhibit help-seeking
  - Highly fragmented health care

Australian MATES in Construction Program

MATES Trust: provides referral, case management, worker training

Level 1: General Awareness Training (GAT): 1-hour annual training to all workers on site: increase awareness, willingness to seek help

Level 2: Peer Connector Training: 5% of workforce receives 4-hour training – train peers to increase help-seeking, help-offering; ”hand off” workers in crisis

Level 3: Applied Suicide Intervention Skills Training (ASIST): 2-day training for employees of the MATES trust who provide evaluation and referral

Goal 1: Adapt the MATES program

- Implement key elements of the MATES program within contractors - (without a well-funded independent trust and a national health care plan!)
- Many discussions with contractors
- Assess Organizational Readiness for Change
- Provide level 2 and 3 training through cooperation with LivingWorks
- Provide options for Level 1 training: one-hour training or via 5 toolbox talks
- Document & publicize available resources; referral pathways for workers with different health benefits

Tarlton Pilot Program*

- Two-day ASIST training for HR & safety managers in August ‘23
- Half-day safeTALK Training for Peer Connectors in October ‘23
- General Awareness Training for all workers: Five days of TBTs in Sept ‘23
- Hard Hat Stickers; resource cards
- Final TBT promoting the program: Jan. 2024
- Interviews with trained personnel: March-May 2024

Scan the QR code to learn more in the May CPWR report

*Supported by CPWR small grant

Study Updates

- Partnered with Emery Sapp & Sons and Icon Mechanical.
  - Strong support from company leaders
  - Working closely with their safety teams and HR benefits personnel
  - Both have completed LivingWorks ASIST and safeTALK trainings
  - Signed contractor agreements
- Implementation and Evaluation goals of the study have been approved by WashU's IRB
- Implement evaluation of general awareness training at each company beginning in June

Contractor Profiles

Emery Sapp & Sons

- Road construction
- Employee owned
- Company has approximately 1,500 workers
- Operations in Missouri, Arkansas, and Kansas
- Recently won bid for I-70 expansion project

Icon Mechanical

- HVAC, Industrial ventilation, Piping
- Pipefitters, Sheet Metal workers, several other trade unions
- Company has several hundred workers
- Operations in Missouri, Illinois, and Tennessee

Evaluation

- 10-question mobile phone survey before GAT training, then 1 week and 3 months after
- Document changes in attitudes, help-offering, help-seeking
- Interviews to assess success of implementation
- Proctor Implementation Framework
  - *Acceptability, Adaptation, Appropriateness, Feasibility, Fidelity, Implementation Cost, Penetration, Sustainability*

Future Plans

- Plan A – CPWR funded for year 2 – stay ahead of schedule, aim to complete implementation/ evaluation in 4+ contractors
- Plan B – CPWR not funded for year 2 – curtail new recruitment of study sites, pivot to early dissemination
  - Inform larger national suicide prevention efforts based in NABTU, AGC, AFSP
  - Empower individual contractors, unions via a new “Playbook”

Suicide Prevention Playbook for the Construction Industry

- Disseminate a “playbook” to interested contractors and unions
- Based on experiences to date
- Tips on how to do:
  - General Awareness Training (options)
  - Work with LivingWorks
  - Set up other program elements
  - Annual refresher trainings
- Tracking & evaluation

COMPASS

Construction Organizations Mobilizing to Promote and Assist Suicide Safety

Suicide Prevention Training Playbook for the Construction Industry

The COMPASS (Construction Organizations Mobilizing to Promote and Assist Suicide Safety) program was developed to meet the unique needs of the US construction industry, and it aims to help people in the construction industry assess, develop, and strengthen their suicide awareness and prevention programs. This playbook was developed by university-based Healthy Worker programs in Missouri and Iowa with the active support of contractors, labor unions, and the Missouri AGC. The program is meant to provide construction contractors with an adaptable blueprint to implement and maintain a suicide prevention training program for their workforce.

The COMPASS program was inspired by the “MATES in Construction” program, which is an evidence-based suicide prevention program initially implemented in the Australian construction industry, and has since been expanded to New Zealand and the mining, energy, and manufacturing industries. COMPASS adopts key elements of the Australian framework, including three levels of suicide prevention training (see fig. 1). The first is a general awareness training (GAT) for suicide prevention that everyone in the company receives and is delivered either in the form of five toolbox talks or a 1-hour presentation. The second is training volunteer peer connectors (safeTALK) who connect their coworkers with help. The third is an Applied Suicide Intervention Skills Training (ASIST) for additional personnel who work with peer connectors to provide further evaluation and referral to workers in need of help. The goal of these three levels of training is to encourage workers to seek help for mental health issues and to establish a peer-based ‘gatekeeper’ network on construction worksites, where workers are encouraged to offer help to co-workers in need.

The COMPASS program has been successfully implemented at multiple construction sites in conjunction with support from a university-based team. This playbook offers a multi-step guide for contractors to implement and sustain a similar suicide prevention program within their own companies.

Fig. 1

Mentoring SMART Women:

A coordinated approach to supporting safety, health, and wellbeing: study update

Dr. Marissa Baker, Principal Investigator

Department of Environmental and Occupational Health Sciences, University of Washington

CPWR Research to Practice

June 4, 2025

ENVIRONMENTAL & OCCUPATIONAL HEALTH SCIENCES
UNIVERSITY of WASHINGTON | SCHOOL OF PUBLIC HEALTH

Agenda for Today

- Refresher of study background
- Activity and outputs in NCE year
- Mentorship resources

Photo courtesy of Rose Evans, SMART LU 28

Study Background

- Tradeswomen are at higher risk for a variety of psychosocial and physical risk factors on the job than their male counterparts
- Pilot research with Washington Women in the Trades identified mentorship as an intervention strategy to offer empowerment and skills to apprentice tradeswomen through targeted support from experienced journeywomen
- Partnership with SMART International, support from CPWR
- Part of NABTU's efforts to improve working conditions for female construction workers

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NCE Year Activity

- Promoted and disseminated training, mentorship resources at TWBN 2024 in New Orleans
- Shared final mentorship training materials with control locals
- Conducted interviews with mentors, mentees, and project coordinators
- Completed Best Practices Guide to support future mentorship efforts
- Published *Factors associated with construction apprenticeship completion in the United States* (November 2024) in the Labour and Economic Relations Review

Photo courtesy of SMART International

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r2p outputs from our project

- Asynchronous online mentorship training
- Mentor workbook
- Synchronous facilitation guides
- Skill-based videos
- Program evaluation guide
- Best practices guide for implementing a mentorship training
- 2 manuscripts in preparation, 1 in revision

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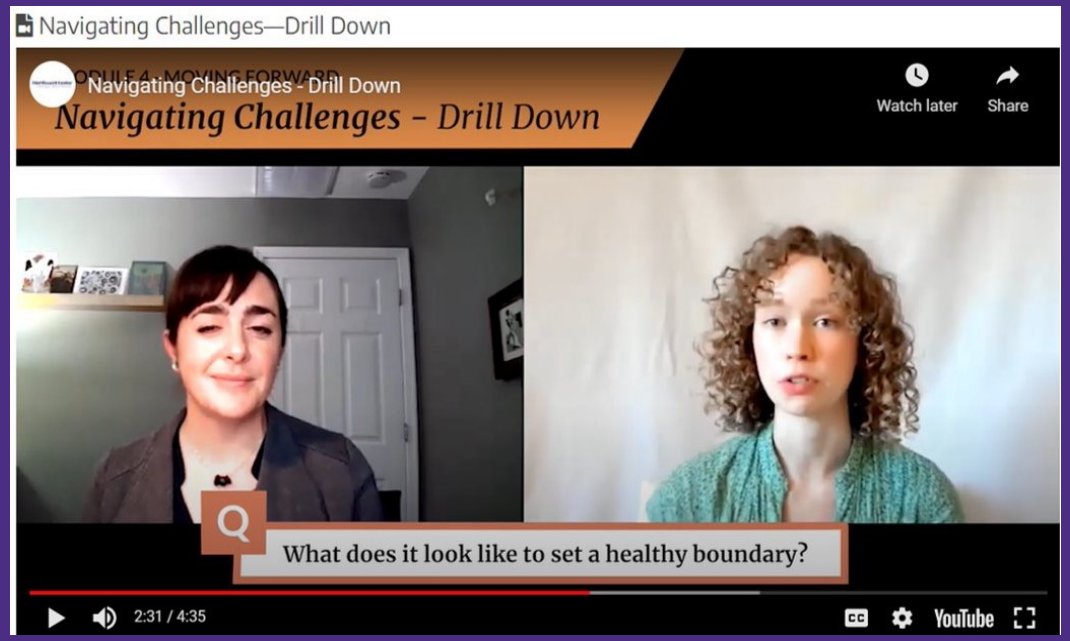
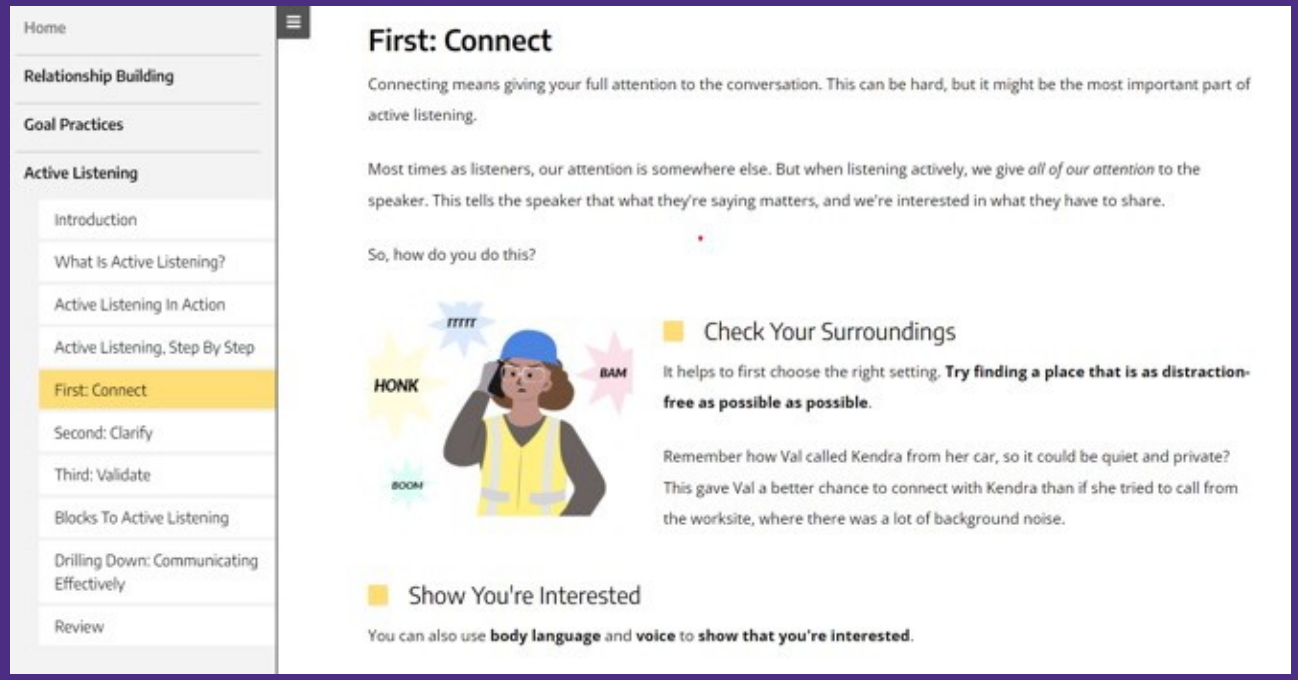
Refresh: Asynchronous Mentor Training

Video, text, and audio elements
15-25 minute sections





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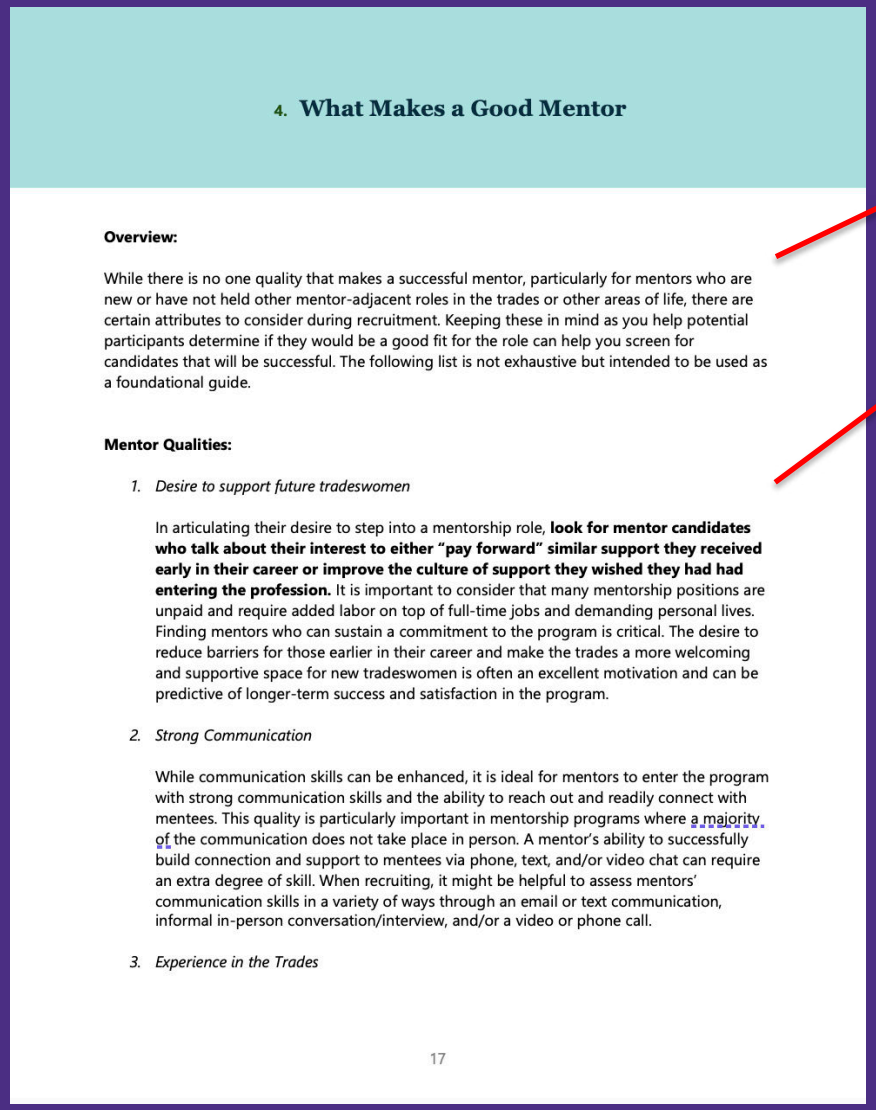
Best Practices Guide



4. What Makes a Good Mentor

Overview:

While there is no one quality that makes a successful mentor, particularly for mentors who are new or have not held other mentor-adjacent roles in the trades or other areas of life, there are certain attributes to consider during recruitment. Keeping these in mind as you help potential participants determine if they would be a good fit for the role can help you screen for candidates that will be successful. The following list is not exhaustive but intended to be used as a foundational guide.

Mentor Qualities:

1. *Desire to support future tradeswomen*

   In articulating their desire to step into a mentorship role, **look for mentor candidates who talk about their interest to either "pay forward" similar support they received early in their career or improve the culture of support they wished they had had entering the profession.** It is important to consider that many mentorship positions are unpaid and require added labor on top of full-time jobs and demanding personal lives. Finding mentors who can sustain a commitment to the program is critical. The desire to reduce barriers for those earlier in their career and make the trades a more welcoming and supportive space for new tradeswomen is often an excellent motivation and can be predictive of longer-term success and satisfaction in the program.

2. *Strong Communication*

   While communication skills can be enhanced, it is ideal for mentors to enter the program with strong communication skills and the ability to reach out and readily connect with mentees. This quality is particularly important in mentorship programs where a majority of the communication does not take place in person. A mentor's ability to successfully build connection and support to mentees via phone, text, and/or video chat can require an extra degree of skill. When recruiting, it might be helpful to assess mentors' communication skills in a variety of ways through an email or text communication, informal in-person conversation/interview, and/or a video or phone call.

3. *Experience in the Trades*

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1. Overview Section

2. Recommendations for implementation

Reflections from our mentorship study:

With our cohort of mentors, the common denominator across fully engaged mentors was a desire to make the trades a more welcoming space for new tradeswomen. Every mentor had stories that illustrated their own journey toward "making it" in the trades as successful journeywomen: this involved strategies to overcome discrimination, harassment, and tokenism that comes with being a woman in the trades. While mentors often shared that there is a mentality in the trades of putting up with harassment or aggression on the job as a kind of rite of passage, many mentors expressed desire to break this cycle through more supportive programs for tradeswomen, like mentorship.

While we did not require all mentors to be women, our cohort was majority women (one male mentor participated.) Having your mentors share the gendered experience of your mentees creates a sense of camaraderie and shared experience among dyads; however, trust is often the biggest factor in determining the success of a pairing: men can be excellent mentors for the right tradeswoman mentee. If you do decide to open up the mentor role to all genders, we would recommend having mentees preference whether they would like at tradeswoman mentor, or if they are open to working with a tradesman. This ensures that all participants feel comfortable with their matches.

3. Lessons learned from mentorship study

Mentor Handbook

Section 3

Goal Practices

Goal Practices are small, measurable steps you can take on a daily basis to work toward a larger goal. Helping your mentee identify long-term goals—and goal practices to help them get there—provides structure for your weekly check-ins.

Understand Goal Practice

Step 1: Identify Long-Term Goals

What is your mentee excited to learn more about? What are they struggling with, that they'd like to improve on? This is the first step before breaking it down into goal practices.

Step 2: Assess Mentee's Progress

How much progress has your mentee already made toward their goal? **Ask your mentee questions** to see where they're at.

Step 3: Continue, Stop, Start

Continue: What practices are working for your mentee?
Stop: What practices aren't working for your mentee?
Start: With the information above in mind, are there new practices that would be helpful?

Step 4: Review the Plan

Summarize the discussion: what is your mentee's current goal, and what practices are they going to continue, stop, and start? It's also a good idea to **set up your next check-in** at this time to assess progress and provide support as needed.

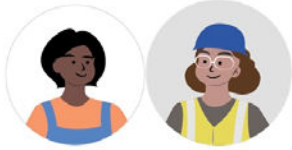
Summaries of each module in self-paced, online training

Mentoring SMART Women: Program Goals

This program aims to develop leadership and communication skills in mentees through the support of experienced, journey-level mentors like you. Our goal is for mentees to feel more empowered on the job and, in the long term, make the trades a more inclusive space for women.
The diagram below represents how we envision this process, from mentor to mentee.

Step 1: **Mentors learn communication, problem solving, self-advocacy and goal setting skills** through synchronous and asynchronous training. They will also experience the **social support** inherent to these relationships.

Step 2: With guidance from the study team, mentors teach mentees these skills. Mentors circle back to skills with mentees as needed throughout the year.



Step 3: Over the year, mentees learn skills with mentor support.

Step 4: Mentees internalize and demonstrate **goal setting, communication, self-advocacy, and problem-solving skills** independently. Mentees feel a sense of **social support** from the relationship.

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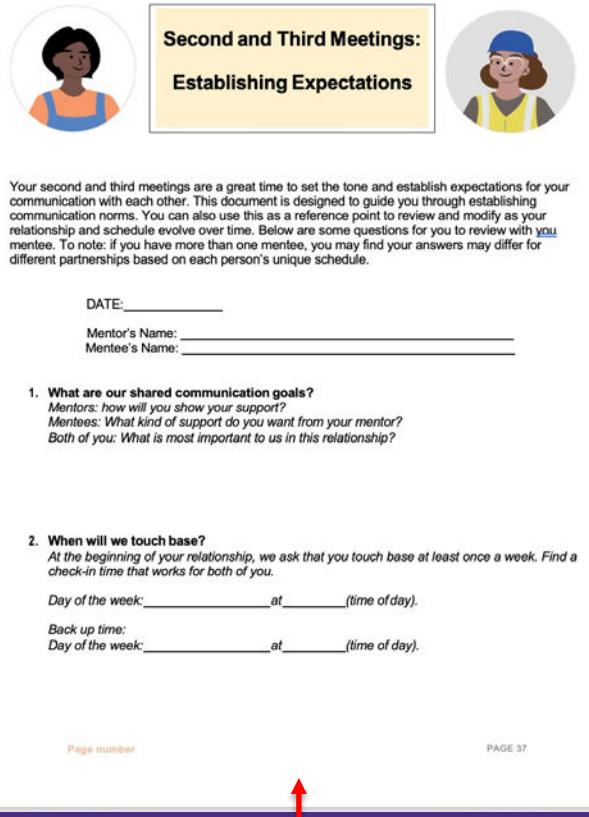
Program information



Second and Third Meetings: Establishing Expectations

Your second and third meetings are a great time to set the tone and establish expectations for your communication with each other. This document is designed to guide you through establishing communication norms. You can also use this as a reference point to review and modify as your relationship and schedule evolve over time. Below are some questions for you to review with you mentee. To note: if you have more than one mentee, you may find your answers may differ for different partnerships based on each person's unique schedule.

DATE:_____

Mentor's Name: _____
Mentee's Name: _____

1. **What are our shared communication goals?**
   Mentors: how will you show your support?
   Mentees: What kind of support do you want from your mentor?
   Both of you: What is most important to us in this relationship?

2. **When will we touch base?**
   At the beginning of your relationship, we ask that you touch base at least once a week. Find a check-in time that works for both of you.

   *Day of the week:*_____*at*_____*(time of day).*

   Back up time:
   *Day of the week:*_____*at*_____*(time of day).*

Page number

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Worksheets for mentors and mentees

Interview Themes

10 semi-structured interviews with mentors from both rounds of the program to understand experience, program success, and areas for improvement

1. ***Personal identity and gendered experience shape mentoring motivations***
2. ***Group based learning facilitates mentor confidence, skill development***
3. ***Mentors gain communication and broader life skills from their role***
4. ***Mentorship fuels organizational-level tradeswomen support***
5. ***Barriers to mentorship echo broader tradeswomen barriers to tradeswomen participation in the industry***

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Where you can find mentorship resources discussed today

- http://github.com/bakermarissa/SMARTMentorship
- **Register to gain access to full self-paced training, best practices guide, mentor handbook and skill-based videos**

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Support and Acknowledgement

- CPWR
- SMART International
- Study team members: Dr. Hendrika Meischke, Dr. Noah Seixas, Dr. Emilia Vignola
- Trainer: M Miller
- SMART mentor extraordinaire: Lisa Davis

Questions? bakermg@uw.edu

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Understanding the Effectiveness of OSHA Construction Consultations in Reducing Serious Hazards

Wayne Gray

Professor of Economics, Clark University

John Mendeloff

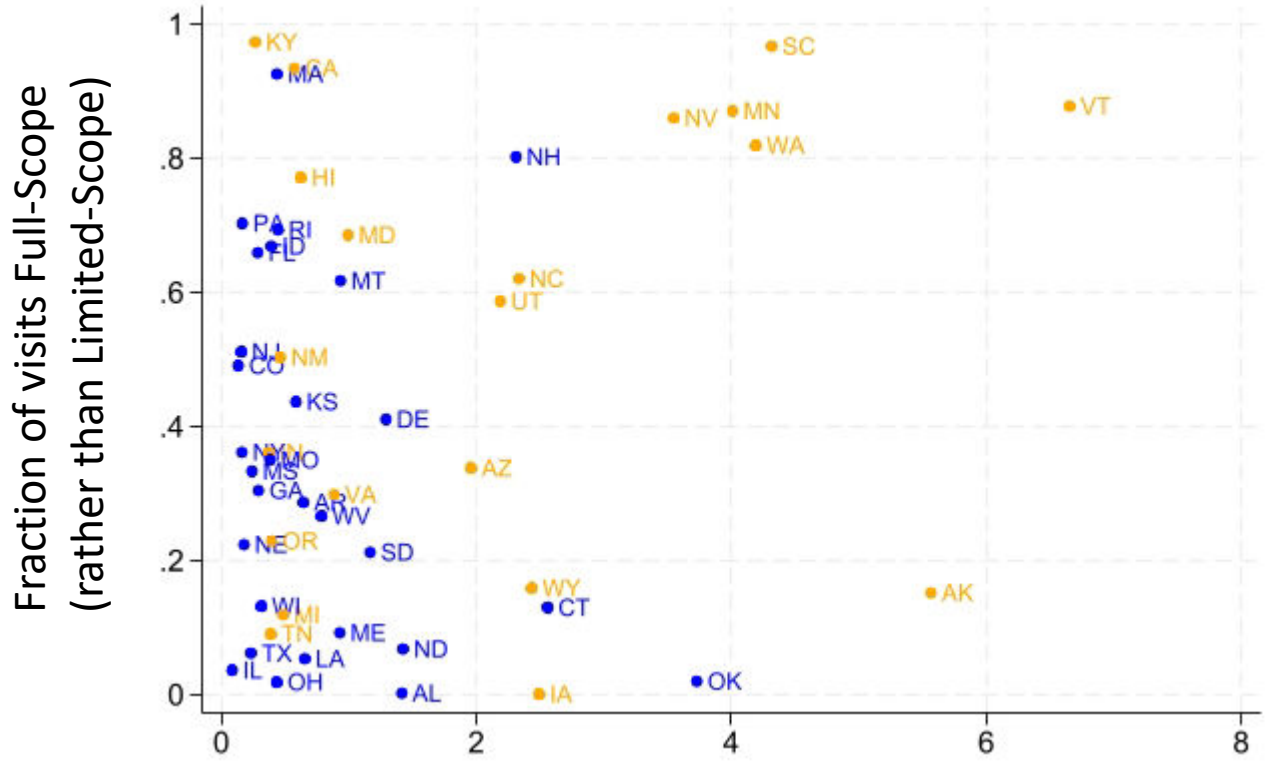
Professor of Public Affairs Emeritus, University of Pittsburgh

2025 CPWR r2p Seminar & Partnership Workshop

June 4, 2025

OSHA Consultation Programs – Big Variation across States

State Plan states and Federal states



Annual average Visits per 1000 construction workers (2016-2022)

OSHA State Consultation Programs

- Separate programs in each state
- Mix of federal and state funding (10% minimum state contribution)
- Considerable variety across states in funding and activity levels
  - 19 states always contributed 10%; 6 states averaged 50% or more
  - Visits per 1000 employees: 6 states less than 0.2; 5 states more than 4.0

- Voluntary program - Employer submits request for visit
- Agrees to correct any violations of OSHA standards identified on visit
- State consultant visits worksite, provides report on hazards found
- Reports are confidential – not passed on to enforcement

- Relatively small program – 47,418 construction visits 2016-2022
- Smaller than enforcement – 224,736 OSHA inspections in construction
- Little research on OSHA consultation impacts – none in construction
  - Read (2017), Wurzelbacher et al (2023), Mendeloff and Gray (2002)

State Policies and Construction Fatality Rates in the US

- Large differences in state-level construction fatality rates
- State-level policy differences:
- OSHA enforcement - inspection rate and average penalties
- OSHA consultation - visit rate
- Workers Compensation - small-firm exemptions, longer waiting period

- Significant negative coefficient on consultation visit rate
- More visits associated with fewer fatalities
- Relationship stronger for State Plan states
  - (States decided – in 1970s - to administer their own OSHA enforcement)

- Wayne Gray and John Mendeloff, "Preventing Construction Deaths—The Role of Public Policies", Regulation and Governance, vol 17(3), July 2023, p. 726-754. https://doi.org/10.1111/rego.12486.

Variations in States' OSHA Consultation Programs - Process

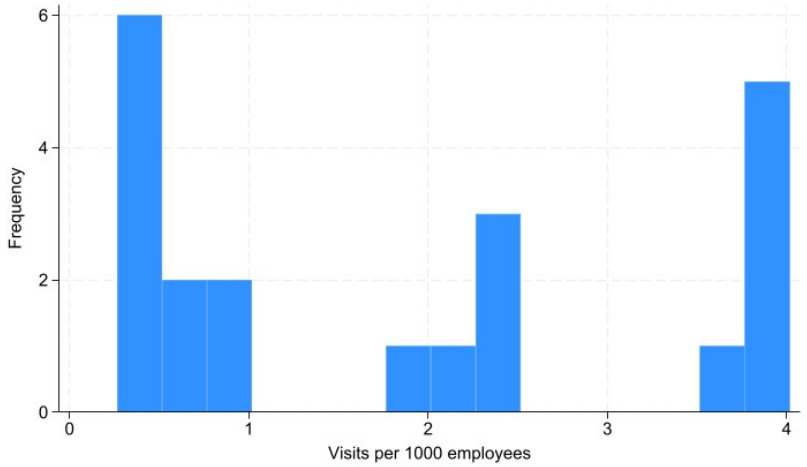
- 1. Examined OSHA's OIS database on consultations during 2016-2022
- Variations across states in numbers of consultations and % in construction
- Variations in consultation characteristics

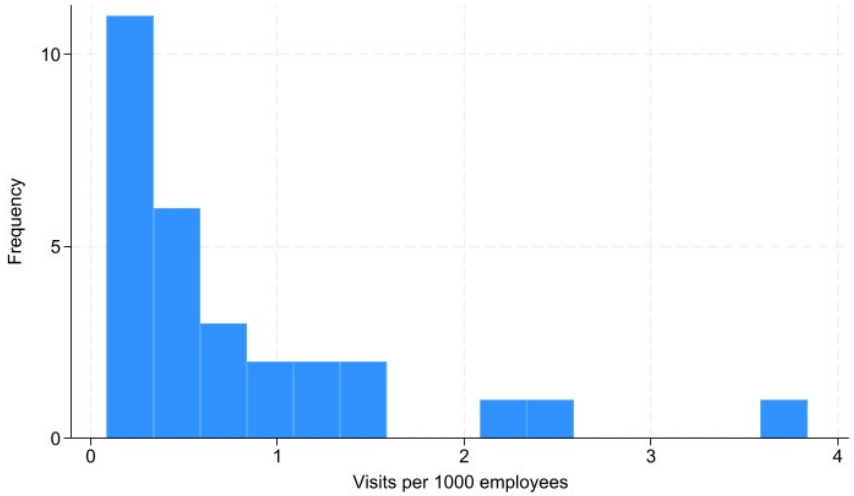
- 2. Interviewed 31 states' Consultation Program Managers
- All 21 State Plan states plus 10 Federal OSHA states
- Details of program structure and activities

- 3. Connected interview responses to state characteristics in OIS data

Variations in States' OSHA Consultation Programs – Visit Frequency

- As a group, State Plan states averaged higher construction consultation rates than Federal states, but also showed more variation across states. Nearly all the high-rate states were State Plan, but some State Plan were below-average.





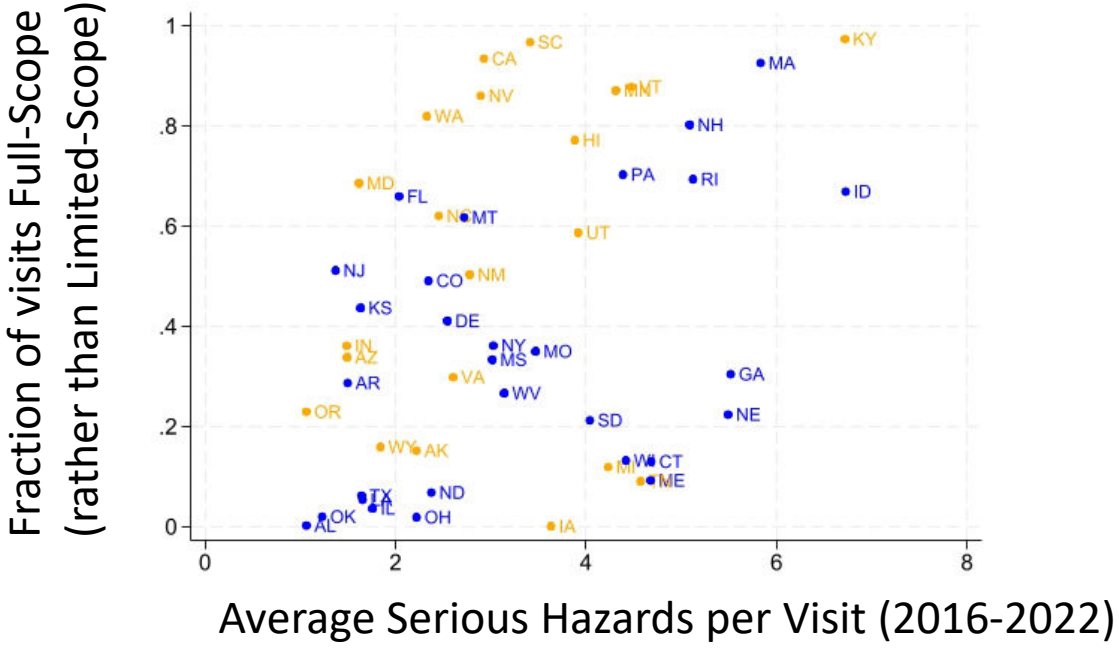
- 21 State Plan States (mean 1.6)
  (Rates truncated at 4 = MN, WA, SC, AK, VT)

29 Federal States (mean 0.5)
(Maximum 3.7 = OK)

Variations in States' OSHA Consultation Programs – Visit Intensity

- Visits can be Full (whole worksite) or Limited (specific hazard)
- Related to average number of serious hazards detected per visit

State Plan states and Federal states



Variations in States' OSHA Consultation Programs – Regression Analysis

- Regression analysis – factors affecting construction workplace fatality rates
  - Annual state fatality rate in construction, 1992-2016
  - Main focus on state consultation programs
  - Also includes workers comp, enforcement inspections
  - Other state characteristics

- Similar to prior analysis – but now including state visit intensity
  - Average hazards per visit; average serious hazards per visit; hours per visit
  - Multiply average intensity times annual visit frequency rate

- Fatality rates are lower in states with:
  - Higher consultation visit rates in construction
  - More intense consultation visits (more hazards cited, longer visits)

Variations in States' OSHA Consultation Programs - Results

	All States	State Plan	Federal
Consultation Visit Rate	-4.595**	-5.651***	-2.918
Visits*serious hazards	-1.639***	-1.432**	-2.466*
Visits*total hazards	-1.442***	-1.331**	-2.531**
Visits*visit hours	-0.349**	-0.335**	-0.387

Variations in States' OSHA Consultation Programs - Next Steps

- Additional data analysis

- What's new?
  - Getting detailed OSHA consultation data for 1992-2024
  - Wide range of workplace hazard measures:
    - BLS data (CFOI fatalities + SOII injuries)
    - OSHA violations and hazards, some injury data
  - Firm-level identifiers to link together data on hazards and consultations
  - More advanced statistical analysis to establish causal connections

Summary

- Variation across states in construction fatality rates
- Several factors are associated with lower state fatality rates
- One factor is OSHA Consultation Program activity
- Substantial variation across states in visit frequency and intensity
- Differences between State Plan and Federal OSHA states

- Goal – provide information to help Consultation Programs
  - Allocate existing resources
  - Possibly justify additional resources

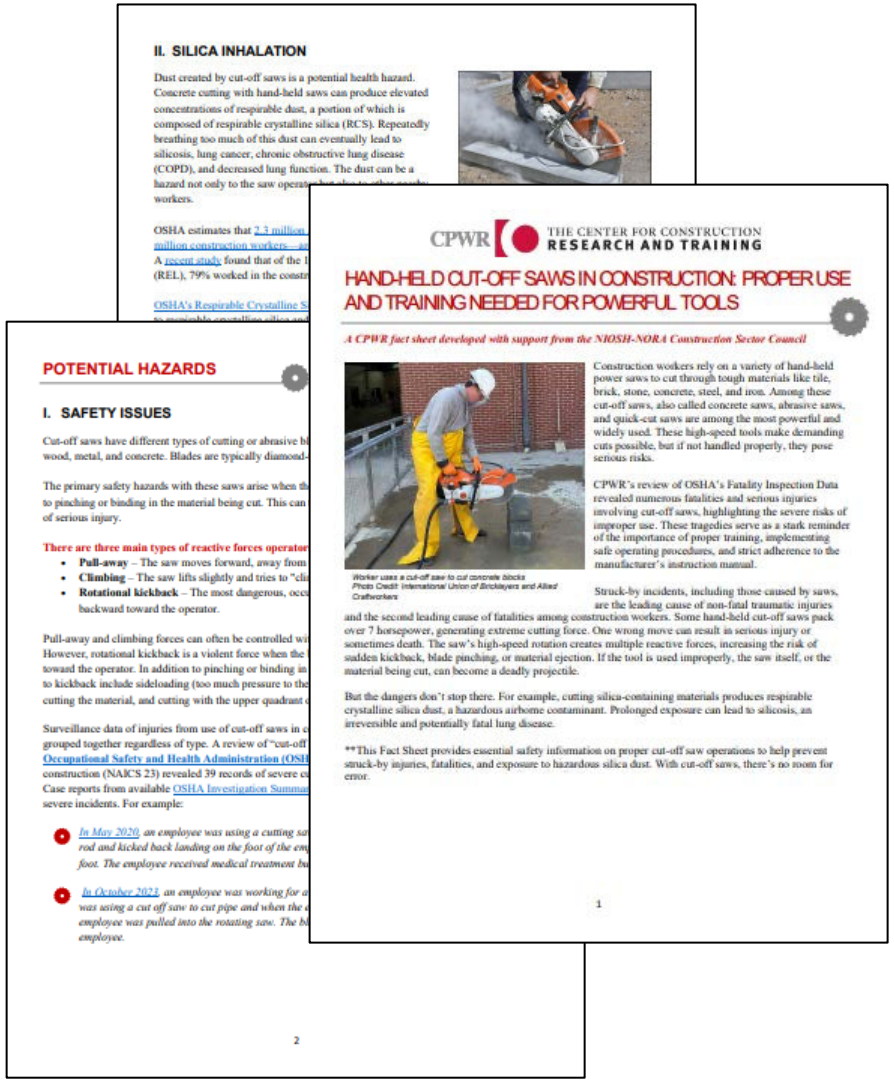
Research to Practice Program Progress

September 2024 – June 2025

Jessica Bunting, MPH
Grace Barlet, MPH
Rosa Greenberg, MPH
Chris Le, MPH
JoyLynn Keeton

Providing ongoing r2p guidance and support

- ✓ Continued the r2p Roadmap/researcher touch-base process with all Consortium researchers during February and March 2025
- ✓ Published a cut-off saw factsheet started by the NORA CSC
- ✓ Served on the Northeast Center of Occupational Health and Safety's r2p Advisory Board to help share lessons learned in construction r2p with the farming and fishing industries



II. SILICA INHALATION

Dust created by cut-off saws is a potential health hazard. Concrete cutting with hand-held saws can produce elevated concentrations of respirable dust, a portion of which is composed of respirable crystalline silica (RCS). Repeatedly breathing too much of this dust can eventually lead to silicosis, lung cancer, chronic obstructive lung disease (COPD), and decreased lung function. The dust can be a hazard not only to the saw operator but also to other nearby workers.

POTENTIAL HAZARDS

I. SAFETY ISSUES

CPWR THE CENTER FOR CONSTRUCTION RESEARCH AND TRAINING

HAND-HELD CUT-OFF SAWS IN CONSTRUCTION: PROPER USE AND TRAINING NEEDED FOR POWERFUL TOOLS

A CPWR fact sheet developed with support from the NIOSH-NORA Construction Sector Council

Construction workers rely on a variety of hand-held power saws to cut through tough materials like tile, brick, stone, concrete, steel, and iron. Among these cut-off saws, also called concrete saws, abrasive saws, and quick-cut saws are among the most powerful and widely used. These high-speed tools make demanding cuts possible, but if not handled properly, they pose serious risks.

CPWR's review of OSHA's Fatality Inspection Data revealed numerous fatalities and serious injuries involving cut-off saws, highlighting the severe risks of improper use. These tragedies serve as a stark reminder of the importance of proper training, implementing safe operating procedures, and strict adherence to the manufacturer's instruction manual.

Struck-by incidents, including those caused by saws, are the leading cause of non-fatal traumatic injuries and the second leading cause of fatalities among construction workers. Some hand-held cut-off saws pack over 7 horsepower, generating extreme cutting force. One wrong move can result in serious injury or sometimes death. The saw's high-speed rotation creates multiple reactive forces, increasing the risk of sudden kickback, blade pinching, or material ejection. If the tool is used improperly, the saw itself, or the material being cut, can become a deadly projectile.

But the dangers don't stop there. For example, cutting silica-containing materials produces respirable crystalline silica dust, a hazardous airborne contaminant. Prolonged exposure can lead to silicosis, an irreversible and potentially fatal lung disease.

**This Fact Sheet provides essential safety information on proper cut-off saw operations to help prevent struck-by injuries, fatalities, and exposure to hazardous silica dust. With cut-off saws, there's no room for error.

National Struck-by Stand-Down

- ✓ Worked with Struck-by Work Group, ARTBA, and other partners to plan for the 2025 Stand-Down (April 21 – 25)
- ✓ Developed a Save-the-Date graphic
- ✓ Promoted through social media, websites, newsletter, etc.
- ✓ Held a Stand-Down webinar with ARTBA and OSHA

National Falls Campaign & 2025 Stand-Down

- ✓ Worked with Falls Work Group, OSHA, and other partners to plan for the 2025 Stand-Down (May 5 – 9)
- ✓ Developed a Save-the-Date graphic
- ✓ Promoted through social media, websites, newsletter, etc.
- ✓ Designed & distributed over 275,000 hardhat stickers
- ✓ Distributed over 203,000 hazard alert cards
- ✓ Held 2 webinars
- ✓ Registered 48 Premier Partners (compared to 24 in 2024)
- ✓ Completed the 2024 OSHA Certificate of Participation analysis & report
- ✓ Developed surveys for an in-depth Falls Campaign evaluation

Webinars

Webinar	Date	Total Attendees	On-Demand Views	Spanish Views
CPWR-CIASP-AFSP-LHSFNA Suicide Prevention Webinar	Sept 5	514	479	101
Head Protection in the Construction Industry: The Basics	Oct 15	312	614	85
Selection & Practical Use of Head Protection	Oct 31	259	273	172
Benefits & Challenges of Mentorship in Construction	Nov 19	149	109	42
Construction Painters' Exposure to Chemicals…	Jan 28	342	175	N/A
Work Should Not Hurt! A Participative Ergonomics Program	Feb 26	276	158	35
New Research on Mental Health & Construction	March 4	264	156	21
A Look at Employment Trends…	March 20	68	28	11
Technologies to Improve Work Zone Safety	April 21	410	190	35
Getting Ready for the 2025 Safety Stand-Down	April 29	349	143	36
Fall Protection for Leading Edge Work: Ask the Experts	May 1	350	201	47
Improving Safety Climate for Hispanic Construction Workers	May 28	245	36	24
New Research on Mental Health & Construction	June 18	?	?	?

Publications

- Version 2 of *Selecting Head Protection in Construction* (English & Spanish)
- New PPE Fit Infographic (English & Spanish)
- Updated Women's PPE List
- Cut-Off Saw Factsheet (coming soon in Spanish)
- Greenberg, R., Bunting, J., Roelofs, C. (2025). CPWR's Research to Practice (r2p) Roadmap Process Evaluation, May 2025. https://www.cpwr.com/wp-content/uploads/RR-r2p_Roadmap_Evaluation.pdf
- Dale, A.M., Bunting, J., Barlet, G., Betit, E. (2024). A Developmental Evaluation of CPWR's Best Built Plans Program to Reduce Injuries from Manual Materials Handling, December 2024. https://www.cpwr.com/wp-content/uploads/RR-BBP_Developmental_Evaluation_Report.pdf
- Greenberg, R. (2025). The National Campaign to Prevent Falls in Construction 2024 Safety Stand-Down Evaluation Report: Lessons Learned from OSHA's Certificate of Participation. CPWR. https://stopconstructionfalls.com/wp-content/uploads/2025/01/2024-Stand-Down-Eval-Report_Final.pdf

Presentations

1. Bunting, J. (2025). Spanish Language Resources. CPWR Webinar: Improving Safety Climate for Hispanic Construction Workers. May 21 (virtual).
2. Cain, C., Rizzo, B. (2025). CPWR Webinar: Getting Ready for the 2025 Stand-Down. April 29 (virtual).
3. Cain, C., Greenberg, R., Rizzo, B. (2025). Premier Partner Stand-Down meeting presentation. April 18 (virtual).
4. Bunting, J. (2025). Claycorp & OSHA Safety Week Webinar. May 7 (virtual).
5. Bunting, J. (2025). ASSP Maine Webinar: Safety Climate Assessment & Management Resources, April 16 (virtual).
6. Cain, C., Bunting, J. (2025). Mental Health Research, Resources, and Recommendations. OSHA Alliance Meeting. Washington, DC., April 10.
7. Bunting, J. (2025). CIASP Webinar: Women Promoting Mental Wellbeing in Construction. April 1, 2025 (virtual).
8. Greenberg, R. [2025]. 2024 Stand-Down evaluation data presentation for OSHA planning committee. March 25 (Virtual).
9. Bunting, J. (2025). CPWR Resources for Women in the Trades. Michigan Women in the Trades Summit. Howell, MI, March 22.
10. Bunting, J. (2025). Safety Climate Assessment & Management Resources. Midwest Construction Safety Conference, Kansas City, MO, March 7.
11. Barlet, G., Trueblood, A. (2025). Preventing Overexertion Injuries by Reducing Manual Materials Handling in Construction. Occupational Health & Safety Webinar. March 6 (virtual).
12. Bunting, J. (2024). Protecting Your Head and What's Inside It. NCCCO Safety & Health Meeting, Oct. 31 (virtual).
13. Bunting, J. (2024). CPWR's Noise & Hearing Loss Training Program. ACCSH Meeting, Washington, DC, Oct. 30.
14. Bunting, J., Dale, A.M., Azbill, J. (2024). BCSP Webinar: Addressing Mental Health in Construction and Related Industries. Oct. 29.
15. Bunting, J. (2024) CPWR Resources to Improve Safety Climate & Pre-Job Planning. Mid-Atlantic Safety and Health Alliance 2024 Conference. Pittsburgh, PA, Oct. 24.
16. Bunting, J. (2024) Mental Health & Suicide Prevention Awareness. Safety Team Leaders Summit. Atlanta, GA, Oct. 21.
17. Greenberg, R. [2024]. CPWR Webinar: Head Protection in the Construction Industry – The Basics, October 15. (virtual).
18. Greenberg, R. [2024]. Preventing Falls in Construction: New Data and Resources. International Society for Fall Protection (ISFP) Symposium, Oct. 3 (virtual).
19. Bunting, J. (2024). CPWR Center Update. TAUC Environmental Safety & Health Meeting. Washington, DC, Dec.10.
20. Greenberg, R. (2024). CPWR's Head Protection Resources. ASSP Webinar: Safety from The Top: Understanding Head Protection, Dec. 5 (virtual).
21. Greenberg, R., Harris, W. (2024). Falls in Construction: What do we know and what can you do? Occupational Health and Safety News, Dec. 5 (virtual).

Articles Citing our Work

1. Safety data: Where to get started, Construction Dive, May 15, 2025. https://www.constructiondive.com/news/safety-data-osha-cpwr-clayco/748268/.
2. Pre-task planning in construction: Researchers develop new guidelines, Safety & Health Magazine, April 29, 2025. https://www.safetyandhealthmagazine.com/articles/26772-pre-task-planning-in-construction-researchers-develop-new-guidelines.
3. Next week: The National Stand-Down to Prevent Struck-By Incidents, Safety & Health Magazine, April 14, 2025. https://www.safetyandhealthmagazine.com/articles/26697-next-week-the-national-stand-down-to-prevent-struck-by-incidents.
4. More worker benefits can lead to improved mental health, studies show, Construction Dive, April 3, 2025. https://www.constructiondive.com/news/construction-benefits-mental-health-suicide/744379/.
5. PPE fit challenges in construction: new resource, Safety & Health Magazine, February 17, 2025. https://www.safetyandhealthmagazine.com/articles/26470-properly-fitting-ppe-for-all-construction-workers-new-list-from-cpwr.
6. Leading Edge Tipsheet, The Ironworker Magazine (pp 40-41), February 2025 https://onlineeditions.themosaicteam.com/publication/?i=839070&p=40&view=issueViewer.
7. How contractors plan for cold weather safety, Construction Dive, January 23, 2025. https://www.constructiondive.com/news/cold-weather-safety-construction-tips/738084/.
8. How to comply with OSHA's new PPE Standard, Construction Dive. January 16, 2025. https://www.constructiondive.com/news/osha-ppe-standard-construction-compliance/737415/.
9. OSHA finalizes PPE standard for construction, Construction Dive, December 16, 2024. https://www.constructiondive.com/news/osha-final-rule-ppe-construction/735497/.
10. Construction industry 'must address root causes' of worker mental health issues: CPWR, Safety & Health Magazine, September 27, 2024. https://www.safetyandhealthmagazine.com/articles/25997-construction-industry-must-address-root-causes-of-worker-mental-health-issues-cpwr.
11. Contractors shine a light on industry's suicide problem, Construction Dive, September 9, 2024. https://www.constructiondive.com/news/construction-suicide-prevention-week-2024/726400/.
12. Suicide prevention in construction: Webinar looks at what employers can do, Safety & Health Magazine, September 2024. https://www.safetyandhealthmagazine.com/articles/25982-suicide-prevention-in-construction-webinar-looks-at-what-employers-can-do.

Improving Reach to Small Contractors & Spanish-Speaking Workers

- **Literature review** on best practices to communicate with Spanish workers is in progress
- Recently completed **UNC report** on improving Hispanic Worker safety climate being reviewed (findings shared in May webinar)
- Added regular **webinar interpretation**
- Reconvening Virtual Roundtable on Reaching Small Contactors and Vulnerable Workers: **email** jbunting@cpwr.com **to join**.

Research to Practice Program Progress

September 2024 – June 2025

Jessica Bunting, MPH
Grace Barlet, MPH
Rosa Greenberg, MPH
Chris Le, MPH
JoyLynn Keeton

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R2p Program Highlights

2010 – 2025

Jessica Bunting, MPH
CPWR Research to Practice (r2p) program director
jbunting@cpwr.com

The Evolution of CPWR's r2p Program

2010 – 2014: Developing an r2p infrastructure

- Developed r2p processes (specific tools and approaches for dissemination)
- Established partnerships and networks

2014 – 2019: Developing more integrated systems

- Focus on both "push" and "pull"
- Better linkage between researchers & industry

2019 – 2024: Conducting r2p evaluation & translation research

- Are our methods and resources effective?
- What lessons learned can we share with the industry and other researchers?

2024 – 202?: Expanding our impact across the industry

- How can we improve what we're already doing (e.g., reaching small businesses, Spanish translation, the Falls Campaign)?

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The Evolution of CPWR's r2p Program

2010: CPWR established its r2p program at the National Academies' recommendation

2012: Falls Campaign began

2010: Established the **CPWR-NIOSH-OSHA r2p Working Group,** Model **Masonry r2p Partnership**, and 2 temporary **Latino Fall Prevention partnerships**

2014: Established model **r2p Roofing Partnership** & Trainers and Researchers United Network (**TRU-Net**)

2015: First **annual r2p seminar** & partnership workshop

2015: Published version 1 of the **Partnership Toolkit**

2010-2014: Developed & used the **Triage Tool** to ID r2p-ready projects

Developed & implemented version 1 of the **r2p Roadmap**

Conducted research on **Technology Transfer** & developed guides on best practices

2015-2019: Established an **Ergonomics Community of Practice** & **Roundtable on Reaching Vulnerable Workers**

Evaluated mechanisms developed in first cycle (triage, roadmap, TRU-Net)

Developed an online **Safety & Health Network**

2016: Started CPWR's **webinar series**

2019-2024: Evaluated the r2p Roadmap process for **impact on industry adoption**

Completed a **developmental evaluation** of Best Built Plans

Pilot tested use of **nudges/behavioral economics**

Used & evaluated an expert panel based on **the Delphi Method**

Evaluated the **effectiveness of safety & health training programs** as a dissemination tool

2020-2022: Responded to the **COVID-19 pandemic** by developing 2 websites & numerous resources

Outputs & Outcomes

I. Partnerships & Networks

- Continued facilitation, leadership, and involvement in various formal and informal partnerships and networks
- Key for R2p & p2r

II. Tools & Support for Researchers & r2p Professionals

- Library of r2p tools and resources to support dissemination planning, technology transfer, and program evaluation
- Continued r2p Roadmap development and support
- Providing connection where possible (I)
- Resource development based on researchers' findings (III)

III. Research-Based Resources for Contractors & Workers

- Training & Awareness Programs
- Webinars
- Worker Handouts
- Planning Resources

IV. Social Marketing Campaigns

- CPWR leadership or organizational support

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Partnerships & Networks

Interagency Work Groups & Alliances

OSHA-NIOSH-CPWR r2p Working Group

OSHA-CPWR Ambassador Alliance

NORA Construction Sector Council and Work Groups

Annual r2p Seminar & Partnership Workshop

CPWR-ASSP Alliance

Intersociety Forum (ISF)

Model Industry r2p Partnerships

Masonry r2p Partnership

Roofing r2p Partnership

Other Work Groups & Committees

Ergonomics Community of Practice
(No longer active)

Roundtable on Reaching Small Contractors & Vulnerable Workers

Expert Panel on Head Protection

Safe & Sound Organizing Partners

OSHA Stand-Down Planning WG

Networks

Online Construction Safety & Health Network
(No longer active)

Trainers & Researchers United Network (TRU-Net)

Falls Campaign Premier Partners

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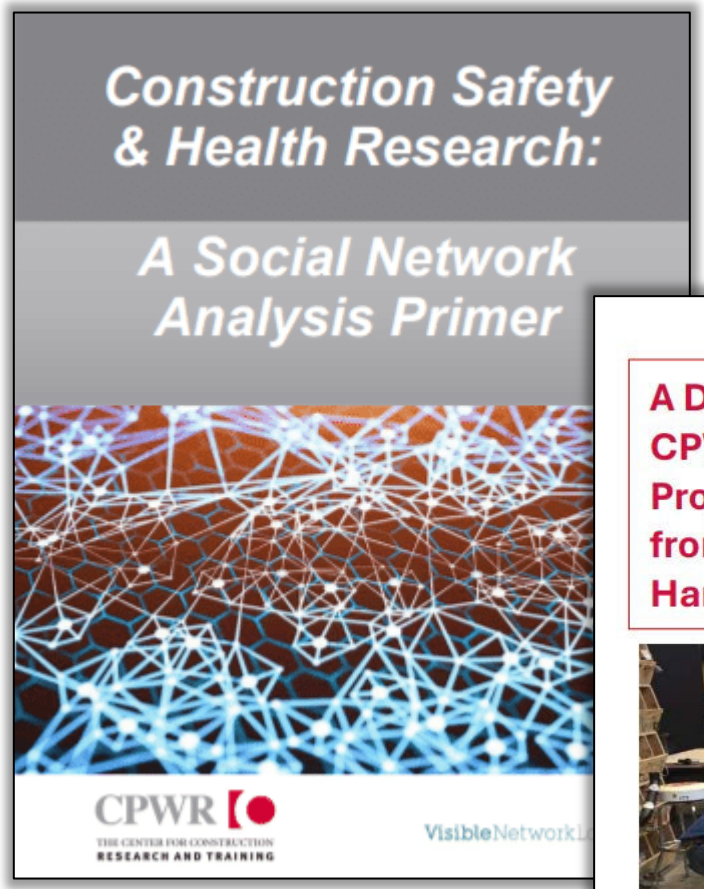
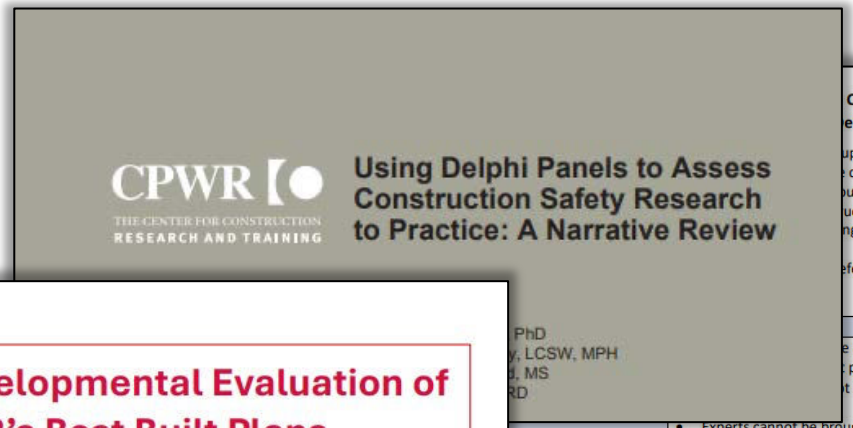
Tools & Support for Researchers & r2p Professionals

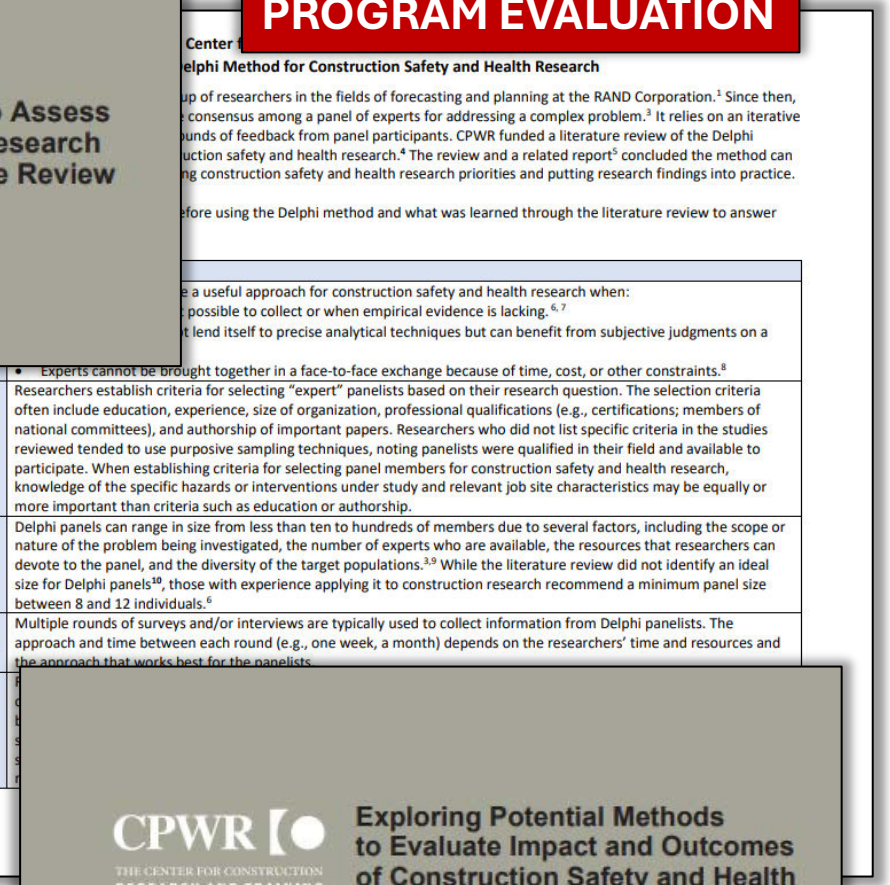
NEW 2025 report on the r2p Roadmap process evaluation

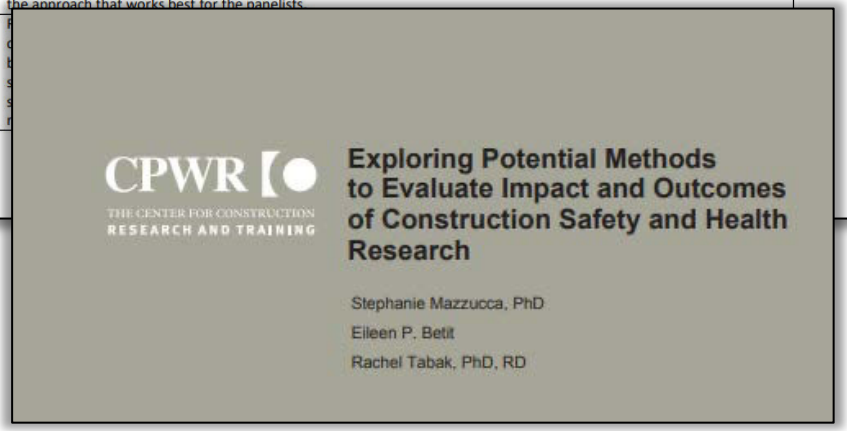
Tools & Support for Researchers & r2p Professionals





PROGRAM EVALUATION





[2024 report on a developmental evaluation of Best Built Plans]

Resources for Contractors & Workers

Developed based on:

- Current & completed CPWR, NIOSH, and university research
- NORA Construction Sector Council goals
- NORA CSC Work Group activities
- Social Marketing Campaign needs
- Priorities of other relevant partnerships & networks
- NABTU Safety & Health Committee requests
- Requests from other industry stakeholders
- Input & support from CPWR's Training Program
- Industry surveys
- OSHA regulation & consensus standard development

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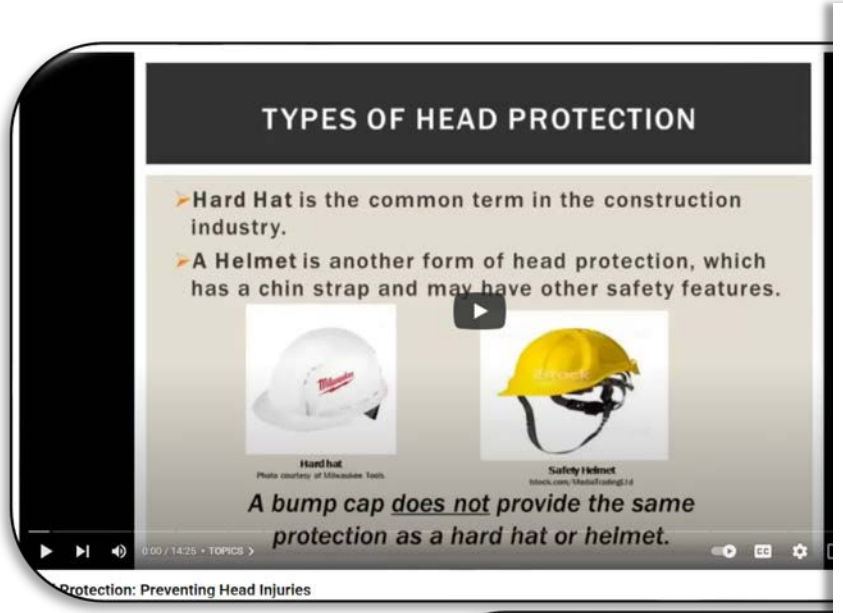
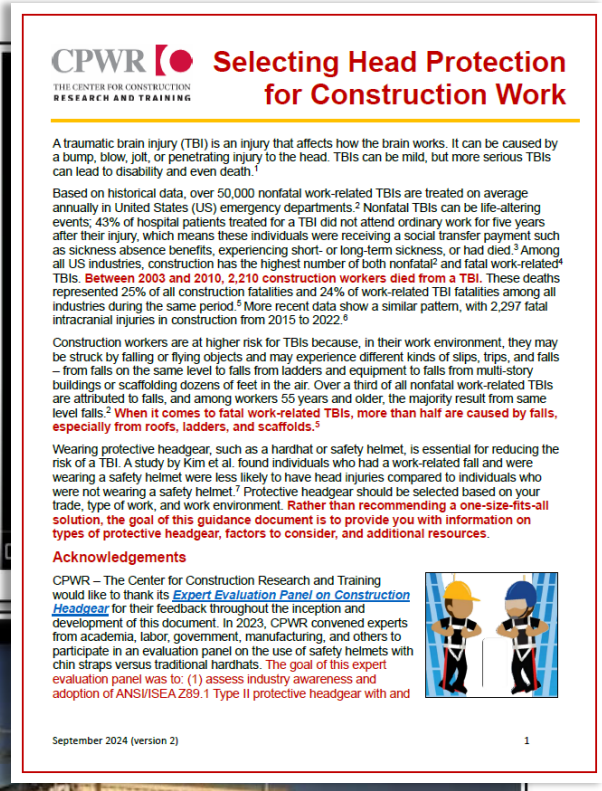
Training & Awareness Programs

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Selecting Head Protection for Construction Work

A traumatic brain injury (TBI) is an injury that affects how the brain works. It can be caused by a bump, blow, jolt, or penetrating injury to the head. TBIs can be mild, but more serious TBIs can lead to disability and even death.[1]

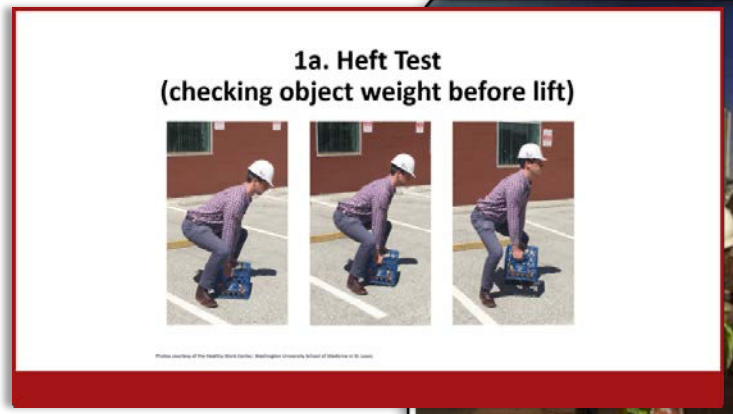
Based on historical data, over 50,000 nonfatal work-related TBIs are treated on average annually in United States (US) emergency departments.[2] Nonfatal TBIs can be life-altering events; 43% of hospital patients treated for a TBI did not attend ordinary work for five years after their injury, which means these individuals were receiving a social transfer payment such as sickness absence benefits, experiencing short- or long-term sickness, or had died.[3] Among all US industries, construction has the highest number of both nonfatal[2] and fatal work-related[4] TBIs. **Between 2003 and 2010, 2,210 construction workers died from a TBI.** These deaths represented 25% of all construction fatalities and 24% of work-related TBI fatalities among all industries during the same period.[5] More recent data show a similar pattern, with 2,297 fatal intracranial injuries in construction from 2015 to 2022.[6]

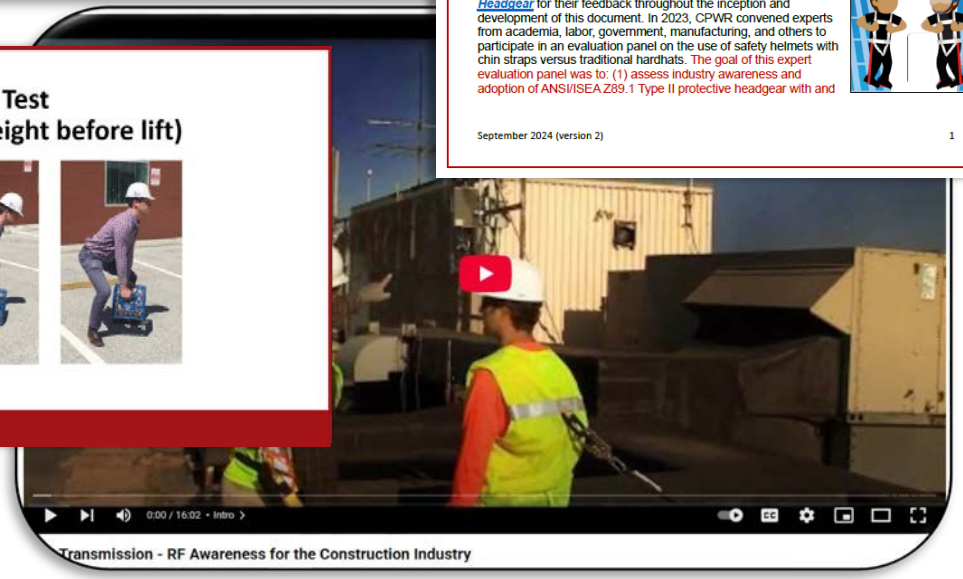
Construction workers are at higher risk for TBIs because, in their work environment, they may be struck by falling or flying objects and may experience different kinds of slips, trips, and falls – from falls on the same level to falls from ladders and equipment to falls from multi-story buildings or scaffolding dozens of feet in the air. Over a third of all nonfatal work-related TBIs are attributed to falls, and among workers 55 years and older, the majority result from same level falls.[2] **When it comes to fatal work-related TBIs, more than half are caused by falls, especially from roofs, ladders, and scaffolds.**[5]

Wearing protective headgear, such as a hardhat or safety helmet, is essential for reducing the risk of a TBI. A study by Kim et al. found individuals who had a work-related fall and were wearing a safety helmet were less likely to have head injuries compared to individuals who were not wearing a safety helmet.[7] Protective headgear should be selected based on your trade, type of work, and work environment. **Rather than recommending a one-size-fits-all solution, the goal of this guidance document is to provide you with information on types of protective headgear, factors to consider, and additional resources.**

Acknowledgements

CPWR – The Center for Construction Research and Training would like to thank its ***Expert Evaluation Panel on Construction Headgear*** for their feedback throughout the inception and development of this document. In 2023, CPWR convened experts from academia, labor, government, manufacturing, and others to participate in an evaluation panel on the use of safety helmets with chin straps versus traditional hardhats. The goal of this expert evaluation panel was to: (1) assess industry awareness and adoption of ANSI/ISEA Z89.1 Type II protective headgear with and





- Radio Frequency Radiation Awareness Program for the Construction Industry
- Head Protection: Preventing Head Injuries
- Best Built Plans Contractor & Worker Ergonomics Training Programs
- Construction Noise & Hearing Loss Prevention Program

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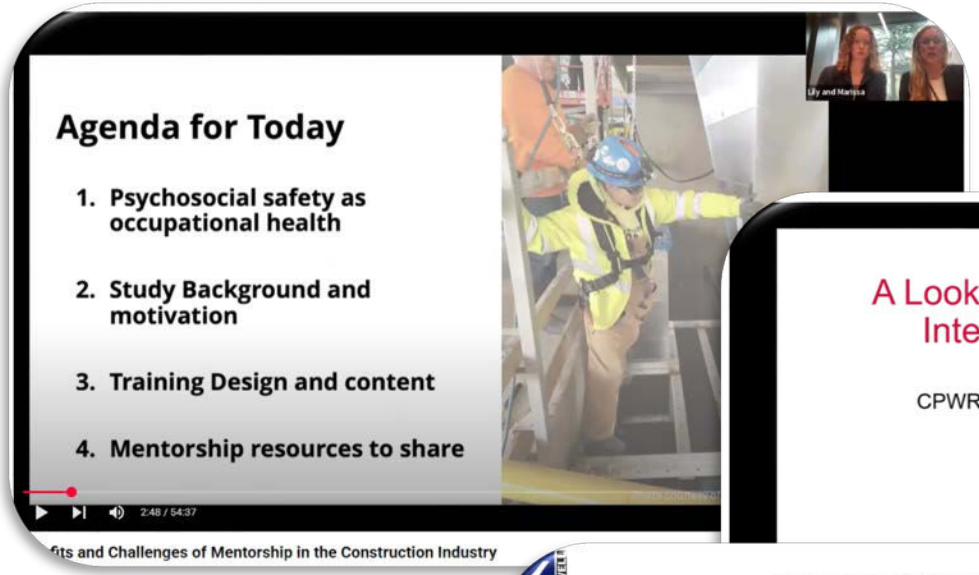
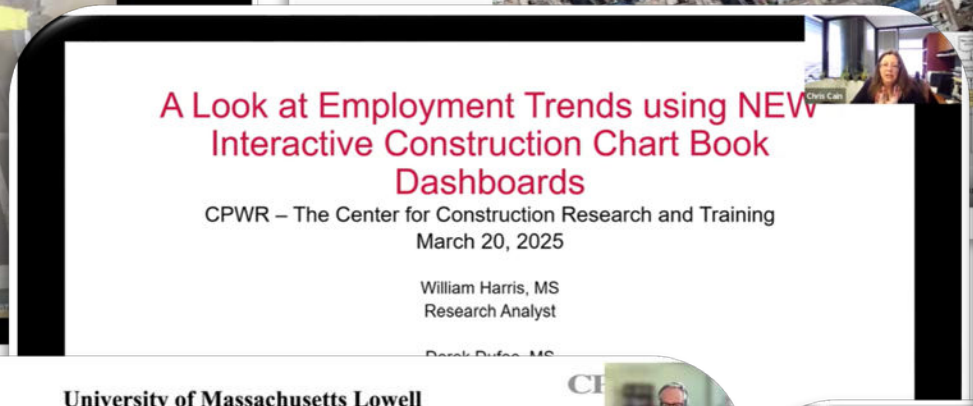
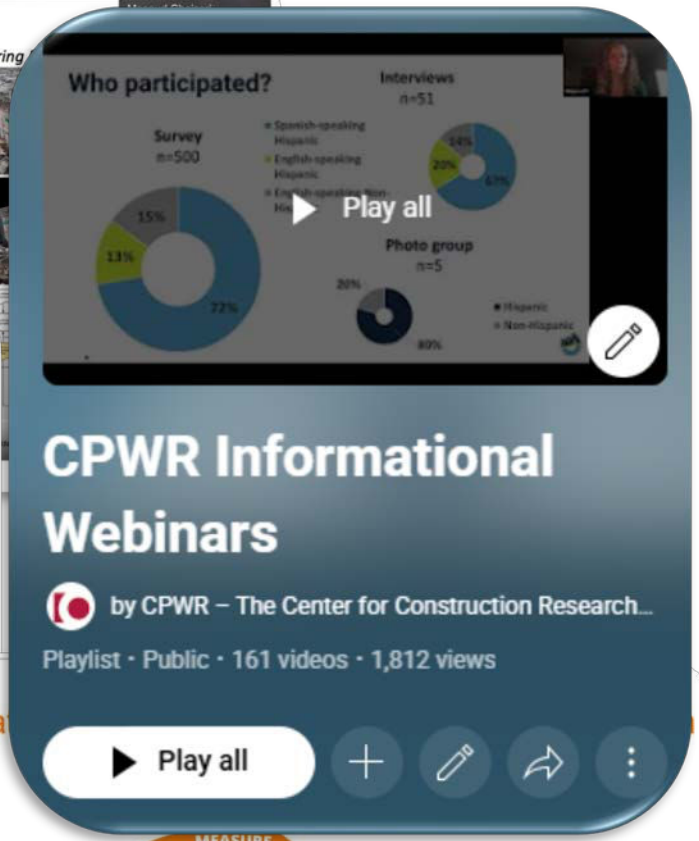
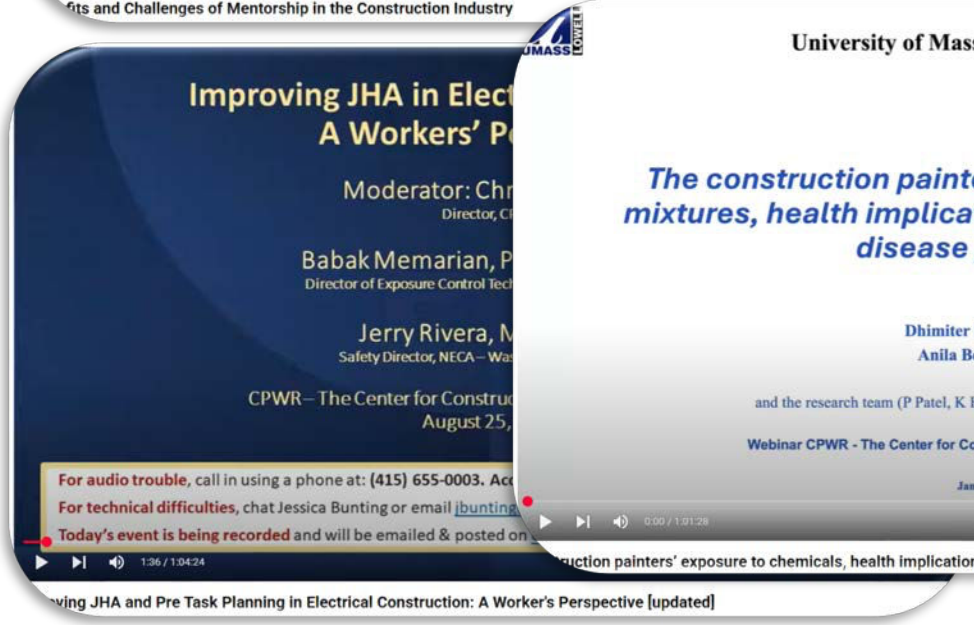
Webinars

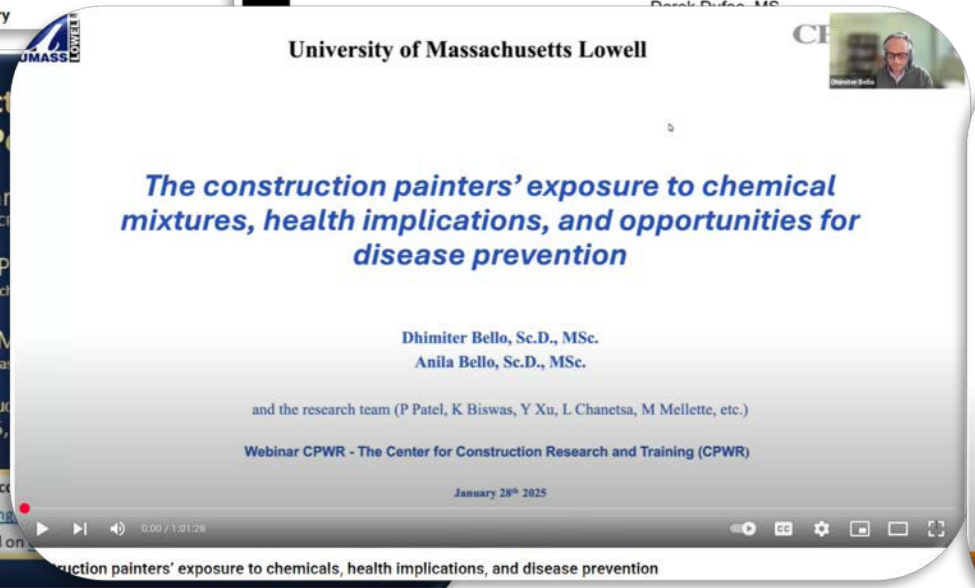

Agenda for Today
1. Psychosocial safety as occupational health
2. Study Background and motivation
3. Training Design and content
4. Mentorship resources to share
2:48 / 54:37
fits and Challenges of Mentorship in the Construction Industry


2010-2018
2019
2020
2021
Drone4Safety
UAV Integration in Current Construction Safety Planning and Monitoring
Actual Flights:
Four 23-story + Two 6-story buildings @ a land area of 16,850 m²
Point Cloud Data:


A Look at Employment Trends using NEW Interactive Construction Chart Book Dashboards
CPWR – The Center for Construction Research and Training
March 20, 2025
William Harris, MS
Research Analyst


Who participated?
Interviews
n=51
Survey
n=500
Play all
Photo group
n=5
CPWR Informational Webinars
by CPWR – The Center for Construction Research...
Playlist · Public · 161 videos · 1,812 views
Play all

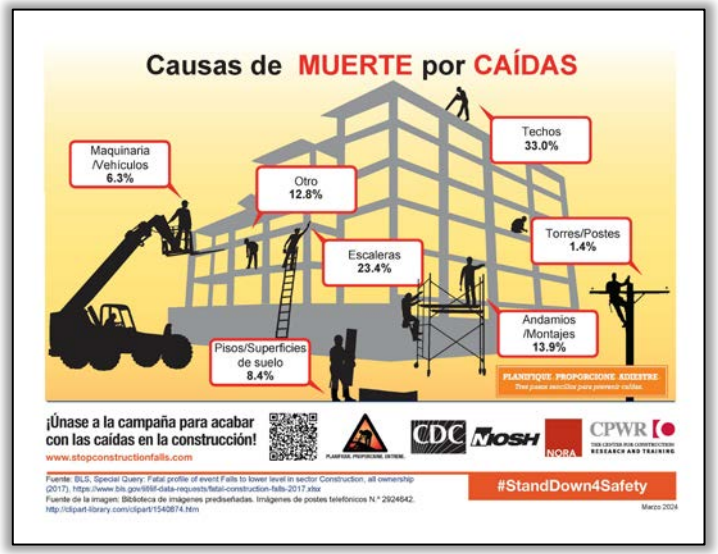

Improving JHA in Elect
A Workers' P
Moderator: Chr
Director, Ci
Babak Memarian, P
Director of Exposure Control Tech
Jerry Rivera, M
Safety Director, NECA – Was
CPWR – The Center for Construc
August 25,
For audio trouble, call in using a phone at: (415) 655-0003. Acc
For technical difficulties, chat Jessica Bunting or email jbunting
Today's event is being recorded and will be emailed & posted on
1:36 / 1:04:24
ving JHA and Pre Task Planning in Electrical Construction: A Worker's Perspective [updated]

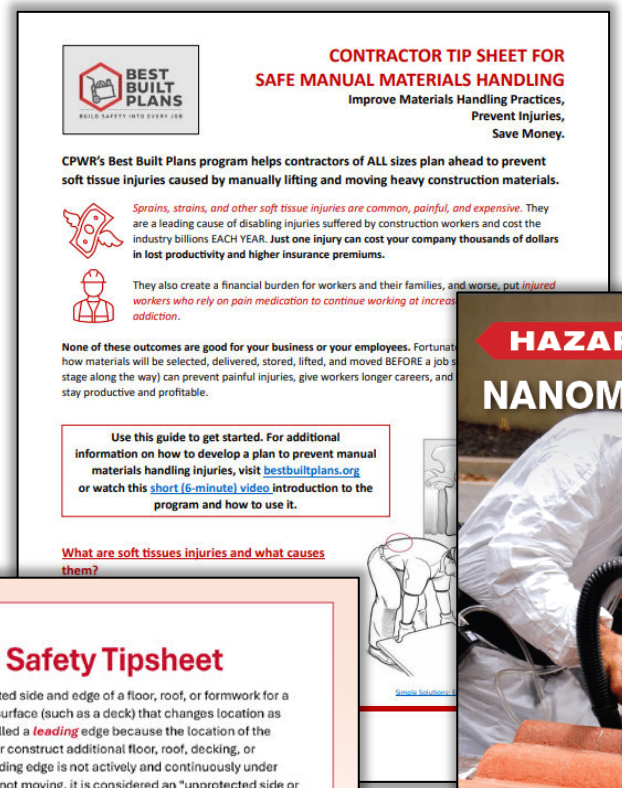

University of Massachusetts Lowell
The construction painters' exposure to chemical mixtures, health implications, and opportunities for disease prevention
Dhimiter Bello, Sc.D., MSc.
Anila Bello, Sc.D., MSc.
and the research team (P Patel, K Biswas, Y Xu, L Chanetsa, M Mellette, etc.)
Webinar CPWR - The Center for Construction Research and Training (CPWR)
January 28th 2025
uction painters' exposure to chemicals, health implications, and disease prevention

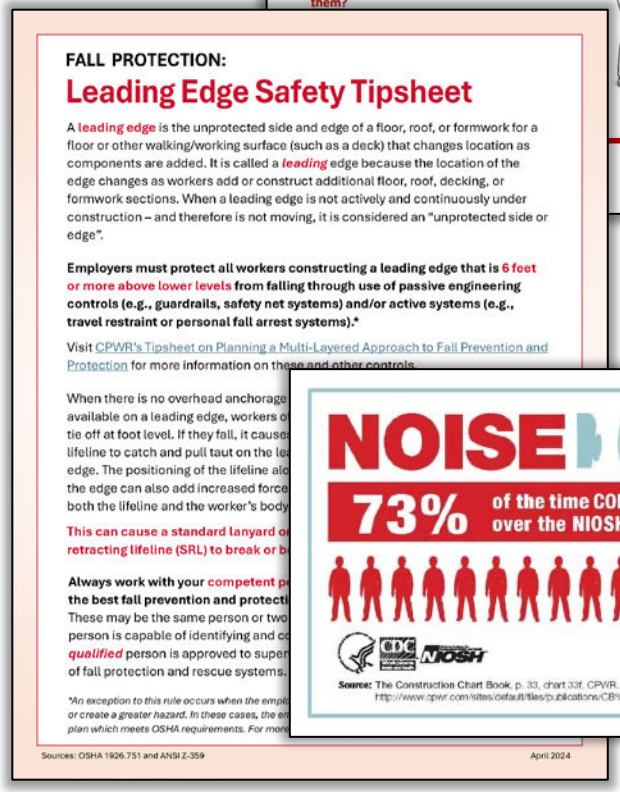

Safety Clima
MEASURE
SC-SMIS
IMPROVE
PLAN
Play (k)
3:13 / 8:45
's Safety Climate – Safety Management Information System (SC-SMIS): Update on Use

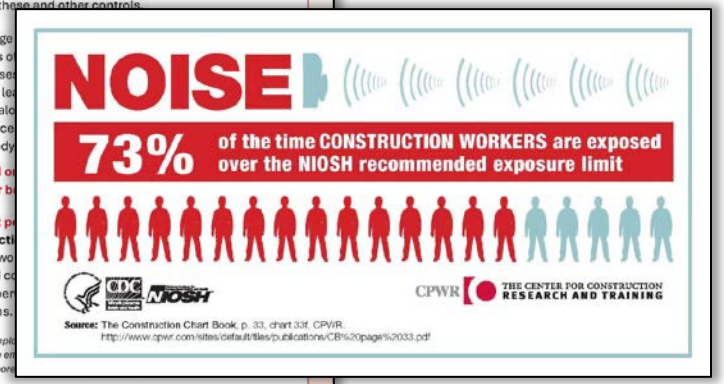
Worker Handouts

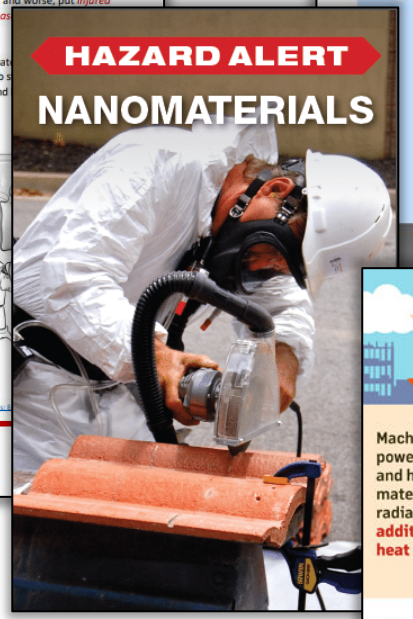
- Hazard Alert Cards
- Toolbox Talks
- Infographics & Posters
- Factsheets & Tipsheets
- Physicians Alerts





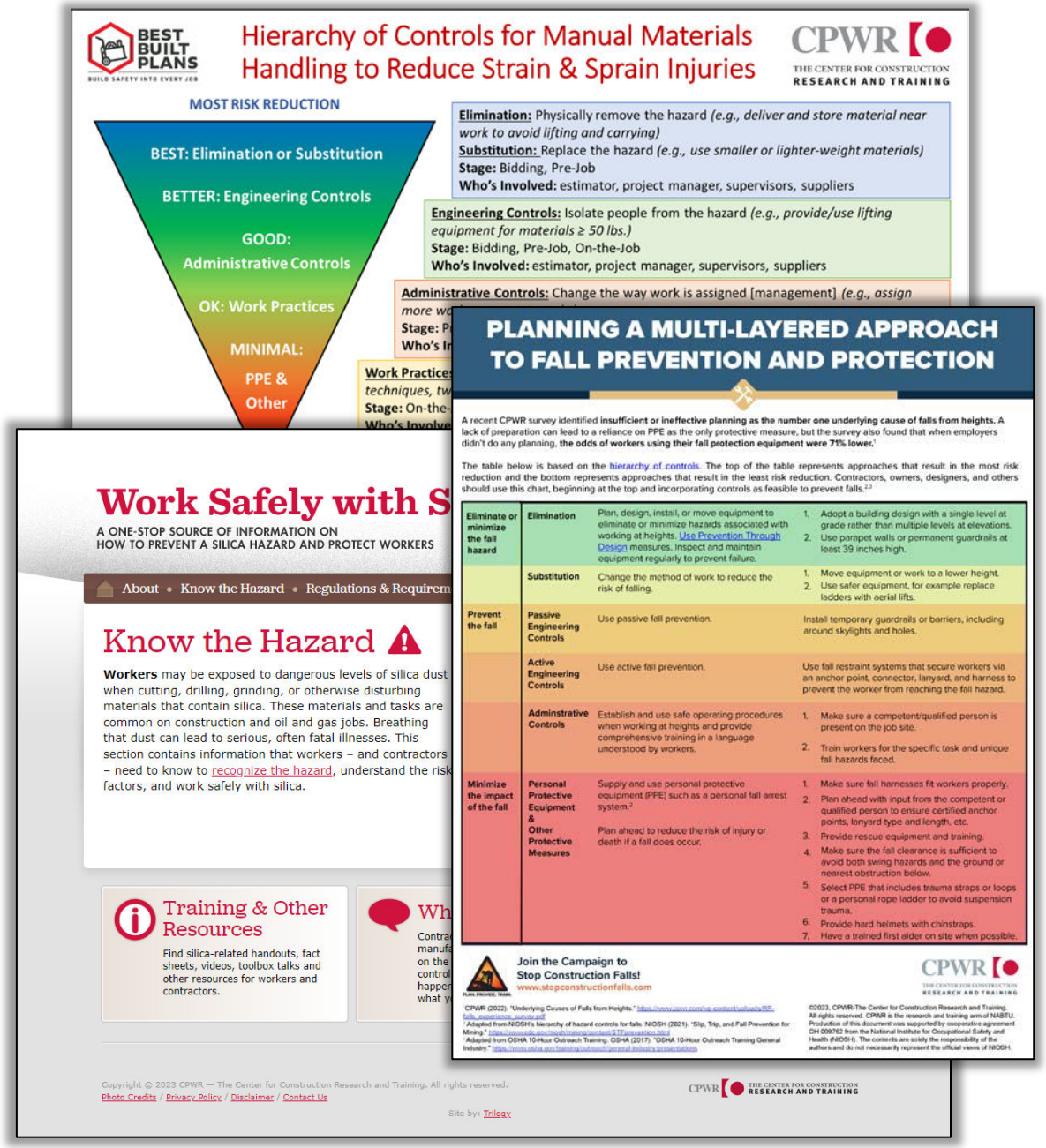




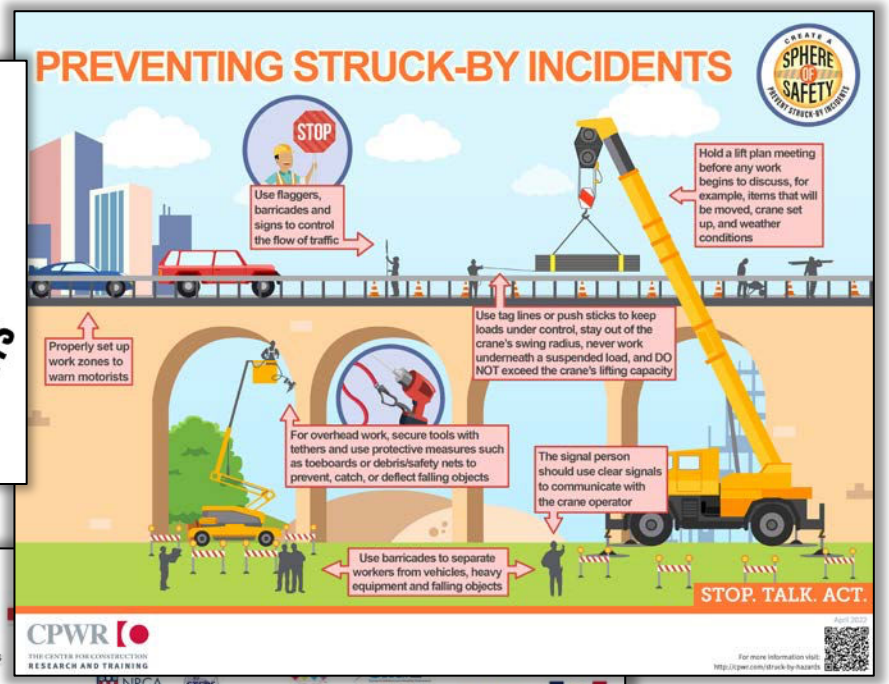


Planning Resources

- Best Built Plans – Planning Tool and Interactive Components
- Work Safely with Silica
- Written Fall Protection & Rescue Plan
- Small Contractor Fall Prevention Planning Resources
- Planning Program to Prevent Struck-by Incidents
- Preventing Head Injuries
- Heat Illness Prevention Planning
- Women in Construction
- Mental Health Resources



Social Marketing Campaigns



"Great opportunity to engage workers and **focus attention on these critical safety topics** in the construction industry!"

Your initiative is simply amazing. Just **keep doing what you are doing**. And thanks for your support.

"This is the [company's] second year participation with the National Stand Down, and the Safety Director's seventh.

The culture builds with this program, and it aids with looking at all workers in the area that the personnel are working in."

Discussion

1. What feedback do researchers have based on their experience working with the r2p program?
2. What components of the r2p program (e.g., specific partnerships, resources, priorities) have outlived their usefulness, if any?
3. What are the key components that should be part of the CPWR r2p program regardless of future funding?
4. Are there any components that should be revisited or brought up-to-date in some way?
5. What's missing from the program?

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