

HIGHLIGHTS 2020

CPWR 
THE CENTER FOR CONSTRUCTION
RESEARCH AND TRAINING



Contents

- FOREWORD2**
- EXECUTIVE DIRECTOR'S MESSAGE3**
- COVID-19: CPWR's Strong, Multi-Faceted Response to COVID-19.....4**
- RESEARCH: Advancing Research to Improve Worker Safety and Health.....8**
 - Small Studies, Significant Results17
- TRAINING: Unexpected Challenges, New Approaches, Continuing Impact18**
- SERVICE: BTMed: Serving Workers During the Pandemic21**
- CPWR RESEARCH PROJECT LEADS23**
- SPECIAL THANKS24**
- OVERSIGHT & ADVISORY BOARDS.....25**
- CPWR STAFF26**
- ONLINE RESOURCES.....27**
- CPWR AT A GLANCE28**

Foreword

In a year like no other, CPWR was critical in helping construction workers stay safe, healthy, and on the job.

When COVID-19 began to spread across the United States, CPWR's staff quickly developed guidance for workers and employers. They were leaders in promoting actions that now seem obvious but were new at the time—creating at least 6 feet between workers, enabling office staff to work from home, providing washing facilities and hand sanitizers, and staying home when not feeling well. As with all its work, CPWR collaborated with those of us at NABTU, contractors, consultants, government officials, and health experts to pull together the best available advice.

CPWR's importance grew as it became clear that the federal government would not be providing clear, consistent, carefully considered guidance to the construction industry. The most obvious example of leadership was the NABTU and CPWR COVID-19 Standards for U.S. Construction Sites and the steps it laid out for COVID-19 exposure control plans on all job sites.

The Standards were just one aspect of CPWR's dedication to protecting workers during the pandemic. Its Training Program developed two new courses, COVID-19 Awareness for the Construction Industry and ICRA/COVID-19 Awareness, and moved its courses online. Its Research to Practice team expanded their



SEAN MCGARVEY
*Chairman of the Board
and President, CPWR
President, NABTU*

monthly webinar series to include every-other-week sessions on COVID-19 topics such as a Q+A with contractors, lessons from the job site, and protecting mental health during this stressful period. Its Building Trades National Medical Screening program adapted its services for former workers at nuclear facilities to maintain vital services but reduce risks.

CPWR also developed new, free resources. It created a COVID-19 Toolbox Talk in English and Spanish. It compiled knowledge from across the field into the COVID-19 Construction Clearinghouse, which now has more than 300 resources available to anyone in categories like PPE, state and local

policies, and workplace guidance. Most recently, it launched the COVID-19 Exposure Control Planning Tool, which takes firms step-by-step through developing a plan to protect employees and prevent the spread of COVID-19, including what to consider when conducting a job hazard analysis for COVID-19, selecting appropriate controls, screening workers and visitors, training employees, and implementing the plan.

Even with the emergence of the pandemic, CPWR never lost sight of other safety and health needs of construction workers. New research projects examined persistent and emerging hazards. It continued to address mental health and the opioids crisis that have done so much damage to construction workers. It again served as a leader in raising awareness, from the unparalleled information produced by the Data Center to CPWR's role in organizing industry-wide events such as the 7th Annual National Safety Stand-Down to Prevent Falls in Construction and helping launch the first National Stand-Down to Prevent Struck-By Incidents.

The following pages describe this work and much else. As you read about it, it will be clear why, even as conditions change, each year CPWR remains central to the success of the construction industry.

Executive Director's Message

The cover of this annual report captures CPWR's view of 2020: it has been a dark year, but there are reasons to be optimistic. While much of our work focused on trying to provide guidance and tools to keep construction workers protected from the virus, all our programs made progress. While vaccines are starting to roll out, it will be many months until we will be able to let our guard down.

Highlights 2020 describes the multiple ways our staff and colleagues across the industry have, during this difficult year, still managed to improve the safety and health of construction workers. This progress resulted, as it does every year, from the collaboration, commitment and creativity of many people, including construction workers, unions, contractors, researchers, government officials, and medical experts.

Last January, we expected CPWR's work would respond both to persistent job site hazards and emerging ones. This mix was clear in the 13 research projects kicking off at the end of 2019: they respond to ongoing challenges such as building safety culture, increasing the number and improving the health of skilled tradeswomen, and reducing falls, as well as new concerns, such as developing technologies like exoskeletons or nanomaterials. We also planned to continue our efforts to address other threats to the nation's construction workers, like opioids and suicide.

The arrival of COVID-19 forced a rapid readjustment, and starting on page 4 is a description of the

many ways our network responded. Research teams developed new resources for reducing the spread of the virus. Our trainers moved classes online and created two new courses about COVID-19. To help former construction workers at Department of Energy sites receive the treatments they need, our Building Trades National Medical Screening program established new protocols and processes. Two new free websites, the COVID-19 Construction Clearinghouse and the COVID-19 Exposure Planning Tool, helped the industry better understand and respond to the pandemic, as did the bi-weekly CPWR-National Institute for Occupational Safety and Health COVID-19 webinar series.

Yet adding and adapting did not mean abandoning other vital work. As you'll see starting on page 8, our research projects made significant progress, even if not always in the form they had planned. Researchers shifted how they gathered information, using video meetings to interview experts and other research participants, and reordering plans so they could continue to address hazards beyond COVID-19. We used feedback from

experienced trainers to create a second version of our opioid awareness program, and we partnered with Liberty Mutual Insurance to launch the Liberty Mutual Safety Innovation Award in Construction.

An announcement this fall offers an example of why we remain optimistic. The National Institute of Environmental Health Sciences again chose CPWR to deliver training programs for construction workers, providing us five more years of support to address a wide range of safety and health hazards. Our selection reflects our training network's proven ability to improve workers' understanding of hazards and, more importantly, how to respond to them.

The light today is not as bright or as widespread as it should be. Yet thanks to our staff and our many collaborators, we are optimistic that CPWR's work in 2021—through our research, training and service programs—will be creating safer and healthier futures for all construction workers.

CHRIS TRAHAN CAIN, CIH
Executive Director

COVID-19

CPWR's Strong, Multi-Faceted Response to COVID-19

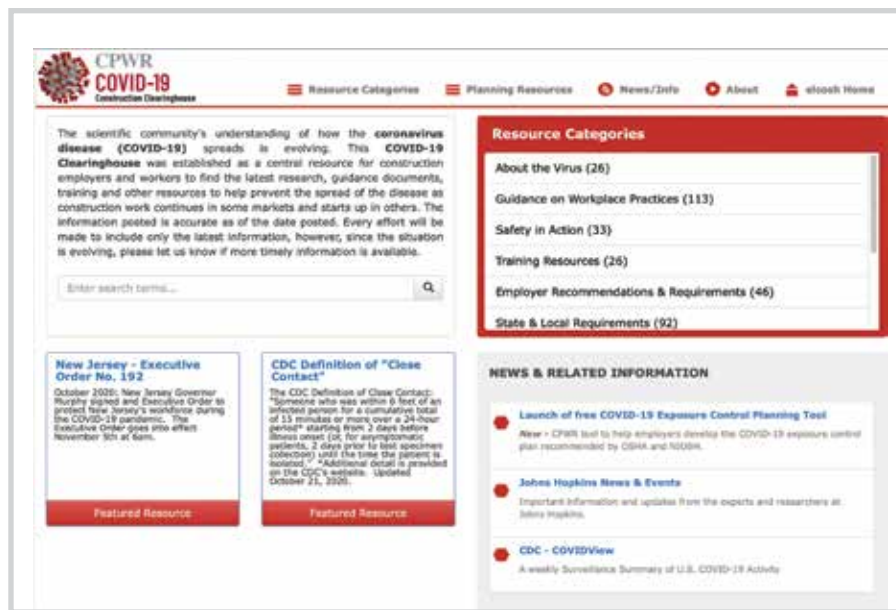
COVID-19 affected the construction industry in multiple, widely varying ways. While many projects slowed or stopped, many others continued, particularly where governments deemed construction—in areas such as energy

systems, healthcare facilities, roads and bridges, and water systems—an essential activity. Some job sites immediately adopted new safety protocols, but others were much slower to act.

The need to keep workers safe meant an immediate need for information on preventing the spread of this deadly virus on job sites. The federal government, states, municipalities, companies, and others began issuing guidelines and mandates covering construction. Our discussions with unions and contractors quickly showed how vital it was to identify and share evidence-based practices.

In response, CPWR quickly compiled the latest information into a coherent set of guidelines for the construction industry, revising each version as we learned more about the pandemic. That work culminated in April, when NABTU and CPWR issued the COVID-19 Standards for U.S. Construction Sites, which detail what workers should expect on the job and employers should implement.

The Standards were just one part of our ongoing work to help the construction industry keep up with the



constantly changing situation. CPWR's ongoing webinar series first featured COVID-19 in April; industry interest, questions and feedback led us to join with NIOSH in hosting a bi-weekly series on COVID-19. Its topics have included OSHA and CDC guidance, reports from the field on good

practices, question and answer sessions with leading general contractors and occupational physicians, contact tracing, health disparities, and mental health. The 14 COVID-19 webinars attracted a total of more than 6,300 attendees, and by early December, those sessions had been viewed

another 5,500 times on CPWR’s YouTube Channel.

We established two new websites to share expertise with the field. The COVID-19 Construction Clearinghouse makes it easy for employers and workers to find the latest research, guidance documents, training materials, and other resources about preventing the spread of the disease. As has been true with the webinar series, the Clearinghouse’s success in offering timely information resulted in large part from contributions of people across the industry.

The CDC and OSHA recommend companies develop a plan to protect their employees and prevent the

spread of COVID-19. Our free, online COVID-19 Exposure Control Planning Tool responds by taking employers step-by-step through developing that type of plan, including what to consider when conducting a job hazard analysis, selecting appropriate controls, screening workers and visitors, training employees, and implementing the plan. The result is a written plan tailored to a specific worksite that can be saved, printed, and emailed.

Following a request from the International Union of Bricklayers and Allied Craftworkers, CPWR developed a free COVID-19 Toolbox Talk, which has already been

(continued on page 7)



CPWR-NIOSH COVID-19 Webinar Series

These sessions were hosted by Chris Trahan Cain, Executive Director, CPWR, and G. Scott Earnest, Associate Director for Construction, Office of Construction Safety and Health, NIOSH.

Date	Title	Description	Panelists	# of Attendees	On-Demand Views
4/22/20	COVID-19 and the Construction Industry	A panel presentation on the COVID-19 pandemic and what NIOSH, CPWR, and TAUC are doing to address it.	Chris Trahan Cain , CPWR G. Scott Earnest , NIOSH John Howard , NIOSH Alex Kopp , NMAPC, TAUC	1,136	2,251
6/3/20	Data Driven Insights on Job Site Activity	Updates from NIOSH and CPWR and a presentation by a representative from Procore on their analysis of recent construction trends and the implications of these trends.	Chris Trahan Cain , CPWR G. Scott Earnest , NIOSH Kristopher Lengieza , Procore	496	438
6/17/20	COVID-19 CDC Guidance Update	Updates from NIOSH, OSHA and CPWR and a presentation by Dr. Doug Trout, NIOSH’s Chief of the Hazard Evaluations and Technical Assistance Branch.	Chris Brown , OSHA Chris Trahan Cain , CPWR G. Scott Earnest , NIOSH Timothy Irving , OSHA Doug Trout , NIOSH	970	806
7/2/20	Safety in Action—An Example from the Job Site	Steps taken by the Oregon COVID-19 Joint Construction Task Force to identify risks and implement interventions to prevent the spread of COVID-19 on construction sites and protect workers.	Chris Trahan Cain , CPWR G. Scott Earnest , NIOSH Amanda Edens , OSHA Matt Eleazar , BAC Local 1 Oregon/Washington/Idaho/Montana and Oregon COVID-19 Joint Construction Safety Task Force Scott Ketcham , OSHA	559	474
7/16/20	Contact Tracing—How It’s Done, and How You Can Help	How public health authorities use case investigation and contact tracing to respond to reportable communicable diseases and how contact tracing is being used in the construction industry today.	G. Scott Earnest , NIOSH Sara Luckhaupt , NIOSH Travis Parsons , LHSFNA Rick Rinehart , CPWR	665	301

CPWR-NIOSH COVID-19 Webinar Series (continued)

Date	Title	Description	Panelists	# of Attendees	On-Demand Views
7/30/20	Addressing COVID-19's Health Disparities	An examination of the increased risk minorities face when it comes to COVID-19 and how this can be addressed through things like effective health and safety messaging.	Chris Trahan Cain , CPWR Ann Marie Dale , Washington Univ. School of Medicine Michael Flynn , NIOSH Carl Heinlein , American Contractors Insurance Group Christina Socias-Morales , NIOSH	390	233
8/13/20	Lessons from the Jobsite: A Q&A Panel	A Q&A panel made up of contractor representatives who discussed the practical side of battling the spread of COVID-19 in the workplace.	Jane Beaudry , Jacobs Cindy DePrater , Turner Construction Company Bob Kunz , Dimeo Construction Company Rodd Weber , The PENTA Group	314	204
8/27/20	Mental Health During the COVID-19 Pandemic	The COVID-19 pandemic has added to many people's anxiety and stress. This webinar focused on learning how to recognize and manage job stress and where to go if you need help.	Ann Marie Dale , Washington Univ. School of Medicine Randall Krocka , Sheet Metal Occupational Health Institute Trust Doug Wiegand , NIOSH	323	246
9/10/20	COVID-19: What We've Learned: Health Risks and Prevention	A conversation with two physicians about what's been learned about the disease, how it spreads, and prevention; also, a presentation of a new free planning tool to help construction employers develop a COVID-19 exposure control plan.	Rosemary K. Sokas , Georgetown Univ. School of Nursing and Health Studies and School of Medicine Melissa A. McDiarmid , Univ. of Maryland School of Medicine	202	169
9/24/20	Responding to COVID-19 on the Job Site—News from the Oregon COVID-19 Joint Construction Safety Task Force	A presentation from members of a task force formed by construction stakeholders in Oregon to prevent the spread of the disease on job sites, protect the workforce, and keep the building and construction industry operating, including their collaboration, best practices identified, and how their work is benefiting the industry.	Robert Camarillo , Oregon State BCTC Wayne Chow , Oregon State BCTC Averie Foster , Oregon OSHA Consultative Services Dede Montgomery , OHSU Oregon Healthy Workforce Center	202	132
10/8/20	Impact of COVID 19 on the Industry and New Research Initiatives	Information on the latest findings from CPWR's Data Center and a new NIOSH research project to evaluate the ability of non-NIOSH-approved respirators, such as KN95s, to fit a cross-section of the U.S. workforce and provide respiratory protection against infectious aerosols.	Samantha Brown , CPWR Appavoo (Samy) Rengasamy , NPPTL/NIOSH/CDC	190	68
10/22/20	Construction Leadership Skills for Managing Stress During the COVID-19 Pandemic	Experts from the Center for Health, Work & Environment at the Colorado School of Public Health discussed what COVID-19 means for leaders' personal health and effectiveness, skills effective leaders can use to manage stress related to COVID-19, and resources to identify and help workers experiencing stress and mental health challenges.	Lee Newman , Univ. of Colorado School of Public Health Natalie Schwatka , Univ. of Colorado School of Public Health	218	123
11/12/20	NIEHS Activities, Tools and Resources to Protect Workers from COVID-19	An overview from NIEHS's Worker Training Program and its National Clearinghouse for Worker Safety and Health Training on their COVID-19 activities, tools and resources to provide guidance to workers who work in industries with potential exposure to COVID-19.	Sharon D. Beard , NIEHS Jonathan Rosen , NIEHS Deborah Weinstock , NIEHS	293	94
12/3/20	Effectively Delivering Safety and Health Training During the COVID-19 Pandemic	The results of a study, including "tips and tools," on how to effectively deliver training while protecting workers during a pandemic.	Sue Ann Sarpy , Sarpy and Associates	388	
TOTALS				6,346	5,539

(continued from page 5)

downloaded more than 5,000 times and co-branded by many companies. Our new podcast series includes three episodes focused on COVID-19.

Because training is central to safety and health, we developed two distance learning courses based on the NABTU/CPWR COVID-19 Standards. “COVID-19 Awareness for the Construction Industry” is a 45-minute overview providing key information to those working during the pandemic. “Infection Control Risk Assessment (ICRA)/COVID-19 Awareness” is a six-hour course that

deliver it directly to their 90,000-plus members across the country; in Detroit, bricklayers expanding a local hospital and a representative of their employer took the same training.

Because of the restrictions on travel and face-to-face contact, our Training Department shifted to distance learning to continue providing workers with information on other hazards. We organized a two-day session to show our trainers and trainers in our consortium how to use Zoom technology to conduct effective, interactive classes,

training and described how we now delivered online material previously taught in person, such as our OSHA and Asbestos classes, and how we had received Federal and state approvals so participants received the certificates they need.

We supported trainers as well by developing a recommended reopening plan for training centers. That plan outlines steps that employees and trainees can take to reduce the risk of exposure to COVID-19, describing personal protective equipment and hands-on training practice controls, cleaning and disinfecting procedures, and actions to take if a staff member or trainee becomes sick.

Our Building Trades National Medical Screening Program (BTMed), which provides free, ongoing medical screening exams to construction workers previously employed at U.S. Department of Energy (DOE) nuclear weapons sites, also responded to the challenges of COVID-19. Even after the pandemic forced suspension of exams and scans, BTMed continued its service: making more than 5,500 calls to participants, as well as calling local outreach coordinators and state and local Building Trades Council; enrolling and interviewing 250 new participants; continuing outreach through mailings, virtual events, and presentations; and preparing for restarting the program.

Although there remains much to learn about preventing the spread of COVID-19 on job sites and much to do to ensure these practices are followed, CPWR’s work in 2020 has been central to the progress the construction industry has made in keeping workers safe and job sites open and productive.

The Centers for Disease Control and Prevention (CDC) and the Occupational Safety and Health Administration (OSHA) recommend that companies develop a plan to protect their employees and prevent the spread of COVID-19. This free COVID-19 Exposure Control Planning Tool takes you step-by-step through developing your plan, including what to consider when conducting a job hazard analysis for COVID-19, selecting appropriate controls, screening workers and visitors, training employees, and implementing the plan. Remember to take advantage of your employees' knowledge of job site conditions as you develop your plan.

At the end of the steps, you will have a written plan tailored for your job that can be saved, printed, and emailed. There is an option to confidentially register if you want to save and edit your plan(s) at a later time, but registration is not required to use this free tool.

[Begin Your Plan](#)

builds off CPWR’s existing ICRA training that enables workers and contractors to safely do renovation, maintenance, and new construction at healthcare facilities. It includes the COVID-19 Awareness module.

Training participants have included members, trainers and officials of the Insulators, Bricklayers and Elevator Constructors unions and apprentices of the Plumbers and Pipefitters Local 12 in Boston. Thirty ICRA-trained instructors from the International Union of Painters and Allied Trades attended an ICRA/COVID training so they could

including demonstrating its polling and breakout room features and guiding them in the design of participatory activities. During this course, the trainers were introduced to the COVID-19 Awareness for the Construction Industry and the ICRA/COVID-19 materials.

CPWR also shared our experience on using Zoom during the National Institute of Environmental Health Sciences webinar series, “Training Best Practices in the Times of COVID-19.” Besides general information about the platform, we discussed our ICRA/COVID-19

RESEARCH

Advancing Research to Improve Worker Safety and Health

This year showed the many ways research improves the safety and health of construction workers. By working with government officials, employers, insurers, owners, and unions, CPWR staff and our consortium of university-

based researchers develop a relevant research agenda, identify and highlight key data, share better practices, analyze new technology, and translate research into practice.

r2p: Partnering to Advance Use of Research Findings

Our Research to Practice (r2p) program continued to create and test new materials and strategies, support researchers in the development of their r2p Roadmaps, and work with industry partners to increase use of research findings. In addition to online resources and materials to respond to the pandemic (see page 4), we created new resources that address emerging hazards, such as construction's high rates of opioid use and suicide, and used websites, webinars, partnerships, and social and other media to reach our target audiences. To facilitate sharing information on r2p and research challenges, stakeholder needs, and new r2p methods, we held the annual r2p Seminar virtually. This year's Seminar included a workshop on the pandemic's impact on construction safety and health research, and a summary report documented and shared the workshop discussions more broadly.

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CPWR
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 RESEARCH AND TRAINING

An infographic emphasizing the importance of working together to prevent suicides among construction workers. CPWR materials are increasingly available in English and Spanish.

PROJECT: Research to Practice (r2p) Core (CPWR)

APRIL 20, 2020
STOP NATIONAL STAND-DOWN
NIOSH
SPHERE OF SAFETY

How to Hold a Stand-Down

Struck-by incidents are a leading cause of death among construction workers and, since 1992, the leading cause of nonfatal injuries in construction. In an effort to combat this, the NIOSH Construction Sector Council has undertaken a number of efforts to improve awareness of work zone safety, including launching the first National Stand-Down to Prevent Struck-by Incidents and establishing an online resource for information on the Stand-Down, as well as training materials, toolbox talks, and other resources to help plan and hold an event. The goal of this National event is for employers across the country to take steps to raise their employees' awareness of work zone hazards that they may face on current or future job sites and to review ways to mitigate them. Typically, a Stand-Down would take place on a job site and involve pausing work for a group event. To prevent the spread of the coronavirus (COVID-19), we are switching gears and encouraging everyone to follow CDC guidelines, avoid gathering in groups and do Stand-Down events virtually if possible, and think creatively about how to focus attention on preventing struck-by incidents.

To participate, follow these steps:

- 1. Schedule Time to Pause Work & Stand Down on April 20, 2020**
Make the Stand-Down work for you and your crew, and at the same time protect them from COVID-19. Set aside time during the workday to focus on work zone safety with your employees.
- 2. Download Materials & Resources**
Visit the online resource to find training materials and the latest research from trusted sources. You'll find everything you need to get started, including the following materials...
 - Use a virtual platform (Zoom, etc.)
 - Research and post a work zone safety training video.
 - Share a 30-second video on work zone safety.
 - Review your Public Control Plan.
 - Post hazard signs.
 - Post safety resources.
 - Put up standard Stop-work information.
 - Hold activities on-site.
- 3. Hold Your Stand-Down Event(s)**
It's the big day – get your crew(s) together virtually or in small groups with 6-8 between your employees to talk work zone safety, or post information or share it electronically!
- 4. Get a Certificate of Participation**
Visit www.cpsc.gov/2020/04/20/stand-down to tell us about your Stand-Down and get a certificate of participation. And don't forget to show everyone what you did on social media – use the hashtag #StandDownStruckby!

#StandDownStruckby

Guidance for organizing a Stand-Down event.

National Stand-Downs to Prevent Struck-by Incidents, Falls

Our r2p program worked closely with industry partners and NIOSH's NORA Construction Sector Council Work Groups to address persistent hazards such as falls, strains and sprains, and struck-by incidents. Our collaboration with the NORA Struck-by Work Group, for example, led to the first National Stand-Down to Prevent Struck-by Incidents. It reached more than 2,400 stakeholders, and more than 2,000 Toolbox Talks and 1,000 infographics developed to support this event were downloaded. We also developed materials for and participated in events for the 7th annual National Safety Stand-Down to Prevent Falls in Construction, which was held virtually. Thousands of dedicated contractors, insurance representatives, safety and health professionals, unions, and other stakeholders held virtual or small, socially distanced in-person events to focus attention on the leading cause of construction fatalities and share information on progress made to reduce falls.

PROJECT: Research to Practice (r2p) Core (CPWR)

CPWR's Webinar Series Reaches Record Audiences

Since the launch of the CPWR Informational Webinar Series, we have examined a wide range of important construction safety and health topics, including current research, new initiatives and trends, and training programs. This platform's importance for sharing information increased this year due to the pandemic. During the year, we hosted 19 webinars, including a joint COVID-19 series with NIOSH to keep the industry apprised of the latest information on the risk and control measures. The quality and the relevance of these webinars led to record levels of participation: in the 12 months since our last report, 7,763 individuals attended, four times last year's figure, and the number of views of the recordings on-demand tripled to 8,325.

PROJECT: Research to Practice (r2p) Core (CPWR)



Next Steps in Investigating Reactive Chemicals

This project continues the research team's work to increase understanding of potential hazards of reactive isocyanates and epoxy resins, including in spray polyurethane foam (SPF) and metal structure coating applications. The current study focuses on these applications' Part B components, which contain chemicals of concern such as solvent blends, hardeners or catalysts, engineered nanomaterials and other additives, crystalline silica, and flame retardants. This year, the team developed two databases of products used in the workplace, reviewed their chemical composition and health effects, and identified a list of priority chemicals (for amine hardeners and flame retardants) to measure in the field. The researchers are in the middle of developing



Application of spray polyurethane foam insulation in the basement an existing home.

methods for measuring them in air, skin, and urine. In the coming year, the team will complete analyses of air and glove samples for amine catalysts

and flame retardants in SPF and will start field investigations for assessing airborne and dermal exposures to other Part B components.

PROJECT: Reactive Chemical Systems: Part B—Developing Data-Driven Interventions (University of Massachusetts Lowell)

Assessing Best Built Plans' Work to Reduce MSDs

This project is evaluating the Best Built Plans (BBP) program, which aims to reduce construction workers' high rates of musculoskeletal disorders (MSDs)—typically from lifting and manual materials handling (MMH)—



Manual materials handling on a St. Louis-area job site.

by offering firms ready-to-use resources for increasing use of safe MMH practices. This year, the research team developed measures to assess contractors' current safety programs and created materials to recruit contractors and introduce them to BBP. After the pandemic started, for safety reasons the team could no longer visit job sites to collect data. Instead, it networked with local contractors to learn about their COVID-19 job site policies and posted proactive and CDC-recommended practices to the COVID-19 Construction Clearinghouse. In preparation for returning to the field, the team developed a research-based COVID-19 safety plan and shifted many data collection activities online. The team received permission to resume its research plan at the end of August.

PROJECT: Evaluation of the Best Built Plans Manual Material Handling Tool for Construction (Washington University in St. Louis)



Side-by-side videos show airborne dust with and without a ventilation tool.

Prevention Through Design to Reduce Respiratory Risks

This year the research team laid the foundation for the core of its project: implementation and evaluation of a previously developed, evidence-based intervention strategy designed to increase use of health hazard controls—Prevention through Design (PtD)—for respiratory risks facing construction workers in

asphalt roofing, concrete, masonry, and welding. Despite staffing challenges caused by COVID-19, the team was able to develop an online training platform that addresses barriers to innovation adoption, such as concerns about cost, efficiency, and risk. This platform incorporates multiple elements intended to

improve adoption, including videos, return-on-investment calculations, adult learning theory, and gamification. In the coming year, the project will use the training to conduct an intervention study, including evaluation, with purchasing agents at large construction firms.

PROJECT: Health Hazard Controls Industry Diffusion: Evidence-based Intervention Strategy (Virginia Tech)

Researching Methods to Reduce Falls in Residential Construction

Although falls from height cause nearly two-thirds of worker deaths in residential construction, implementation of fall prevention measures remains inconsistent, especially among smaller employers. This project is adapting CPWR's successful Foundations for Safety Leadership (FSL) training program, which teaches foremen leadership skills for creating a stronger job site safety climate, to residential construction. The result—the FSL4Res—will be tailored to the hazards and challenges of residential construction, especially for smaller employers, who frequently lack resources and a strong safety culture. The research team leading this project has been conducting a needs assessment through discussions with more than two dozen stakeholders and began creating program curriculum, including initial user testing. Up next: curriculum completion and initial dissemination, including through partners with deep connections to the residential sector.

PROJECT: Improving Safety Leadership and Fall Prevention Training in Residential Work (Washington University in St. Louis)



Data Center Remains a Leader in Informing Industry

The CPWR Data Center’s research findings and data products continue to be vital resources for construction stakeholders. The complete 6th edition of *The Construction Chart Book: The U.S. Construction Industry and Its Workers* was downloaded more than 1,000 times this past year, and more than 1,000 people visit the Chart Book online each month. Academics cite Data Center research on a wide range of topics (such as falls and heat stress) and in multiple types of work, including peer-reviewed journal articles and books. Professional associations and the trade press regularly highlight the Data Center’s publications, such as the new Data Bulletin series (see right). The Data Center also frequently fulfills information requests from a range of stakeholders, including the media. Through all these contributions, the Data Center brings awareness to and informs the construction industry about persistent and emerging issues in construction safety and health.

PROJECT: Construction Industry Data and Statistical Core (CPWR)



A special edition of the Data Bulletin, released in conjunction with the National Stand-Down to Prevent Falls in Construction, documented the number and rate of fatal falls.

New Data Bulletin Examined COVID-19’s Impact, Trends in Falls



This year the Data Center launched the CPWR Data Bulletin, the next step in our ongoing efforts to provide more timely data and better service to our stakeholders. This new series is published six times annually, replacing the Quarterly Data Reports, and is improving data visualization with the software Tableau. To address emerging issues, two Data Bulletins focused on the impact of the COVID-19 pandemic. One highlighted vulnerable workers in construction, such as those who are Hispanic, Black, older, or have underlying medical conditions or other risk factors. The other analyzed the pandemic’s impact on construction jobs and businesses, showing that more than one million construction workers lost jobs from March to April 2020, and the majority of construction businesses experienced a large or moderate negative impact. To support the National Stand-Down to Prevent Construction Falls, the Data Center also produced a special issue on recent trends in fall fatalities, showing that both the number and rate of fatal falls to a lower level dropped in 2017 and 2018.

PROJECT: Construction Industry Data and Statistical Core (CPWR)

Data Center: New Studies on Opioid Use among Construction Workers

Following last year’s study on overdose fatalities on construction sites, the Data Center analyzed national population survey data and found that, when controlling for demographics and occupational factors, the odds of prescription opioid use by construction workers with occupational injuries were more than triple those of their non-injured counterparts. A separate study examined the combined burden of musculoskeletal disorders (MSDs) and opioid use in construction. Its results show that about 34% of construction workers had at least one MSD symptom, and prescription opioid use tripled among workers with MSDs compared to those without MSDs. These studies have been published by *American Journal of Industrial Medicine* and the *Journal of Occupational and Environmental Medicine*, respectively. See page 16 for more on CPWR’s work to address opioid use in construction.



PROJECT: Construction Industry Data and Statistical Core (CPWR)

Evaluating the Benefits and Risks of Exoskeletons



Researchers grind concrete overhead, a common but physically challenging activity, while supported with an exoskeleton.

Occupational exoskeletons (EXOs) have the potential to reduce physical demands on construction workers, especially in the back and shoulders, which are most affected by musculoskeletal disorders. This project is examining the perspectives of a broad set of construction industry stakeholders about EXOs, quantifying their benefits and risks, and identifying how to prevent unexpected consequences from their use. When COVID-19 prevented the research team from doing planned fieldwork to capture industry input about the application and assessment of EXOs, it instead developed an introductory video about exoskeletons to share with people in construction and implemented a large-scale survey about EXOs. Early survey results are already shaping the next stage of the project, which will determine the efficacy of commercially available arm-support and back-support devices.

PROJECT: Evaluation of Trunk and Arm Support Exoskeletons for Construction (University of California, San Francisco and Virginia Tech)

Improving Safety through Better Planning

This project aims to improve construction workers' safety, health, and overall performance by optimizing pre-task planning. It is exploring factors that increase workers' task difficulty and exposure to hazards and will then identify interventions to mitigate these factors. The researchers are initially focusing on electrical construction. During Year 1, they developed data collection instruments and initiated data collection, as well as convening an advisory group, identifying

high-risk tasks, and interviewing managers about job hazard analysis (JHA). The research team also began a gap analysis of common JHA documents from online sources and industry partners.

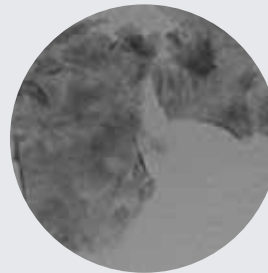


Jerry Rivera

COVID-19 forced the researchers to postpone field studies and in-person interviews, work they will resume in the coming year. They will finalize the JHA gap analysis and the structure for a repository to contain information on difficulty factors for high-risk electrical tasks and recommended interventions to simplify them.

PROJECT: Prevention through Augmented Pre-Task Planning (CPWR)

Nanomaterials: Evaluating Exposures, Controls and Training



Keith Rickabaugh, RJ Lee Group, Inc.

Electron microscopy was used to study graphene nanoplatelets that can strengthen cement and concrete. Graphene is a remarkably strong sheet of a single layer of carbon atoms.

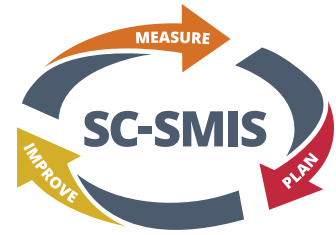
This project seeks to understand possible hazards of nanomaterials in construction by investigating exposures, exposure controls, and effective safety training. This year, the researchers added to the existing eLCOSH nano online inventory to include new products, such as transparent and highly insulating wood, and shared information about nanomaterials in construction

with a range of audiences, both virtually and at events like the World of Concrete annual trade show. The team developed and rolled out a training curriculum and made plans to test a graphene-based cement admixture. That exposure study was postponed due to COVID-19 but will be conducted in year two, as the team expands its training to new trades.

PROJECT: Manufactured Nanomaterials in Construction: Evaluating Exposures, Controls and Worker Training (CPWR)

SC-SMIS: A New Tool for Strengthening Safety Culture

The new Safety Climate-Safety Management Information System (SC-SMIS) will enable contractors to assess their job site safety climate and then strengthen it by selecting and implementing evidence-based safety management practices, policies, and procedures from the SC-SMIS repository. Targeted to companies with between 50 and 250 employees, this free, web-based tool builds off successful CPWR resources such as the Foundations for Safety Leadership (FSL), the Safety Climate Assessment Tool (S-CAT), and the S-CAT for Small Contractors (S-CAT^{sc}). The work of the project team this year included collecting over 80 safety management resources from large construction companies that will be included in the repository and developing specifications for each SC-SMIS page and function. Next year the team will be working closely with web developers to design and program the web interface and conduct usability testing.



PROJECT: Safety Climate-Safety Management Information System (SC-SMIS) (CPWR)



WVU Extension Service

Tom Stockdale, West Virginia University Extension Service specialist and associate professor, demonstrates a lockout device during a recent OSHA training provided via videoconferencing.

OSHA 10: Assessment and Improvement

More than 500,000 construction workers take the OSHA 10-hour safety training in a typical year, but it has never been thoroughly evaluated on a national scale. This project is creating a comprehensive assessment of an enhanced training approach for the OSHA 10. This year the research team developed data collection instruments, including interview guides for trainers and trainees and a checklist for assessing curricula, documents, and delivery materials. Because of COVID-19, the team shifted its interviews

from focus groups to phone and web conferences, observed OSHA-approved video conference-based training, and started assessing online OSHA 10 courses. The team also collaborated with industry and labor to develop five solution stories for the CPWR COVID-19 Clearinghouse. Over the next year, the team will finish analyzing interview and document data to inform the data collection instruments, which will be used with 200 OSHA Outreach trainers recruited from six OSHA Training Institute Education Centers.

PROJECT: Evaluation and Improvement of OSHA 10-Hour Construction Safety Training (West Virginia University, Boise State University)

Expanding and Improving Our Outreach

From U.S. mail to email, from social media to the news media, from webinars to websites, our outreach highlights research findings, gathers input on stakeholder needs, and connects the industry with new resources. This year we redesigned cpwr.com to make it even easier for visitors to find materials that improve safety and health, and the number of subscribers to our monthly UPDATE e-newsletter grew more than 35 percent, thanks in large part to the success of our webinar series (see page 9).

PROJECT: Communications, Outreach and Education Core (CPWR)



Mentorship for Women Sheet Metal Workers

This project is developing and disseminating a female mentorship program in connection with the International Association of Sheet Metal, Air, Rail and Transportation Workers (SMART). It is addressing the woefully small share of skilled tradespeople who are women—the figure currently is 3 percent—and the health effects of and attrition rates resulting from the discrimination, harassment, and skills underutilization women in these jobs often face. This year, the research team has been working closely



SMART International

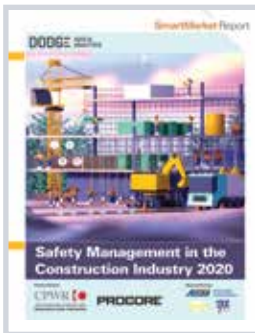
Training among sheet metal workers.

with SMART to identify individuals and locals to participate in the mentorship program; it has also been adapting the training program for

all-online delivery because of the pandemic. Key activities next year will include the recruitment and training of mentors.

PROJECT: Promoting Safety and Well-being among Sheet Metal Worker Women through Mentoring (University of Washington)

Latest SmartMarket Report Focuses On Safety Management



In 2020, CPWR continued its partnership with Dodge Data & Analytics to track safety and health trends in the U.S. construction industry. The latest SmartMarket Report, *Safety Management in the Construction Industry 2020*, examined trends in safety culture, training, and communications; discussed the benefits of improved safety performance; and identified important emerging issues such as suicide prevention. Among the study's findings: workers continue to be a critical part of job site safety programs; contractors rely more on toolbox talks in providing safety and health information and less on training than they did in 2017; and firms increasingly rely on supervisors' leadership to improve safety. The Dodge Reports serve as an important tool in tracking changes in industry practices and help inform CPWR's research and training programs.

New Award Recognizes Innovations in Construction Safety

The inaugural Liberty Mutual Safety Innovation Award—sponsored by Liberty Mutual Insurance in partnership with CPWR—recognized three new products designed to reduce or eliminate construction safety and health hazards. The grand prize went to the 3-in-1 Little Giant King Kombo all-access fiberglass ladder, the world's first stepladder, extension ladder, and lean-to ladder in one lightweight package. Not only does it address injuries caused by handling bulky and heavy ladders, but its flexible design makes it less likely workers will get “creative” with their ladders—propping them up with other materials or setting them in precarious positions—and create situations that can lead to injury and even death. Honorable mentions went to the ITI VR Construction Hazard Awareness Application and Suckabucket, which reduces harmful dust when mixing concrete.



Responding to Mental Health Needs of Construction Workers

Mental health issues—in particular suicide and opioid addiction—have been affecting construction workers at alarming rates. Suicide is now a leading cause of death in our industry, and construction workers are six to seven times more likely than the average worker to die of an opioid overdose.

CPWR has been working with industry partners to respond to both of these concerns. On suicide prevention, we have developed and shared resources—including a Hazard Alert Card, a Toolbox Talk, and infographics—to help organizations and individuals understand the issue, start a conversation, and play a role in supporting friends, co-workers and family members.

Our work on opioids has also taken multiple forms. As noted on page 12, this year our Data Center published two peer-reviewed papers on opioids in construction; it also focused an issue of its new Data Bulletin on the topic. Funding from the National Institute for Occupational Safety and Health enabled us to respond

to opioid use in construction on three other fronts:

→ **Developing communication strategies to close the gap between current expert recommendations and the public's and industry's perceptions of solutions.**

A two-day workshop brought together people from across the industry to discuss effective communications, and a brief from the award-winning FrameWorks Institute distilled key concepts for communicating the value of primary prevention—that is, keeping construction workers from getting hurt in the first place—in reducing opioid use.

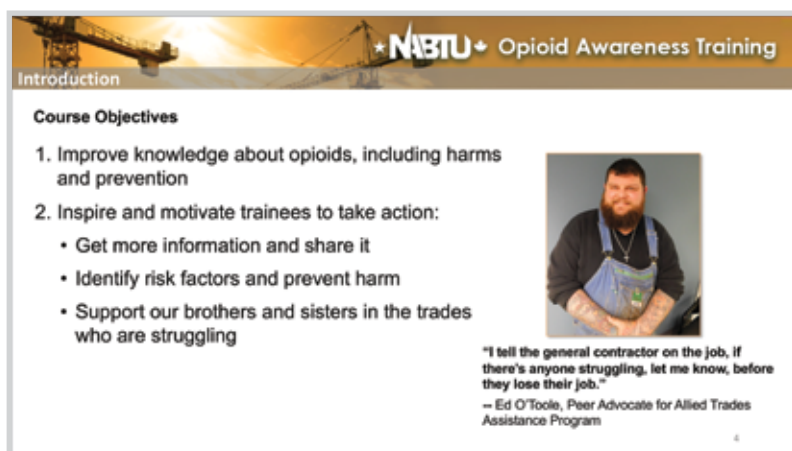
→ **Improving an existing opioid-awareness training program focused on empowering trainees to recognize and prevent the harms of opioids.** Based on field testing with experienced trainers and other evaluations, we shortened the training to one hour, made the module remote-learning-friendly, and updated



the student and facilitator guides. Participants in the revised training called it relevant, important, and appropriate.

→ **Laying the groundwork for a large-scale effectiveness evaluation of peer-support networks in the trades.** CPWR conducted a qualitative assessment of the construction trades' reaction to the opioid epidemic and interviewed members of the NABTU Opioid Task Force to understand how unions are using peer advocacy programs to support their members. A resulting report details strategies, pitfalls, challenges, and recommendations for existing programs.

Mental health has also been a key concern during the pandemic. Our COVID-19 webinar series (see page 5) has twice examined this topic—including how to manage job stress—during this challenging time.



A slide from the NABTU Opioids Awareness Training

Small Studies, Significant Results

In 2020 our Small Study Program completed its previous funding cycle and began a new one, in both cases providing researchers with seed money of up to \$30,000 for work on topics such as promoting adoption of new technologies, reaching high-risk sectors like small employers, advancing research-to-practice, and improving safety culture.

Three projects produced their final reports:

- **Application of End-of-Shift Respirable Crystalline Silica Monitoring to Construction Projects (Zefon International)**—this examination of a process developed for faster measurement of miners’ exposure to silica suggests that the process has potential for use with construction workers.
- **Impacts of Policy Charges on Worker Safety Outcomes in New York City Construction Sites (Cornell University)**—an assessment of New York City’s Public Law 196, which requires more safety training for construction workers, found that it contributed to lower injury rates.
- **Prevention through Design (PtD) to Make Solar-Ready Houses Safe for Solar Workers (University of Washington)**—using interviews, a survey, and case studies, this study developed a PtD checklist and Building Information Modeling models to make solar-ready houses safer for the workers installing solar power equipment.

This year the program also began funding new studies. Already five are underway:

- **Identification and assessment of musculoskeletal disorders risk for concrete formwork systems (Oregon State University)**—an examination of the prevalence and nature of musculoskeletal disorders resulting from concrete formwork, one of the most common activities in construction.
- **Intelligent hearing protection for construction workers exposed to noise (Clemson University)**—this project’s goal is to develop hearing protectors that include artificial intelligence to amplify safety-critical sounds.
- **Nebulizer-retrofitted drone deployment at residential construction sites (University of Utah)**—research to assess the effect of water-dispersing drones on air quality and air temperature at residential construction sites.
- **A practical model for measuring and mitigating safety hazards generated by using UASs in construction (Oregon State University)**—an investigation of the potential safety risks associated with using unmanned aerial systems (UASs) in construction and the development of a practical model to help mitigate those risks.
- **Protocol for assessing human-robot interaction safety risks (University of Alabama)**—an analysis of the safety risks associated with the implementation of robotics and automation in construction.



One of the drones being used in “Nebulizer-retrofitted drone deployment at residential construction sites.”

Mohammad Farhadmanesh—University of Utah

TRAINING

Unexpected Challenges, New Approaches, Continuing Impact

There are multiple ways to see the importance of CPWR's training programs and materials to the construction industry. It appears in the numbers: we lead, in collaboration with NABTU, the industry's largest safety and health training network, last year conducting nearly 5,000 classes, providing training to 1,000 trainers, and reaching more than 60,000 workers. In addition, our resources—such as

Hazard Alert Cards, Toolbox Talks and infographics, many available in English and Spanish—were used hundreds of thousands of times. It appears in the range of courses: this year our training consortium led classes in dozens of topics, from the introductory OSHA 10-hour to advanced instruction in Hazardous Waste and Infection Control Risk Assessment (ICRA) to two new offerings on COVID-19. It appears

in our commitment to meeting students where they are: not only did we expand distance learning because of the pandemic, but we also continue to expand our use of proven adult education techniques. These elements explain why this fall, the National Institute of Environmental Health Sciences chose CPWR to continue to deliver worker health and safety training under their Worker Training Program.

Preparing Workers for Environmental Hazards



Preparing workers for work with environmental hazards.

CPWR collaborates with 12 NABTU unions to provide environmental hazard protection training to workers doing hazardous waste cleanup; lead and asbestos abatement; renovation, repair and painting of lead-contaminated structures; permit-required confined space entry; disaster cleanup; and to those who may be exposed to chemical or biological hazards. Although COVID-19 affected our Hazardous Waste Worker Training program, we still provided nearly 42,000 contact hours (80% of our goal), trained 2,886 workers, technicians, support staff, and others (109% of our goal), and ran 227 courses (132% of our goal).

Crucial Training to Protect Construction Workers

In our role as an OSHA Training Institute Education Center, we team up with master trainers from the NABTU unions to help make thousands of construction workers safer. A key part of these efforts comes in OSHA 500-level Trainer courses, which build the knowledge of apprenticeship trainers and health and safety trainers so they can share it with those taking OSHA 10- and 30-hour classes. COVID-19 significantly affected OSHA 500 courses: restrictions on travel and hand-on instruction forced the postponement of some courses, while others were conducted virtually. At the same time, new programs are still being added to the menu of courses as trainers become more accustomed to using distance learning technology. Even under these conditions, CPWR and our union consortium provided training to 619 instructors and to 36,756 rank-and-file members.

New Approaches for New Conditions

COVID-19 required us to adapt effective in-person techniques—95 percent of our attendees said in 2019 that their training helped them make changes on the job—to distance learning. Using online tools, we delivered two courses we developed this year, COVID-19 Awareness for the Construction Industry and ICRA/COVID-19 Awareness; conducted instructor training sessions for our consortium partners; and provided training to essential construction workers. To understand the impact and potential future role of synchronous, remote training, CPWR hired Sarpy and Associates, an independent research firm, to develop and implement a comprehensive evaluation of this work. The study concluded that while students rated face-to-face delivery slightly higher, the distance-delivery format was effective and resulted in high levels of learning. The study also revealed that the curriculum about COVID-19, newly designed and delivered by CPWR, resulted in enhanced safety-related knowledge and skills three to six months later and improved worker safety during the pandemic.

Implementación de un plan para el COVID: Capacitación

Los empleadores deben hacer lo siguiente:

- Capacitar a los trabajadores brindándoles la información más reciente sobre el peligro y las medidas de control, incluidos el distanciamiento social, las instalaciones para la higiene de manos en el lugar y el modo de desinfección de superficies de alto contacto.



Part of Spanish version of the new course on COVID-19.

Handling Hazards at Federal Nuclear Sites

We again collaborated with our NABTU partners to train construction workers at U.S. Department of Energy nuclear sites, which present special hazards, and this year our consortium led 323 classes that trained 4,953 workers to deal with hazards involved with radioactive waste. Illustrating our ability to meet the specialized needs of these sites is a current project with the Los Alamos National Laboratory, where we are developing programs to help the laboratory train workers in a variety of needed courses such as Hazardous Waste, Hoisting and Rigging, Pressure Safety Systems, and Gas Cylinder Safety programs.



The Los Alamos National Laboratory in New Mexico.



The NIEHS website celebrating ECWTP's 25 years of success.

Environmental Career Worker Training Program's 25th Anniversary

In 2020 the Environmental Career Worker Training Program (ECWTP) celebrated 25 years of training economically disadvantaged workers from communities surrounding EPA Superfund priority and brownfield sites and helping them find long-term, well-paid jobs in the

construction and/or environmental cleanup industries. Between 2015 and 2019, 85 percent of program graduates found jobs, with an average wage of \$18.78. Despite these consistently exceptional results, this program suffered during the pandemic as enrollment and

placement fell with restrictions on training. In each of its four cities, ECWTP is now developing alternative approaches and securing the necessary technological resources so it can fully resume building participants' life skills and employment opportunities.

Preparing Workers to Respond to Disasters

Too often, safety and health training for workers responding to disasters such as floods or fires is ignored or given minimal attention, and it not unusual for OSHA standards to be suspended in an effort to facilitate a quick response. Our Disaster Response Training program better prepares the construction workforce to serve as skilled support personnel before or after natural and man-made disasters, empowering them to make a difference while staying safe. Although COVID-19 forced a reduction in the number of CPWR stand-alone Disaster Site Worker classes, this material remains a part of all Train-the-Trainer programs, which are currently being held virtually.



SERVICE

BTMed: Serving Workers During the Pandemic

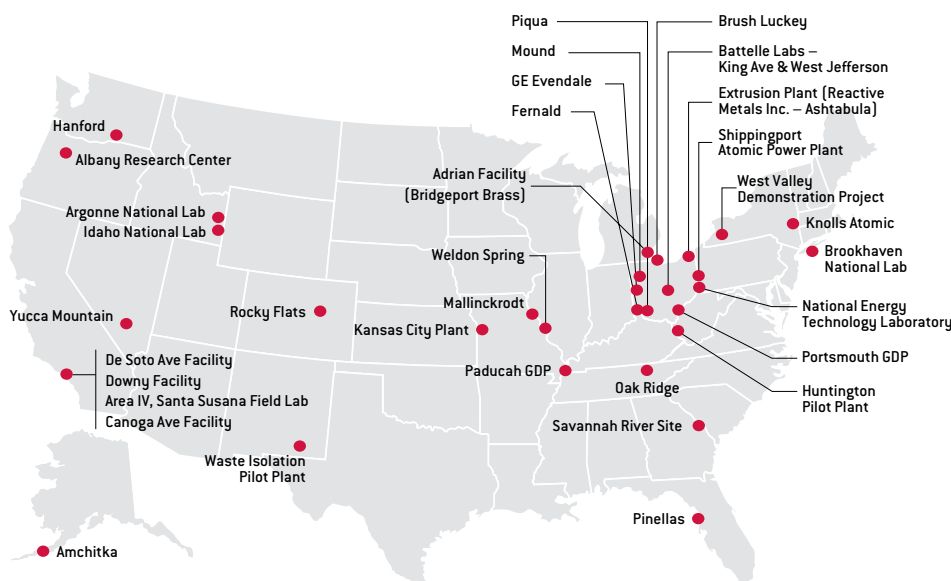
Since 1996, the Building Trades National Medical Screening Program (BTMed) has provided free, ongoing medical screening exams to construction workers previously employed at U.S. Department of Energy (DOE) nuclear weapons sites. These workers may have been exposed to toxic substances and hazardous conditions, which increase their risk for occupational illnesses. The screening exams help identify work-related health conditions at an early, more treatable stage and contribute to these workers' overall health and well-being. Part

of DOE's Former Worker Program, BTMed is administered by CPWR in conjunction with Stoneturn Consultants, Duke University Medical Center, University of Maryland Medical Center, and Zenith American Solutions.

In mid-March, the COVID-19 pandemic forced the suspension of screening exams and CT scans, and BTMed responded by adapting its practices to continue serving participants. This ongoing work has so far included more than 5,500 wellness calls to update participants; communicating with health clinics,

local outreach coordinators, and state and local Building Trades Councils; enrolling and interviewing more than 250 new participants; and continuing outreach through mailings, virtual events, and presentations. BTMed developed a remote health assessment alternative to in-clinic exams, with participants meeting virtually with a nurse to discuss their medical history and identify conditions that may be referred for medical follow-up or compensation. BTMed also created plans for restarting, including community, provider, and participant readiness determinations.

DOE Sites served by BTMed



The Numbers

SINCE ITS INCEPTION in 1996, BTMed has provided over 41,000 medical screening exams to former DOE workers. Of those taking specific exams:

- 19% had abnormal chest x-ray findings
- 23% had abnormal pulmonary function test findings
- 2% had at least one abnormal beryllium lymphocyte proliferation test
- 65% demonstrated hearing loss

Since 2011, the Early Lung Cancer Detection Program has provided over 6,900 CT scans to workers with an increased risk of lung cancer. To date, the scans detected 43 lung cancers, 74% of which were diagnosed in early stages.

Lung Cancer Mortality Research Targets Screening Criteria



BTMed’s commitment to research to improve screenings for construction workers was highlighted this year in a study on lung cancer mortality. Published in the *Journal of Occupational and Environmental Medicine*, the study examined records of more than 17,000 program participants, including 352 who died from lung cancer, to identify predictors that can better define eligibility for low-dose computed tomography (LDCT) scans, which can improve early detection. It found that while using only age and smoking history as criteria identified 51% of those who would eventually die of lung cancer, adding factors including chest X-rays, spirometry, prior cancer history, and duration of construction work raised the identification rate to 86%. The results support the inclusion of risk from occupational exposures and respiratory clinical findings in LDCT clinical guidelines to better target high-risk individuals for screening. BTMed is currently working on a research study of chronic obstructive pulmonary disease (COPD) to better define the risk of COPD by construction trade and exposure risk factors.

Supporting DOE Workers’ Compensation Claims

The Energy Employees Occupational Illness Compensation Program Act (EEOICPA) was enacted to provide compensation and medical benefits to current and former workers at certain DOE sites, including contractors and subcontractors. Since subcontractors employed most construction workers at these sites, DOE records are often inadequate to verify employment and therefore enable workers to qualify for EEOICPA. We work closely with U.S. Department of Labor, which administers EEOICPA, to maintain the BTComp subcontractor database that helps workers and claims examiners verify contractual relationships. The BTComp database now includes over 13,500 subcontractors and 4,100 documents and has been accessed over 110,000 times.



“Thanks to the CT Scan I found out I had an abdominal aneurysm and COPD. Without the scan I’d never found any of that. Thanks to BTMed, I’ll be able to watch my grandkids grow up.”

– Rick Gehring, Former Fernald Worker, Carpenters Local 698

“Thanks to the help of BTMed, I found out I had cancer. This is a great program, everyone who has worked on a DOE site should be participating.”

– Ralph Daniel, Former Oak Ridge Worker

“Working at a nuclear facility, you have to protect yourself and monitor your health. That is the reason why I am part of the Building Trades program and I recommend it to all those who worked out there. It could be life-saving.”

– James Edward Johnson, Former Savannah River Worker



“This program saved my life. If it hadn’t been in place and I hadn’t taken the initiative to participate, I wouldn’t be here today. My advice to any worker is: Don’t Wait.”

– Guy Sands, Former Portsmouth Worker, IBEW Local 575

CPWR Research Project Leads

2019-2024 EXTERNAL

Evaluation and Improvement of OSHA 10-Hour Construction Safety Training

Mark Fullen, EdD
West Virginia University
Kimberly Rauscher, ScD, MA
Boise State University

Evaluation of the Best Built Plans Manual Material Handling Tool for Construction

Ann Marie Dale, PhD
Bradley Evanoff, MD, MPH
Washington University in St. Louis

Evaluation of Trunk and Arm Support Exoskeletons for Construction

Carisa Harris-Adamson, PhD, CPE, PT
University of California, San Francisco
Maury Nussbaum, PhD, Virginia Tech

Health Hazard Controls Industry Diffusion: Evidence-based Intervention Strategy

Deborah Dickerson, PhD, MS, CIH
Virginia Tech

Improving Safety Leadership and Fall Prevention Training in Residential Work

Bradley Evanoff, MD, MPH
Ann Marie Dale, PhD
Washington University in St. Louis

Promoting Safety and Well-being among Sheet Metal Worker Women through Mentoring

Noah Seixas, PhD
Marissa Baker, PhD
University of Washington

Reactive Chemical Systems: Part B—Developing Data-Driven Interventions

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Anila Bello, ScD
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2019-2024 INTERNAL

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Construction Industry Data and Statistical Core

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Manufactured Nanomaterials in Construction: Evaluating Exposures, Controls and Worker Training

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Gavin West, MPH

Prevention through Augmented Pre-Task Planning

Babak Memarian, PhD

Research to Practice (r2p) Core

Eileen Betit

Safety Climate-Safety Management Information System (SC-SMIS)

Linda Goldenhar, PhD

SMALL STUDY PROJECTS

Application of End-of-Shift Respirable Crystalline Silica Monitoring to Construction

Martin Harper, PhD
Zefon International, Inc.

Identification and assessment of musculoskeletal disorders risk for concrete formwork systems

John Gambatese, PhD, MS
Oregon State University

Impacts of Policy Changes on Worker Safety Outcomes in NYC Construction Sites

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A practical model for measuring and mitigating safety hazards generated by using UASs in construction

Yelda Turkan, PhD
Oregon State University

Protocol for assessing human-robot interaction safety risks

Chukwuma Nnaji, PhD
University of Alabama

Using Unmanned Aerial Systems for Automated Fall Hazard Monitoring in High-Rise Construction

Masoud Gheisari, PhD
University of Florida

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Zefon International, Inc

Tuyen Thanh Le, PhD

Clemson University

Chukwuma Nnaji, PhD

University of Alabama

Yelda Turkan, PhD

Oregon State University

CONTRACTOR ASSOCIATIONS

Associated General Contractors

The Association of Union Constructors

International Council of Employers of Bricklayers and Allied Craftworkers

Mechanical Contractors Association of America

National Electrical Contractors Association

National Roofing Contractors Association

North American Contractors Association

Sheet Metal and Air Conditioning Contractors' National Association

U.S. GOVERNMENT AGENCIES

U.S. Department of Energy

U.S. Department of Labor

National Institute for Occupational Safety and Health, CDC

National Institute of Environmental Health Sciences

State Departments of Health

LABOR ORGANIZATIONS

NABTU and Affiliated Councils

International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers

International Association of Heat and Frost Insulators and Allied Workers

International Association of Sheet Metal, Air, Rail and Transportation Workers

International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers

International Brotherhood of Electrical Workers

International Brotherhood of Teamsters

International Union of Bricklayers and Allied Craftworkers

International Union of Elevator Constructors

International Union of Operating Engineers

International Union of Painters and Allied Trades

Laborers' International Union of North America

Operative Plasterers' and Cement Masons' International Association of the United States and Canada

United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada

United Brotherhood of Carpenters and Joiners of America

United Union of Roofers, Waterproofers and Allied Workers

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Online Resources



cpwr.com—The first stop for information on our research, training, and service programs, and related products and resources.



elcosh.org—An online library of safety and health materials for construction workers, employers, researchers, and other stakeholders.



covid.elcosh.org—The COVID-19 Construction Clearinghouse offers a central resource for construction employers and workers to find the latest research, guidance documents, training and other resources to help prevent the spread of COVID-19.



covidcpwr.org—This free Planning Tool takes you step-by-step through developing your plan to protect employees from and prevent the spread of COVID-19, including what to consider when conducting a job hazard analysis, selecting appropriate controls, screening workers and visitors, training employees, and implementing the plan.



safeconstructionnetwork.org—Use this site to connect with others interested in advancing construction safety and health, find new resources or share your own, and identify new research or community partners.



bestbuiltplans.org—Provides contractors and workers with practical tools and information to plan for safe materials handling while staying productive and profitable. Access the job site planning tool, training resources, and interactive coaching exercises created to reduce manual materials handling (MMH) and prevent sprain and strain injuries.



ecd.cpwrconstructionsolutions.org—An interactive tool for the construction industry that helps predict exposure to workplace hazards using objective exposure measurements.



stopconstructionfalls.com—Visit our website and join the ongoing Campaign to Prevent Falls in Construction.



silica-safe.org—A one-stop source of information on how to prevent a silica hazard and comply with the standard, including a free online planning tool to create a silica control plan.



safetyclimateassessment.org—Use this tool to help your company gain a more detailed understanding of its safety climate. Visit cpwr.com for S-CAT for small contractors and other safety climate information.



cpwrconstructionsolutions.org—Find practical control measures to reduce or eliminate a variety of construction hazards.



safecalc.org—Evaluate the financial impact of a safer solution using this free online calculator.



ChooseHandSafety.org—Find information on the risk of hand injuries and ways to prevent them, including what to look for when choosing hand tools and gloves.



btmed.org—Learn about the Building Trades National Medical Screening Program and its goal to provide free medical screenings to construction workers who helped build our nation's nuclear defense sites.



esmartmark.org—Contact your international union to access this site created by NABTU to distribute the Smart Mark training curriculum.

CPWR At A Glance


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19
WEBINARS

7,763
ATTENDEES

8,325
ON-DEMAND VIEWS



1,169,614
WEBSITE SESSIONS

14 KEY FINDINGS
FROM
RESEARCH




15
INFOGRAPHICS



70,720
YOUTUBE VIEWS

*Includes on-demand
webinar views.*



689
TWEETS

18% GROWTH
IN TWITTER
FOLLOWERS

2,270 TWITTER
FOLLOWERS

14
UPDATE
NEWSLETTERS



11,072
UPDATE
SUBSCRIBERS

39%
GROWTH IN UPDATE
SUBSCRIBERS

TRAINING

999
TRAINERS TRAINED

60,604
WORKERS TRAINED



4,913
COURSES OFFERED

SERVICE

SINCE PROGRAM BEGAN:

41,000
CONSTRUCTION
WORKER SCREENINGS

6,900
LOW-DOSE CT SCANS

IN 2020:

5,500
WELLNESS CALLS



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