

Beth S. Pollak

New Frame *of* Mind

A new apprentice-training program in Michigan teams up ironworkers and crane operators to work on communication, safety practices, and structural steel erection skills.

Apprentice ironworkers and crane operators don't usually train together to learn safety and erection techniques—but thanks to Michigan's new Raising Gang Training Program, apprentices now can spend a week learning tricks-of-the-trade from experts—and from each other.

Iron Workers Local 25 teamed up with International Union of Operating Engineers (IUOE) Local 324 and the Great Lakes Fabricators and Erectors Association (GLFEA) to create the program, which teaches apprentice ironworkers and crane operators structural steel erection techniques as they raise a five-story practice frame. The 50'x75'x60' frame features about 150 tons of structural steel, which organizers say is the largest training frame in use today.

The program began in May at IUOE 324 Journeyman & Apprenticeship Training Fund Education Center in Howell, MI, where the training frame is located. On October 23, GLFEA members joined representatives from both unions for a dedication ceremony. After speeches and a reception, apprentices demonstrated their new skills on the frame.

CLASSIC TRICKS MEET MODERN STANDARDS

One reason the program was implemented was so older workers could share their skills and knowledge with apprentices.

"When we went through apprenticeship, we were taught by older men who knew the tricks-of-the-trade," Local 25 Apprentice Coordinator Doug Levack said. "Similarly, with this program, four recent retirees, who gave their whole life to steel erection, have returned with no compensation to give something back to their trade."

The four retirees, all journeymen ironworkers and operators, helped develop the program, design the practice frame, and mentor the apprentices. Apprentices spend eight hours a day for one week, in class and on the practice frame, to learn the essentials of structural steel erection. The apprentices work in "raising gangs," which consist of four apprentice ironworkers and one apprentice operator. Ironworkers rotate between ground and air positions to gain an all-around appreciation of rigging, hooking and detailing work.

Raising Gang Committee Chair Patrick "Shorty" Gleason, President of Local 25, says the retirees' expertise is what brought the program to life. "The construction industry is about how to learn hands-on and by experience," he said. "In the field, not everything works as well as it does on paper. If the retirees hadn't brought their experience from the field to our program, it would never have arrived at this level," he said.

At the dedication ceremony, organizers also unveiled the Raising Gang Best Practice Book. The booklets will serve as a quick reference of "Dos and Don'ts" for ironworkers and operators.

Retired ironworker Gary Montie says it's crucial for retired workers to pass-on their pride and knowledge to the next generation. "During the 1960s and 1970s, supervision was gentlemen who had studied in an era without hats and gloves; they had to improvise," he said. "When you worked with them, it rubbed off on you, and at the end of the day you were proud of your accomplishments. Today, equipment is set up for you, but you still need to know the tricks. With the new practice frame and manual, we are able to put back into the trade what we learned 50 years ago."

FOUNDATION AND FRAME DESIGN

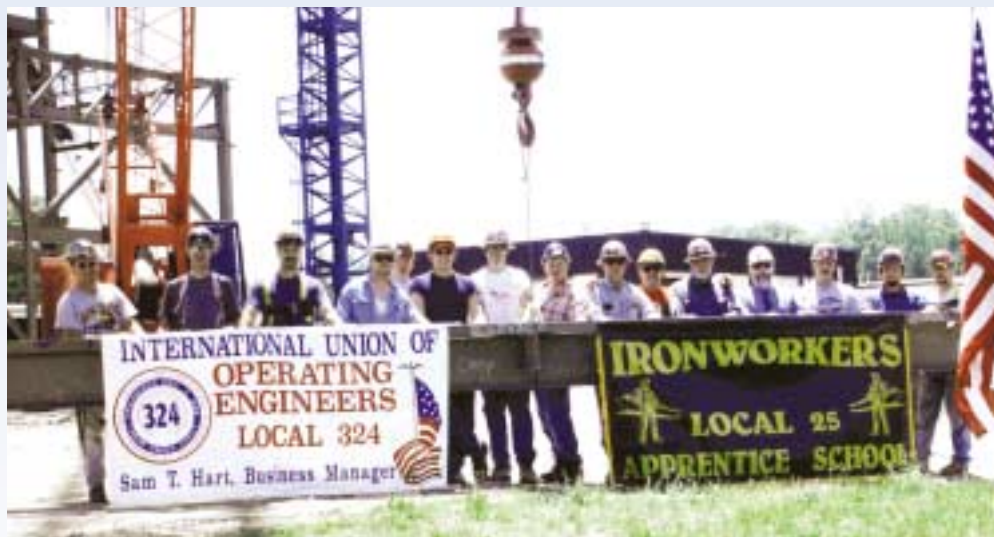
The four retired ironworkers prepared the concrete foundation for the training frame last April. A concrete slab about 12" thick was already lo-

cated at the education center. Ironworkers core-drilled through the concrete to install 84 anchor bolts with a stiff epoxy grout system. The epoxy was placed approximately to the top 2" of the 12" deep cores, and the rest was filled with lean concrete.

"These were threaded rods, and we were afraid that somebody would knock them over if we left them sticking out," said William Treharne, P.E., joint-apprenticeship chair of Local 25 and GLFEA past president. "So we put a sleeve over them and attached another anchor bolt to stick through. In the winter, the top anchor bolts will be removed to allow the slab to be free and to prevent the bolts from rusting and bending. Next spring, when training begins again, we'll take the fill material out, and add the extensions."

David I. Ruby, S.E., P.E., president of Ruby & Associates, Inc., in Farmington Hills, MI, helped design the training frame. "Our goals were to create a frame that could be used to simulate the erection of a high-rise-like structure and also an industrial structure," he said. "We needed a crane runway, joists and floor systems."

The five-story frame features different training scenarios on each level. Different floors have different frames, connections and floor systems. Walls feature different truss sizes and different combinations of columns, beams, brackets and struts.



The final pick for the initial erection of the new Ironworkers Local 25/Operating Engineers Local 324/Great Lakes Fabricators and Erectors Association training frame.



Apprentices get practice in beam-picking procedures.

“With some parts of the structure, you might want to use the crane, and with others you might not,” Ruby said. The frame can be used to simulate “christmas-treeing,” or multiple-lift rigging techniques, and “blind pick” situations.

The \$250,000 cost to engineer and fabricate the frame was split between the GLFEA and Local 25’s Joint-Apprenticeship Training Fund. Both groups contributed to the cost of the training program, extra tools and machines, and the publication of the Best Practice manual. IUOE Local 324 lent their training facility and expertise to the project, as well as approximately \$1 million in cranes and equipment for erection.

Douglas Steel Inc., of Lansing, MI, MBM Fabricators of Romulus, MI, and Midwest Steel Inc., of Detroit contributed materials to the project. Utica Steel Inc., of Chesterfield Township, MI fabricated the structure under contract to Gallagher-Kaiser Corp. of Detroit. Ojibway Industrial, LLC of Escorse, MI blasted and painted steel members with a high-friction zinc system for walking safety.

SAFETY FIRST

One emphasis of the program was for apprentices to master new federal and state safety procedures for structural steel erection.

“Safety is a win-win situation,” Treharne said. “We want our people to come back home in the same condition they came in.”

The raising gangs focused on the use of personal protection equipment, tie-off fall protection, static lines, crane-rigging procedures, beam-hooking procedures and emergency rescues and responses.

Doug Levack says practicing on the training frame before heading to a real construction site is important for safety education. “On-the-job is not the best place to learn safety—schedule pressures often get in the way,” he said. “This is an ideal site, so that if someone is in a situation that they can’t get out of, we stop and help them work through it.”

Michigan OSHA Chief of Construction Safety Richard Mee was on-hand at the dedication ceremony. He praised the Raising Gang program for its safety-training methods. “The most frequently cited violation in OSHA is lack of an accident prevention program,” he said. “The Raising Gang program is an example of how the union building trades faced the challenge, and I hope it’s a paradigm for future training programs.”

Retired ironworker Mark Morton says that by participating in the program, he also learns new safety procedures. “There’s a right and wrong way to do things to save time,” he said. “We didn’t grow up with specific safety procedures—and that’s why this training program is so important. Your job is twice as hard. You have to be productive and safe.”

COOPERATION FROM THE GROUND UP

Another key to the Raising Gang Training Program was the cooperation between ironworkers and crane operators. Organizers say that training together is a means of achieving safe and productive steel erection practices.

“You can’t do a job unless you know all of its aspects,” said Gary Ganton, coordinator of OE 324 Education Center. “An operator can make an ironworker’s job easy or hard. This way the ironworker appreciates what the operator does in the crane. They respect each other’s duties.”

Establishing camaraderie between ironworkers and operators can be a big part of what makes a project run smoothly. “When you’re working several hundred feet in the air, you need the trust of the guy who’s operating the levers,” said Patrick “Shorty” Gleason. “The respect needs to be there. The whole pace of a project is set with the ironworkers and operators, and if they can meet time and budget needs, other crafts can too.”

Apprentices who participated in the program say that it succeeded in establishing positive relationships between ironworkers, operators and their mentors.

“It was fun to work with ironworkers,” said Ross Eaton, a third-year apprentice operator from Laingsberg, MI. “Since it’s not a job site, they have time to sit and show you what they’re doing. I’m now more confident and know more about what’s going on during erection.”



Erectors learn how to safely perform multiple-lift rigging techniques, also known as “Christmas-treering.”

“There aren’t too many jobs in the field where you get to know you’re operators,” said Dan Fodd, a third-year apprentice ironworker from Leslie, MI. “Your life depends on the guy sending steel to you and you have to have a rapport with him.”

Fodd says the week of training was an important step on the way to a solid career as an ironworker. “The retired workers are phenomenal,” he said. “Everyone has different experiences in the trades, and teaches different tricks that work for them.”

The cooperation between trade unions was also recognized as an important milestone.

“I believe the trade union context is the most effective way to train apprentices,” said William Treharne. “Everyone was dedicated to the result of good craftspeople. No politics—we focused on what we could do to make the apprentices the best they can be.”

“It’s a visionary and wise investment, that will make future partnerships more productive,” said Michigan District 25 State Senator Dianne Byrum, who spoke at the dedication ceremony.

Michael Fitzpatrick, general secretary of the International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers, also spoke during the ceremony. “Jurisdictional arguments prevent productivity,” he said. “In the future, there will be a point where some crafts might have to merge, or they will fall by the wayside. We’re not going by the wayside.”

KEEPING THE BALL ROLLING

The training frame will soon be used to educate engineers, architects, and students about structural steel erection, said GLFEA Executive Director D. James Walker. The site also will be expanded so workers can simulate equipment, siding and decking installations.

And the partnership between ironworkers and operators will extend beyond this project. Local 25 will soon acquire its own new training site, which will include hands-on facilities for the steel-reinforcing industry, the rigging industry, the pre-engineered steel industry and conveyer work. “We were fortunate that the operators shared their site for this project,” Doug Lemack said. “They needed ironworkers to train with them. On our new site, we’ll continue to work with the operators to train beyond major structural work.”

Other trade organizations hope to bring similar training programs to their apprentices. “We have jobs on mini scales, but it’s nothing like getting up there on the training frame,” said Dane Bowers, apprentice coordinator for Iron Workers Local 340, based in western Michigan. “We don’t yet have the funding for a program like this, but we’d like to create one.”

Gary Ganton says he’s happy to see the project win so much support. “I spent 26 years as an operator setting iron,” he said. “Cooperation in training was an area that I kept thinking about—and once we got the ball rolling, we could turn the idea into reality.”

Keeping that ball rolling is what could set this training program apart from any others. “Cooperation, training and education—that’s what distinguishes us,” said Sam Hart, business manager and general vice president of IUOE Local 324. “We’re the first one in the country, and we’re moving forward, not standing still.”

As operators and ironworkers move forward with the Raising Gang Training Project, it’s clear that the only things left standing will be the many frames and projects they will work on together.