

## **A 17-Year-Old Student Severely Injures Leg on a Construction Site While Working at a Steel Erection Company as Part of a Cooperative Work Experience - Massachusetts**

**Investigation: # 04-MA-2NF-01**

**Release Date: March 2, 2007**

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### **SUMMARY**

In 2003, a 17-year-old student's right leg was severely injured while working on a construction site as part of a Cooperative Work Experience project. The injured student had been waiting for the work site foreman who was engaged in another activity, when the incident occurred. The injured student was standing next to a 37-foot long steel I-beam that had been placed on wood blocking. The I-beam overturned off of the wood blocking and landed on the student's right leg, crushing it. Co-workers immediately utilized the crane to lift the steel I-beam off of the victim. A call was placed for Emergency Medical Services (EMS) who responded to the incident site within minutes. EMS transported the victim via ambulance to a local hospital where the student underwent surgery for the injuries. The Massachusetts Department of Public Health concluded that to prevent similar occurrences in the future, companies that employ Cooperative Work Experience students should:

- Ensure that these students are not performing tasks prohibited by the Child Labor Laws (CLLs) and that their work sites are in compliance with OSHA regulations**

In addition, schools that have Cooperative Work Experience programs should:

- Educate companies to which students are assigned, students, and parents about the Child Labor Laws (CLLs), especially the Hazardous Orders (HOs)**
- Research companies to which students have been assigned to learn if these companies have been cited for violating OSHA regulations in the past**
- Routinely visit companies and work sites to which students have been assigned**
- Routinely meet with students to discuss tasks they have been performing while enrolled in the program**

## INTRODUCTION

In early January of 2004, the Massachusetts Department of Public Health (MDPH) was notified by the Occupational Safety and Health Administration (OSHA) through the 24-hour Occupational Fatality Hotline that a 17-year-old student had severely injured their right leg while working at a steel erection company. MDPH initiated an investigation of the incident. Two MDPH representatives visited the steel erection company office and the student's school.

The injured student was attending a regional vocational technical high school and was enrolled in the Facilities Management shop. This shop was designed to prepare students to manage the daily maintenance of businesses or institutional facilities. The Facilities Management shop consisted of training in eight areas: carpentry, plumbing, electrical, welding, metal fabrication, painting, landscaping, and estimating and scheduling. The shop program was certified by the American Welding Society.

At the time of the incident, the steel erection company had been in business for ten years and had approximately 28 employees. Two of these employees, including the injured student, were participating in the Cooperative Work Experience program and attended the same local regional vocational technical high school. The company stated that they had been accepting Cooperative Work Experience students from this school for the past five years and that they had previously hired some of these students after graduation as fulltime employees. The company provided both classroom and on-the-job safety training to all employees. Both Cooperative Work Experience students had the required cooperative employment permits.

## INVESTIGATION

The two Cooperative Work Experience students had been working with the steel erection company for approximately one month prior to the incident. The steel erection company was contracted to erect the steel portion of a new structure. The two students were working on this project at the time of the incident. The company owner reported that the students' tasks included, but were not limited to, bolting sections of steel together and performing non-structural welds. The company owner also reported that the Cooperative Work Experience students were not allowed to perform many specific tasks. These prohibited tasks included, but were not limited to, driving vehicles, working at heights over 30 feet, operating man lifts, and any crane work.

A load of steel, which included the I-beam involved in the incident, had been delivered to the construction site two weeks prior to the incident. The I-beam was 37 feet long, 24 inches deep and weighed approximately 3,700 pounds. Upon delivery to the construction site, the I-beam was unloaded from the delivery truck by a crane and placed onto pieces of four-inch by four-inch oak blocking to keep the beam off of the ground. Due to an extended period of cold weather, the construction site ground was frozen at the time the I-beam was delivered. Once delivered, the I-beam was not moved during the two weeks leading up to incident.

For several days prior to and on the day of the incident, the weather had been warmer. The construction site ground had become muddy and on the day of the incident, it had started to rain. The mud and rain might have created an unstable ground surface, contributing to the beam's movement. At

the time of the incident, there were approximately 28 workers onsite including the two Cooperative Work Experience students and a site foreman.

The injured student had been working with the site foreman. The steel erection company owner reported that immediately prior to the incident, the injured student had been waiting for the site foreman, who was engaged in setting up a crane, to assign the next task. The injured student had been standing alone next to the steel I-beam involved in the incident while waiting for the foreman. The I-beam suddenly overturned off of the four-inch by four-inch oak blocking and landed on the student's lower right leg crushing the leg and pinning the student to the ground. The coworkers immediately utilized the onsite crane to lift the steel I-beam off of the injured student. The victim was then transported, via ambulance, to a local hospital. The injured student's lower right leg sustained multiple fractures.

Although the injured student had not been assisting with the crane operation on the day of the incident, it had been reported that both of the Cooperative Work Experience students had previously assisted with operating the crane on this site. The task of assisting in the operating a crane is prohibited under federal Child Labor Laws for individuals under 18 years of age. There are no exemptions to this prohibition for students in Cooperative Work Experience programs.

## **RECOMMENDATIONS/DISCUSSION**

**Recommendation #1: Companies that employ Cooperative Work Experience students should ensure that these students are not performing tasks prohibited by the Child Labor Laws (CLLs) and that their work sites are in compliance with OSHA regulations.**

**Discussion:** In this case, on the day of the incident, the injured student was not helping with the crane operation. However, it had been reported that in the past the injured student had helped with this task, which is prohibited under the Child Labor Laws (CLLs), Hazardous Order (HO) 7. Hazardous Order 7 states that occupations involved in the operation of power-driven hoisting apparatus, which include but are not limited to cranes, are prohibited for any worker under 18 years of age. More specifically, the law prohibits workers less than 18 from "... assisting in the operation of a crane, derrick, or hoist performed by crane hookers, crane chasers, hookers-on, riggers, rigger helpers, and like occupations."

The Massachusetts CLLs also prohibit workers under 18 years of age from working with cranes. Specifically the Massachusetts CLLs state in Chapter 149, Section 62 that "No person shall employ a minor under eighteen or permit him to work... in the operation or management of hoisting machines..." In addition, to help ensure the safety of these students and the safety of all employees, companies should always ensure that their work locations, at a minimum, meet safety and health standards set by the OSHA.

**Recommendation #2: Schools that have Cooperative Work Experience programs should educate companies to which students are assigned, students, and parents about the Child Labor Laws (CLLs), especially the Hazardous Orders (HOs).**

**Discussion:** Schools should ensure that individuals involved in Cooperative Work Experience programs are familiar with the CLLs, especially the HOs. Schools should, at a minimum, provide the companies to which students are assigned and the students' parents materials about the CLLs and HOs.

Schools should provide classroom training to students about the CLLs, as well as their health and safety rights and responsibilities on the job. In placements that potentially involve tasks or occupations prohibited for students, school personnel should review the child labor laws with the employer as part of the placement process. Employers should in turn educate employees, particularly those involved in supervising students, about the CLLs.

Reference and educational materials on the federal and Massachusetts CLLs and HOs can be obtained by contacting either the Massachusetts Attorney General Office, Fair Labor and Business Practices Division at (617) 727-2200, the U.S. Department of Labor's, Wage and Hour Division on the Web at [www.dol.gov/esa/whd](http://www.dol.gov/esa/whd), or the Massachusetts Department of Public Health, Teens at Work: Injury Surveillance and Prevention Project at (617) 624-5632. In addition, if schools, companies, and parents do not fully understand which types of work are prohibited for student workers under the age of 18, they should contact any of the above-mentioned government agencies.

**Recommendation #3: Schools that have Cooperative Work Experience programs should research companies to which students have been assigned to learn if these companies have been cited for violating OSHA regulations in the past.**

**Discussion:** Cooperative Work Experience programs provide students with important opportunities to learn technical skills and introduce these students to the work environment. Learning about occupational safety and health is a crucial component of work preparation. This knowledge will not only help ensure students are safe while on Cooperative Work Experience work sites but also will help students develop safe work skills for the future.

Schools should ensure that companies involved in Cooperative Work Experience placements have knowledge about OSHA regulations and have in the past not been cited by OSHA for violating these regulations. This could be accomplished by asking the company about their knowledge of OSHA and searching the OSHA web site for recent inspection data for specific companies. OSHA information, regulations, inspection data search, and other occupational safety and health information can be found at [www.osha.gov](http://www.osha.gov). In addition, schools should provide students with training about the OSHA standards.

**Recommendation #4: Schools that have Cooperative Work Experience programs should routinely visit companies and work sites to which students have been assigned.**

**Discussion:** To help ensure that students are not going to be placed in hazardous situations, schools should routinely meet with companies and visit work site locations to which Cooperative Work Experience students have been assigned. In this case, the Cooperative Work Experience coordinator had not visited the construction site where the student sustained the injury. The company owner also reported that he had never met the school's Cooperative Work Experience coordinator during the five years the company has been accepting Cooperative Work Experience students.

**Recommendation #5: Schools that have Cooperative Work Experience programs should routinely meet with students to discuss tasks they have been performing while enrolled in the program.**

**Discussion:** Schools should regularly meet with Cooperative Work Experience students throughout the students' placement to help ensure that the tasks students are performing are permitted by the CLLs and in compliance with OSHA regulations. Schools should take immediate action if any of the tasks students describe could be in violation of the CLLs and/or not in compliance with OSHA regulations. In addition to training students about the CLLs and OSHA regulations, schools can help students identify possible hazards while employed at Cooperative Work Experience work sites by ensuring that their vocational shops, at a minimum, are in compliance with OSHA's regulations and that students are not performing tasks prohibited by the CLLs. This will enable students to become accustomed to completing tasks safely.

## **REFERENCES**

Child labor requirements in nonagricultural occupations under the Fair Labor Standards Act. Washington, DC: U.S. Department of Labor, Employment Standards Administration, Wage and Hour Division, WH-1330. Child Labor Bulletin No. 101.

Code of Massachusetts Regulations. 603 CMR 4.03. Program Approval Criteria, Vocational Technical Education.

Massachusetts General Laws, Title XXI, Labor and Industries, Chapter 149. Labor and Industries, Section 62. Minors Under Eighteen.

Code of Federal Regulations, 29 CFR 1926.250, Materials Handling, Storage, Use, and Disposal, U.S. Government Printing Office

ILO. Encyclopaedia of Occupational Health and Safety, 4<sup>th</sup> Edition, Volume 3. Geneva, International Labor Office, 1998.