

Examining a Decade of NORA for the Construction Sector: Success or Failure?

**Christine M. Branche, Ph.D., FACE
Principal Associate Director and Director
Office of Construction Safety and Health
National Institute for Occupational Safety and Health
Washington, DC**

The second decade of the National Occupational Research Agenda (NORA) will close on September 30, 2016. The NORA Construction Sector Council has been very successful in achieving outstanding results and accomplishments based on its published goals and objectives to prevent construction related injuries and illnesses. The construction industry continues to experience injury and illness rates significantly higher than other industry sectors. The NORA Construction Sector was challenged to identify research areas where the greatest impact could be realized. This included the use of a priority setting process that addressed key factors in setting the goals, including:

- The number of workers at risk for a particular injury or illness
- The seriousness of the hazard or issue
- The probability that the new information and approaches will have a positive impact

The NORA Construction Sector Council—consisting of construction safety and health experts from industry, labor, professional associations, and state and federal governments—was the first such council to develop a national research agenda in October 2008 (<http://www.cdc.gov/niosh/nora/comment/agendas/construction/>). This was the first national effort to create an occupational safety and health research agenda for the construction industry. Efforts are still underway to answer the question: “What information do we need to be more effective in preventing injuries and illnesses in construction?” A description of research needs and information gaps was an important basis for the agenda. The other was to advance “research to practice” (r2p); specifically, a description of how research findings could be used by construction stakeholders to reduce injuries and illnesses in construction. The NORA Construction Sector Council promoted the most important research, the most effective interventions, and helped to implement strategies to achieve sustained improvements in workplace practice.

Developing the National Construction Research Agenda provided a vehicle for construction industry stakeholders to describe the most relevant issues, gaps, and safety and health needs in the industry. The resulting research agenda consisted of 15 strategic goals designed to address ten top problems in construction safety and health. These included seven “outcome” goals related to important sources of injury or illness, and eight “contributing factor” goals related to important influences on prevention and control measures throughout the industry. In a recent NIOSH analysis, the Construction Sector had more strategic goals that were being addressed by both extramural and intramural researchers when compared to the other sectors. Currently, twelve out of thirteen active Construction Sector goals are being addressed by either extramural or intramural researchers.

Beginning in 2010, the Manager and Coordinator of the NORA Construction Sector Council oversaw the selection of two priority goal activities. All 15 goals are important and relevant; however, making significant accomplishments in all areas within the decade is daunting given budgetary realities and other considerations across the industry. The selected priority goals were Goal 1 (Reduce Construction Worker fatalities and serious injuries caused by falls to a lower level), for which a falls prevention campaign was an intermediate task; and Goal 13 (Increase the use of “prevention through design (PtD)” approaches to prevent or reduce safety and health hazards in construction), for which green jobs in construction is a component. The selection allowed the Council to better harness its energies, and work collectively to make significant progress for the industry.

The Manager and Coordinator also oversaw a Sector Council mid-decade review of progress toward meeting all 15 goals. The review began in 2011, the half-way point in the decade-long NORA effort. The review provided an opportunity to assess overall developments; evaluate NORA projects and partnerships; examine the impact of the economic recession on construction generally, and on safety and health developments in construction; and to provide additional strategic direction and fine-tuning. The mid-decade review is available at: http://www.cdc.gov/niosh/nora/comment/agendas/construction/pdfs/const_middecadereview_oct2013.pdf

Progress on each goal was assessed, and goals were categorized into:

Exploratory - important issue but still defining problems and solutions

Developmental – some solutions are available but they are not ready for impact

Ready for Impact – sufficient solutions are available and we know what contractors need to do for impact in the industry

Six goals fall into the ‘Ready for Impact’ category. The NORA Construction Sector Council reviewed the performance measures and roadmaps for each Ready for Impact strategic goal, and prepared a mid-decade report describing progress on each.

NORA Goals		
Ready for Impact	6	Falls (1); Struck by (3); Silica (5); Culture (8); Disparities (12); PtD (13)
Developmental	7	Electrocution (2); Noise (4) Welding Fumes (6); MSD (7) S&H Management (9); Training (11) Surveillance (14)
Exploratory	2	Industry Organization (10) Engage the Media (15)

This categorization has proven effective in moving forward, assessing progress, and, more importantly, assessing impact during the second decade among the 15 NORA goals in construction.

Key Accomplishments

I. Construction Falls Prevention Campaign and National Safety Stand-Down



In 2011, the rate of fatal injuries in construction was the second highest of any U.S. industry. Within the industry, falls at construction sites were the leading cause of death, accounting for 35% of deaths among private sector construction workers (not including government or self-employed workers); most of these deaths were attributed to falls from roofs, scaffolds, and ladders. Deaths and injuries from falls represented a major, persistent, yet preventable public health problem.

In response to the ongoing problem of falls in construction, the NORA Construction Sector Council, developed a national campaign to prevent falls among construction workers was developed under the auspices of the NORA Construction Sector Council. The campaign was conceived and developed to specifically address the NORA ‘Ready for Impact’ Strategic Goal #1 “Reduce Construction Worker fatalities and serious injuries caused by falls to a lower level”. The Council explored how previous campaigns have been used to advance safety and health around the issue of falls, and gathered basic information about existing fall prevention campaigns, if any. None of the campaigns that existed at the time had evaluation data, therefore, the Sector Council embarked on developing one. The goal of the campaign, in part, was to develop a national effort aimed at construction contractors, onsite supervisors, and workers to reduce fall-related injuries and fatalities among construction workers. The scientific underpinnings of the campaign were prepared in 2010-2011 by Sector Council members working in groups, along with NIOSH staff,

the NIOSH-funded National Construction Center,¹ and the Occupational Safety and Health Administration (OSHA). The latter two are represented on the Council, and played key roles in developing the campaign. CPWR hired a social marketing firm to prepare an environmental scan of construction fall prevention campaigns in the United States and abroad. The same social marketing firm prepared a social marketing plan. Because the campaign relies heavily on completed research, it is a major research to practice (r2p) endeavor. The social marketing firm conducted focus groups to evaluate potential campaign messages. The campaign theme and messages were selected cooperatively by NIOSH, OSHA and CPWR. The national construction falls prevention campaign (also described as Safety Pays, Falls Cost) is a remarkable accomplishment among NIOSH, CPWR, OSHA and the NORA Construction Sector Council.² The campaign kickoff was hosted by U.S. Department of Labor Secretary Hilda Solis on Workers' Memorial Day, April 26, 2012.

The focus of the campaign expanded over the years to all types of construction, and no longer focuses on residential construction alone, although the latter continues to be a key concern. New materials supporting the campaign, such as videos, training materials, and related information, have been produced and added to the campaign websites. For example, NIOSH produced the video, "A construction framer talks about protecting his crew from falls" (<http://www.youtube.com/watch?v=MFthzInDdLQ&feature=youtu.be>) and posted it to the NIOSH campaign website. The video footage occurred during visits to residential construction sites in Phoenix, Arizona. NIOSH was invited to the sites by LeBlanc Building Company., Inc. This company requires all of their workers to use fall protection when working at height.

A national **Construction Safety Stand-Down** was first added to the campaign beginning in 2014 (June 2-6, 2014 and May 4-15, 2015). The stand-down was conceived as a voluntary event for employers to talk directly to employees about hazards, protective methods, and the company's safety policies, goals and expectations. Participation in the stand-down was completely voluntary; however, OSHA offered employers certificates of participation for those seeking formal recognition of participation. Completing a short online questionnaire was all that was required to print a certificate. CPWR created an easy, cost-free, day-by-day list of suggested activities that could be tailored to individual jobsites, and posted these to the main campaign website. OSHA has agreed to host the stand-downs for the foreseeable future.

For Year 3 of the campaign (Year 1 of the stand-down), broader engagement occurred by contractors of all sizes. Safway, (<http://www.safwaygroup.com/>) the largest provider of construction access equipment (e.g., scaffolds) in North America, joined the campaign as a partner. (<http://www.safway.com/Press/newsDetail.asp?id=104>). They invested approximately

¹ CPWR—The Center for Construction Research and Training has successfully applied to serve as the National Construction Center (CPWR) since 1994.

² Web addresses for the campaign and stand-down are: <http://www.stopconstructionfalls.com> (the main campaign website), www.osha.gov/stopfalls, and www.cdc.gov/niosh/construction/stopfalls.html.

\$100,000 to adapt existing and develop new company-specific campaign materials (e.g., mailers, promotional items) for their staff, trainees, and business partners.

Also in year 3, all U.S. Air Force Ground Safety forces based in the United States and abroad began participating in the campaign and the stand-down. This participation included training activities, audits, internal newspaper articles, internal television network, posters, and briefings at the Air Force Ground Safety Commander's calls. All U.S. Air Force Occupational Health safety professionals were required to focus on fall protection awareness during the entire stand-down in 2014 and 2015.

CPWR evaluated the 2014 and 2015 safety stand-downs using data generated from OSHA's certificate of participation database. Company information was anonymous and confidential. Only demographic and descriptive information were used to conduct the analyses and complete the report (<http://stopconstructionfalls.com/analysis-of-2014-and-2015-stand-downs/>). Highlights of the analysis are provided below:

2015 Total Number of Entries Submitted: 3,759 Total Number of Workers Reached: 1,041,307
2014 Total Number of Entries Submitted: 4,882 Total Number of Workers Reached: 770,193

It is important to note that in both 2014 and 2015 the total number of stand-down participants and workers reached were much higher than the numbers reflected above. For example, the US Air Force Occupational Health effort alone reported reaching over 650,000 military and civilian personnel internationally in 2014 and over 1.5 million in 2015.

The momentum of this extremely well-received campaign has been such that NIOSH, OSHA and CPWR have agreed to continue the campaign indefinitely. The Construction Falls Prevention Campaign will continue distributing information and providing outreach, including a stand-down planned for May 2-6, 2016.

II. Green Jobs in Construction

Integrating Safety and Health into Green Construction

One of the six "Ready for Impact" goals of the NORA Construction Sector Council relates to green construction (Goal 13.0: Increase the use of "prevention through design" approaches to prevent or reduce safety and health hazards in construction). Under the auspices of the NORA Construction Sector Council, strategies and tactics were explored that are or can be used to integrate safety and health into green building and construction initiatives in the United States.

NIOSH's Prevention through Design (PtD) national initiative addresses design-related occupational injuries and illnesses by encouraging the elimination of hazards and minimizing risks to workers across all industry sectors and settings. NIOSH's Office of Construction Safety

and Health (CSH)³ has used PtD principals that examine the potential for hazards throughout the life cycle of work premises, tools, equipment, machinery, substances, and worker processes. This includes their construction, manufacture, use, maintenance, and ultimate disposal or reuse. PtD has been the linchpin of NIOSH's efforts to integrate occupational safety and health into green and sustainable construction. Together, the NIOSH Construction and PtD programs collaborate on efforts to increase the use of design interventions to address safety and health hazards early in the pre-design and design processes in the construction sector. As part of the PtD initiative, CSH and its construction stakeholders, including NORA Construction Sector Council members, developed a framework to create awareness, provide guidance, and address occupational safety and health issues associated with green jobs and sustainability efforts. CSH has taken a number of key steps to advance this issue, articulating the case for why green construction represents an opportunity to promote worker safety and health as a fundamental dimension of true sustainability (see NIOSH's Science Blog, "Going Green: Safe and Healthy Jobs" (<http://blogs.cdc.gov/niosh-science-blog/2010/01/green-2/>)).

In addition, armed with the NIOSH White Paper, "NIOSH Perspectives on Sustainable Buildings: GREEN ... AND SAFE," NIOSH formally approached the U.S. Green Building Council (USGBC) in 2011 about the merits of integrating occupational safety and health generally, and PtD specifically, into its Leadership in Energy and Environmental Design (LEED) rating system. A LEED pilot credit was developed, emerging from efforts motivated by the NORA construction goal to increase the use of PtD by integrating safety and health into green rating systems is important. Over time, CSH, occasionally with members of the NORA Construction Sector Council, presented these concepts at national meetings related to sustainability.

USGBC posted the new pilot credit, "Prevention through Design," to its LEED Pilot Credit Library on February 19, 2015 (please see the links at the USGBC <http://www.usgbc.org/credits/preventionthroughdesign> (v4) and <http://www.usgbc.org/credits/preventionthroughdesign2009> (v2009)). NIOSH added information describing the topic and including links to the USGBC site and additional background information. Please see "Safe, Green and Sustainable Construction" at <http://www.cdc.gov/niosh/topics/greenconstruction/default.html>.⁴

The credit is intended to reduce illnesses and injuries by supporting high-performance, cost-effective employee safety and health outcomes across the building life-cycle by designing structures that reduce or eliminate potential safety and health hazards. The pilot credit addresses two building life cycle phases important for safety and health: (1) operations and maintenance

³ The Director and Deputy Director of the NIOSH Office of Construction Safety and Health (CSH) are also the Manager and Coordinator, respectively, of the NORA Construction Sector Council.

⁴ Note well: Access to the course will require your being a member of USGBC or your having paid for access to LEED.

(O&M), and (2) construction. Based on advice from the USGBC, the credit is structured to parallel and complement the existing LEED Integrative Process credit. A discovery step is used to evaluate opportunities, followed by an implementation step to provide appropriate solutions.

For the construction sector, efforts by NIOSH and the NORA Construction Sector Council have been productive. Workers and employers in this industry have benefitted from the practical work catalyzed by the thought-leaders who belong to this group. Major accomplishments have occurred that are expected to have long-lasting and meaningful impacts on improving the safety and health for millions of construction workers.