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CPWR – The Center for Construction Research and
Training

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2024



CPWR Resources to Improve Safety and Health in Construction

Who is CPWR?

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CPWR – The Center for Construction Research and Training (CPWR) is a nonprofit dedicated to reducing occupational injuries, illnesses and fatalities in the construction industry.

- Created by NABTU & funded by NIOSH since 1990
- Three main “branches”:
 - Research (and Research to Practice)
 - Training
 - Service



THE CENTER FOR CONSTRUCTION
RESEARCH AND TRAINING

Our Mission



- **Encourage the elimination or reduction of conditions constituting hazards** to the safety or health of U.S. construction workers, and to **promote the maintenance and improvement of safe and healthy working conditions** for workers in the construction industry;
- **Publicize the results of research findings**, and to make them widely available to construction industry owners/users, employers, associations, unions, workers, academia, government, and others with an interest in construction industry safety and health;
- **Provide training resources and technical services to apply research findings at the work site** and to **direct research in defining and addressing issues of importance to workers**; and
- **Conduct research** concerning the quality of working conditions; the social, economic, and psychological factors influencing work organization; the impacts on workers and working conditions of new technologies and industry change; and analyses of corporate and government policies and consensus standards that affect the worksite.

Research Program

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Applied Research



Research to Practice (r2p) & Communications



Data Center



Small Studies Program

Research to Practice

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Building r2p capacity – conducting translation research & developing r2p tools



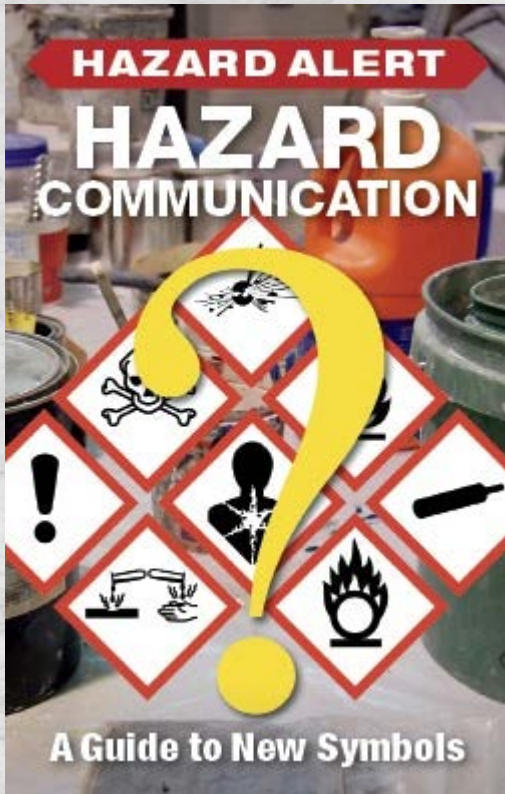
Developing and testing translational products & dissemination strategies



Establishing & utilizing r2p-focused partnerships and networks to increase the use of research findings on jobsites

FREE Resources

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Chemical Hazards
Ergonomics Research & Solutions
Electrical Hazards
Fall Prevention
Hand Safety
Head Injuries
Hearing Loss
Heat and Hot Weather
Mental Health & Addiction
Mining Resources for Construction

Nail Gun Safety
Nanomaterials
Pre-Job & Pre-Task Planning
Radio Frequency Radiation
Safety Culture/Safety Climate
Struck-By & Work Zone Safety
Trench Safety
Working Safely with Silica
Working in Cold Weather

Focus on Planning

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- **Pre-Task Planning Guidelines and Resources:** Contains several applied tools — including checklists, templates, and practical examples — to help you through the process.
- **Planning Program to Prevent Struck-by Incidents:** Intended to improve pre-job and daily pre-task planning related to struck-by hazards (i.e., dropped objects, road work).
- **Best Built Plans – Planning Tool and Interactive Components:** In addition to a comprehensive ergonomics training program with modules for workers and contractors, the Best Built Plans program includes information and planning resources to help a contractor develop a plan to reduce manual materials handling and related injuries and engage all levels of their work force in the process.
- **Work Safely with Silica:** Conduct a job hazard analysis for silica, selecting appropriate controls, and creating a job-specific plan to eliminate or reduce silica hazards.
- **Written Fall Protection & Rescue Plan:** This generic plan, available in English or Spanish, can be printed out and filled in with details from your job site(s).
- **Small Contractor Fall Prevention Planning Resources:** Simple resources for small contractors to plan for fall prevention and protection (also available in Spanish)
- **Safety Climate-Safety Management Information System:** measure and strengthen safety climate and safety management practices

Pre-Task Planning (PTP)



Project Team



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Pre-Task Planning (PTP)

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- **Project:** CPWR’s “Prevention through Augmented Pre-Task Planning” funded by NIOSH.
- Research findings suggest that most work-related injuries could be prevented by:
 - Proactively identifying hazards and unsafe conditions associated with each task, tools/equipment, materials, work methods, and jobsite
 - Properly addressing hazards using effective controls before work begins
- **Pre-Task Planning (PTP)** is a process performed before each task starts to discuss the steps of work, the hazards, and available controls.

PTP Challenges & Shortcomings



The gap in the process:

- Lack of comprehensive guidelines
- Inconsistent style
- Inconsistent terminology (JHA, JSA, PTP, AHA ...)
- Confusion and conflicts on jobsites
- Mainly from a compliance perspective
- Minimal opportunity for workers' input
- Lack of workers' engagement in site safety planning
- Lack of task-specific content
- Inconsistency between content and task requirements

FACILITIES SERVICES		
MAINTENANCE OF FIRE ALARMS, PANELS, AND SENSORS		
TASK	HAZARDS	CONTROLS
1. Preparing work area	Injuries to passersby and bystanders False alarm response; client anxiety/irritation/panic; disruption of campus business	Isolate work area with barricades, caution tape, and/or on-site assistant Phone UCPD and notify building clients; schedule work appropriately
2. Using ladders and lifts	Falls, slips, electrical hazards Muscle strain, repetitive stress injuries Heat stress	Refer to ladder safety and aerial lift JSAs Stretching, frequent breaks, adequate hydration, alternate tasks with team partner Frequent breaks, adequate hydration, alternate tasks with team partner
3. Working in sub-ceilings, cramped spaces, custodial closets, machine rooms	Head and/or eye injuries from falling or flying debris, dust inhalation Hand and finger injuries from pinch points Skin/eye irritation from dirt and chemicals Tripping hazards from cables and extension cords	Protect head and eyes with hard hat and safety glasses; wear dust mask Protect hands with gloves; avoid pinch points and moving machinery parts Wear safety glasses and long-sleeved shirt Practice careful housekeeping; maintain awareness of location of equipment and tools
4. Repairing, replacing, or maintaining fire alarms, panels, or sensors	Electrical shock	Assess environment for water or damaged wiring/connectors before starting work; evaluate conditionage of building and consult written procedures (confidential to department) for that building before starting work
5. Testing horns	Hearing damage to self and others	Wear ear plugs; notify building clients and UCPD prior to tests

CHECKLIST (Check and Discuss applicable items prior to task)		CHECKLIST (Check and Discuss applicable items prior to task)	
YES	GENERAL SAFETY	YES	ELECTRICAL
<input type="checkbox"/>	SITE SPECIFIC SAFETY ORIENTATION	<input type="checkbox"/>	GFCI IN USE
<input type="checkbox"/>	EVACUATION PLAN/RALLY POINT	<input type="checkbox"/>	EXIT CORDS - USER INSPECTED
<input type="checkbox"/>	SIS (R-VIEW) (HA/CLIM)	<input type="checkbox"/>	EXPOSED CONDUITS
<input type="checkbox"/>	ACCESS/EGRESS	<input type="checkbox"/>	LOCKOUT / TAGOUT AUTHORIZED PERSONS
<input type="checkbox"/>	MATERIAL STORAGE	<input type="checkbox"/>	ARC FLASH TRAINED
<input type="checkbox"/>	EQUIPMENT, MACHINE & TOOL INSPECTION	<input type="checkbox"/>	TRAINED / AUTHORIZED PERSONS
<input type="checkbox"/>	MACHINE & TOOL GUARDS	<input type="checkbox"/>	WIRE / CABLE PULL - SETUP
<input type="checkbox"/>	BARRICADES, SIGNS, TAGS	<input type="checkbox"/>	WIRE / CABLE PULL - EQUIPMENT INSPECTION
<input type="checkbox"/>	100% TIE-OFF	<input type="checkbox"/>	WIRE / CABLE PULL - TENSIONING
<input type="checkbox"/>	WEATHER HAZARDS	<input type="checkbox"/>	CRANE OPERATIONS / RIGGING
<input type="checkbox"/>	LOCKOUT TAGOUT VERIFICATION	<input type="checkbox"/>	OPERATOR DAILY INSPECTION
<input type="checkbox"/>	ADEQUATE LIGHTING	<input type="checkbox"/>	ANNUAL INSPECTION CURRENT
<input type="checkbox"/>	NEAREST FIRE EXTINGUISHER	<input type="checkbox"/>	TAG LINES USED
<input type="checkbox"/>	FALL PROTECTION	<input type="checkbox"/>	PROPER SETUP
<input type="checkbox"/>	USER INSPECTED EQUIP	<input type="checkbox"/>	RIGGING EQUIP - USER INSPECTED
<input type="checkbox"/>	PROPER ANCHOR POINT USED	<input type="checkbox"/>	OPERATOR TRAINING/CERTIFICATION VERIFIED
<input type="checkbox"/>	FALL CLEARANCE DETERMINED	<input type="checkbox"/>	RIGGER TRAINING/CERTIFICATION VERIFIED
<input type="checkbox"/>	MINIMUM PROPER HI	<input type="checkbox"/>	MANUAL HANDLING
<input type="checkbox"/>	LADDERS	<input type="checkbox"/>	FORKLIFT - DAILY INSPECTION
<input type="checkbox"/>	PROPER FOOTING / ANGLE	<input type="checkbox"/>	OPERATOR TRAINING / CERTIFICATION VERIFIED
<input type="checkbox"/>	EXT. LADDER SECURED	<input type="checkbox"/>	SEAT BELT USED
<input type="checkbox"/>	EXTENDS 3 FT ABOVE LANDING	<input type="checkbox"/>	LOAD CHART - LULL
<input type="checkbox"/>	STEPLADDER - OPENED/LOCKED	<input type="checkbox"/>	MANUAL LIFTING - PROPER BODY POSITION
<input type="checkbox"/>	IF-IF/ISLARI F	<input type="checkbox"/>	PROPER LIFTING ME THOUS
<input type="checkbox"/>	PROPER USE	<input type="checkbox"/>	MECHANICAL LIFTING DEVICES NEEDED
<input type="checkbox"/>	FALL PROTECTION NEAR OPENING	<input type="checkbox"/>	ADEQUATE MANPOWER/SPOTTER

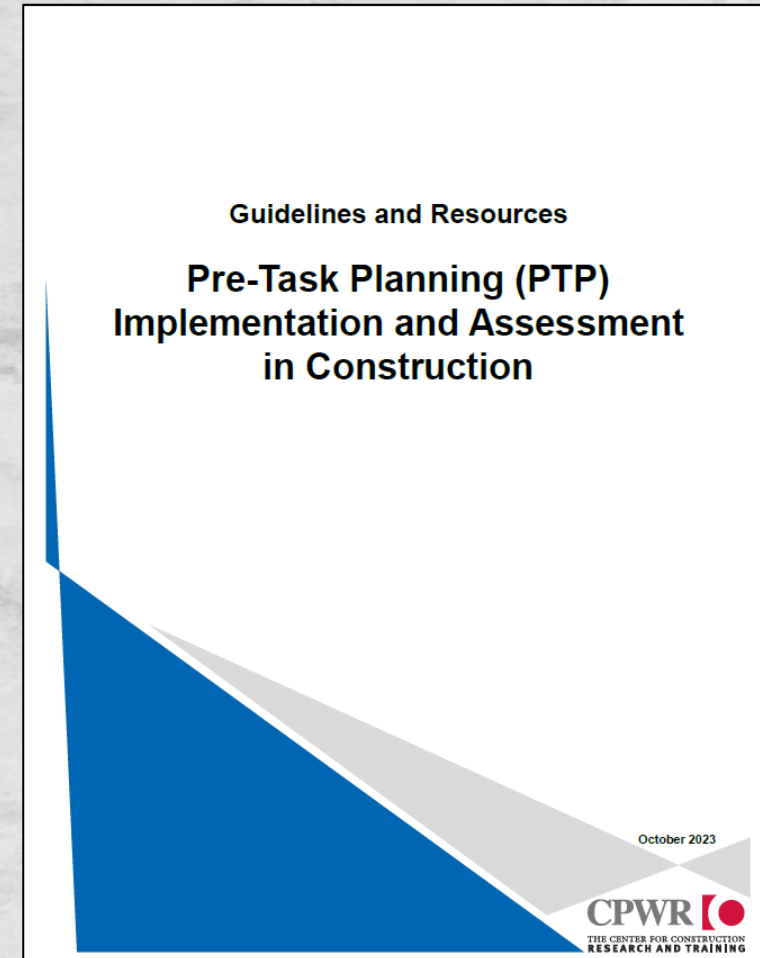
DATE:		NEW	<input type="checkbox"/>
		REVISED	<input type="checkbox"/>
JSA No. _____	TITLE OF PERSON WHO DOES JOB:	SUPERVISOR:	ANALYSIS PERFORMED BY:
ORGANIZATION/SCHOOL	LOCATION:	DEPARTMENT:	REVIEWED BY:
SEQUENCE OF JOB STEPS	POTENTIAL HAZARDS	RECOMMENDED ACTION OR PROCEDURE	
1.			
2.			
3.			

PTP Guidelines & Resources



- Translated research findings into an easy-to-use, comprehensive PTP package (www.cpwr.com/ptp)
- Helps contractors design, implement, assess, and continuously improve their PTP
- It contains:
 - Implementation and Assessment Guidelines
 - Sample Completed PTP Form
 - Blank PTP Template (PDF and Word)
 - Post-Job Review Checklist
 - Management PTP Assessment Checklist
 - Workers' Perspective Questionnaire

[Pre-Task Planning \(PTP\) Implementation and Assessment: Guidelines and Resources](#)



PTP Guidelines & Resources

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[A-Z Index](#)

[Lista de recursos en español](#)

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TRAINING

SERVICE

NEWS & EVENTS

ABOUT CPWR

Home > Research > Management Resources from Research > Pre-Task Planning (PTP) Guidelines and Resources for Construction

Pre-Task Planning (PTP) Guidelines and Resources for Construction

Pre-Task Planning (PTP) is a process performed before each task starts to discuss the steps of work, the hazards, and available controls. This process may also be known as job hazard analysis (JHA), job safety analysis (JSA), morning huddle, or other terms.

To help contractors design, implement, assess, and continuously improve their PTP process, CPWR has developed a comprehensive PTP package. It contains several applied tools — including checklists, templates, and practical examples — to help you through the process. To access these resources, use the links below.

- [Pre-Task Planning \(PTP\) Implementation and Assessment: Guidelines and Resources](#)

To obtain individual checklists and tools included in the full package, select from this list:

- [Sample Completed Pre-Task Planning \(PTP\) Form](#)
- Blank Pre-Task Planning (PTP) Form ([PDF](#), [Word](#))
- [Post-Job Review Checklist: An End-of-Shift Assessment Tool](#)
- [Pre-Task Planning \(PTP\) Assessment: Management Checklist](#)
- [Pre-Task Planning \(PTP\) Assessment: Worker's Perspective](#)

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Management Resources from Research -

Best Built Plans/Management

COVID-19 Construction Clearinghouse

PTP Template



Ready to develop your own PTP?

- Follow the example provided in CPWR's package
- Download and use the blank PTP form
- Download:
 - Sample Completed PTP: [Sample-Completed-Pre-Task-Plan-PTP-Form.pdf \(cpwr.com\)](#)
 - Blank PTP form: [Blank-Pre-Task-Plan-PTP-Form-PDF.pdf \(cpwr.com\)](#)

Pre-Task Planning (PTP) Form

Your company's logo here

Project: _____ Contractor: _____ Date: _____
Location: _____ Name / Role: _____ PTP #: _____
Task: _____

Steps	Hazards	Controls

Staff responsible for implementing and checking controls: _____

Crews working nearby:

Crew / Activity	Hazards	Action Plan

Staff responsible for coordinating with other crews: _____

Have you provided the information below?





Site layout Equipment Specific types of PPE Medical facility information
 Materials Tools Work schedule Permits Evacuation and emergency plans

Notes:

Sample PTP



- Conduct PTP before each task starts
- Conduct daily walkthroughs and involve workers
- Update and communicate PTP content when condition changes
- Break the task into manageable steps
- Specify hazards associated with each step
- Identify ways to control each hazard
- Identify who is responsible for implementing the controls
- Discuss permit requirements
- Use photos or other visual aids instead of text where possible
- Use educational aids like a whiteboard or live demo

Task: Conduit Installation		
Steps	Hazards	Controls
Pre-job set up	<ul style="list-style-type: none"> • Injury from hand tools and power tools • Slips, trips, and falls 	<ul style="list-style-type: none"> • Inspect all tools prior to use. • Secure the work area and clear bystanders. • Use site-specific PPE. • Maintain good housekeeping. • Complete hands-on training prior to using power tools. • Evaluate materials to be drilled for potential hazards (e.g., lead based paint).
Bend conduit using conduit bender tool 	<ul style="list-style-type: none"> • Injury to hands, including pinching fingers • Strain/sprain from awkward position 	<ul style="list-style-type: none"> • Use site-specific PPE. • Keep hands away from bender head. • Use proper body positioning when bending conduit.
Cut conduit with reciprocating saw 	<ul style="list-style-type: none"> • Lacerations • Metal debris in eyes • Strain/sprain from awkward position 	<ul style="list-style-type: none"> • Use site-specific PPE. • Secure conduit with a vise prior to cutting. • Keep hands away from saw blade. • Use proper body positioning.
Drill holes with power drill and install conduit supports 	<ul style="list-style-type: none"> • Debris in eyes • Lacerations • Strain/sprain from awkward position • Breathing hazardous dust • Noise • Burns 	<ul style="list-style-type: none"> • Use site-specific PPE. • In addition to site-specific PPE, use an N95 mask and hearing protection. • Make sure drill bits are sharp and not cracked before use so they don't break off and cause injury. • Do not wear loose fitting clothing that can get caught in moving parts. • Keep hair and jewelry out of the drill path. • Keep hands away from rotating drill bit. • Use proper body positioning. • After drilling, do not touch the drill bit, it is often extremely hot.
Drill hole in junction box with power drill	<ul style="list-style-type: none"> • Debris in eyes • Lacerations • Strain/sprain from awkward position • Breathing hazardous dust • Noise • Burns 	<ul style="list-style-type: none"> • Use site-specific PPE. • In addition to site-specific PPE, use an N95 mask and hearing protection. • Do not wear loose fitting clothing that can get caught in moving parts. • Keep hair and jewelry out of the drill path. • Keep hands away from rotating drill bit. • Secure junction box with a vise prior to drilling to prevent rotation. • Use proper body positioning. • After drilling, do not touch the drill bit, it is often extremely hot.
Place conduit 	<ul style="list-style-type: none"> • Falls • Strain/sprain from awkward position • Debris in eyes 	<ul style="list-style-type: none"> • Use site-specific PPE. • If using a ladder, select one of appropriate height. • Position the ladder directly beneath work area to avoid over-reaching as this can result in falls.

Staff responsible for implementing and checking controls: R. Garcia

Sample PTP



- Discuss hazards posed by other crews working nearby
- Include supplemental information
- Give workers the opportunity to lead the PTP meeting
- Provide PTP training – how to complete and how to conduct it
- Gather and incorporate workers' feedback on the PTP process

Crews working nearby:

Crew / Activity	Hazards	Action Plan
Ironworkers / Overhead work	• Falling objects	• Use safety nets. • Establish a clearly marked safety perimeter.
Drywallers / Sanding	• Silica exposure	• Wear a dust mask or N95.
Laborers / Excavation	• Cave-ins • Falling into excavation	• Install barriers or fence off excavation site. • Use a spotter when workers are in or near excavation site.
Operating Engineers / Heavy equipment traffic	• Struck by	• Designate marked pedestrian walkways.

Staff responsible for coordinating with other crews: L. Smith

Have you provided the information below?

<input checked="" type="checkbox"/> Site layout	<input checked="" type="checkbox"/> Equipment	<input checked="" type="checkbox"/> Specific types of PPE	<input checked="" type="checkbox"/> Medical facility information	
<input checked="" type="checkbox"/> Materials	<input checked="" type="checkbox"/> Tools	<input checked="" type="checkbox"/> Work schedule	<input checked="" type="checkbox"/> Permits	<input checked="" type="checkbox"/> Evacuation and emergency plans

Post-Job Review

- Huddle at the end of the work shift
- Briefly discuss issues that occurred during the shift
- Discuss safety, health, and other concerns
- Plan adjustments for the next day
- Keep track of issues during the project lifecycle
- Download the Post-Job Review Checklist:

[Post-Job-Review-Checklist-An-End-of-Shift-Assessment-Tool.pdf \(cpwr.com\)](https://cpwr.com/post-job-review-checklist-an-end-of-shift-assessment-tool.pdf)

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Post-Job Review Checklist: An End-of-Shift Assessment Tool

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An end-of-shift review (also known as post-job or post-task review) is a huddle held at the end of the work shift to briefly discuss issues that occurred during the shift, safety and health concerns, and adjustments needed for the next day.

This checklist has been developed based on research findings and input from industry experts to help work crews continuously evaluate and improve their work process. Ask each question from your crew and develop an action plan if the status is not satisfactory. Please note that this checklist is to complement your Pre-Task Planning (JHA, JSA, pre-job planning, etc.) process and is not a replacement for any other planning steps.



Please use the QR code above or go to <https://cpwr.com/post-job-review-checklist-an-end-of-shift-assessment-tool.pdf> if you have any feedback or questions.

Project: Name / Role:
 Task: Date:

No.	Questions	Status		Explanation/Action Items
		Yes	No	
1	Did you have everything you needed to do your job properly?	<input type="checkbox"/>	<input type="checkbox"/>	
2	Were all tasks completed as planned?	<input type="checkbox"/>	<input type="checkbox"/>	
3	Were there any incidents during the shift?	<input type="checkbox"/>	<input type="checkbox"/>	
4	Were there any near misses during the shift?	<input type="checkbox"/>	<input type="checkbox"/>	
5	Were all hazards identified in PTP controlled well?	<input type="checkbox"/>	<input type="checkbox"/>	
6	Did any new hazards emerge during the shift?	<input type="checkbox"/>	<input type="checkbox"/>	
7	Were there any conflicts within the crew?	<input type="checkbox"/>	<input type="checkbox"/>	
8	Were there any conflicts with other crews?	<input type="checkbox"/>	<input type="checkbox"/>	
9	Did any crews work nearby that you did not expect?	<input type="checkbox"/>	<input type="checkbox"/>	
10	Did other crews' work cause any challenges or hazards to your crew?	<input type="checkbox"/>	<input type="checkbox"/>	
11	Were any major pieces of equipment (e.g., tower crane) mobilized to the jobsite?	<input type="checkbox"/>	<input type="checkbox"/>	
12	Were there any equipment or tool related issues (breakdown, unavailability)?	<input type="checkbox"/>	<input type="checkbox"/>	
13	Were there any material related issues?	<input type="checkbox"/>	<input type="checkbox"/>	
14	Did weather conditions impact your work?	<input type="checkbox"/>	<input type="checkbox"/>	
15	Is there anything else you would like to discuss?	<input type="checkbox"/>	<input type="checkbox"/>	


PTP Assessment: Management Checklist

- Use the Management Checklist to assess your PTP process
- Each “No” answer indicates an area for improvement
- Use guidelines presented in the PTP package to improve each component
- Download the Management Checklist:

[Pre-Task-Planning-PTP-Assessment-Management-Checklist.pdf \(cpwr.com\)](https://cpwr.com/Pre-Task-Planning-PTP-Assessment-Management-Checklist.pdf)

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Pre-Task Planning (PTP) Assessment Management Checklist		CPWR THE CENTER FOR CONSTRUCTION RESEARCH AND TRAINING
<p>Pre-Task Planning (PTP) is a process performed before each task starts to discuss the steps of work, the hazards, and available controls. This process may also be known as JHA, JSA, morning huddle, etc.</p> <p>This checklist has been developed based on research findings and input from industry experts to help construction practitioners evaluate and improve their PTP process. Each "No" answer indicates an area for improvement. Please note that this checklist is not a replacement for your PTP.</p>		 <p>Please use the QR code above or go to http://bit.ly/45S3T38 if you have any feedback or questions.</p>
1.	Do you conduct PTP before each task starts? → If you answered NO, please use CPWR's PTP Guidelines to initiate your process and then use this checklist to assess it.	Yes <input type="checkbox"/> No <input type="checkbox"/>
2.	Do you conduct daily walkthroughs? → If you answered NO, please skip to question 3	Yes <input type="checkbox"/> No <input type="checkbox"/>
	a. Are workers involved in daily walkthroughs?	Yes <input type="checkbox"/> No <input type="checkbox"/>
3.	Do you update PTP content when conditions change? → If you answered NO, please skip to question 4	Yes <input type="checkbox"/> No <input type="checkbox"/>
	a. Do you communicate these changes with workers immediately?	Yes <input type="checkbox"/> No <input type="checkbox"/>
4.	Does your PTP break the task up into manageable steps or sub-tasks?	Yes <input type="checkbox"/> No <input type="checkbox"/>
5.	Does your PTP specify hazards associated with each step of the task?	Yes <input type="checkbox"/> No <input type="checkbox"/>
6.	Does your PTP discuss ways to control each hazard? → If you answered NO, please skip to question 7	Yes <input type="checkbox"/> No <input type="checkbox"/>
	a. Does your PTP identify who is responsible for implementing the controls?	Yes <input type="checkbox"/> No <input type="checkbox"/>
7.	Do you inform workers about permit requirements during the PTP meeting?	Yes <input type="checkbox"/> No <input type="checkbox"/>
8.	Does your PTP discuss hazards posed by other crews working nearby?	Yes <input type="checkbox"/> No <input type="checkbox"/>
9.	In addition to the crew supervisor, do workers have the opportunity to lead the PTP meeting?	Yes <input type="checkbox"/> No <input type="checkbox"/>
10.	Do you provide any training to conduct or lead the PTP meeting?	Yes <input type="checkbox"/> No <input type="checkbox"/>
11.	Do you gather workers' feedback on PTP content and delivery? → If you answered NO, please skip to question 12	Yes <input type="checkbox"/> No <input type="checkbox"/>
	a. Do you incorporate their feedback?	Yes <input type="checkbox"/> No <input type="checkbox"/>
12.	Does your PTP use photos or other visual aids instead of text where possible?	Yes <input type="checkbox"/> No <input type="checkbox"/>
13.	Do you use educational aids like a whiteboard or live demonstration in your PTP process?	Yes <input type="checkbox"/> No <input type="checkbox"/>
14.	Does your PTP include the following information?	Yes <input type="checkbox"/> No <input type="checkbox"/>
	a. Site layout	Yes <input type="checkbox"/> No <input type="checkbox"/>
	b. Medical facility information	Yes <input type="checkbox"/> No <input type="checkbox"/>
	c. Evacuation and emergency plans	Yes <input type="checkbox"/> No <input type="checkbox"/>
	d. Work schedule	Yes <input type="checkbox"/> No <input type="checkbox"/>
	e. Tools	Yes <input type="checkbox"/> No <input type="checkbox"/>
	f. Equipment	Yes <input type="checkbox"/> No <input type="checkbox"/>
	g. Materials	Yes <input type="checkbox"/> No <input type="checkbox"/>
	h. Specific types of PPE	Yes <input type="checkbox"/> No <input type="checkbox"/>
15.	Is PTP information easily accessible to workers after the meeting is completed?	Yes <input type="checkbox"/> No <input type="checkbox"/>
16.	Do you conduct end-of-shift review with your crew to discuss what went well and what didn't?	Yes <input type="checkbox"/> No <input type="checkbox"/>

PTP Assessment: Workers' Perspectives

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- Actively gather firsthand information from workers and continuously incorporate it to reach an optimum outcome
- Identify areas for improvement
- Use guidelines presented in the PTP package to improve each component
- Download the Workers' Perspective Questionnaire:

[Pre-Task-Planning-PTP-Assessment-Workers-Perspective.pdf \(cpwr.com\)](https://cpwr.com)

The image displays three overlapping screenshots of the 'Pre-Task Planning (PTP) Assessment Worker's Perspective' questionnaire. Each screenshot includes the CPWR logo and a 'Comments' field for each question.

Top Screenshot (Questions 7-10):

- 7. How often do you use visual aids like photos or diagrams in your PTP meetings?
 (1) Never (2) Rarely (3) Sometimes (4) Usually (5) Always
- 8. How often do you use educational aids like a whiteboard or live demonstration in your PTP meetings?
 (1) Never (2) Rarely (3) Sometimes (4) Usually (5) Always
- 9. How often is PTP content updated to reflect changes in working conditions?
 (1) Never (2) Rarely (3) Sometimes (4) Usually
- 10. How much do you agree with each of the following statements?
a. Each task is broken down into understandable steps in the PTP.
b. The potential hazards for each step of the task are clearly explained in the PTP.
c. Ways to control each hazard are clearly explained in the PTP.
d. PTP content is easy to understand.
e. PTP information is easily accessible after the meeting is completed.

Middle Screenshot (Questions 1-6):

- 1. Do you conduct PTP before each task starts?
→ If you answered Yes, skip to question 2
- 2. How helpful are PTP meetings in doing your job?
 (1) Not at all (2) Slightly (3) Somewhat (4) Very helpful
- 3. Did your employer train you on how to complete PTP?
→ If you answered NO, skip to question 4
- 4. Does your employer give craft workers the opportunity to lead PTP meetings?
 (1) Never (2) Rarely (3) Sometimes (4) Usually (5) Always
- 5. Does your employer train employees on how to lead the PTP meeting?
 Yes No
- 6. How satisfied are you with the PTP meeting leaders' presentation skills?
 (1) Very Dissatisfied (2) Dissatisfied (3) Neutral (4) Satisfied (5) Very Satisfied

Bottom Screenshot (Questions 11-16):

- 11. Are potential hazards caused by other crews discussed in the PTP meetings?
 (1) Never (2) Rarely (3) Sometimes (4) Usually
- 12. How often does your employer ask for your feedback on PTP?
→ If you answered Never, skip to next question 13
- 13. Does your employer incorporate your feedback on PTP?
 (1) Never (2) Rarely (3) Sometimes (4) Usually
- 14. How often does your employer update you when jobsite conditions change?
 (1) Never (2) Rarely (3) Sometimes (4) Usually (5) Always
- 15. How often does your employer conduct site walkthroughs?
→ If you answered Never, skip to question 16
- 16. Do you have end-of-shift huddles to discuss issues you noticed during the shift?
→ If you answered Never, do not answer the next question

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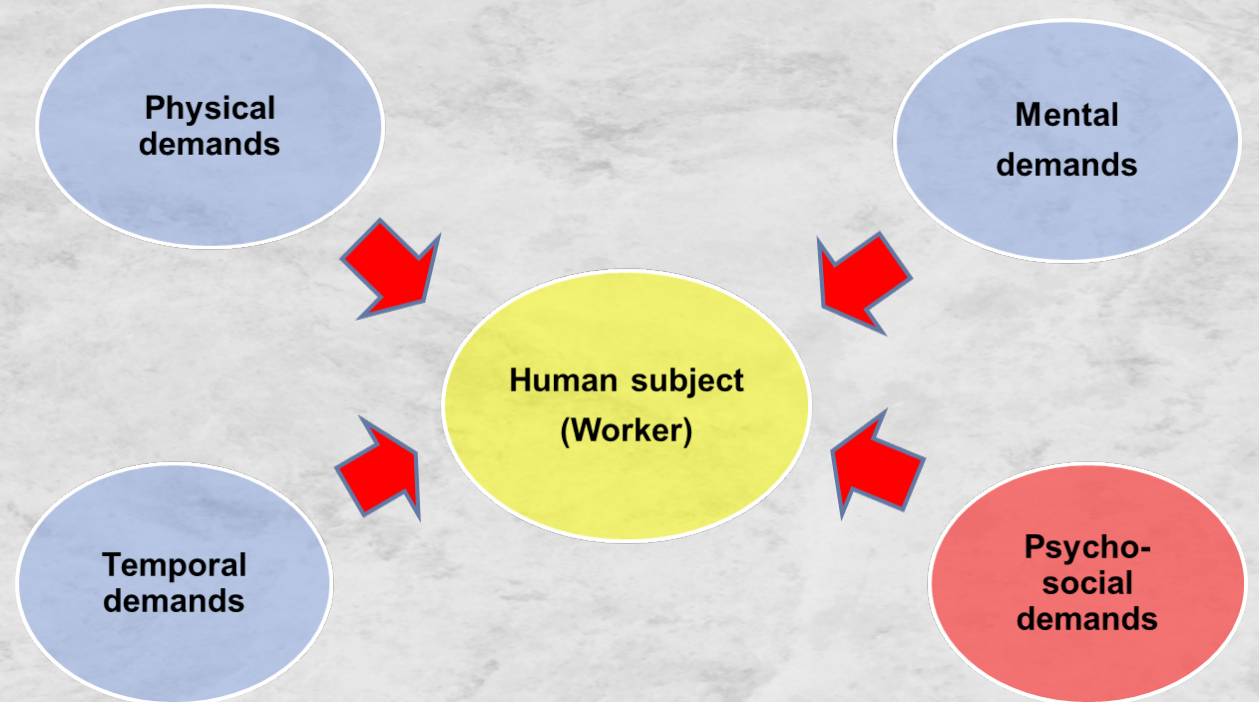


Electrical Construction

Task Demands



- In line with the NFPA 70E “*Human Performance and Workplace Electrical Safety*”
 - **Error Precursors: Task Demands**;
time pressure, high workload, repetitive actions, multi-tasking, unclear goals, unclear standards, etc. (NFPA Q 6.1, Table Q5)
 - **Human performance tools:**
Pre-job briefing/planning, post-job review, jobsite review, etc.



What Workers Said?



- Interviews with workers to assess task difficulties and explore contributing work factors:
 - Physical loads
 - Mental loads
 - Time pressure
 - Environmental factors
 - Frustration
 - Other
- One-on-one, anonymous onsite interviews during task performance.
 - **First;** measure physical, mental, temporal (time), and frustration (1= very low and 10=very high).
 - **Second;** identify contributing factors – what makes your task challenging?
 - **Third;** what tips and tricks do you suggest to simplify the task?

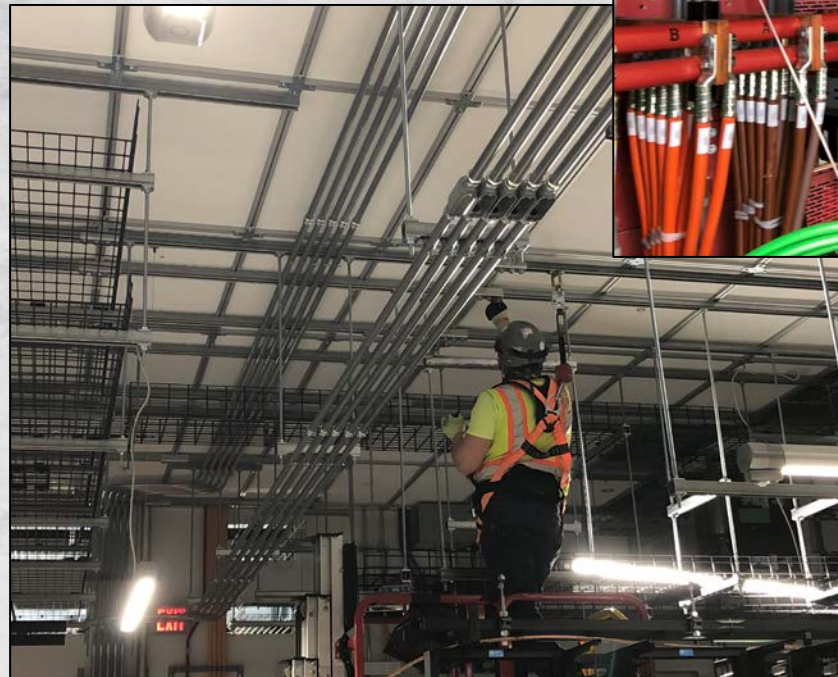


Electrical Tasks Studied

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2024



- Overhead Conduit Installation
- Installing Lighting Tracks & Supports
- Site Preparation and Layout
- Pulling Wire
- Terminations
- Electrical Demolition
- Cable Tray Installation
- Grounding
- Busway Installation
- Material Handling/Logistics
- Wiring AC Units
- Connecting Building-to-Building Conduit
- Access Card Readers Installation
- Fire Alarm Components Installation
- Receptacles Installation
- Branch Circuits Installation
- Pre-fabricated Components
- QA/QC



Electrical Task Analysis Documents

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2024





- Organized based on Task and Project Type
- Applicable for Pre-Task Planning, JHA, and Training
- Contains task-specific conditions raised by workers
- Visualizes the situation using images
- Recommends solutions
- Easy to download and use in PDF and MS Word format
- Customizable for specific project needs

Electrical Task Analysis Document
Conduit Installation, Wire Pulling, and Termination

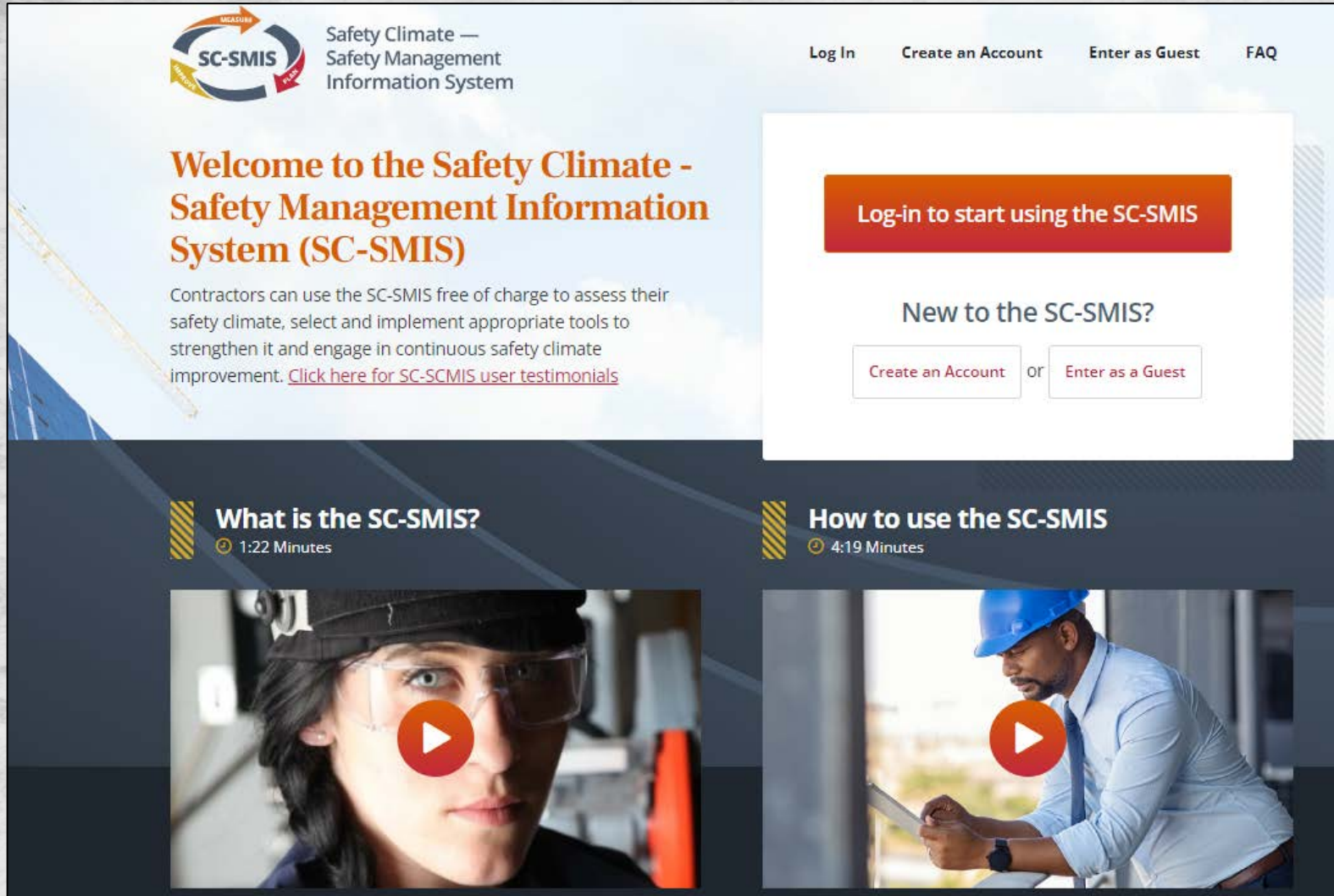
Sample Task Analysis Document



CONDITIONS	RECOMMENDATIONS
<p>Handling cables and wires in tight spaces and awkward positions:</p> <ul style="list-style-type: none"> Installing cables and wires at ground level in awkward positions increases the risk of ergonomic injuries and lacerations during wire stripping. Additionally, the inherent bend in wires when taken directly off the reel makes handling them and pulling them through conduit more difficult. The restricted space around switchgear requires manual bending and shaping of heavy cables because mechanical benders will not fit, further elevating the risk of ergonomic injuries. 	<ul style="list-style-type: none"> Don appropriate hand and arm PPE Increase the frequency of breaks Rotate workers if feasible Stretch and flex Unbend the wire using available hard surfaces and tools Use reels to better manage wire pulling activities Hand-held cable strippers Mechanical wire and cable feeder Powered wire-stripping machine Wire dispensing cart

CONDITIONS	RECOMMENDATIONS
<p>Running wires to the correct unit: Running the right set of wires to the right unit without damaging the circuit requires concentration and advanced planning.</p> 	<ul style="list-style-type: none"> Arrange tools, materials, and project documents in an easily accessible location Consult the latest revision of the blueprints Walk the whole wire route from start to finish before beginning work to ensure equipment is properly labeled
<p>Wiring larger junction boxes: Figuring out which wire to connect to each circuit requires advanced planning and memorization, especially when working on larger junction boxes.</p>	<ul style="list-style-type: none"> Ensure that current revisions of blueprints are available Gather all needed tools and materials, as well as a paper or electronic copy of the wiring diagram, at the work location before starting work Label wires using color-coded wire markers to indicate the feed source Mark and color-code circuits and box locations on the floor before work begins

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



The screenshot shows the SC-SMIS website homepage. At the top left is the SC-SMIS logo with the text "Safety Climate — Safety Management Information System". Navigation links include "Log In", "Create an Account", "Enter as Guest", and "FAQ". The main heading reads "Welcome to the Safety Climate - Safety Management Information System (SC-SMIS)". Below this, a paragraph explains that contractors can use the system free of charge to assess their safety climate and implement tools for improvement, with a link to "Click here for SC-SMIS user testimonials". A large orange button says "Log-in to start using the SC-SMIS". Below that, the text "New to the SC-SMIS?" is followed by two buttons: "Create an Account" and "Enter as a Guest". At the bottom, there are two video thumbnails: "What is the SC-SMIS?" (1:22 Minutes) and "How to use the SC-SMIS" (4:19 Minutes).

www.scsmis.com

SC-SMIS

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Conduct safety climate assessments

Run reports

Safety management resource repository

Schedule annual assessments

Plan implementation

Download/tailor resources

SC-SMIS: Create an Account

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2024



* Required fields

Create an SC-SMIS Account

Company Information

Company Name *

Zip/Postal Code *

Is this a construction company? * Yes No

Primary SC-SMIS Administrator

First Name *

Last Name *

Email Address *

[+ Add an Alternative Administrator](#)

Account Credentials

User ID *

Password *

Confirm Password *

Password must contain at least one upper case letter, one number, and one symbol

Confirm you're not a robot by sliding the arrow over → I'm not a robot

[Create Account](#) [Cancel](#)

SC-SMIS: Guest User

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Welcome to the Safety Climate - Safety Management Information System (SC-SMIS)

The Safety Climate Assessment Tool (S-CAT)

[Learn More About the S-CAT →](#)



Schedule S-CAT Assessment



S-CAT Results & Reports

Small Contractor Safety Climate Assessment Tool (S-CAT^{SC})

[Learn More About the S-CAT^{SC} →](#)



Schedule S-CAT^{SC} Assessment



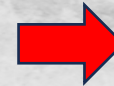
S-CAT^{SC} Results & Reports



Safety Management Resources



Current and Completed Action Plans



Safety Management Resources

The SC-SMIS repository is filled with safety management resources that are currently being used by safety professionals at construction companies to strengthen their jobsite safety climate. Click on the indicator buttons (one at a time) to get a list of resources to preview and download/save. Once you decide which one(s) to use, click on the Develop Action Plan for those resources to start putting it/them into action. [SAMPLE ACTION PLAN](#).

[Download a blank pdf Action Plan Template to complete offline.](#)

Management Commitment

Align & Integrate

Accountability

Leadership

Empower/Involve Employees

Improve Communication

Train at all Levels

Involve Owners/Clients

Management Commitment

Resource	Type	Level	Actions
Anti-Harassment and Bias Policy_Communic_Protocols	Policy	Moderate	Download/Save Resource Download Action Plan Template
Company Safety and Health Policy	Policy	Basic	Download/Save Resource Download Action Plan Template
Company Vision and Values Statement	Guideline	Basic	Download/Save Resource Download Action Plan Template
Employee Disciplinary Notice	Template	Moderate	Download/Save Resource Download Action Plan Template
Employee Offer of Modified Work	Template	Moderate	Download/Save Resource Download Action Plan Template
Employee Suggestion Box	Guideline	Basic	Download/Save Resource Download Action Plan Template
Graffiti Policy	Policy	Basic	Download/Save Resource Download Action Plan Template
Housekeeping Sanitation and Waste Disposal Policy	Policy	High	Download/Save Resource Download Action Plan Template
Letter to an Injured Worker	Template	Moderate	Download/Save Resource Download Action Plan Template
Management Commitment to a Strong Safety Culture	Policy	Basic	Download/Save Resource Download Action Plan Template
Management Safety Roles and Responsibilities	Policy	Basic	Download/Save Resource Download Action Plan Template
Management Site Safety Inspection	Procedure	Moderate	Download/Save Resource Download Action Plan Template



**Pilot Struck-by Prevention
Planning Program:
Testing the Use of Nudges to
Affect Decision-Making in
Construction**

Project Team

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2024



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**NORA Construction Sector Council
Struck-by Work Group**

Background: Nudges

Nudges are...

- Simple and transparent
- Cost-effective
- Flexible and able to be incorporated into existing health and safety interventions
- Effective across different groups and levels
- Empowering to individuals

Decision Information:
how available information is presented

Feedback, Social Norms, Framing, Simplify

Decision Structure:
arrangement of options or decision-making format

Incentives, Prompts, Decrease Physical Effort, Defaults, Change Range of Options

Decision Assistance:
follow through with decision intentions

Reminders, Priming, Commitment

Background: Struck-by Survey

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The 2022 survey was conducted to explore:

- ❑ perceptions of the **primary causes of struck-by injuries, barriers to engaging in practices to prevent them, and ways to raise awareness** and ensure use of safe practices.
- ❑ specific **measures currently being taken to protect workers** from common struck-by hazards and the barriers to implementing controls for these hazards.
- ❑ knowledge of struck-by hazards, **the role of planning in prevention**, and the **motivators, resources, and support needed to prevent incidents.**

2022 Survey Results

**Struck-by Hazards,
Barriers, and
Opportunities in the
Construction Industry**



AUGUST 2022

EILEEN BETT, GRACE BARLET, JESSICA BUNTING

CPWR 
THE CENTER FOR CONSTRUCTION
RESEARCH AND TRAINING

Primary Causes of Struck-by Injuries



Table 1a. 2022 – Primary Cause of Struck-by Injuries* in the Construction Industry

2022 Response Options	Participants	Percent
Working around heavy equipment or vehicles	74	35.6%
Falling/flying objects from work being performed at heights	62	29.8%
Falling/flying objects when working on the same level	39	18.8%
Motor vehicle intrusions into the workspace	17	8.2%
A cave-in/collapse during trenching or excavation work	4	1.9%
Working around a mobile or tower crane	1	0.5%
Working around a load being lifted by a mobile or tower crane	0	0.0%
Collapsing buildings (e.g., when erecting walls)	0	0.0%
Other	11	5.3%
Total	208	100%

* "Incidents" was used instead of "injuries" in the 2020 survey question.

Table 1b. 2020 – Primary Cause of Struck-by Incidents* in the Construction Industry

2020 Response Options	Participants	Percent
Construction Equipment	54	22.3%
Falling Tools/Objects	48	19.8%
Trucks & Construction Vehicles	43	17.8%
Flying Particles/Objects	36	14.9%
Motorists/ Intrusions	32	13.2%
Other	29	12.0%
Total	242	100%

* "Injuries" was used instead of "incidents" in the 2022 survey question.

Measures Taken to Protect Workers from Specific Hazards

Struck-by Hazard	Participants Who Identified Measures*	Measures Taken Most Often To Protect Workers		
Falling/flying tools, materials or other objects from heights	172	Use PPE (90.7%)	Train workers (77.9%)	Use rope, tape, or other lines to mark a restricted area (72.1%)
Falling/flying tools, materials, or other objects on the same level	143	Use PPE (81.1%)	Train workers (81.1%)	Use rope, tape, or other lines to mark a restricted area (65.0%)
Heavy equipment or vehicles	172	Use PPE (83.1%)	Use back-up signals/alarms (83.1%)	Use spotters [restrict access] (79.1%)
Motor vehicles intruding into the workspace	99	Use PPE (86.9%)	Train workers (76.8%)	Develop and implement a traffic control plan (76.8%)
Mobile/tower cranes or the loads being lifted	135	Train workers (88.9%)	Clear the area of all personnel not involved in a lift [restrict access] (78.5%)	Put up warning signs and markers [restrict access] (74.8%)
Collapsing trench walls or materials or equipment falling into a trench	137	Install a trench box (86.1%)	Train workers (83.9%)	Slope walls (82.5%)
Collapsing building (e.g., when erecting walls)	42	Train workers (90.5%)	Restrict access to areas where walls are being erected (81.0%)	Monitor weather conditions and take corrective actions (78.6%)

Barriers to Engaging in Practices to Prevent Struck-by Incidents

Table 3. Biggest Barrier for EMPLOYERS to Engaging in Practices that Prevent Struck-by Injuries *

Response Options	2020		2022	
	Participants	Percent	Participants	Percent
Lack of understanding/information to address hazards	76	31.3%	56	26.9%
Scheduling pressure	63	25.9%	53	25.5%
Lack of training (hazard identification and prevention)	49	20.2%	48	23.1%
Costs associated with implementing controls	41	16.9%	19	9.1%
Not including materials or labor to prevent struck-by injuries in the bid	**	**	13	6.3%
Other (examples of responses: complacency, inattention, management commitment)	14	5.8%	19	9.1%
Total	243	100%	208	100%

* "Incidents" was used instead of "injuries" in the 2020 survey question.

** This was not a response option in the 2020 survey.

Barriers to Engaging in Practices to Prevent Struck-by Incidents

Table 4. Biggest Barrier for WORKERS to Engaging in Practices that Prevent Struck-by Injuries *

Response Options	2020		2022	
	Participants	Percent	Participants	Percent
Lack of pre-task planning	**	**	63	30.3%
Emphasis on production	67	27.6%	46	22.1%
Lack of training (hazard identification and prevention)	73	30.0%	42	20.2%
Lack of management commitment	65	26.7%	26	12.5%
Lack of safety equipment/tools that could reduce the risk	20	8.2%	9	4.3%
Other (examples of responses: complacency, inattention)	18	7.4%	22	10.6%
Total	243	100%	208	100%

* "Incidents" was used instead of "injuries" in the 2020 survey question.

** This was not a response option in the 2020 survey.

Barriers to Engaging in Practices to Prevent Struck-by Incidents

Table 5. 2022 – Biggest Barriers to Implementing Controls to Protect Workers from Common Struck-by Hazards

Struck-by Hazard	Participants Who Identified Biggest Barriers *	Biggest Barriers When the Hazard is Present (Percent) **		
		Lack of understanding of how to address the hazard across different jobs and working conditions	Schedule pressure/ emphasis on production	Lack of training (hazard identification and prevention)
Falling/flying tools, materials or other objects from heights	172	49.4%	45.9%	36.6%
Falling/flying tools, materials or other objects on the same level	143	44.1%	37.8%	39.9%
Heavy equipment or vehicles	172	39.5%	40.7%	35.5%
Motor vehicles intruding into the workspace	99	40.4%	31.3%	34.3%
Mobile/tower cranes or loads being lifted	135	34.1%	39.3%	34.1%
Collapsing trench walls or materials or equipment falling into trench	137	41.6%	42.3%	39.4%
Collapsing building (e.g., when erecting walls)	42	45.2%	38.1%	57.1%

* The number of participants who responded varies based on whether their work involved the hazard and attrition.

** The percentages are based on the number of participants who said their work involves the hazard and do not add to 100% because more than one response option could be selected.

The Role of Planning in Prevention

Table 6. 2022 – Planning Activities Companies Use to Prevent Struck-by Incidents

Response Options	Participants (147 responded)	Percent *
Conduct job hazard analyses before work begins	133	90.5%
Conduct job hazard analyses periodically before a new task or type of work begins	122	83.0%
Conduct/participate in job site meetings before the start of each shift to review struck-by hazards and steps being taken to prevent incidents, including the location and use of safety equipment, work practices, signage, and who to go to if help is needed	117	79.6%
Provide/use daily checklists or job hazard analyses before each shift	112	76.2%
Provide/use tools, equipment, and/or work practices to prevent struck-by incidents	109	74.1%
Conduct/participate in training programs on struck-by hazards and prevention	108	73.5%
Conduct/participate in a meeting before the start of each lift or series of lifts with those involved to review struck-by hazards and steps being taken to prevent incidents, including characteristics of the load, methods of attachment, boom and swing angles, communication during the lift, etc.	100	68.0%
Develop and follow job site traffic control plans and internal traffic control plans	98	66.7%
Designate and identify those in charge of and knowledgeable about preventing struck-by incidents on the job site (e.g., identify a lift director before using a mobile or tower crane)	94	63.9%
Review and update plans to prevent struck-by incidents frequently at safety and production meetings with managers/supervisors/forepersons	91	61.9%
Discuss needed protective measures with the project/facility owner	90	61.2%
Include the resources (materials, equipment, labor) that will be needed in the bid	87	59.2%
Other	4	2.7%

* The percentages do not add to 100% because participants were allowed to select more than one response option.

Help Needed



Table 7. 2022 Help Needed to Prevent Struck-by Incidents

Response Options	Participants (172 responded)	Percent *
Training on how to identify and prevent struck-by hazards	134	77.9%
Training on how to conduct a job hazard analysis for struck-by hazards	125	72.7%
Information on what is working on other job sites to prevent struck-by hazards	104	60.5%
Daily checklists to use on site that list the hazards and the equipment, tools, and work practices that will be used to prevent struck-by incidents	103	59.9%
Easy access to free information on how to prevent struck-by incidents	95	55.2%
Signs on job sites showing how to prevent a struck-by incident	86	50.0%
Signs showing how to identify a struck-by hazard	85	49.4%
Weekly checklists to use on site that list the hazards and the equipment, tools, and work practices that will be used to prevent struck-by incidents	84	48.8%
Signs on job sites showing where to find equipment/tools to prevent a struck-by incident	75	43.6%
Information on how to prevent struck-by incidents included in bid notifications	71	41.3%
Evidence that it will save money	65	37.8%
Daily text messages to crew members identifying potential hazards and work practices and/or available equipment/tools to prevent struck-by incidents	56	32.6%
Daily email messages to crew members identifying potential hazards and work practices and/or available equipment/tools to prevent struck-by incidents	44	25.6%
Other	6	3.5%

* The percentages do not add to 100% because participants were allowed to select more than one response option.

Planning Program

Addresses all types of struck-by hazards:

- Falling objects
- Flying objects
- Rolling objects
- Swinging objects

Includes:

- **Background** on the importance of planning to prevent struck-by incidents
- **Guiding questions and resources** to help identify risks present on each jobsite
- Pre-Job plan **worksheet**
- **Nudges** to support daily/pre-task planning

CRANE AND LIFT ZONE SAFETY

PLANNING FOR A SAFE LIFT

Hold a lift planning meeting before any work begins. Identify a lift director or person in charge of the lift, and include properly licensed or certified operators, riggers, signal persons, and any others involved with the lift.

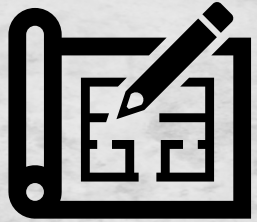
- Make sure all workers are properly trained and licensed or certified, if appropriate
- Plan for the items that will be moved – their weight, dimensions, contents, pick points, and center of gravity
- Review the lifting capacities of the crane and rigging, as well as lifting points, methods of attachment, sling angles, boom and swing angles, and crane orientations
- Ensure the crane and rigging are properly inspected and maintained
- Discuss how the crane operator and signal person will communicate during the lift, a back-up plan if communication is lost, and an emergency stop procedure
- Determine possible impacts of weather, terrain, or other environmental factors
- Set up barricades and post warning signs around the lift zone
- Identify nearby obstacles the crane could strike (e.g., overhead power lines, structures, below ground hazards)

CDC National Institute for Occupational Safety and Health
NIOSH
NORA CPWR THE CENTER FOR CONSTRUCTION RESEARCH AND TRAINING

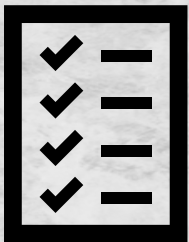
For more information on preventing struck-by incidents, visit: <https://bit.ly/3aJWmJ>

<https://www.cpwr.com/wp-content/uploads/Pilot-Planning-Program-to-Prevent-Struck-By-March-2023-fillable.pdf>

Section 1: Background



By planning ahead of the project – starting at the bidding stage – you can **eliminate struck-by hazards at the source** by making sure the site is set up correctly and getting the appropriate equipment, controls, and PPE in place before work begins.



By planning daily once work begins – before each shift and before engaging in tasks that present struck-by hazards – you can **keep all employees engaged and aware of hazards, solutions, and workplace safety policies.**

Section 1: Identify the Risks

- A. Falling objects
- B. Flying objects
- C. Rolling objects
- D. Swinging objects



Section 1: Identify the Risks: Falling Objects

Struck-by falling object hazards are present when something could fall from an elevation to a lower level, potentially striking, crushing, or pinning a person.

Will there be work at heights?

If workers on ladders, scaffolds, aerial lifts, roofs, decking, etc. are conducting work above while others are working, resting, or walking below, there is a risk for struck-by incidents. Tools, equipment, or materials could be dropped, knocked, or blown by wind, ultimately striking another worker or bystander.

If yes, [click here for more information on planning and solutions.](#)

Will materials be transported by truck, crane, or other moving equipment?

If the load is not secured properly, materials can fall from a truck bed or off a crane hook, striking workers behind or below.

If yes, [click here for more information on planning and solutions.](#)

Are there materials or tools heavy enough to injure someone when dropped on the same level?

Tools or materials dropped by an individual could cause injury to themselves or coworkers nearby.

If yes, [click here for more information on planning and solutions.](#)

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More Information: Work at Heights: Falling Objects

Work at Heights: Falling Object Struck-by Hazards

Objects that fall from heights include tools, equipment, materials, and debris. Workers can be injured or killed by a falling or dropped object.

Protect workers by:

- Securing tools and materials to prevent them from falling. Small tools (less than 5lbs) can be tethered to the worker.
- Use measures such as toeboards, screens, guardrails, debris nets, catch platforms, or canopies to prevent, catch, or deflect falling objects.
- Barricade hazard areas and post warning signs.
- Require use of helmets or hardhats and routinely inspect them for damage.
- Inspect all tools and equipment before use. Hand tools with loose or cracked handles should not be used.
- Keep materials away from floor openings or leading edges.
- Train workers on hazards and ways to prevent an incident.

Planning Resources

- [Job Hazard Analysis](#)
- [Building Information Modeling \(BIM\) for Safety Planning](#)
- [Using Debris Nets](#)
- [Using Tool Lanyards, Connection and Anchorage Points](#)
- [CPWR's Head Protection Webpage](#)
- [OSHA Competent Person Resources](#)

Training Resources

- Toolbox Talks:
 - [Preventing Falling Objects](#)
 - [Challenges Preventing Falling Objects](#)
 - [Solutions for Falling Objects and Dropped Tools](#)
 - Equipment: Falling Objects ([English](#), [Spanish](#))
 - Head Protection ([English](#), [Spanish](#))
- Posters/Infographics:
 - Stop the Drop (English [PDF](#) & [JPEG](#))
 - How Heavy is Deadly? (English [PDF](#) & [JPEG](#))
 - Head Protection (English [PDF](#) & [JPEG](#))
 - In 1 Strike You Could Be Out (English [PDF](#) & [JPEG](#))

The greater the drop height, the greater the landing force.

Height	1 pound	2 pounds	5 pounds	10+ pounds
300 feet	Severely to Deadly	Severe	Deadly	Deadly
200 feet	Severely to Severe	Severe	Severely to Deadly	Deadly
150 feet	Severely	Severe	Severely to Deadly	Deadly
100 feet	Severely	Severe	Severe	Deadly
50 feet	Severely	Severely to Severe	Severe	Severely to Deadly
20 feet	Severely	Severely	Severe	Severely to Deadly
10 feet	Severely	Severely	Severely to Severe	Severe
6 feet	Severely	Severely	Severely	Severe

Relevant Standards

- OSHA Standard 29 CFR - <https://www.osha.gov/laws-regs/regulations/standardnumber/1926>
 - [1926 Subpart C - General Safety and Health Provisions](#)
 - [1926.20 - General safety and health provisions.](#)
 - [1926.21 - Safety training and education.](#)
 - [1926.22 - Recording and reporting of injuries.](#)
 - [1926.23 - First aid and medical attention.](#)
 - [1926.25 - Housekeeping.](#)
 - [1926.28 - Personal protective equipment.](#)
 - [1926.29 - Acceptable certifications.](#)

- [1926 Subpart E - Personal Protective and Life Saving Equipment](#)
 - [1926.95 - Criteria for personal protective equipment.](#)
 - [1926.96 - Occupational foot protection.](#)
 - [1926.100 - Head protection.](#)
 - [1926.102 - Eye and face protection.](#)
 - [1926.104 - Safety belts, lifelines, and lanyards.](#)
 - [1926.105 - Safety nets.](#)
 - [1926.107 - Definitions applicable to this subpart.](#)
- [1926 Subpart G - Signs, Signals, and Barricades](#)
 - [1926.200 - Accident prevention signs and tags.](#)
 - [1926.201 - Signaling.](#)
- [1926 Subpart H - Materials Handling, Storage, Use, and Disposal](#)
 - [1926.250 - General requirements for storage.](#)
 - [1926.251 - Rigging equipment for material handling.](#)
 - [1926.252 - Disposal of waste materials.](#)
- [1926 Subpart R Steel Erection - 1926.759 - Falling object protection.](#)
- [1926 Subpart N - Helicopters, Hoists, Elevators, and Conveyors](#)
 - [1926.551 - Helicopters.](#)
 - [1926.552 - Material hoists, personnel hoists, and elevators.](#)
 - [1926.554 - Overhead hoists.](#)
 - [1926.555 - Conveyors.](#)
- [1926 Subpart T - Demolition](#)
 - [1926.850 - Preparatory operations.](#)
 - [1926.852 - Chutes.](#)
 - [1926.853 - Removal of materials through floor openings.](#)
 - [1926.854 - Removal of walls, masonry sections, and chimneys.](#)
 - [1926.855 - Manual removal of floors.](#)
 - [1926.856 - Removal of walls, floors, and material with equipment.](#)
 - [1926.857 - Storage.](#)
 - [1926.858 - Removal of steel construction.](#)
 - [1926.859 - Mechanical demolition.](#)
 - [1926.860 - Selective demolition by explosives.](#)
- [1926 Subpart Q - Concrete and Masonry Construction](#)
 - [1926.701 - General requirements](#)
 - [1926.705 - Requirements for lift-slab construction operations.](#)
 - [1926.702 - Requirements for equipment and tools.](#)
 - [1926.703 - Requirements for cast-in-place concrete.](#)
 - [1926.703 App - General Requirements for Formwork](#)
 - [1926.704 - Requirements for precast concrete.](#)
- [1926 Subpart W - Rollover Protective Structures; Overhead Protection - 1926.1003 - Overhead protection for operators of agricultural and industrial tractors used in construction.](#)
- [1926 Subpart CC - Cranes and Derricks in Construction](#)
 - [1926.1424 - Work area control.](#)
 - [1926.1425 - Keeping clear of the load.](#)
 - [1926.1426 - Free fall and controlled load lowering.](#)
 - [1926.1427 - Operator training, certification, and evaluation.](#)
 - [1926.1428 - Signal person qualifications.](#)
 - [1926.1429 - Qualifications of maintenance & repair employees.](#)
 - [1926.1430 - Training.](#)

- [1926.1431 - Hoisting personnel.](#)
- [1926.1441 - Equipment with a rated hoisting/ lifting capacity of 2,000 pounds or less.](#)
- Head protection:
 - The U.S. Occupational Safety and Health Administration (OSHA) [1926 Subpart E, Personal Protective and Life Saving Equipment, Head Protection](#)
 - [American National Standards Institute \(ANSI\) Z89.1-2009, Z89.1-2003, and Z89.1-2003](#)
 - [ANSI/International Safety Equipment Association z89.1-2014](#)

Nudges to Improve Planning

- Job site Posters
- Text Message Reminders

- Tips to Protect Workers
- Planning Resources
- Training Resources
- Relevant Standards
- Nudges to Improve Planning

Section 2: Make a Pre-Job Plan

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For any questions you responded yes to in section 1, it is important to plan out the prevention and protection solutions you intend to use. Solutions include everything from employee training to traffic planning to the use of specific equipment and PPE. Consider the hierarchy of controls and refer to the supplemental resources available in Section 1 for assistance in determining the best and most complete range of solutions for each hazard.

How will you address falling object hazards from work at heights?

Equipment needed: Install guardrails and debris nets; use tool tethers. Require helmets w/ chin straps. Barricades for hazardous areas.

Admin practices: Limit work below – stagger schedules, meet with subs to map out worksite. Regular pre-shift meetings before going up.

Worker training: include at orientation + reinforcement toolbox talks focused on struck-by 2x week

Section 3: Nudges



- **Prompts**: Use standardized explicit verbal, visual, and/or numeric information to make previously unknown or inaccessible information more available. Prompts are designed to nudge individuals at key times to think through how and when they should make a decision.
- **Reminders**: Are similar to prompts but make important information that is already known or available more visible and accessible. Reminders are used to ensure that salient information is used to make safer decisions and practices and is often used to combat procrastination.
- **Feedback**: Involves providing direct and clear information to the decision-maker about the results of their safety decisions and safety practices. Feedback provides information about their use of the appropriate safety decisions and serves to reinforce the related safety practices.
- **Social Norms**: Provides a point of comparison by presenting information relative to others in a work group. Because humans are influenced by what others do, social norms influence decisions by providing guidance regarding the expectations or rules within a work group.
- **Simplify**: Involves revising and presenting relevant information so that it is more apparent or readily available to decision-makers. Simplifying the message reduces the attentional demands and cognitive effort needed to make the safer decision.
- **Incentives**: Involves changing decision consequences and motivators. Incentives are designed to provide positive rewards in response to desired decisions in an effort to promote desired outcomes.

Pilot Study



Who should participate?

- General or Specialty Contractors of any size and any geographic location
- Interested in testing any part of the program on the job
- Willing to participate in multiple meetings with the research team virtually and/or on-site to discuss logistics and provide feedback
- Willing to participate in 2-3 project-related surveys and to administer surveys to workers

Contact Grace Barlet at gbarlet@cpwr.com to schedule an initial Zoom meeting with the project team.



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Thank you!

Questions?