

## Rebar Column and Wall Collapse One of the Deadly Dozen Hazardous Activities

In January of 2012 the Safety and Health Department launched several new initiatives designed to increase safety performance and “*target the deadly dozen hazardous activities that lead to fatalities and disabling injuries.*” The focus of this article is to highlight some of the serious hazards pertaining to “*rebar columns and walls,*” and to inform our members that the International Association is aggressively pursuing the Occupational Safety and Health Administration (OSHA) to develop new safety regulations for the reinforcing steel industry. The current OSHA Subpart Q – Concrete and Masonry standard that was written in 1971 is antiquated and only contains three (3) references specifically pertaining to reinforcing steel. This OSHA standard does not adequately address specific workplace hazards associated with the reinforcing steel activities that our members encounter on the jobsite. After close examination of OSHA fatality reports and information obtained by our International Association, these incident trends clearly indicate a direct correlation between accident causation factors and lack of specific OSHA regulations.



### **Recognizing and Avoiding Column Stability Hazards**

Structural collapse of rebar columns have resulted in fatalities and disabling injuries to our members throughout the United States and Canada. Incident investigation reports indicate some of the primary causation factors have been the lack of sufficient guying and bracing. While the demand for poured in place rebar columns in buildings and bridges continues to increase, unfortunately the structural collapse of large single, double, and triple barrel rebar columns has also increased. Additionally, one of the contributing factors that remain a common denominator is the lack of clear regulatory responsibility for the design, installation, and removal of rebar column guying or bracing systems to provide adequate support. In many cases, it was discovered other trades on the jobsite prematurely removed column support guys to install formwork. Unfortunately, these situations lead to rebar column collapse and serious incidents. Some State Approved OSHA

Plans have adopted more stringent standards pertaining to responsibilities for column stability. However, there is a great need to initiate regulatory reform to address common hazards and define a clear line of responsibility for maintaining column stability.



### **Primary Considerations for Maintaining Column Stability**

- Guying and bracing systems must be designed by a “qualified person.”
- The placement of guy cables near the top and mid-span of large columns must be pre-determined and attached to welded template rings.
- Internal Z-bars is one of the methods used during the fabrication of round columns to maintain vertical and lateral support. When Z-bars are integrated with template bars this provides added stability.
- Ground anchorage points for guying and bracing systems must be pre-determined and capable of sustaining eccentric loading after columns have been hoisted into their final position.
- The installation and removal of guying and bracing systems must be under the supervision of a “competent person.”

**Recognizing and Avoiding Curtain Wall Stability Hazards** - In some instances, vertical curtain walls are built in place on the jobsite prior to the placement of formwork. Serious incidents involving structural collapse of vertical rebar curtain walls has been attributed to the lack of adequate bracing and preplanning. Double curtain wall sections can weigh several tons when completed, and maintaining structural stability during erection is one of the primary hazards that must be addressed.



### **Primary Considerations for Maintaining Curtain Wall Stability**

- Temporary bracing systems must be designed by a “qualified person.”
- The proper quality of pipe braces, 2x6 bracing, and any structural support materials must be made available on the jobsite prior to commencement of curtain wall fabrication.
- Ground anchorage points for bracing systems must be pre-determined and capable of sustaining eccentric loading during and after the final fabrication of curtain wall sections.
- The installation and removal of various types of bracing systems must be under the supervision of a “competent person.”



**Recognizing and Avoiding Formwork Stability Hazards** - Typically, the controlling contractor or other formwork subcontractors will install the concrete formwork prior to the installation of vertical curtain wall steel. Serious incidents resulting in fatalities and disabling injuries continue to occur due to the lack of specific requirements and responsibilities pertaining to formwork stability. In many cases, our members arrive to the jobsite and are unaware of the structural integrity the formwork. Accelerated pour schedules and “fast track” formwork erected by other subcontractors can create structural collapse hazards for our reinforcing Ironworkers when proper bracing and formwork inspection is not performed. Our Ironworkers should not be in the position to evaluate the structural integrity of formwork installed by other parties on the jobsite. This responsibility must be performed by the controlling contractor or other formwork subcontractors who install the formwork on the jobsite.

The “2012 Zero Fatality” campaign will challenge all members to ***“intervene and prevent unsafe conditions and unsafe acts”*** during reinforcing steel activities on the jobsite. The erection of rebar columns and walls is one of the ***“deadly dozen hazardous activities that has led to fatalities and disabling injuries.”*** Future updates on our progress to pursue new OSHA safety standards for the reinforcing steel industry will be provided on a periodic basis. This campaign will include hard-hat stickers, gang-box stickers, and posters for training facilities and local unions. I will continue to work closely with District Councils, local unions, and IMPACT Regional Advisory Boards to promote the International Association’s “2012 Zero Fatality” campaign by ***“targeting the deadly dozen hazardous activities that lead to fatalities and disabling injuries.”***

**March Feature Issue:**  
***“Preventing Open Web Steel Joist Collapse”***  
**Targeting One of the Deadly Dozen**  
**Hazardous Activities**

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