Stabilizing Cantilevered Members to Prevent Structural Collapse

Structural collapse during steel erection continues to be one of the “Deadly-Dozen” hazards, and the failure to stabilize cantilevered structural members is one of them. When buildings or structures are designed with cantilevered members, preplanning is necessary to determine what temporary support or erection aids are needed to prevent structural collapse during the erection process.

When the field connections are designed with bolted holes and/or welded connections, it may be necessary to temporarily support the structural members until the entire connection has been completed. Erection aids are commonly specified for cantilevered connections, but in some cases such specifications may not be denoted. Shop and erection drawings should show all erection aids and necessary instructions for the steel erection contractor. Erection aid preferences may vary from area to area and from company to company.

The drawing on the left is a typical cantilevered member that is shop fabricated with lugs for using turnbuckles to support and position the cantilevered beam until the connection is completed. Other methods to provide temporary support may include the combination of wire rope slings and come-a-longs, or use of vertical shoring beneath the cantilevered members.

Because the steel erector is the party who actually erects the steel, they are responsible for determining the type and strength of the aids. The American Institute of Steel Construction (AISC) Code of Standard Practice provides guidance regarding this type of responsibility. This can be discussed at the preconstruction meeting between the steel erector and the fabricator. Afterwards they can coordinate with the engineer of record and the architect. The decisions pertaining to erection aids for cantilevered members must be made prior to proceeding with detailing.
Following is the standard from the AISC Code of standard Practice pertaining to the erection and stability of cantilevered members.

**AISC Standards – 16.3 – 42 Section 7.10.3** – The erector is responsible for installation of all members (including cantilevered members) to the specified plumbness, elevation, and alignment within the erection tolerances specified in this code. The erector must provide all temporary supports and devices to maintain elevation or position within these tolerances. These works are part of the means and methods of the erector and the owner’s designated representative for design need not specify these methods or related equipment.

The Occupational Safety and Health Administration (OSHA) is a regulatory Agency that sets-forth a specific standard pertaining to cantilevered members and maintaining stability during the erection process.

**OSHA Subpart R – Steel Erection 1926.756(a)(2)** - A competent person shall determine if more than two bolts are necessary to ensure the stability of cantilevered members; if additional bolts are needed, they shall be installed.

**Update on Safety Initiatives and Events in the United States and Canada**

- **Safety Web Cast Series** – General President Wise has commissioned a “safety web cast series” to address all local unions and contractors regarding our commitment to “raise the standard for safety performance”. The “safety web cast series” are scheduled to begin in April 2, 2015 and will broadcast on a periodic basis. Topics will focus on fundamental safety functions that need to be implemented in the workplace.

- **State-of-the-Art Structural Mock-up for Fall Protection Training** – Fall protection and training is one of the most critical issues and hazards in the ironworking industry. We are pleased to announce that the IMPACT trustees have approved funding for a state-of-the-art structural training mock-up that will incorporate every type of fall arrest system on the market. Lee Worley, Executive Director of the National Training Fund and been working with the Safety Department to design a two-story structural that incorporates various types beam and columns connections for apprentice training. This training structure will utilize various types of fall protection devices and fall arrest systems. Although our current training facilities through North America have fall protection training structures, this will be the new prototype for future training.

- **Ironworker/IMPACT North American Safety Honors Program** – The International Association and IMPACT have developed this program to recognize Ironworkers and projects that have exhibited outstanding safety performance. The Program has been expanded to allow more members to be eligible for bi-annual drawing. Members can enter the drawing by being nominated by a contractor for exhibiting outstanding safety performance, completing the Safety Trained Supervisor Construction (STSC) Certification, and completing one of the journeyman upgrading courses at a Local Union training facility.

- **Washington State Approved OSHA Plan** – On March 5, 2015 Steve Pendergrass, President of the Pacific Northwest District Council of Ironworkers established a follow-up meeting with officials of Washington OSHA regarding the adoption of new reinforcing steel and post-tensioning standards.

- **California State Approved OSHA Plan** – The California OSHA Standard Board has completed a reinforcing steel stakeholder Advisory Committee meeting to receive input from labor and management on the adoption of new reinforcing steel and post-tensioning standards. The official rulemaking record reflected unanimous support and no opposition to the proposed standards that were discussed during the two days of hearings. The California OSHA Standard Board is expected to schedule a Public Hearing in September and a formal Board vote in October of this year.
• **Floor Opening Safety Video** – The IMPACT trustees have approved funding to develop a safety video on floor opening covers – installation and removal techniques. Filming will begin in April of 2015.

• **The (ACCSH)** – OSHA Advisory Committee on Construction Safety and Health is convening a special meeting on March 31-April 1, 2015 to hear public comments on OSHA’s proposed changes to the Subpart CC – Crane and Derrick Standard. The Ironworkers International Safety department will attend to support the crane industry stakeholder position on proposed changes.


• **Ironworker Safety Trained Supervisor Construction Certification Program** – The safety department is working with Jeff Norris in Canada to expand opportunities to Ironworkers and contractors. Darrell LaBoucan, Director of Canadian Affairs has established a June 2015 Tri-Council Meeting where this program will be discussed.

Report on Canadian Safety Initiatives and Events - Jeff Norris, Canadian Safety Coordinator

**April Conference Calendar/Events**

Intended for Safety Committee Members, Supervisors, Safety Coordinators, Union Safety Officers, Managers and anyone who is responsible for safety at work.

• April 20-21  **Western Conference on Safety**

  Vancouver, British Columbia, Canada
  Contact: Pacific Safety Center
  3235 21331 Gordon Way  Richmond BC V6W 1J9
  Phone: 604-233-1842  Fax: 604-233-1942
  registration@pacificsafetycenter.com
  www.pacificsafetycenter.com

• April 28-29  **Partners in Prevention 2015 Health & Safety Conference & Trade Show**

  Mississauga, Ontario, Canada
  Contact: Workplace Safety & Prevention Services
  5110 Creekbank Rd, Suite 300
  Mississauga ON L4W 0A1
  T: 1-877-494-9777 / 905-614-1400
  F: 905-614-1414
 customercare@wsps.ca
National Day of Mourning – April 28th

The National Day of Mourning, held annually on April 28, was officially recognized by the Canadian federal government in 1991, eight years after the day of remembrance was launched by the Canadian Labour Congress. The Day of Mourning has since spread to about 80 countries around the world and has been adopted by the AFL-CIO and the International Confederation of Free Trade.

The numbers tell the story. In 2013, 902* workplace deaths were recorded in Canada. While it’s the lowest total since 2000 when 882 fatalities were recorded, this number still represents 2.47 deaths every single day.

In the 21 year period from 1993 to 2013, 18,941* people lost their lives due to work-related causes (an average of 902 deaths per year).

The Canadian flag on Parliament Hill will fly at half-mast. Workers will light candles, don ribbons and black armbands and observe moments of silence. Contractors are asked to participate by declaring April 28th a Day of Mourning and to strive to prevent workplace deaths, illnesses and injuries.

The Canadian Centre for Occupational Health and Safety hopes that the annual observance of this day will strengthen the resolve to establish safe conditions in the workplace, and prevent injuries and deaths. As much as this is a day to remember the workers who have lost their lives, it is also a call to protect the living.

For further statistical information visit www.awcbc.org/

*Fatalities accepted in 2013 according to "Number of Fatalities, by Jurisdiction 1993-2013” summary table, statistics from the Association of Workers Compensation Boards of Canada. Annual average according to "Number of Fatalities, by Jurisdiction 1993-2013” summary table, statistics from the Association of Workers Compensation Boards of Canada

May 3-9, 2015

NAOSH Week – North American Occupational Safety and Health Week

This is your chance to focus on the importance of preventing injury and illness in the workplace. The NAOSH Week website has ideas, resources and products to help you stage a NAOSH week event in your own company or local union organization, as well as a list of events already taking place in your region.

NAOSH week was first launched in June 1997, marked by an agreement between Canada, the United States and Mexico. The Institute for Work & Health also has information and tools that can help you focus on evidence-based injury and disability prevention practices during NAOSH Week, including newsletters and guidelines addressing ergonomics, return to work, OHS planning and more.
NAOSH Week is led by the Canadian Society of Safety Engineering (CSSE) in partnership with the Canadian Centre for Occupational Health and Safety (CCOHS), Employment and Social Development Canada (ESDC) and Threads of Life, in concert with the American Society of Safety Engineers (ASSE). NAOSH Week continues to be a truly continent-wide event.

A great way to kick off NAOSH Week? Take part in the Steps for Life Annual Walk-a-Thon sponsored by Threads for Life. It takes place on May 2 or 3, 2015, in cities across Canada.

For more information, please visit:
National American Occupational Safety and Health Institute for Work & Health
Steps for Life (Canada)

The Canadian government has introduced new Hazardous Products Regulations (HPR), which came into effect on February 11th, 2015. The HPR repeals and replaces the federal Controlled Products Regulations. The purpose of the HPR is to revise Canada’s classification and hazard communication systems for workplace hazardous chemicals by implementing a global standard. This global standard is called the Globally Harmonized System for the Classification and Labelling of Chemicals (GHS). The GHS is already being implemented by the United States and many other countries around the world.

For information visit: www.ccohs.ca/oshanswers/chemicals/ghs

Working Together…On the Safe Side

Armtec is one of Canada’s largest manufacturer’s producing an array of architectural and structural precast, pre-stressed concrete products from highly engineered structural components for bridges, building envelopes and parking structures.

Armtec management, Local 805 representatives and the Ironworkers International met recently to review and discuss safety and health issues relating to the working environment at the Armtec facility at 4300-50th Avenue in Calgary, Alberta. Working together in partnership, increasing communication between the members and management creates positive relationships. The practice of “See Something-Say Something” provides opportunity for feedback from the Ironworker to management in the effort to improve equipment operation, safe work practices & procedures, and increased training for safer, more productive work tasks and activities.
Recently, safety improvements were made to a reinforcing bending machine critical to production at Armtec as a result of direct feedback from machine operators and maintenance staff. In order to provide an extra measure of safety while fabricating from longer stock lengths, maintenance installed additional shut-off devices and remote foot pedals to increase safe working distance from bending table for operator.

Pictured left to right: Randy DeBrule, Local 805 Business Agent, Rick Ell, Armtec Quality Control Sub-Foreman/Shop Steward, Jeff Norris, Canadian Safety Coordinator Ironworkers International, Nathan Wilson, Local 805 Member, Darryl Yarrow, Armtec Health & Safety Manager (Calgary, Alberta)
Waiward Steel Fabricators Ltd. celebrates achieving 1 Million Hours without a
Lost Time Incident (LTI) at Edmonton Facility-March 19, 2015

Reaching this significant milestone is the result of Waiward’s employee led approach to hazard prevention, and reflects the company’s commitment to setting higher safety standards.

Terry Degner, President, recognized Waiward’s company-wide efforts to improve safety practices, saying: “In recent years, we’ve introduced several new policies and procedures to ensure safety is firmly embedded with our culture. Our aim was to take safety beyond checking boxes and into the hearts and minds of our employees – and I’d like to thank each and every one of you for stepping up to help us achieve this”.

Waiward has focused on implementing robust safety policies and procedures to protect its employees. This includes the introduction of its competency-based program which provides a benchmark for measuring performance among tradespeople and helps to keep employees safe. In addition, Waiward’s employees are offered every opportunity to participate in the decisions which affect their safety – which in turn empowers employees at all levels to shape the company’s approach to safety. The Ironworkers are proud to have members of Shopmens’ Local 805 and Local 720 working at the Edmonton Facility and for being part of this milestone achievement.

“Waiward Steel employs our members to perform shop fabrication and to be regarded as the “best in class” professionals in the steel fabrication industry. To meet the market place demands, working safely is inclusive of production and quality performance”- Bill Mercer, Business Manager Local 805
Breathe Easy at the Ironworkers Local 764 Training Center-Mt. Pearl, Newfoundland

The Ironworkers Local 764 training center opened in October 2014. Incorporated in its’ design is a state of the art air filtration system inside the welder test facility. The system was custom fabricated by Diversitech Industries. The system is designed to capture over 99% of airborne particulate in the shop environment, and re-circulates the cleaned air within the facility, keeping energy costs lower. The facility incorporates the use of 3 portable air filtration units to be used when cutting and welding operations are being performed around the two additional shop areas. The use of both systems maintains a clear and healthy work environment for all the employees and members.

Bert Royer, IMPACT Canadian Regional Director and Larry Hawco, Director of Education and Training (Local 764)

The International Association will continue our “ZERO INCIDENT-FATALITY CAMPAIGN” in 2015 to increase safety performance and help protect our members in the field and shop. This goal challenges all members to “See Something - Say Something”, to help recognize and avoid workplace hazards. Both Jeff Norris and I will continue to work closely with District Councils, Local Unions, and IMPACT Regional Advisory Boards throughout the United States and Canada to help improve safety performance. If I can provide any assistance, please contact me at the Safety and Health Department at (800) 368-0105. If you require assistance in Canada please contact Jeff Norris, Canadian Safety Coordinator at (780) 717-0071.

Steve Rank
Executive Director of Safety and Health
Ironworkers International