Falls Among Construction Workers

Falls are one of the leading causes of workplace death, lost work time, and costs to industry, particularly in construction.

• 25% of nonfatal injuries and 38% of fatalities in the general construction industry are due to falls
• In 2010, 774 employees died while working in the U.S. construction industry (34.1% of all nationwide facilities)
• Falls were the primary cause of total deaths among the following construction trades in 2010:
  - Carpenters (70%)
  - Painters (62%)
  - Roofers (75%)
• Falls constituted 251 out of 721 (35%) total fatalities in construction in 2011

Objectives

Construction site of the new School of Public Health and Health Services building, located at Washington Circle, Washington, DC

March 28, 2013
Projected: March 2014

Primary objectives:
• Develop a comprehensive tool to assess fall safety in a general construction setting
• Assess and compare trade-level fall safety practices among five skilled occupations that are at risk of falls (i.e. electricians, welders, painters, carpenters, roofers)
• Assess and compare worksite-level fall safety practices across the five construction phases (i.e. concrete pouring, skin, interior rough end, interior finishes, roofing)

Fall Safety Assessment Tool

The GW Assessment of Fall Risks (GAFR) has 7 domains: Ladder, Aerial Lift, Personal Fall Arrest, Scaffolding, Guardrail, Roof Sheathing, and Safety Net System

• Ladder (25 items)
• Guardrail (8 items)
• Personal Fall arrest (8 items)
• Aerial Lift (8 items)
• Scaffolding (12 items)

Development of Assessment Tool

The GW Assessment of Fall Risks (GAFR) was developed with regard to usage in the general construction setting. This process consists of the following:

- Thorough review of pre-existing fall safety audit tools
- Development of an extensive list of items based on OSHA fall safety standards
- Review of the list by a panel of experts
- Pilot testing over a two-week period

Assessment Tool Example: Guardrails

• Top edge between 39” and 42” and at least 1/4” diameter (Y/N)
• Wire rope does not deflect below 39” with 200 lbs. applied (Y/N)
• Flagged every 6’ (Y/N)
• Midrail centered (Y/N)
• Toeboards installed and structurally sound (Y/N)
• Smooth and free from defects (Y/N)
• Being used properly and not being bypassed (Y/N)

Innovation

• Hard to reach workers:
  - Unprecedented access to a worksite for a prolonged period of time
  - Utilization of the university’s property as a laboratory for field study
• Development of a fall safety assessment tool for use in general construction:
  - Usable in a general construction setting
  - Addresses both trade- and worksite-level safety practices
• Focus on fall safety among skilled trades:
  - Evaluation of fall safety, specifically among five construction trades with a higher risk of falling

Expected Outcomes

• Development of a practical fall safety assessment instrument, which can be used in the general construction setting
• Determination of trade-level compliance for fall prevention practices for each of the five trades of interest throughout the stages of construction
• Identification of a vulnerable trade or trades during a specific period with higher risk of falling, indicating a primary target for intervention
• Quantification of worksite-level compliance with fall prevention safety practice across the different stages of construction
• Identification of specific stages of construction that increase risk of falls based on the worksite-level fall safety assessment

Research Team

Representation of the university-general contractor partnership between The George Washington University and The Whiting-Turner Contracting Company (Post-doctoral fellow Seung-Sup Kim, MPH Student Amanda McQueen, Site Supervisor Mike Whitmore)

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Fall Safety Assessment at the
New School of Public Health and Health Services Building
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