CONSTRUCTION SAFETY AND HEALTH RESEARCH INITIATIVE

Release Date: February 13, 2023

CPWR - The Center for Construction Research and Training (https://www.cpwr.com)

REQUEST FOR CONCEPT MEMOS

DUE DATE: May 1, 2023

THIS REQUEST FOR CONCEPTS CONTAINS THE FOLLOWING INFORMATION

1. OBJECTIVE

The objective of this solicitation is to search for partners to join with CPWR in its application to continue as the National Center for Construction Safety and Health Research and Translation (Construction Center) under a new five-year cooperative agreement with the National Institute for Occupational Safety and Health (NIOSH). CPWR is seeking consortium partners who will develop and implement projects that are consistent with the research priorities described below. Concept descriptions will be evaluated for relevance, impact, and balance within the overall program that CPWR is proposing.

2. BACKGROUND

Since 1990 CPWR has been participating in a series of competitive cooperative agreements with NIOSH. These agreements have focused on working with construction industry partners with the aim of improving occupational safety and health performance while lowering long-term costs and improving productivity in the construction industry.

Today, CPWR is one of the leading construction safety and health research organizations in the U.S., with a network of more than 50 collaborating universities, government agencies, unions, contractors and their associations, other construction industry stakeholders, including project owners and designers, the insurance industry, non-governmental organizations and professional

organizations. CPWR has maintained a balanced research program over the years, with approximately 50% of funding supporting its intramural research and Center core functions and the other half going to extramural partners.

From Surveillance to Intervention to Translation (Research to Practice - r2p)

In the first cooperative agreements with NIOSH, CPWR focused on surveillance: gathering data to characterize the industry and identify the most pressing hazards and outcomes, in the form of illnesses, injuries, deaths, and related costs. In 1997, CPWR produced *The Construction Chart Book*, the only such document for the industry that describes fatal and nonfatal injury trends, safety and health progress, changes in the industry, employment, worker demographics, and much more. The Chart Book is currently in its 6th addition with a 7th to be published in 2023. In addition to the Chart Book, CPWR's Data Center supports overall construction research and interventions by continuously making the latest pertinent data available to the industry—practitioners, researchers, policymakers—through peer-reviewed articles, data bulletins on timely topics, interactive data dashboards, presentations, data requests, and statistical consultations to construction stakeholders (www.cpwr.com/research/data-center/).

While surveillance has and will continue to be an essential arm of CPWR's Construction Center, program emphasis has steadily evolved to link surveillance with intervention, as leading causes of fatalities, injuries, and illnesses have been better defined. For instance, we know that falls continue to be the leading cause of on the job fatalities, consistently accounting for approximately 1/3 of all deaths in the U.S. construction industry year after year, which is why CPWR joined with OSHA, NIOSH, and other industry partners in a national falls fatalities campaign to raise awareness and provide resources to employers (www.stopconstructionfalls.com). CPWR and its consortium participants have been partnering closely with construction contractors, workers, and owners for over 30 years to develop practical solutions for not only falls, but the entire spectrum of safety and health risks ranging from nail gun injuries to awkward postures to hearing loss.

Innovative and new approaches to expand scale, impact, and sustainability of evidence-based safety and health interventions are continually being field tested and evaluated. CPWR's Construction Center greatly expanded its research to practice (r2p) capacities in the past 15 years and has taken the lead on r2p, as recommended by the National Academies, for the overall NIOSH construction research program. Partnerships have been developed with contractor associations, construction unions, labor-management organizations, OSHA, the insurance industry, and other construction industry stakeholders. Linkages have been made with the industry's safety and health training providers, including OSHA, and international networks to identify best safety and health practices and explore ways in which to make them most useful for small and medium-sized contractors in all construction industry sectors.

Findings from the Construction Center are presented at conferences; industry advisory boards and stakeholder meetings; in CPWR-sponsored webinars and electronic communications; publications such as trade association journals, technical reports, and pocket cards for workers and contractors; in training programs for supervisors and workers; in social media and on new smart phone apps; and on the internet. Increased data visualization capacity has also grown

rapidly in recent years. In addition to its main website (www.cpwr.com), CPWR has developed and maintained a family of 16 web-based resources as part of its r2p/communications efforts to develop practical tools for construction industry end users based on our research to practice initiatives (www.cpwr.com/about-cpwr/cpwr-websites/).

Impact

CPWR's Construction Center has resulted in a range of new interventions in work organization, training, design solutions, and innovation in material science and technology development. For instance, since 2012 CPWR has partnered with Dodge Data & Analytics every two years to track construction contractor trends in safety and health policies, programs, and practices. The surveys have driven the development of intervention tools in areas where gaps or weaknesses have been identified, such as the lack of safety leadership at the foremen level. CPWR developed the Foundations for Safety Leadership (FSL) training program, a 2 ½ hour module, that became an approved OSHA 30-Hour elective in 2017 with close to half a million completing the training. Smart safety leadership, which is one of eight measurable leading indicators of safety performance developed by CPWR and industry partners, is becoming a construction industry standard.

Further, preventing injury or death requires effective pre-task planning before beginning each task to proactively recognize and address hazards associated with each step of work. In another study, in collaboration with practitioners representing electrical contractors, unions, and trade associations, we identified electrical tasks that posed the highest risk for injury and compiled a list of the most dangerous electrical tasks and factors that contributed to the risk of injury. The study showed that 10 electrical tasks posed the greatest risk of injury to workers, such as demolishing or removing electrical equipment, performing site work, layout, and logistics, preparing ground for underground electrical installations, and others. Through this collaborative work, an action-oriented checklist was developed based on research findings and input from industry experts to help construction practitioners evaluate and improve their pre-task planning process. There is a growing demand for these tools by industry, reflected in more than 500 practitioners who attended a recent webinar on the project. The requests to CPWR for more information on good practices for pre-task planning to reduce safety and health hazards is growing exponentially.

Next Five Years

While significant progress has been made, the construction industry is still a high-risk industry and more work is needed. Reaching small and medium-sized employers continues to be a significant challenge, so new approaches need to be considered as we plan for the next phase of our construction safety and health research program.

Likewise, looking ahead at the demographics of the industry we know the construction workforce is aging and new workers will be entering the industry at increasing rates, while at the same time the percentage of Hispanic-speaking workers continues to increase in the U.S. construction industry. Both new workers and the Hispanic-speaking workforce are disproportionately at risk of injury in construction. With climate change there are also questions

and concerns about working in extreme temperatures, which is particularly applicable to construction and with the passing of Infrastructure legislation, there will be significant increases in bridge and highway construction across the nation. The application of new technologies in construction, such as drones, virtual reality training, and exoskeletons, and their effectiveness in advancing construction worker safety and health is unclear.

CPWR's aim is to intensify the evaluation of intervention effectiveness and to accelerate the translation of evidence-based interventions into widespread industry practice. To do this, we will have a large focus on r2p projects/activities that evaluate their effectiveness and strengthen our already close collaboration with industry stakeholders/partners, including employers, associations, unions, owners/users, joint labor-management groups, vocational/technical schools, and others with a strong interest in safety and health and with access to construction sites, workers and managers. Measures of scale and sustainability (change) will also be paramount for new projects that go beyond small groups included in interventions.

Over the next five years CPWR's Construction Center will seek to maintain a good balance of research that targets the high-risk areas of safety hazards/traumatic injuries, ergonomic hazards/musculoskeletal disorders, and health hazards/chronic illnesses. We will focus our interventions on work practices and training; work organization and industry organization; management systems and safety culture/climate; prevention through design; policy driven innovation and innovation in materials and technologies.

We will seek to better understand the diffusion and adoption of safety and health innovation in the construction industry, with emphasis on reaching small and medium-sized contractors, through carefully designed dissemination research. A high priority will be placed on research that actively involves key labor and management stakeholders as research partners, from identification of research questions to design, implementation and dissemination of research. Finally, the impact of work-related psychosocial factors on workers' mental health and wellbeing are going to be important topic areas of research and action for the industry as construction has among the highest suicide and opioid overdose rates compared to all industries.

NIOSH Strategic Plan and National Occupational Research Agenda (NORA)

As the National Construction Center is part of the NIOSH Construction Program, this solicitation also seeks projects that address the research goals in the NIOSH Strategic Plan for FYs 2019-2026. The priority areas are:

- Preventing harmful noise exposure among construction workers through engineering controls
- Reducing occupational musculoskeletal disorders stemming from emerging technology and exoskeleton use
- Reducing occupational respiratory diseases caused by exposure to mineral dusts, welding fumes, and nanomaterials
- Improving workplace safety to reduce traumatic injuries such as falls, substance use/misuse, and injuries related to emerging technologies

- Promoting safe and healthy work design among workers in non-standard work arrangements through *Total Worker Health*® approaches and improved work organization

In addition, in 2017 the nation entered the third decade of the National Occupational Research Agenda (NORA), which is coordinated by NIOSH. As part of NORA 3, the NORA Construction Sector Council developed research objectives for the decade ending 2027 that focus on:

1) Falls from heights;
2) Falls from same level;
3) Struck-by injuries;
4) Electrical;
5) Respiratory and dermal hazards;
6) Hearing loss;
7) Musculoskeletal disorders;
8) Workers at disproportionate risk;
9) Small business;
10) Emerging issues;
11) Extreme temperatures;
12) Prevention through design;
13) r2p;
14) Work organization;
15) Surveillance; and
16) Training.

CPWR welcomes and encourages proposals addressing priorities identified in the NIOSH Strategic Plan and the NORA Construction Sector objectives.

Role of CPWR and its Consortium Partners

In addition to conducting internal research, CPWR administers the program and focuses primarily on planning, coordination, r2p support, data support, and cross cutting issues such as maintaining access to and cooperation with the industry, industry characterization, dissemination to the industry, and monitoring of national impact. CPWR's consortium partners should focus on developing discrete projects that can achieve a measurable outcome within the course of the five-year cooperative agreement cycle.

R2P is a core function of CPWR's Construction Center. CPWR has invested significant resources to build its internal r2p capacities, and in developing tools to assist intramural and extramural investigators in planning translation activities as part of discrete research projects.

Developing partnerships and connecting researchers with the construction industry stakeholders is a key CPWR strength, due in large measure to its close ties and established relationships with industry partners, including unions, employers, associations, and owners/users. As a national center, it is CPWR's obligation to ensure that its own research findings, as well as those of its consortium members, are translated for use by any interested construction industry stakeholders.

We encourage applicants to use these resources to build a strong research translation component into each proposal and to spell out how they will collaborate with CPWR on dissemination efforts.

3. PRIORITY RESEARCH AREAS

CPWR will focus its application on certain common themes:

- Continue developing and evaluating interventions targeting those hazards identified in NORA 3, which account for the highest percentage of traumatic injuries, musculoskeletal disorders, and illnesses in construction;
- NIOSH Strategic Plan's priorities;
- Diffuse tested interventions through existing and innovative approaches and evaluate for reach and adoption;
- Work to overcome economic, organizational, and public policy factors which influence decisions to implement or resist change;
- Continue efforts to reach small employers (less than 20 employees);
- Maintain the flexibility and capability to respond to major unanticipated events effectively and efficiently.

Within these identified interest areas, proposals that address progressive steps towards preventing occupational injury and disease across the construction industry are desirable. For example, a proposal could integrate more than one of the following: (1) surveillance, (2) training intervention, (3) dissemination, (4) safety culture, and (5) evaluation of effectiveness. Collaborations between investigators and institutions as part of an integrated project are encouraged to fully address one or more of the priority areas outlined in more detail below.

a. Fatal and Severe Non-fatal Traumatic Injuries

The risks for fatal or severe injuries among construction workers are well characterized, and many of the interventions to control the main risks have been developed and validated, and adopted, particularly by large employers. However, the construction fatality rate in the U.S. has remained flat in the last decade and is still significantly higher than in many other industrialized nations. Also, in the construction industry there are sectors and populations that need special attention, such as small to medium-sized employers and Hispanic workers, and new entrants into the industry - both employers and workers - with little experience.

We hope to see research proposals that are designed to encourage the industry to adopt evidence-based interventions, and to measure the impact on injury rates, or their proxies. We are particularly interested in proposals addressing falls to lower levels, electrocutions, and struck-by hazards. Proposals with the following aims will be given priority:

1. Proposals that are directed at industry-wide (i.e., major metropolitan areas or state-wide) or multi-employer populations;

2. Proposals that are directed at high-risk employment/industry sectors, e.g., residential construction, small and medium-sized employers, and/or vulnerable populations;
3. Proposals that address high-risk workers: immigrants, minorities, younger workers, older workers, self-employed, and construction occupations with higher-than-average risks;
4. Proposals that encourage cooperation between employers, joint labor-management groups, workers, and construction owners;
5. Proposals that focus on adopting and disseminating evidence-based interventions, as well as measuring the extent and impact of their diffusion;
6. Proposals that address translation research using such interventions as innovative communications approaches, networking/partnerships, and use of new technologies;
7. Proposals that address risks in any or all of the following high-risk areas: *falls; electrocutions; and struck by; including falling objects; moving vehicles and equipment; and cave-ins.*

Traumatic injury proposals focusing on passive surveillance to define traumatic risks are not funding priorities and will not be considered.

Traumatic injury proposals will be reviewed for merit in two main areas:

- Design of the dissemination component. These may consist of any number of different approaches, including use of organizations that reach large portions of the industry in a particular area; analysis of strategies to overcome barriers and enhance incentives driving change; media campaigns; policy initiatives; community organization within the industry, etc.

- Plans to measure impact. These must include a baseline and the potential to show changes in measures that are consistent with the baseline during the project performance period. Measures of intervention diffusion and adoption may be used as proxies for mortality or injury rates provided that an acceptable model is applied in which the probable impact can be projected to equate to a significant decline in injury or mortality rates over the period of the project.

b. <u>Work-related Musculoskeletal Disorders in Construction Workers</u>

Research to date has characterized the risks of work-related musculoskeletal disorders in most construction trades. We are looking for proposals that will change the ergonomics of construction work:

1. Proposals that focus on changes in materials, tools, tasks, work practices, and work organization; they can be project-specific, sector-specific, or industry wide;
2. Proposals directed at small and medium-sized employers and vulnerable populations;
3. Proposals that encourage communication and cooperation between owners, contractors, sub-contractors, workers, and suppliers on multi-employer construction sites.

Other requirements:

- Proposals limited to passive surveillance of injury and work-related disease are not a funding priority and will not be considered. Surveillance of injury and work-related disease should be linked to development and/or evaluation of interventions.
- Proposals for research to elucidate the mechanism of disease are not a priority unless that work is necessary for development of an effective job change.
- Proposals must include a plan to measure impact; both qualitative and quantitative measures of evaluation may be included in a proposal.
- Proposals must include a dissemination plan. Collaborations with contractors, owners, tool manufacturers, unions or other parties with a role in advancing interventions in the U.S. construction industry are a priority.

c. Occupational Disease Prevention

Proposals to anticipate, recognize, evaluate, and control exposures to hazardous materials and physical agents for specified construction tasks are encouraged. Of particular interest are noise/hearing loss, heat exposure, dermal exposures, welding fumes, mixed dust, and solvents:

1. Exposure assessment must be clearly linked to the development and testing of controls, or implementation and evaluation of them as a part of work-site interventions. Time weighted average exposure assessments without task data are a low priority;
2. Establishing the relationship between health outcomes and exposures remains a priority for characterizing construction health risks in a way that will direct future intervention research; however, the merit of such proposals will depend on the magnitude of the probable risk. Proposals directed at low risks or with a small number of potentially exposed workers are a low priority;
3. Research elucidating the mechanism of disease or toxicokinetics will not be considered, unless these are parts of an intervention evaluation design;
4. Substitution or engineering control approaches will be favored over interventions which depend solely on the use of personal protective equipment, or changes in worker behavior;
5. Proposals must include a dissemination plan. Collaborations with contractors, owners, manufacturers, unions or other parties with a role in advancing interventions in the U.S. construction industry are a priority.

d. Evaluation of Safety and Health Training

Occupational safety and health training is conducted for supervisors, foremen and workers by a range of providers, including unions and joint labor-management trusts, owners and contractors, industry associations, community and technical colleges, and other organizations. Types of training include the OSHA instructor and worker training, and hazard specific training on lead, asbestos, hazardous waste, scaffolding, silica, respirators, steel erection, fall protection, ergonomics, and other topics. Additional training is often conducted on a multitude of hazards using toolbox talks on job sites. CPWR is requesting proposals to evaluate the effectiveness of training efforts and to strengthen training curricula and training approaches where appropriate, and we would also welcome proposals aimed at assessing effectiveness of third-party safety and health training certification:

1. Specific areas of interest include evaluation of existing construction industry training programs, assessment of safety and health training needs of the construction industry, and comparative effectiveness of different methods of safety and health training delivery in the construction industry, especially distance learning versus in person training delivery. Projects attempting to determine whether, or the conditions under which, categorical safety and health training is superior to safety and health training that is integrated into general construction skills curricula are of special interest.
2. Proposed research must include metrics to measure results: changes in occupational injury and illness data; effect on workers' compensation and other insurance factors; worker, employer and owner perceptions of effectiveness of training; knowledge gain of trainees; changes in attitudes or safety climate; and workplace observation analysis.
3. Proposals that include the use of both quantitative analysis and qualitative evaluation (i.e., Mixed Methods) will be given highest priority.
4. Research on technology-aided training methods and programs that are unlikely to be used or financially inaccessible for small contractors is not a priority.

e. <u>Work Organization, Management Systems, Industry Organization, and Safety Culture</u>

The organization of construction workplaces and the management of work tasks are critical elements of safety performance. CPWR's Construction Center together with consortium research partners, government agencies such as OSHA and NIEHS, and construction industry stakeholders, including contractors, employer associations, and unions, have developed and reached consensus on the eight leading indicators of a positive safety climate on construction jobsites. They are:

1) Demonstrating management commitment;
2) Aligning and integrating safety as a value;
3) Ensuring accountability at all levels;
4) Improving supervisory leadership;
5) Empowering and involving employees;
6) Improving communication;
7) Training at all levels;
8) Encouraging owner/client involvement.

CPWR and its research partners have developed the Safety Climate Assessment Tool (S-CAT) for contractors to assess each of the indicators in their own company, the training intervention - FSL - to advance targeted indicators addressing supervisory leadership, training at all levels, improving communication, and the Safety Climate-Safety Management Information System (SC-SMIS) to aid employers to continuously assess and take actions to improve safety climate on their projects.

We are looking for proposals that would:

1. Develop and assess intervention tools to assist construction contractors in advancing any one or any combination of the eight leading indicators.

2. Translate best practices in achieving high performance in one or any combination of these indicators to small and medium-sized employers.
3. Assess how these indicators can be incorporated and advanced through industry productivity innovations and practices, such as Lean Production or BIM.
4. Advance communication and mentoring tools on multi-employers' sites, particularly between general contractors and their sub-contractors, many of which are small and medium-sized employers.
5. Assess how owner-driven use of third-party prequalification systems impacts safety culture and climate and/or safety and health outcomes.

Proposals that include the use of quantitative analysis to measure the impact of interventions will be given high consideration; however, proposals that rely primarily on qualitative or mixed methods are also acceptable.

f. Public Policy Changes

CPWR's surveillance research has documented that a significant cause of the increases in fatality rates in the construction industry are associated with inexperienced employers and workers entering the industry. Proposals designed to evaluate changes in local and state policies, such as including construction competency in business license requirements or building permits and more licensing or certification requirements for workers, are encouraged. Proposals that assess policy practices, such as effectiveness of OSHA construction consultation programs, are also encouraged.

g. Prevention Through Design, Innovation in Materials and Technologies

CPWR's Construction Center is strongly interested in proposals that seek to demonstrate practical technology solutions to improve safety and health. Proposals that focus on injury and illness prevention through design interventions are of high priority. CPWR encourages proposals in areas such as:

1. Proposals to evaluate either building or tool design solutions that are likely to result in reduced injury or illness risks;
2. Proposals to develop safety and health interventions for adoption on "green" (e.g., LEED) construction projects;
3. Proposals that actively involve/engage the building design community, primarily architects and engineers, in the study design; and
4. Proposals aimed at assessing use of new materials, organization of work and worksites (e.g., prefabrication) to reduce safety and health risks.

h. Overcoming Barriers to Dissemination and Adoption of Evidence-Based Best Practices in Construction Safety and Health

Diffusion of evidence-based interventions to reduce injury and illness risk remain central challenges in our efforts to speed up the process from research to practice (r2p). Barriers to adoption may include economic concerns, inability to reach target populations (such as small

employers with less than 20 employees, at risk populations, and self-employed), policy constraints, and established work organization or industry practices. We encourage applicants to consider including these factors, either as part of proposed intervention studies, or as stand-alone studies attempting to address these factors in an industry-wide or multi-employer environment. We are also looking for proposals that would:

1. Contribute to the body of knowledge on [field of] translation research – the processes and conditions that are most likely to result in increased use of research findings and interventions by targeted end-users – to assist researchers in identifying and using the most effective dissemination strategies for their research findings.
2. Assess the response of targeted audiences to changing communication platforms, technology, and media and the impact of awareness and use of interventions, and identify new ways to capitalize and respond to these changes to advance r2p.
3. Develop and assess new tools and methods for evaluating and measuring the extent to which interventions and dissemination activities are having the intended outcomes and impact.
4. Advance the use of partnerships and collaborations with target audiences and intermediaries to increase use, and measure the impact, of research interventions and dissemination strategies.

j. Addressing the Dual Crises Of Suicide and Opioid Overdose in Construction

Workplace factors contribute to what some researchers have called the "diseases of despair," including fatal opioid overdoses and suicides. Construction workers are disproportionately affected by these two causes of death.

CPWR encourages proposals to address suicides and/or overdoses that focus on upstream factors in the industry. Proposals on individual risk factors or treatment of mental health or opioid use disorders are not a priority.

4. FUNDS AVAILABLE

Successful proposals will be integrated into a construction industry research agenda for the prevention of occupational injury and disease. Projects will be funded up to a maximum of $200,000/project, per year, for up to five years (Note: the $200,000 per year maximum includes direct + indirect costs). Applicants may submit more than one project concept. A project concept for multiple years may address multiple priority goal areas. For instance, a project in year 1 may focus on surveillance; in year 2 on intervention; in year 3 on translation; and year 4 on evaluation. In this case, although the project moves from one priority area to another from year to year, the funding is still limited to $200,000/year, regardless of how many priority area goals are addressed. However, it is not required for proposals to cover more than one priority area.

The $200,000/project, per year, is to support research in the priority goal area(s), and not for building internal institutional capacity. For instance, CPWR would not fund $200,000 in year 1

for an institution to develop the infrastructure necessary to implement a priority area research project in year 2. The proposed research must begin in year 1.

CPWR reserves the right to accept any, all, or none of the proposed projects. CPWR will monitor performance of all projects and reserves the right to terminate a project for poor performance. For projects that develop in multiple steps in which the next step is dependent on successful completion of the previous step, CPWR reserves the right to terminate the project if a step cannot be accomplished as planned.

Indirect costs: While CPWR is not imposing a cap on indirect costs, applicants are encouraged to use the lowest indirect cost rate available at their institutions. *CPWR recommends an indirect rate capped at 25% of personnel costs*. Under this program and in its role as administrator of the National Construction Center, CPWR serves as the lead organization and is responsible for much of the planning, coordination, and administration of the cooperative agreement with NIOSH. This role includes monthly programmatic meetings with NIOSH and monthly financial/administrative meetings with CDC. CPWR is also responsible for the official electronic submissions of all RPPR progress reports and budgets, narrative reports, carryover requests, coordination with the NIOSH Construction Office, overall program evaluation, and any other deliverables required. With CPWR responsible for these administrative functions, the consortium partner/researcher has more time to devote to their project deliverables.

In past research cycles dating back to the 1990s, CPWR's external collaborating institutions have recognized this and have voluntarily limited their indirect cost rate to 25% of personnel costs (salary + fringe benefits). While CPWR recognizes the Uniform Grant Guidance allows an institution to charge its full negotiated indirect cost rate, we encourage you to seek a lower rate, such as an off-campus rate. Our experience has been that institutions using a lower indirect rate submit stronger proposals from a programmatic standpoint, which is obviously desirable since much of the administrative burden falls upon CPWR in managing the National Construction Center cooperative agreement with CDC/NIOSH.

Total funds available will depend on the success of competitive pursuit of funds by CPWR and our consortium of partner organizations.

5. SUBMITTING A CONCEPT MEMO

To propose a research project, the principal investigator should send CPWR a Concept Memo of ***five pages or less***, including a summary/abstract not-to-exceed one page. The Concept Memo should cover the following:

Cover page listing lead organization's name, address, EIN, DUNs, and investigator's name and contact information
Table of Contents
Summary/Abstract (max one page)
Narrative (max five pages a-i)

a. A statement and brief review of the literature describing the problem;
b. The proposed study, including its objectives, methods, and design;
c. The NIOSH Strategic Plan and/or NORA 3 objective(s) the project will address;

d. How the outcomes will be measured;
e. What the investigator expects to find and/or what this study can contribute;
f. Plans for using or disseminating any findings;
g. A proposed timetable;
h. The investigator's and any other core members' qualifications to understand the research issue, conduct the research, and ensure that findings will be actionable;
i. Demonstrated partnerships and plans to obtain access to worksites, or collaborations that will facilitate this access (if needed);

Additional items (no page limits for items j-m)

j. Biographical sketches of investigator and other core team members;
k. Letters of support or collaboration;
l. Proposed detailed budget and justification, including indirect costs and any other sources of support; and
m. A hyperlink or pdf of the organization's latest federal audit.

6. REVIEW PROCESS

Concept Memos will be reviewed by CPWR Construction Center research directors, members of the CPWR Technical Advisory Board, and independent experts selected by CPWR as needed.

7. REVIEW CRITERIA

The following general review criteria are considered; refer to the discussion under each specific outcome listed for additional specific review criteria:

a. **Relevance**. Does the proposed study address a pressing problem? Have any stakeholders, such as labor-management organizations, expressed a need for research on the proposed topic? What useful information or product is the study likely to produce?
b. **Impact.** Is the proposed intervention likely to result in major declines in injury or illness rates? Will it impact large numbers of workers and/or the most vulnerable workers?
c. **Innovation**. Does the proposal challenge existing thinking or offer a new approach? Does the dissemination plan call for a new application of technology or a new way of communicating information?
d. **Approach**. Does the proposal adequately outline a conceptual framework, design, methods, and analyses? If a data set is to be analyzed, is that set likely to produce the information sought; is that set the best source for the questions posed? Does the applicant understand and discuss likely problem areas? Is the technical approach a desirable one, for instance, with engineering versus administrative controls? Are the goals of the project achievable?
e. **Generalizability.** Will the study produce knowledge that can be translated into broad usage within the industry? Is it practical enough, and is it likely to be cost effective?
f. **Balance and Synergy**. How does the proposed study fit with other research? Is it likely to produce added value when combined with other CPWR activities?
g. **Investigator(s)**. Is the applicant well-qualified through academic and practical experience to examine the topic? Have investigators identified appropriate industry partners and have they agreed to collaborate?

h. **Budget.** Does a substantial portion of the proposed budget address programmatic versus administrative costs?

8. RECEIPT AND REVIEW SCHEDULE

Concept Memos must be received by c.o.b. ET May 1, 2023. Concept memos will be sent electronically in WORD or PDF to mtarbrake@cpwr.com. *Submissions must include the name of the investigator and title abbreviation of the project in the file name and email subject line.*

A notification will be sent to successful applicants by early July 2023 for PHS-398 preparation. The Notice of Funding Opportunity is expected to be released August 15, 2023. At that time CPWR will provide any additional instruction. A draft PHS-398 will be due to CPWR for review by September 1, 2023. Reviewer comments will be provided to the P.I. in mid-September. The final full length PHS-398 proposal will be due back to CPWR by October 16, 2023. CPWR reserves the right to reject any proposals it deems inconsistent with the concept memo received or insufficiently developed.

INQUIRIES

Inquiries are welcome. Direct inquiries to: Mary Tarbrake at mtarbrake@cpwr.com.