



## Twenty years of NIOSH construction research

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This year marks the 20th anniversary of the Construction Research Program at the National Institute for Occupational Safety and Health (NIOSH). The Program started in 1990 through a \$1 million appropriation and a Congressional mandate to “develop a comprehensive prevention program directed at health problems affecting construction workers by expanding existing NIOSH activities in areas of surveillance, research, and intervention.” The United States Congress provided additional direction and funding over the next five years, adding new focus areas such as traumatic injury, musculoskeletal disorders, surveillance, and intervention research. Support was provided for a cooperative agreement for an external National Construction Center with the aim to develop prevention-oriented strategies and programs, to provide linkages to the construction community, and to coordinate applied research. Before 1990, construction safety and health was a relatively obscure topic with few researchers specializing in this area of research. Information describing safety and health conditions in the industry was difficult to find. The fatality rate for the U.S. construction industry as a whole was estimated to be 25 per 100,000 full time equivalent (FTE) employees, the fatality rate for structural iron workers in 1992 was 143.3 deaths per 100,000 FTE, and the rate for electric power line installers was 149.3 deaths per 100,000 FTE. Yet, there were few regular conferences for both researchers and construction industry practitioners to share problems and solutions.

When the NIOSH Construction Program was started, most decisions in safety and health were based on anecdotal information, occasionally using fatality data. There was, for instance, little awareness about non-fatal, but potentially disabling, conditions like musculoskeletal disorders or even of ergonomic interventions that would prevent these troubling conditions. Apart from confined space entry risks and hazardous waste operations, including asbestos management, there was no significant awareness of health hazards. That has changed substantially by characterizing outcomes using new data such as non-fatal injury and illness surveys, workers compensation claims, and health care utilization. Today there is a much more balanced, evidence-based perspective on the occupational safety and health needs of the construction industry. There is a rapidly expanding body of applied research that is steadily improving in scientific quality and in ease of practical application. The collaboration between NIOSH and the National Construction Center is a model of public-private partnership in the industry. The collaboration has created a strong foundation for construction partnerships, especially as the program is poised to work with industry partners to move research to practice (r2p) in the coming years.<sup>1</sup>

In 2007, NIOSH commissioned a review of its Construction Research Program by a Committee of the National Academies of Science. The Committee determined that the Program has a good balance among: (a) the NIOSH intramural research, (b) the National Construction Center, and (c) investigator-initiated extramural projects. The Committee reviewed the Program for relevance and impact, using a scale of 1–5 (with 5 being the best). The Committee assigned the Program a score of 5 for relevance and 4 for impact. No other NIOSH program evaluated by the National Academies of Science has received higher scores.

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<sup>1</sup> Since 1990 CPWR – The Center for Construction Research and Training has successfully competed for the cooperative agreement with NIOSH as the National Construction Center.

## 1. Highlights of the Construction Program

1990: The Construction Safety Council of Illinois begins to offer statewide programs and services, as well as a conference. That conference later gives rise to what is now the annual Construction Safety Council meeting, a premier and national conference on construction safety and health.

1993 -1995: A series of two national and four regional conferences for researchers and stakeholders were convened to first develop a construction safety and health research agenda, and then develop plans for implementation.

1993: The National Construction Center:

- Implements a Small Studies Grant Program to enable investigators to rapidly fund pilot and hypothesis-generating research.
- Establishes a Data Center to characterize construction industry trends.
- Establishes a Communications Office to publicize research findings.
- Fosters the International Roundtable on Construction Safety and Health as an information exchange to learn from more experienced nations.<sup>2</sup>

1994: The Construction Economics Research Network (CERN) was initiated to help characterize the industry and measure the economic impact of safety and health.

1997: The National Construction Center develops and launches a standardized safety and health training curriculum (now call *Smartmark*), and its industry partners create a joint labor-management organization to promote and deliver the national training program, which now reaches over 125,000 construction workers annually.

1997, 1998, 2002 and 2008: The 1st, 2nd, 3rd, and 4th editions of the *Construction Chart Book* are published by the National Construction Center. It characterizes the U.S. construction industry and its workforce based on available national data sets.

2000: The Construction Center launches eLCOSH (the electronic library of construction occupational safety and health), a repository of available construction safety and health information, with over 100,000 pages now being reviewed every month.

2002 and 2008: NIOSH and the Construction Center co-sponsor national conferences with the Construction Safety Council to link the research community with industry practitioners and partners.

2007: An immigrant worker conference is sponsored to address the safety and health needs of this rapidly growing population in the U.S. construction industry.

2008: NIOSH, the National Construction Center, and Hollywood Health & Society at the University of Southern California work together to craft the technical elements for a storyline about a construction worker who suffers a fall, as well as safe work practices, as a part of the popular Telemundo/NBC telenovela, "*Pecados Ajenos*."<sup>3</sup>

2008 and 2009: Based on the growing recognition of the Program by construction industry partners, owners and employers request support in the form of site safety and health assessments to improve performance. Also, NIOSH and its partners prepare goals and objectives for construction safety and health research for the second decade of the National Occupational Research Agenda (NORA).

Much has happened in construction industry practices over the last two decades, and the NIOSH Construction Program has played an important role in working with industry partners to improve safety and health conditions for workers in construction. Furthermore, there have been many fruitful projects from NIOSH's investment in construction over the years. Along with the National Construction Center, NIOSH has conducted or sponsored research on risk factors and specific risk groups, as well as developed a body of recommendations and practical solutions to improve the safety and health of construction workers.

The construction industry has improved its safety performance during these 20 years with reductions in fatality rates for high hazard occupations such as iron work and electrical power installation. The United States has matured from a country with virtually no construction safety and health effort to a world leader in the field. There is now a cadre of researchers nationally with interests in construction safety and health. Moreover, new programs focused on these topics are emerging at many academic, trade, and professional institutions.

The construction safety and health community can be proud of its deliberate efforts to confront the important problems in construction safety and health over the last 20 years. To mark this anniversary, the National Safety Council worked with NIOSH and the National Construction Center to assemble this Special Issue of the *Journal of Safety Research* devoted entirely to construction safety and health. This Special Issue provides an important reminder of the critical role of research in reducing the toll of injuries and illnesses among construction workers.

<sup>2</sup> At this time, countries other than the United States had national fatality and injury rates that were below those of the U.S. Furthermore, they were outperforming the U.S. in construction safety and health research and solutions.

<sup>3</sup> "The Sins of Others".