www.cpwr.com • www.elcosh.org

CPWR

THE CENTER FOR CONSTRUCTION
RESEARCH AND TRAINING

Small Study Program Guidelines

Instructions for applying

January 2016

8484 Georgia Avenue
Suite 1000
Silver Spring, MD 20910

PHONE: 301.578.8500
FAX: 301.578.8572

CPWR – The Center for Construction Research and Training is the research and training arm of North America's Building Trade Unions (NABTU) and is uniquely situated to serve workers, contractors, and the scientific community. CPWR's overriding goal is to improve safety and health in the construction industry in the United States. The CPWR Small Study Program is funded under a cooperative agreement (U60 OH0009762) from the National Institute for Occupational Safety and Health (NIOSH). The contents are solely the responsibility of the authors and do not necessarily represent the official views of NIOSH. This document is available at www.cpwr.com.
This version replaces all previous versions.

CPWR Small Study Program Guidelines

TABLE OF CONTENTS

FOR MORE INFORMATION, CONTACT:

Trish Quinn, Small Study Program Coordinator
CPWR – The Center for Construction Research and Training
8484 Georgia Avenue, Suite 1000, Silver Spring, MD 20910
Phone: 301-578-8500 Fax: 301- 578-8572
pquinn@cpwr.com
Visit our website at www.cpwr.com

Introduction

About the Small Study Program

The CPWR Small Study Program, a research program created by CPWR – The Center for Construction Research and Training, funds research studies limited in time and amount that focus on construction safety and health issues. Successful applicants receive up to $30,000 for study on a discrete topic that must be completed within one year. The Program operates on a rolling admissions cycle; a study can be proposed at any time, pending availability of funds. The application procedures are detailed in this document. In order for a study to be considered, *applicants must read the guidelines for important background information and follow all instructions to ensure they meet program requirements.*

The Program is part of CPWR's research agenda, which is to investigate causes of fatal and nonfatal construction injuries and illnesses, and then seek solutions to reduce or eliminate the associated hazards. The construction industry accounts for the highest number of work-related fatalities of any other U.S. industry – higher than agriculture, transportation, manufacturing and wholesale/retail. Less obvious are construction products, fumes, gases and deadly airborne particles (including carcinogens) that can cause immediate harm (including death) or long-term damage and result in chronic health problems. Exposures can lead to sensitivities and allergic reactions that force workers to leave the industry, affecting their economic health.

Special Emphasis Areas for Research

- Getting best practices that improve worker safety adopted on U.S. construction sites – research to practice (r2p)
- Addressing emerging issues and exploring new technologies
- Safety culture and safety climate
- Disseminating safety and health information to specific audiences
- Exploring innovative or new directions in construction sciences
- Reaching high risk sectors: small employers, vulnerable workers, residential and light commercial construction

CPWR encourages investigators from other disciplines (engineering, psychology, consumer marketing, economics, applied computer sciences, communication sciences, and work organization/construction management) to apply their expertise to research goals. CPWR welcomes applicants who are occupational safety and health researchers, ergonomists, epidemiologists, researchers partnering with industry practitioners, and others to develop innovative proposals that meet stated goals.

Specific objectives of proposed research can be to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or practice, address a critical barrier to progress in the field, or develop new technology.

BACKGROUND

About the Funding Organization

CPWR – The Center for Construction Research and Training is a nonprofit research institution founded to investigate the causes of illnesses, injuries and fatalities among U.S. construction workers and to test methods and procedures for reducing or eliminating the hazards. The organization began its work upon funding from the National Institute for Occupational Safety and Health (NIOSH/CDC) in 1990. Over time, CPWR gained worldwide recognition as a pre-eminent institution in the field of construction safety and health. CPWR now serves as NIOSH's National Construction Center. The NIOSH cooperative agreement funds the work of CPWR's in-house researchers and a consortium of university-based researchers, as well as the CPWR Small Study Program. See Research on www.cpwr.com for more information.

The Need for Research

Investigating issues in this field is essential because of the excessive level of work-related injuries and deaths in construction, compared with other industries in the United States and with construction-related statistics of other industrial nations. The U.S. construction industry accounted for just 7% of the nation's workforce but suffered nearly 20% of its work-related fatalities in 2014. According to a November 2015 analysis of recently released BLS data conducted by CPWR's Data Center, construction fatalities continued to rise as employment increased, with the number of fatalities increasing by 16% from 2011 to 2014. In a study that examined underreporting of injuries in construction, the Data Center found that underreporting does occur and that it is more prevalent among Hispanic workers.

Dangers to the life and health of workers are immediate, and health effects can be cumulative, disabling and even fatal.

- Construction products contain chemicals and compounds that can damage brain function and the nervous system, sexual function, liver and other internal organs.
- Workers can experience debilitating pain due to repetitive stress, back injuries or other musculoskeletal disorders.
- Construction workers can easily develop respiratory ailments from breathing dusts, fumes and gases on work sites. Inhaling contaminants can lead to moderate-to-severe lung disorders, including work-related asthma, COPD, silicosis and cancers.
- Allergic reactions and sensitization to construction materials can force a worker to leave the trade, with lasting health effects.
- A number of products release deadly compounds, such as methylene chloride in solvents. Workers refinishing bath tubs have died in less than 90 minutes.
- Out of 4,679 worker fatalities in calendar year 2014, 908 or 19.4% were in construction according the Bureau of Labor Statistics. This is, one in five worker deaths last year were in construction.
- The leading causes of worker deaths on construction sites were falls, followed by electrocution, struck by object, and caught-in/between that usually involve vehicles, heavy equipment and road construction. These "Fatal Four" were responsible for more than half (57%) of the construction worker deaths in 2014, BLS reports. Eliminating the Fatal Four would save 517 workers' lives in America every year.

While CPWR seeks to inform workers of the hazards and prevention measures, the construction employer is tasked with ensuring worker safety by providing proper equipment and training workers in its use. A contractor who does not know the hazards or chooses to ignore them puts workers' lives at risk. Therefore**,** dissemination of research results has risen in priority, as has research to practice (r2p) and study of an organization's "safety culture" and the "safety climate" on a construction site. These are described in Research Areas of Emphasis.

The CPWR Mission Statement
CPWR's mission is to eliminate or reduce conditions constituting hazards to the safety and health of construction workers, and to promote the maintenance and improvement of safe and healthy working conditions for workers.

CPWR conducts 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.

CPWR publicizes the results of research findings, and makes them widely available to construction industry owners/users, employers, associations, unions, workers, academia, government, and others with an interest in construction safety and health.

CPWR provides training resources and technical services that help apply research findings to the worksite and help direct research in addressing issues of importance to workers.

The Role of the Small Study Program
CPWR has administered the Small Study Program since 1993 to help define problems and identify needed policy changes or potential interventions. Funded projects have impressive diversity in terms of scientific aims, investigators and applicant organizations, and geographic representation. Many new investigators have entered the field of construction safety and health research through a Small Study, and innovative prevention measures have been explored. Small Studies can be used to determine whether a large-scale investigation is warranted.

The CPWR Small Study Program provides flexibility for initiating studies that are generally for preliminary, short-term projects and are non-renewable. The award is made to provide research support limited in time and amount for studies in categorical program areas. The project will be performed by the named investigator and study team. The research plan proposed by the applicant institution/organization must be related to the mission and priority research interests of CPWR. Several Small Study projects have produced findings that led to additional research and funding.

It is important that applicants review CPWR's current research program and previous research studies before making a decision on topic areas for investigation.

Table 1 identifies some previously funded studies.

Table 1. Funded Small Studies, 2010 – 2015.

- *Building information modeling (BIM) – Visualizing project-specific safety information*, University of Alabama, 2015. *(research on-going)*
- *Occupational safety and health in green buildings: Evaluating LEED & new Prevention through Design (Ptd) pilot credit*, East Carolina University, 2015. *(research on-going)*
- *Effectiveness of OSHA outreach training on rates of construction work-related injuries as captured through the workers' compensation system*, Duke University.
- *Evaluating fall safety compliance among skilled trades in construction,* George Washington University, 2013.
- *The effects of injury and illness prevention programs and associated regulations on State level injury incidence*, University of Utah, 2013.
- *Fall protection resource for new home construction*, Washington University, 2013.
- *Use and re-use of formwork: Safety risks and reliability assessments*, Oregon State University. 2013.
- *Safety management in the construction industry: Identifying risks and reducing accidents to improve site productivity and project ROI.* McGraw Hill Construction 2012.
- *The cost of interpersonal conflict in construction*, Michigan State University 2011.
- *Validating safety climate in a contractor safety assessment program*, Harvard University, 2011.
- *Evaluation of the implementation and impact of a Massachusetts construction OHS training rule*, University of Massachusetts Lowell, 2010.

RESEARCH AREAS OF EMPHASIS

In line with the overarching goals of CPWR, the Small Study Program encourages researchers to make major contributions to improve construction worker health and safety. Research projects relevant to the National Occupational Research Agenda for Construction (NORA Goals) are considered fundamental for sustaining the quality, breadth, and relevance of the Small Study Program. The scope of the research should include basic or applied science, development or exploratory methodologies, prevention effectiveness or intervention, translation, r2p, technology transfer, or feasibility and policy research. Training proposals are not eligible. Specific objectives of proposed research can be to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology.

About the NORA Goals

The Small Study Program is intended to generate projects focused on the National Occupational Research Agenda goals in Construction (NORA Goals). The NORA Goals are a list of the nation's research priorities to improve the safety and health of workers on construction sites; the goals are categorized into fifteen topic areas that need investigation and solutions.

The National Institute for Occupational Safety and Health (NIOSH) created the **National Occupational Research Agenda** (NORA) in 1996 to provide a framework for research collaborations among universities, large and small businesses, professional societies, government agencies, and worker organizations. Together these parties identify issues in the field of workplace safety and health that require immediate attention based on the number of workers affected, the seriousness of the hazard, and the likelihood that new safety information and approaches can effect a change.

Small Study Program applicants must connect the research study to one NORA goal and at least one sub-goal.

Current CPWR Research Initiatives

Applicants should familiarize themselves with a new initiative within CPWR: "research to practice (r2p)." The r2p initiative was introduced through the National Institute for Occupational Safety and Health, CDC, and it is focused on the translation and transfer of knowledge, interventions and technologies to industry of highly effective prevention practices, products and equipment that can reduce or eliminate safety and health hazards faced by construction workers. The "p" of practice is seeing these safer work practices adopted on U.S. construction sites. This can include defining the barriers to adoption and ways to overcome them, determining successful dissemination strategies of safety and health information/products to industry, and evaluating the outcomes of new practices.

An important offshoot of r2p is an organization's safety culture and a worksite's safety climate. CPWR researchers have engaged industry leaders, noted safety and health practitioners, union safety and health experts and researchers to investigate the creations and maintenance of a good safety culture within an organization and on a working construction site. CPWR also is interested in exploring the link between a safety culture with site-wide safe work practices to the rise in productivity and/or reduction in total costs. To gain an understanding of this new topic, view the Safety Culture/Climate page for more information. Interested applicants should review CPWR's

current research program and previous research studies on this topic.

CPWR is particularly interested in studies focused on the following special emphasis areas:

- Getting best practices that improve worker safety adopted on construction sites – research to practice (r2p)
- Addressing emerging issues and exploring new technologies
- Safety culture and safety climate
- Disseminating safety and health information to specific audiences
- Exploring innovative or new directions in construction sciences
- Reaching high risk sectors (small employers, vulnerable workers, residential and light commercial construction)

HOW TO APPLY FOR FUNDING

Funding is available to any investigator and all public- and private-sector institutions and organizations. A study may be proposed at any time. However, researchers are limited to two Small Study submissions per calendar year. The funding ceiling for an individual project with a 12-month or less performance period will be $30,000 in total costs. Application procedures are detailed below.

- The research project must address as least one NORA Goal and at least one sub-goal.

- To propose a study, the principal investigator must send a Letter of Intent (LOI) of no more than four (4) pages that states the problem to be investigated and other requirements described within the Guidelines.

- If the LOI is approved, CPWR will request the principal investigator submit a PHS 398, the application used for funding. CPWR has designed a guide, included in this document, to aid applicants in completing the application.

- In some cases, CPWR may respond to an investigator with questions and clarification regarding the LOI.

Letter of Intent (LOI)
To propose a study, the principal investigator is required to submit a Letter of Intent (LOI) of no more than four (4) pages to CPWR. The letter should cover the following issues:

- Statement of the problem.
- List the primary and secondary NORA Construction Sector Goals.
- Details of the proposed study, including its objectives, methods, and design and a few selected references showing how this study contributes to knowledge.
    - How the outcomes will be measured.
    - What the investigator expects to find.
    - Expected outcomes/products.
    - Plans for using or disseminating any findings.
- A proposed timetable and estimated budget.
- The investigators' credentials.
- Demonstrated partnerships and plans to obtain access to workers/worksites.
- Human subjects' protection (IRB plan, if necessary).
- The name and contact information for the investigator.

Review of the LOI
The LOI is reviewed by CPWR generally within 30 days of receipt. CPWR may ask for a one-time revision to the LOI, in which case, the investigator has 30 days to resubmit.
If the LOI is approved, the investigator will be invited to submit a PHS 398 proposal for funding consideration. The proposal is due within 45 days from the CPWR request.

PHS 398 Proposal

CPWR uses the U.S. Public Health Service grant application 398 (Rev. 03/16 approved through 10/31/2018). Studies will not be reviewed if they do not follow CPWR's guidelines.

- **Proposal**
  - The PHS 398 is available on-line at http://grants.nih.gov/grants/funding/phs398/phs398.html.
  - Follow PHS 398 instructions from CPWR. *See page 14*.
  - The proposal must include all sections identified in the PHS 398 Table of Contents (TOC). The research plan must include all 15 elements as indicated in the TOC.
  - Include the primary and secondary NORA Construction Sector Goals in the Summary section.
  - A research output must be clearly identified in both the Abstract and Research Strategy section.
  - Submit the proposal electronically (pquinn@cpwr.com) as one PDF file.
  - CPWR may ask for a one-time revision to a proposal, in which case the investigator has 30 days to resubmit.
- **Limitations of Funding**
  - Total Funding. Funding is capped at $30,000 including any indirect costs.
  - Facilities and Administration. Indirect costs are limited to 25% of the personnel (salary and fringe benefit) costs only.
  - Travel. Any travel costs directly related must be detailed, justified and included in the budget. Travel expenses must conform to the Applicant's (if an institution) or CPWR's travel policy, whichever is applicable; however, no travel expenses in excess of what the federal government would reimburse its own employees will be reimbursable.
  - Equipment. Funding may not cover capital expenditures.
- **Human Subjects**
  - Human subject documentation must be included in the Research Plan. If the study involves human subjects or uses data with personally identified data, the investigator must obtain approval from an Institutional Review Board (IRB) recognized by the Office of Human Research Protections, U.S. Department of Health and Human Services.
  - Human subject training certificates must be included for all staff.

REVIEW OF THE PROPOSAL

All submissions are reviewed by scientists and experts within CPWR, NIOSH, and other subject matter expert(s), plus at least one member of CPWR's Technical Advisory Board. Reviewers are selected based on their experience and knowledge of the applicant's field. The proposal is reviewed generally within 45 days of receipt.

Review Criteria

The following review criteria are considered:

1. Significance/need:
    a. Does this research project address an important problem?
    b. Are the applicable NORA Construction Sector goal(s) met and are they relevant to CPWR's overall objectives?
    c. Have any stakeholders, such as labor-management organizations, expressed a need for research on the proposed topic? How/where is this need documented?
    d. Are the proposed core component functions clearly defined and essential for achieving the study goals and supporting individual research projects?
    e. If the applicant achieves the aims of the application, how much will it advance scientific knowledge?
    f. What are the expected impacts on occupational injury or illness risks?
2. Approach:
    a. To what extent are the conceptual framework, design, methods, and analyses adequately developed, well-integrated, well-reasoned, and appropriate to the aims of the project?
    b. 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?
    c. Does the applicant acknowledge potential problem areas and consider alternative tactics?
3. Innovation:
    a. Does the proposal challenge existing thinking or offer a new approach?
    b. Is the proposal original and innovative?
4. Investigators:
    a. Is the applicant well-qualified through academic and practical experience to examine the topic?
    b. Is it likely that he/she will complete the study in a timely manner in accordance with the procedures presented in the application?
    c. Does the investigative team bring complementary and integrated expertise to the project?
5. Environment:
    a. How well does the scientific environment in which the applicant will do the work contribute to the probability of success?
    b. Is the commitment of the institution evident and adequate to support the study in terms of space, resources, or administrative authority?
    c. Does the location of the study within the applicant organization provide the authority to facilitate multidisciplinary work for investigators across departmental lines or across schools in the university environment?

    d. Are partners from public and private organization engaged? Do these organizations provide letters of support that describe their role and the extent of their participation?
6. Balance:
    a. How does the study fit with other CPWR research? Does it relate to one of CPWR's current goals or priorities?

If the reviewers determine that additional details are needed, the investigator will have one opportunity to revise and resubmit the proposal. The revised proposal is due within 30 days of notification.

Once CPWR has completed its review and recommended the study for funding, the proposal package is forwarded to the NIOSH Scientific Program Officer. When approved, CPWR issues the award to the investigator.

The research study's one-year timeframe begins on the day the award is issued to the investigator. The Final Report is due 30 days after the end of the study.

PROGRESS REVIEW AND REPORTING REQUIREMENTS FOR FUNDED STUDIES

Onsite visits by CPWR staff or consultants may occasionally be warranted. It is expected, however, that most monitoring can be based on written progress reports submitted periodically to CPWR.

Progress Reports
Short, written progress reports are required at least twice during the duration of the study. Funding installments will depend on submission of satisfactory progress reports.

The progress report must be written in language that is understandable to someone who does not specialize in the field of the research. Abbreviations and language that may not be known to the broader scientific community should be avoided or, if essential, be clearly defined. A progress report should be no more than three (3) pages. It should cover (in this order):

- Objectives, noting if they have changed from the original application.
- Accomplishments.
- Problems that result in deviation from the methods or timeline.
- Any change in key staff, plans, or methods.
- Interim results, including their relevance and practical application, and any problem(s) encountered or anticipated.
- Any publications or presentations derived from the study.

The Final Report
The final report is due within 30 days from the conclusion of the study. The report should be no more than fifteen (15) pages. It should cover (in this order):

- Abstract (150 words or less).
- Key findings (at least 5), in order of importance.
- Introduction.
- Objectives.
- Methods.
- Accomplishments and results, including their relevance and practical application.
- Changes/problems that resulted in deviation from the methods.
- Future funding plans. If the findings appear to justify expansion of the research, the investigator(s) should indicate plans for such research and possible sources of additional funding.
- List of presentations/publications.
- Dissemination plan.

CPWR will review the final report and, if warranted, provide feedback to the investigator. Revisions to the final report may be requested. The final report and any attachments should be sent electronically (in MS-Word) to CPWR. Failure to submit an acceptable final report will delay the release of final funding and may disqualify the investigator from further CPWR funding.

Dissemination of Findings
The investigator(s) is encouraged to present the findings at conferences and to submit them for publication in scholarly journals and the trade press. Publications, journal articles, manuals, etc. a required to include the following acknowledgment/disclaimer:

> *This publication was made possible by CPWR – The Center for Construction Research and Training through cooperative agreement number U60-OH009762 from the National Institute of Occupational Safety and Health (NIOSH). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the CPWR or NIOSH.*

CPWR will post the key findings and final report on its website and will notify the investigator whether it will be published as a CPWR Report. CPWR will not withhold information or delay posting/publication solely to accommodate a journal's requirement that there be no prior publication of the results.

If your journal article, news story or other release of media about your findings is published in print and/or online, please notify Small Study Program Coordinator Trish Quinn at pquinn@cpwr.com. Please include links to the journal article/story/posting and any relevant media coverage or reactions from institutions or the public.

Investigators are encouraged to pursue standard academic and industry channels as well as new media for disseminating the results of their research. CPWR will produce a one-page "Key Findings from Research" document, using the investigators' overview of the project (150 words or less as described above) and list most important results (at least five key findings). The "Key Findings" documents are posted on www.cpwr.com.

Achievements
Recipients of CPWR Small Study Program award often publish their work in peer-reviewed journals. Other researchers do this and reach other channels for disseminating their findings. See examples below:

- Papers from Small Studies are published in peer-reviewed journals, such as *American Journal of Industrial Medicine, Journal of Construction Engineering and Management, Construction Management and Economics, Epidemiologic Reviews, Professional Safety, Journal of Occupational and Environmental Medicine, Safety Science, Applied Ergonomics,* and others.
- Findings from these studies have been covered in trade, industry and consumer publications, including *The Wall Street Journal, Univision, Engineering News Record (ENR), Architectural Digest, EHS Today, ISHN, Dallas Morning News,* and many more outlets.
- Presentations on findings have been delivered at the International Symposium of the ISSA Construction Section on Occupational Safety and Health in the Construction Industry, American Public Health Association Annual Meeting, and state, regional, national and international conferences.

Questions about the CPWR Guidelines and application details will be addressed by Small Study Program Coordinator Trish Quinn: 301-495-8521 or pquinn@cpwr.com.

CPWR – The Center for Construction Research and Training
Small Study Program
PHS 398 Small Study Guidance

Application due date. 45 days from CPWR request.

Required Application: PHS 398 (Revised 3/2016). Forms and instructions can be found https://grants.nih.gov/grants/funding/phs398/phs398.pdf

Format Specifications. Follow font and format specifications. Otherwise, application processing may be delayed or not reviewed.

Font. Use an Arial or Times New Roman typeface, a black font color, and a font size of 11 points of larger.

Paper Size and Page Margins. Use standard size (8 ½" x 11") sheets of paper. Use at least one-half inch margins (top, bottom, left, and right) for all pages, including continuation pages.

Page Formatting

Because a number of reviewers will be reviewing applications as electronic documents and not paper versions, applicants are strongly encouraged to use only a standard, single-column format for the text. Avoid using a two-column format since it can cause difficulties when reviewing the document electronically.

The application must be single-sided and single-spaced.

Consecutively number pages throughout the application. Do not use suffixes (e.g., 5a, 5b).

Do not include additional pages between the face page and page 2.

Do not include unnumbered pages.

Figures, Graphs, Diagrams, Charts, Tables, Figure Legends, and Footnotes. A smaller type size is acceptable, but it must be in black ink, readily legible, and follow the font typeface requirement.

Grantsmanship. Use English and avoid jargon. If terms are not universally known, spell out the term the first time it is used and note the appropriate abbreviation in parentheses. The abbreviation may be used thereafter. Spell check and proofread the proposal prior to submission.

Photographs and Images. Do not include photographs or other materials that are not printed directly on an application page in the body of the application.

Copies. Electronic submission is required. Send application as one PDF to Trish Quinn (pquinn@cpwr.com). The application must contain only material that reproduces well when photocopied in black and white. No hard copies of the proposal are necessary.

Guidance for Face Page

The first part of the Face Page (Form Page 1) must be printed on a single page. The Face Page must not have any shading or colors. Form Page 1-continued is not required.

The information provided on the Face Page of the application and the fiscal information, including the calculation of F&A costs, must be verified by the official signing for the applicant organization.

Item 1. Title of Project. Do not exceed 81 characters, including the spaces between words and punctuation.

Item 2. Response to Specific Request for Applications (RFA) or Program Announcement (PA). Check "No."

Item 3. Program Director(s)/Principal Investigator(s) (PD/PI)

Item 3a. Name of Program Director/Principal Investigator (PD/PI). Name the one person responsible to the applicant organization for the scientific and technical direction of the project.

Item 3b. Degree(s). Indicate up to three academic and professional degrees or other credentials, such as licenses (e.g., R.N.).

Item 3c. Position Title. Provide the academic or professional title of the PD/PI.

Item 3d. Mailing Address. Provide complete information (including room number, building, and street address) necessary for postal delivery. All written communications with the PD/PI will use this address. For electronic mail, enter the appropriate e-mail address (not a website URL).

Item 3e. Department, Service, Laboratory, or Equivalent. Indicate organizational affiliation, such as Department of Medicine, Materials Research Laboratory, or Social Sciences Institute.

Item 3f. Major Subdivision. Indicate school, college, or other major subdivision, such as medical, dental, engineering, graduate, nursing, or public health. If there is no such subdivision, enter "None."

Item 3g. Telephone and Fax Numbers.

Item 3h. eRA Commons User Name – Leave blank (not applicable to CPWR Small Study Program).

Item 4. Human Subjects Research. Check appropriate box. If “no” the remaining parts of Item 4 are not applicable. If “yes” the remaining items are applicable. The DHHS regulations "Protection of Human Subjects" (45 CFR Part 46, administered by OHRP) define a human subject as “a living individual about whom an investigator conducting research obtains: data through intervention or interaction with the individual or identifiable private information.” See Part III.3 for the definitions of italicized terms used in the definition of human subject.

Item 5. Vertebrate Animals. Check “No” if activities involving vertebrate animals are not planned at any time during the proposed project period, and leave item 5a blank.

Item 6. Dates of Proposed Period of Support. Request no more than 1 year of support.

Item 7. Costs Requested for Initial Budget Period (in US dollars).

- **Item 7a. Direct Costs.** From Form Page 4, enter the "Subtotal Direct Costs for Initial Budget Period."
- **Item 7b. Total Costs.** Enter the sum of: 1) the "Total Direct Costs for Initial Budget Period" from Form Page 4 and 2) the Facilities and Administrative costs for the initial budget period, as calculated on the Checklist Form Page. Note the "Total Direct Costs" used to calculate Item 7b includes any consortium F&A costs.

Item 8. Costs Requested for Proposed Period of Support

- **Item 8a. Direct Costs.** From Form Page 5, enter the sum of "Subtotal Direct Costs" for all years.
- **Item 8b. Total Costs.** Enter the sum of: 1) "Total Direct Costs for Entire Proposed Project Period" from Form Page 5; and, 2) the total Facilities and Administrative costs for all years calculated on the Checklist Form Page.

Item 9. Applicant Organization. Name the one organization that will be legally and financially responsible for the conduct of activities supported by the award.

Item 10. Type of Organization. Check the appropriate box. See definitions of Applicant Organization Types definitions in Part III, 3.

Item 11. Entity Identification Number, DUNS Number, Congressional District (required)

Item 12. Administrative Official to be Notified if Award is Made. Name the applicant organization administrative official to be notified if an award is made.

Item 13. Official Signing for Applicant Organization. Name an individual authorized to act for the applicant organization and to assume the obligations imposed by the Federal laws, requirements, and conditions for a grant or grant application, including the applicable Federal regulations. Provide a complete address for postal delivery and the telephone, fax, and e-mail address for the signing official.

Item 14. Applicant Organization Certification and Acceptance. An original signature, in ink, is required. Only an institutional official with formal designated or delegated authority to sign on behalf of the organization may sign the form. The signature must be dated.

Project Summary and Relevance. The first and major section of the Description is a **Project Summary**. It is meant to serve as a succinct and accurate description of the proposed work when separated from the application. State the application's broad, long-term objectives and specific aims, making reference to the health relatedness of the project (i.e., relevance to the mission of the agency). Describe concisely the research design and methods for achieving the stated goals. Include the NIOSH Nora Construction Sector Goal in this section as well. This section should be informative to other persons working in the same or related fields and insofar as possible understandable to a scientifically or technically literate reader. Avoid describing past accomplishments and the use of the first person.

The second section of the Description is **Relevance**. Using no more than two or three sentences, describe the relevance of this research to public health. In this section, be succinct and use plain language that can be understood by a general, lay audience.

DO NOT EXCEED THE SPACE PROVIDED.

Use text only (no figures or other information not in standard text.) Do not include proprietary, confidential information or trade secrets in the description section.

Project/Performance Site(s). Indicate where the work described in the Research Plan will be conducted. If there are more than two Project/Performance Sites, use the Project/Performance Site Format Page to list all the sites. Provide an explanation on the Resources Format Page of the application, and state whether a consortium/contractual arrangement is involved with one or more collaborating organizations for the conduct of a portion of the work described in the Research Plan. One of the sites indicated must be the applicant organization or be identified as off-site in accordance with the conditions of the applicant organization's negotiated Facilities and Administrative (F&A) agreement. This information must agree with the F&A information provided in the rest of the application.

Scientific/key Personnel. In addition to the PD/PI, Senior/key Personnel are defined as individuals who contribute to the scientific development or execution of the project in a substantive, measurable way, whether or not salaries are requested.

All pages/sections in Table of Contents are required unless otherwise noted.

Required form pages:

- Table of contents
- Detailed budget for initial budget period
- Budget for entire proposed period of support
- Budgets pertaining to consortium/contractual arrnagements
- Biographical sketches
- Resources
- Checklist

Research Plan Format

No Specific Form Page - The Research Plan consists of items 1-16 (use Table of Contents as reference). It must be self-contained and include sufficient information to evaluate the project, independent of any other document. Be specific and informative, and avoid redundancies.

Page Limits for Research Plan. All applications for funding must be self-contained within specified page limits. Observe the page number limits provided in the table below. Page limits include the use of tables and figures.

SECTION OF APPLICATION Refer to the relevant section of the application instructions for additional information.	PAGE LIMITS
Specific Aims	1 page
Research Strategy	12 pages
Biosketch (per person)	4 pages
Appendix **	No page limits, but content limitations.

Content of Research Plan

The Research Plan consists of the following items as applicable. Begin each section of the Research Plan with a section header (e.g., Introduction, Specific Aims, Research Strategy, etc.).

1. Introduction to Resubmission Application. Not applicable to CPWR Small Study Program.

2. Specific Aims. State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved. List succinctly the specific objectives of the research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology. Specific Aims are limited to one page.

3. Research Strategy. The Research Strategy is composed of three distinct sections – Significance, Innovation, and Approach. Organize the Research Strategy in this specified order. Start each section with the appropriate section heading—Significance, Innovation, Approach. Cite published experimental details in the Research Strategy section and provide the full reference in the Bibliography and References Cited section. Research Strategy is limited to twelve pages.

(a) Significance

Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses.

Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.

Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.

(b) Innovation

Explain how the application challenges and seeks to shift current research or clinical practice paradigms.

Describe any novel theoretical concepts, approaches or methodologies, instrumentation or intervention(s) to be developed or used, and any advantage over existing methodologies, instrumentation or intervention(s).

Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation or interventions.

(c) Approach

Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Unless addressed separately in Item 5.5.15, include how the data will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate.

Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims.

If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high risk aspects of the proposed work.

Point out any procedures, situations, or materials that may be hazardous to personnel and precautions to be exercised.

4. Bibliography and references cited.

(Note: Items 5 – 15 are required headers in the Research Plan section. If they are not applicable write "Not applicable to CPWR Small Study Program." If the study is determined to not be human subject research the rationale must be included in section 5.)

5. Protection of Human Subjects. Human subject plans must be included. The reviewing IRB must be identified as the IRB of record and plans for the review explained. The human subject section should include a description of the risks to subjects, sources of materials collected, as well as protections against risk. If available the consent form should be included as an attachment. Human subject training certificates for key personnel are required to be included in the submission. CPWR's policy requires training be completed every 5 years.
If an award is made, the IRB approval letter will be required (60 days after award date).

6. Data Safety Monitoring Plan. Not applicable to CPWR Small Study Program.

7. Inclusion of Women and Minorities. If human subject research, provide explanation about the involvement of women and minorities.

8. PHS Inclusion Enrollment Plan. Not applicable to CPWR Small Study Program.

9. Inclusion of Children. Children are defined by CPWR as under the age of 21, unless there is significant risk to participants, in which case participants must be at least 21 years old.

10. Vertebrate Animals. Not applicable to CPWR Small Study Program.

11. Select Agent Research. Not applicable to CPWR Small Study Program.

12. Multiple PD/PI Leadership Plan.

13. Consortium/Contractual Arrangements.

14. Letters of Support (e.g., Consultants).

15. Resource Sharing Plan(s). CPWR considers the sharing of research resources developed through NIOSH-sponsored research an important means to enhance the value and further the advancement of the research. What is the plan for disseminating data/results?

16. Authentication of Key Biological and/or Chemical Resources. Not applicable to CPWR Small Study Program.