Achieving Excellence in Construction Safety

New Organization in West Virginia Seeks to Improve Construction Industry’s Dismal Safety Record

Construction in the United States is a $300 billion dollar per year industry. It is a very complex industry involving a broad range of tasks, skill mixes, climatic conditions, and work environments, making it uniquely different than other industries. Serious problems and concerns exist in the construction industry with respect to occupational safety and health. The Bureau of Labor Statistics (BLS) reports that over the years, construction has suffered the highest rate of injuries and lost workdays of all major industries in the nation. On the average, about one out of seven construction workers experiences an occupational injury or illness on an annual basis; construction accidents cause losses over 8 billion dollars every year.

The complex and divergent nature of the tasks and environments involved in construction work generate many different types of occupational hazards. Accidents can be (and are) caused by falls, electrocution, over-the-road motor vehicles, industrial vehicles and equipment, being caught in, under, or between objects, striking objects, explosions and fires, as well as heart attacks. Sprains and strains lead the occupational injuries and illnesses, followed by cuts and punctures, fractures, bruises, abrasions, burns and amputations, in addition to general diseases. The types of construction work leading to significant incident rates include general and residential building construction, heavy construction, plumbing, heating and air conditioning, paper hanging and decorating, electrical work, masonry, stonework and plastering, carpentering and flooring, roofing and sheet metal work, concrete work, and water well drilling.

There has been increasing awareness and concern in the construction industry over occupational safety and health. This concern has been demonstrated by the increasing amount of safety-related materials being developed and by the increasing number of training courses and seminars being conducted. While these forms of information transfer help to address the problem, there are still areas where additional effort is needed. Principally, there is a serious need for greater emphasis on hazard control as opposed to hazard recognition and evaluation. There appears to be a gap of knowledge and expertise regarding safety principles and practices by construction industry management and supervision. For example, design engineers need to be sensitized to construction safety issues so that injuries during construction can be reduced. Construction supervisors and workers, on the other...
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hand, need specific rather than general information to protect themselves from hazards associated with the materials, equipment, and procedures they work with daily. They need to recognize incorrect procedures and problems with equipment and how to effect immediate relief.

At present, safety expertise is largely gained on-the-job. Although a number of journals deal with practice and research in the fields of occupational safety and health, none emphasizes engineering control technology relative to construction safety. Reports and articles on the practice of engineering control are scattered throughout the scientific and technical literature, thus making it difficult for practitioners to locate pertinent information. No organized effort exists to effectively collect and disseminate technical information on construction safety.

**Initial Funding Granted . . .**

In light of this background, and in response to a request for proposal received from the National Institute for Occupational Safety and Health (NIOSH), the West Virginia University Department of Civil Engineering expressed its interest in developing a Center for Excellence in Construction Safety, which would deal with the issues mentioned above; namely, safety education, safety research, and information transfer. The proposal to NIOSH was successful, and the Department was awarded $50,000 to establish the Center. The award was funded with a 12-month budget period and a 3-year project period. It is planned that $100,000 will be available each year in the second and third years.

Overall objectives of the Center include: (1) the promotion of hazard control components in engineering curricula, (2) the promotion of hazard awareness and safety-related knowledge and skills specific to the construction industry, and (3) the promotion of the consideration of safety issues during project design for the purpose of reducing injury during construction.

Specific tasks to be accomplished by the Center include: (1) development of course materials and instruction on construction safety for civil engineering students at the undergraduate and graduate levels, (2) promote the adoption of such course materials by other civil engineering academic institutions,
(3) design and conduct projects related to the improvement of current construction practices that would develop design parameters to reduce trauma during the construction phase, and (4) the establishment of techniques for the collection and dissemination of construction safety information, educational materials, developed guidelines, and design criteria to engineers, architects, contractors, and trade unions.

Obviously, the Center staff cannot accomplish all of these tasks during the first year. An Advisory Committee to the Center has been formed to provide guidance and direction. The Committee includes representatives from the Department of Defense, the National Constructors Association, the AFL-CIO, the American Insurance Services Group, the National Bureau of Standards, the Advisory Committee on Construction Safety and Health of the U.S. Department of Labor, and NIOSH. AWCI has also agreed to participate on this Advisory Committee.

With the assistance of the Advisory Committee, the Center staff has established the following priorities for the first year of operation:

1. Through a literature search and contacts with knowledgeable industry people, review current construction safety research activities and prepare and disseminate a state-of-the-art survey.

2. Develop one and two clock-hour discipline-specific modules on construction safety designed for inclusion in existing undergraduate civil engineering courses.

3. Begin developing resource lists (books, articles, case studies, audiovisual materials, etc.), acquiring materials and assembling databases on the subject of construction safety with a view toward becoming a clearinghouse for construction safety information.

The Center welcomes responses from Construction Dimensions readers who may have research findings to contribute or ideas on resource materials that would be appropriate. Similarly, those with questions or who would like more information are urged to contact the Center. Please direct your inquiries to Ron W. Eck, Director, Center for Excellence in Construction Safety, Department of Civil Engineering, West Virginia University, PO Box 6101, Morgantown, West Virginia 26506-6101 (304-293-5580).