Using Partnerships to Advance Safety & Health in Construction

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About CPWR

CPWR is dedicated to reducing occupational injuries, illnesses & fatalities in the construction industry through:

- **Research**: A recognized world leader in construction safety and health research.
- **Training**: The training offered by CPWR builds on the existing infrastructure of the Building Trades Unions and the 2,000 joint apprenticeship and training programs in all 50 U.S. states and in Canada.
- **Service**: In order to prevent deaths, injuries and illnesses in construction, interventions must be evaluated in the workplace and communicated to employers and workers.
Questions to Address:

- How can the program get vital information to the worker?
- How does the program persuade contractors and workers to effectively use the interventions developed through the research?

2008 National Academies Finding: Significant research on effective interventions but slow adoption
r2p Challenges

Industry
- Decentralized industry – no fixed worksites
- Small, often isolated and under-resourced contractors
- Diverse workforce

Dissemination
- Changing platforms and mechanisms for finding, receiving, sharing and blocking information
Partnerships & Networks

**Industry r2p Partnership:**
National organizations that have influence over safety and health for a specific industry sector

**Interagency Work Group:**
Organizations who influence safety and health research and policies

**Community of Practice:**
Researchers and stakeholders with a shared interest in addressing a particular hazard

**Network:**
Group with direct access to a specific target audience
Masonry r2p Partnership

Established in 2010 by CPWR and
- The International Union of Bricklayers and Allied Craftworkers (BAC)
- The International Council of Employers (ICE)
- The International Masonry Institute (IMI)

Safety & Health Priorities:
- Reducing Ergonomic injuries
  - Back and shoulder injuries
  - Hand, wrist and arm injuries
- Hand exposure/Skin disease
- Exposure to silica dust
  - Inhalation exposures
- Work-related hearing loss
- Potential RF radiation hazards
- Design and use of 7-1/4 circular saws to cut stone
- Eye injuries
Masonry r2p Partnership
Support for Research & Dissemination

2 NIOSH Projects on Dust & Silica in Tuckpointing

Testing Completed:
1. Bosch mortar knife
2. Arbortech saw
3. Armeg raking chisel

ALL tools reduce silica exposures compared to grinders

NIOSH Study on Use of Production Tables on Mast Climbing Work Platforms

Currently Used Production Table

L-shaped Production Table
Masonry r2p Partnership Support for Research & Dissemination

SAVE: Safety Voice for Ergonomics

Click on these links to download the SAVE materials – ALL FOR FREE:

- SAVE Materials
  - SAVE Videos (mov)
    - Unit 1: Introduction to Ergonomics, Anatomy & Cumulative Trauma
    - Unit 2: Awkward and Neutral Postures
    - Unit 3: Heavy Lifting, Prolonged Postures & Repetition
    - Unit 4: Safety Voice, Responsibility & Communication
    - Unit 5: Identifying Hazards & Information
    - Unit 6: Ergonomic Solutions for Masonry
    - Unit 7: Solving Safety Problems with Solutions
  - Apprentice Workbook (pdf)
- Instructor Materials and Resources
  - Instructor Orientation Video (mp4)
  - Instructor Manual (pdf)

To learn more about SAVE, contact Dr. Dan Anton at dan.anton@ewu.edu.
Masonry r2p Partnership
Support for Research & Dissemination

Choose Hand Safety

Work Safely with Silica & Control the Dust: Create-A-Plan Tool

Choose Handsafety.org

www.silica-safe.org
Masonry r2p Partnership
Support for Research & Dissemination

BAC Member and Contractor Safety & Health Surveys

Silica – Use of Dust Controls

<table>
<thead>
<tr>
<th>Year</th>
<th>At least ½ the time</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>83%</td>
<td>19%</td>
</tr>
<tr>
<td>2014</td>
<td>85%</td>
<td>26%</td>
</tr>
<tr>
<td>2017</td>
<td>85%</td>
<td>61%</td>
</tr>
<tr>
<td>2019</td>
<td>91%</td>
<td>69%</td>
</tr>
</tbody>
</table>

Noise – Use of Hearing Protection

<table>
<thead>
<tr>
<th>Year</th>
<th>At least ½ the time</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>72%</td>
<td>30%</td>
</tr>
<tr>
<td>2014</td>
<td>80%</td>
<td>46%</td>
</tr>
<tr>
<td>2017</td>
<td>84%</td>
<td>51%</td>
</tr>
<tr>
<td>2019</td>
<td>86%</td>
<td>60%</td>
</tr>
</tbody>
</table>

At least ½ the time
Always
Roofing Industry r2p Partnership

Established in 2014

Goals:
- Improve safety and health in the roofing industry
- Increase understanding of how to successfully engage industry partners

Plan:
- Partners establish r2p priorities, support & guide efforts, distribute materials, participate in evaluation
- CPWR provides funding & technical support
Roofing r2p Partnership Outputs
RF Radiation Awareness

Answers the questions:
1. What is Radio Frequency (RF) Radiation?
2. What is it used for?
3. What are the potential health effects?
4. Who is at risk?
5. What regulatory requirements or voluntary standards apply?
6. What does a potential hazard look like?
7. What can be done to work safely?

Program includes:
- Guide
- Presentation
- Video
- Toolbox Talk
- Hazard Alert Card

www.cpwr.com/research/rf-radiation-awareness
Roofing r2p Partnership Outputs
Ladder Safety

https://www.youtube.com/watch?v=Et9aeMdosms&t=2s

Get the Ladder Safety App
Learn more: www.cdc.gov/niosh/topics/falls
Roofing r2p Partnership Outputs
Safety Climate Assessment Tool for Small Employers

Goals:

- Help small employers (50 employees or less) assess and improve their jobsite safety climate
- Identify and develop materials and resources for these contractors

Your Results

Section 1: Demonstrates Management Commitment to Safety
Management’s commitment to keeping employees safe is demonstrated through their words and actions. Just saying “Safety is #1!” does not automatically translate into a positive safety climate.

Your responses indicate your program is

Recommended practices for this indicator that you may already have in place are below. Click here (or visit https://www.cpwr.com/research/s-cat-sc-small-contractors) for ideas and free resources to use to further strengthen your company’s safety climate.

- Clearly communicate safety expectations to all employees and spell them out in company policies, procedures, and guidelines
- Make sure adequate resources are available to effectively implement safety activities
- Make safety a top agenda item at all meetings
- Require management to participate in all safety-related meetings
- Make sure management is visible to employees and follow good on-site safety practices
- Make sure employees receive sufficient safety training and have proper PPE (e.g., gloves, eye protection, etc.)
- Design rewards and incentives to encourage employees to actively follow safe work practices
- Track and analyze accidents and incidents
- Establish a formalized process for corrective action when a safety issue is discovered

www.cpwr.com/research/s-cat-sc-small-contractors
OSHA-NIOSH-CPWR
r2p Working Group

Priorities Addressed:
- Silica
- Falls
- Noise
- Nail Guns
- Nanotechnology
- Ergonomics
- Trenching

Strategies Used:
- Social network analysis
- Technology – web/app development
- Trainer engagement
- Use of new media
- Communities of practice
- Social marketing
Working Group Efforts
National Fall Prevention Campaign
Working Group Efforts
National Fall Prevention Campaign
OSHA’s Certificate of Participation Data

3,435 stand-downs reported
457,251 workers reached
Working Group Efforts
National Fall Prevention Campaign
Social Network Analysis

Total Falls Campaign Partners (N=274)
- Academic/Government/Research: 38%
- Contractor/Association: 16%
- Manufacturer/Supplier/Association: 9%
- Safety Agency/Group/Association/Insurance: 8%
- Union: 4%
- Other: 9%
Working Group Efforts
Trench Safety

Surveys on Trench Safety:
OSHA-NIOSH-CPWR r2p Working Group
- OSHA Construction Directorate
- NIOSH Office of Construction Safety and Health
- CPWR Research to Practice (r2p) Program

Ruth Ruttenberg & Associates
United Rentals
Speed Shore, Inc.
Is there sufficient pre-planning for trench work, with soil testing and trench protection needs addressed?

Do you see incidents where companies are inexperienced and new to trenching?
Which of the following do you believe are the biggest contributors to trench incidents or collapses?

<table>
<thead>
<tr>
<th>Contribution</th>
<th>Industry</th>
<th>Safety &amp; Health</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of training on trench safety (i.e., inspections, hazards)</td>
<td>66.6%</td>
<td>67.6%</td>
<td>67.0%</td>
</tr>
<tr>
<td>Trying to stay on schedule/production</td>
<td>65.2%</td>
<td>67.1%</td>
<td>66.0%</td>
</tr>
<tr>
<td>Indifference (i.e., it won’t happen on my watch)</td>
<td>50.6%</td>
<td>70.5%</td>
<td>58.1%</td>
</tr>
<tr>
<td>Lack of knowledge of the OSHA 1926.650 trenching and excavation standard</td>
<td>48.3%</td>
<td>58.6%</td>
<td>52.2%</td>
</tr>
<tr>
<td>(i.e., requirements, soil analysis, and protective system solutions)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tight budgets (i.e., didn’t estimate into job costs)</td>
<td>29.0%</td>
<td>43.8%</td>
<td>34.5%</td>
</tr>
<tr>
<td>Language barriers</td>
<td>18.8%</td>
<td>26.2%</td>
<td>21.3%</td>
</tr>
<tr>
<td>Other</td>
<td>6.9%</td>
<td>10.0%</td>
<td>8.4%</td>
</tr>
</tbody>
</table>
Working Group Efforts
Trench Safety

Resources to Promote Safe Work in Trenches

Injuries and fatalities associated with trenching and excavation work are preventable. The following are resources to help raise awareness of the risks and promote safe work practices.

Mark Your Calendar! 2019 Trench Safety Stand Down June 17-21, 2019 (Click here to learn more)

CPWR:
- Trenches Hazard Alert (also available in Spanish)
- Trench Safety Toolbox Talk (also available in Spanish)
- No New Year – Trench Collapse Video (also available in Spanish)
- Practice Trench Safety. It Saves Lives Infographic (also available in Spanish)
- Strategies to Prevent Trenching-Related Injuries and Deaths Report

NIOSH:
- NIOSH Science Blog - Preventing Trenching Fatalities (planning needs and solutions)
- Trenching and Excavation topic page
  - Preventing Worker Deaths from Trench Cave-ins
  - Preventing Deaths and Injuries From Excavation Cave-Ins: NIOSH Alert
  - Trench Safety Awareness Web-based training
  - Development of Draft Construction Safety Standards for Excavations
- Trench safety-using a qualitative approach to understand barriers and develop strategies to improve trenching practices

OSHA:
- 5 Things You Should Know to Stay Safe in a Trench (45-second video from Secretary Acosta)
- Trenching and Excavation topic page
  - Trenching and Excavation Public Service Announcement (also available in Spanish)
  - National Emphasis Program on Trenching and Excavation
  - Protect Workers in Trenches OSHA Poster (also available in Spanish)
- OSHA Standards for Excavation
- Construction eTool - Trenching and Excavation
- Working Safely in Trenches OSHA QuickCard™ (also available in Spanish)
- Trenching and Excavation Safety OSHA Fact Sheet
CPWR-OSHA Alliance

Protect Yourself Against Heat Exposure.

You are at risk if you:
- Are new to the job
- Work in hot and humid conditions
- Do heavy physical labor
- Don't drink enough water

Dress Appropriately

- Wear lightweight, light-colored clothing (white, etc.)
- Wear appropriate footwear

Drink Water & Take Breaks

- Take frequent breaks outside the sun
- Drink 1 cup (8 ounces) of water every 15-20 minutes.
- DO NOT wait until you are thirsty to drink water.
- DO NOT drink alcohol and AVOID caffeine.

Know the Warning Signs

Heat Exhaustion:
- Weakness & Wet Skin

Heat Stroke:
- High body temperature
- Confusion or Fainting
- Nausea or Vomiting
- Excessive sweating or red, hot, dry skin

Seek Medical Assistance

Heat Stroke is a medical emergency
Look out for your co-workers—if you see the warning signs take action!
Call 911
Getting help can be the difference between life and death.

Learn more about heat-related illnesses and how to prevent them at http://bit.ly/CPWRHotWeather
Trainers and Researchers United Network (TRU-Net – established 2014)

Engage and Reach:
NABTU training network of roughly 5,000 trainers 1,600 training centers

Goal:
Formalize the link between safety and health researchers and trainers

Priority: noise & hearing loss
TRU-Net / CPWR-OSHA-NIOSH r2p Work Group / Masonry r2p Partnership
Construction Noise & Hearing Loss Prevention

TRU-Net Surveys on Noise & Hearing Loss Training

**Trainer Survey**
- Sent to Training Directors at 14 National Unions
- 9 Unions distributed to an estimated 1,200 trainers
  - Boilermakers, Bricklayers, Carpenters, Insulators, Ironworkers, Painters, Plumbers & Pipefitters, Roofers, and Sheet Metal Workers
- 248 trainers responded

**Worker Survey**
- 49 trainers from 7 unions agreed to administer during class
- 4,976 surveys distributed
- 4,195 trainee responses (84%)

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes, the training provided me with all information needed</th>
<th>Yes, but I could use a refresher</th>
<th>No, I need more information and training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you feel that you have all the information you need to recognize when a noise is hazardous?</td>
<td>62.5%</td>
<td>29.5%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Do you feel that you have all the information you need on how to ask for the noise to be reduced?</td>
<td>56.5%</td>
<td>29.7%</td>
<td>13.9%</td>
</tr>
<tr>
<td>Do you feel that you have all the information you need on how to obtain PPE?</td>
<td>77.7%</td>
<td>17.7%</td>
<td>4.6%</td>
</tr>
</tbody>
</table>
Multi-Partnership Effort
Construction Noise & Hearing Loss Prevention

1-Hour Elective Module (provides materials to fulfill 1 hour of the 2 hour training requirement for Health Hazards in the OSHA 30)
- Instructor Manual
- Presentation

30-Minute Elective Module (designed to fulfill the 10-hour program requirement for a half-hour module on a health hazard)
- Instructor Manual
- Presentation
Multi-Partnership Effort
Construction Noise & Hearing Loss Prevention

In-Class & Hands-On Refresher Exercises (short 10-15 minute reinforcement exercises)
- Instructor Manual
- Presentations for Noise Training Exercises for use in OSHA 10- & 30-hour modules
- Presentations for Noise Training Exercises for Use In-Class for Skills Training Programs
- Noise Training Exercises for Use in the Hands-On Portion of Skills Training Programs

Links to Additional Resources

Construction Safety & Health Network

Search
Find and easily share the latest research findings, new tools, solutions, and programs with your members, colleagues, and others who could benefit.

Collaborate
Connect with other industry stakeholders, researchers, and experts on specific hazards through the Network Directory.

Share
Send us construction safety and health research findings, products, materials, and other resources you want to share with a broader stakeholder audience.

Share and discover the latest in construction safety & health

Featured Content
Liberty Mutual
Amputation
D&D

SEARCH RESULTS
Jessica Hasting
Researcher
CPWR - The Center for Construction Research & Training

Area of Expertise:
- Falls
- Scaffold
- Ladders
- Material Handling
- Trenches & Excavations
- Research to Practice (R2P) Evaluation

Email:
jhasting@cpwr.com
Phone:
(301) 445-8115

Associated Links:
Website
URL
Ergonomics Community of Practice

Members:
- CPWR Consortium Researchers
- Insurance Reps
- Industry Stakeholders
- Trainers

Focus: manual materials handling
Ergo Community of Practice
Best Built Plans

Best Built Plans: Preventing Injury & Improving Productivity by Reducing Manual Materials Handling

Manually lifting and moving heavy materials on job sites can result in strain, sprain, and related soft tissue injuries. These types of injuries cost businesses billions of dollars and are a leading cause of disabling injuries in the construction industry. Best Built Plans provides contractors and workers with practical tools and information to plan for safe materials handling while staying productive and profitable. (See article "It's Time to Stop the Pain: Preventing Overexertion Injuries," CPMJ Building Products - The Magazine for Construction Financial Professionals.)

What's Available?

- Site Planning Tool
  Tailored for use at each stage of a project, from preparing a bid to project completion, includes pre-set spreadsheets, material weights, storage and lifting options, daily checklists, training materials, hazard alert cards, toolbox talks and related microgames.

- Training Resources
  Interactive exercises with narration to increase a worker's understanding of the need to plan lifts, and to introduce equipment, work practices and lifting techniques that can help reduce the risk for injury.

- Coaching
  Interactive exercises that introduce warm-up activities and the fundamentals of lifting practices and allows users to test their knowledge.

- Click here to access the Site Planning Tool online
- Download the PC-based Site Planning Tool and Interactive Training and Coaching Resources by clicking HERE and following the prompts.
- Need it on the go? Download our new free app to access the whole program on your phone or tablet! It's available for both iOS and Android users. You can download it by clicking HERE.
- Find infographics and posters to reinforce safer materials handling practices HERE. You can post them on job sites, or use them in printed materials, presentations, on your website, or social media.

As a new program, we are excited to bring you something that will take a few minutes to share.
Ergo Community of Practice
Best Built Plans

Planning Resources
Information on the business benefits of planning

Key Questions & Resources to address barriers at each project stage:
1. Project bid
2. Before job starts
3. During construction
4. When the job ends

Training & Coaching Resources
- Site planning
- Equipment
- Lifting
- Work Practices
- Coaching
Ergo Community of Practice
Best Built Plans

Games & Additional Resources
Now in Spanish:
- All planning resources
- Infographics/posters
- Games
- Toolbox talks
- Hazard alerts

New
- Video *(English & Spanish)*
- App version of Planning, Training & Coaching

Comprehensive Ergonomics Training Program
workers, train-the-trainer, and contractors – connect preventing pain with preventing opioid use and addiction
Using Partnerships to Advance Safety & Health in Construction
Lessons Learned
Summary Report
Partnership Lessons Learned

Advantages to researchers and stakeholders of working in partnership

- Creates early buy-in and support for the research
- Buy-in from stakeholder leadership can help facilitate participation by others, such as local affiliates of their organization, other industry stakeholders, and the target audiences of the study.
- Helps the researcher understand the research and dissemination challenges they may face, and build in strategies to overcome them
- Leads to industry-specific input and support at each stage of a project
- Provides access to the population needed for the research

Challenges to working together

- Competing priorities & time constraints
- Concern about unintended consequences
- Unrealistic expectations
- Not understanding the industry or the target audience
Tips for Reaching Key Intermediaries, such as:
- Insurance Companies
- Contractors/Trade Associations
- Small/Hispanic Contractors & Contractor Associations
- Unions/Trainers
- Manufacturers

Challenges & Strategies for Reaching Vulnerable Workers

Improving Dissemination & Use of Research Findings
Partnership Toolkit

- Introduction & Table of Contents
- Section 1: Identify and Involve Key r2p Partners
- Section 2: Facilitate the Partnership Process
- Section 3: Develop a Shared Vision, Mission, and Goals
- Section 4: Actively Invest in Group Dynamics
- Section 5: Identify and Disseminate Solutions
- Section 6: Evaluate Your Work Together
- Section 7: Allow Your Partnership to Evolve
- Section 8: Appendix
Partnership Toolkit
Interviews, Observations & Case Studies

Original Toolkit:
- The Asphalt Paving Partnership
- The Masonry r2p Partnership
- The SafeBuild Alliance
- The MA Floor Finishing Safety Task Force
- The Electrical Transmission and Distribution Partnership
- Latino Falls Prevention Partnerships
- The OSHA•NIOSH•CPWR Interagency r2p Working Group

Additional Updates (in progress):
- The Roofing r2p Partnership
- The Ergonomics Community of Practice
- TRU-Net
- Construction Safety & Health Network
- CPWR OSHA Alliance

The SafeBuild Alliance (formerly the Greater Portland Construction Partnership) uses a regional approach to improve the industry’s safety culture and achieve zero injuries. The Alliance holds quarterly meetings focusing on safety for its broad membership, which includes general contractors, subcontractors, owners, labor unions, designers, safety and health professionals, and other stakeholders. Their innovative Prequalification Assessment Certification Program helps to streamline the safety prequalification process by allowing general contractors to access information on the safety performance of participating subcontractors.

The Massachusetts Floor Finishing Safety Task Force was established as a statewide partnership in response to a specific hazard facing a vulnerable population within the state’s construction industry. During 2004 and 2005, three Vietnamese immigrant workers died while using highly flammable lacquer-based sealants to finish floors. This partnership used a strategy of research, education, outreach, and advocacy to build support for the enactment of state legislation banning the sale of the types of products responsible for these deaths.
Partnership Toolkit
Tools & Activities

**Tool 1-A: Issue(s) Bull’s Eye**

**Instructions:**
1. Write the issue(s) and what you hope to accomplish through a partnership in the center of a piece of flip chart paper or a whiteboard; draw three rings around the issue(s); label the rings Level 1, Level 2, and Level 3 respectively. Each level refers to a type of stakeholder:
   - Level 1: Stakeholders who are actively engaged in or directly affected by the issue(s), are highly influential, and have critical perspectives to consider.
   - Level 2: Stakeholders who may be impacted by the issue(s) and are able to influence other stakeholders.
   - Level 3: Stakeholders who have the potential to be convinced about the importance of the issue(s) and could be helpful supporters.
2. Brainstorm and write the names of the stakeholders (organizations or individuals) that have an interest in or connection to the issue(s) on sticky notes; place the rings based on your knowledge of how close or pivotal each is to the issue(s).

**Tool 2-A: Facilitator or a Facilitative Leader**

**Instructions:**
1. Assess your role as the facilitator. Use the following tools that most closely reflect your role.
2. Assess the partnership’s perceptions of the issue by asking questions such as: “What are the partnerships perceptions of the facilitator’s role?”
3. Compare the results to your assessment.

**Tool 5-A: Identify Opportunities for Intervention Using the Source-Exposure Pathway**

**Instructions:**
1. Draw the diagram below on a flip chart or whiteboard.
2. Write the hazard that your partnership wants to address across the top.
3. As a group, identify possible solutions by recreating the pathway for the hazard or issue you plan to address. Discuss the main source and point(s) of exposure, and identify the best point at which to intervene (shown with arrows below) given the available solutions. Write the possible solution(s) under the pathway.

Note – Keep in mind that making a change at the source of a hazard is generally preferable to changing the exposure, and changing the exposure is preferable to having to wait to treat the health effect after it happens.

4. You can repeat this exercise for each of the hazards your partnership would like to address.

Hazard: __________________________

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Group Membership</th>
<th>Involvement in Substantive Issues</th>
<th>Use of Expertise</th>
<th>Decision-Making Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Third Party</td>
<td>Substantial</td>
<td>Process Expert</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Content and Process Expert</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Based on the identified pathway, what are possible opportunities to intervene?
Possible Solution(s): __________________________

[Diagram of Source-Exposure Pathway]
Questions?

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