

**The Building Trades Unions, OSHA-10, and the Future of Union-based Occupational  
Safety and Health Training**

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### **Abstract**

Dozens of labor organizations sponsor occupational safety and health training programs. The OSHA outreach training network operated by the building trades unions constitutes one of the largest such programs, with union-led training centers conducting “OSHA-10” and “OSHA-30” courses in construction hazard awareness for up to 100,000 workers per year. The building trades’ training appears to be one of a handful of labor-led programs that have impacted a significant portion of workers in their industry and occupation. This paper examines the history and structure of union-driven safety and health training in the construction industry and explores lessons for union-led safety and health training initiatives generally.

Keywords: Unions, Construction, OSHA, Training, Safety

## **The Building Trades Unions, OSHA-10, and the Future of Union-based Occupational Safety and Health Training**

Occupational safety and health has been an important concern of American organized labor since its earliest days. In the early twentieth century labor movement was active in the development of workers' compensation and the fight against tenement sweatshops; in the 1960s and 1970s organized labor played a critical role in passage of the Mine Safety and Health act and the Occupational Safety and Health Act. A review of 744 collective bargaining agreements expiring between 1997 and 2007 identified 433 (58%) that contained safety and health provisions (Gray, Myers and Myers 1998). According to 2012 LM-2 reports, at least 23 AFL-CIO affiliated unions have full-time staff dedicated to health and safety concerns, and many of the others employ occupational safety and health staff at the local union level or at associated organizations like sponsored apprenticeship or safety and health funds.

Unions seek to protect the health and safety of their members by a variety of means, from collective bargaining to policy advocacy to regulatory enforcement. One popular avenue is union-based occupational health and safety training. Based on available data, the author estimates that in 2010-2011 least 19 international unions sponsor large-scale occupational health and safety training programs (defined as those programs training at least 1,000 members per year); at least three provide safety and health training to more than 10,000 members per year.<sup>1</sup>

In addition, labor organizations have established three consortia or coalitions of labor organizations to deliver occupational safety and health training on this scale. While the members served by these consortia overlap considerably with the international unions listed, they are

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<sup>1</sup> Author's estimates based on multiple data sources; see appendix

distinct entities with distinct governance and funding sources, and merit separate examination. CPWR – The Center for Construction Research and Training serves the building trades unions and will be discussed at length below. The Tony Mazzocchi Center (TMC) is based in Pittsburgh and primarily serves members of the USW, but in 2009 brought the CWA into its consortium. Both CPWR and TMC provide training to more than 10,000 union members per year. A third consortium, the International Chemical Workers Union Center for Worker Health and Safety Education in Ohio has its base and origins in the International Chemical Workers Union Council, a UFCW affiliate. The National Institute of Environmental Health Sciences (NIEHS) reports that ICWUC's current consortium includes multiple labor organizations, providing training to members of multiple unions in a variety of occupations.<sup>2</sup>

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<sup>2</sup> ICWUC labor union partners include AFSCME, UAW, AFGE, AFT, ANA, IAM, and CBTU. Retrieved 12.23.2013 from [www.niehs.nih.gov/careers/hazmat/programs/awardees/icwu/](http://www.niehs.nih.gov/careers/hazmat/programs/awardees/icwu/)

Table 1

## Major labor-based occupational safety and health training programs

(Estimated to engage 1,000+ workers per year)

1,000-10,000/year	10,000+/year
International Chemical Workers Union Center for Worker Health and Safety Education (ICWUC)*	BCTD/CPWR/National Resource Center (BCTD)* Tony Mazzocchi Center (TMC)*
American Federation of State, County and Municipal Employees (AFSCME)	Laborers International Union of North America (LIUNA)
American Federation of Teachers (AFT)	United Brotherhood of Carpenters (UBC)
Bricklayers and Allied Craftsmen (BAC)	United Steelworkers (USW)
International Association of Firefighters (IAFF)	
International Brotherhood of Electrical Workers (IBEW)	
International Brotherhood of Teamsters (IBT)	
Heat and Frost Insulators (Insulators)	
International Association of Bridge, Structural, Ornamental and Reinforcing Ironworkers (Ironworkers)	
International Union of Operating Engineers (IUOE)	
International Union of Painters and Allied Trades (IUPAT)	
Operating Plasterers and Cement Masons International Association (OPCMIA)	
United Union of Roofers and Waterproofers (Roofers)	
Sheet Metal Workers' International Association (SMWIA)	
United Association of Plumbers and Pipefitters (UA)	
Communications Workers of America (CWA)	
Service Employees International Union (SEIU)	
United Auto Workers (UAW)	
United Food and Commercial Workers (UFCW)	

\* indicates consortium of labor organizations

Over the past two decades, case studies have described labor-based occupational health and safety training programs organized by trade unions like the UAW (Schurman, Silverstein

and Richards 1994; Kurtz, Romins and Schorck 1997; Daltuva, Williams, Vazquez, Robins, and Fernandez 2004), SEIU (Askari and Mehring 1992), AFSCME (Luskin, Somers, Wooding, and Levenstein 1992) and the Utility Workers (Anderson, Collins, Devlin, and Renner 2012).

Reports on the innovative train-the-trainer programs sponsored by the Oil, Chemical and Atomic Workers (OCAW) and its successor organizations comprise a veritable cottage industry (Merrill 1994; Merrill 1995; Hilyer, Leviton, Overman, and Mukherjee 2000; McQuiston, Cable, Cook, Krewery, Erwin, Frederick, Lessin, Ouellette, Scardella, Spaeth, and Wright 2012).<sup>3</sup>

Yet the structure and operations of the **largest** labor-based occupational health and safety network is little documented in the academic literature. A corps of over four thousand instructors from the nation's building trades unions, coordinated by the Building and Construction Trades Department of the AFL-CIO and supported by CPWR – The Center for Construction Training and Research, trains workers on a mammoth scale. In peak years, experienced construction craft workers acting as instructors train more than 100,000 of their fellow union members in occupational health and safety through the OSHA outreach training program (commonly known as “OSHA-10” and “OSHA-30” for construction). This study will describe the history and structure of this program in the building trades, and draw attention to some issues it highlights regarding the future of labor-based occupational health and safety training programs.

### **Labor Relations and Apprenticeship in the Building Trades**

The building industry has many peculiar features, in large part because so many of its elements predate modern industry. While modern technology has transformed manufacturing,

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<sup>3</sup> In 1999, OCAW merged with the United Paperworkers International Union (UPIU) to form the Paper, Allied-Industrial, Chemical and Energy Workers (PACE); in 2005 PACE merged into the United Steelworkers (USW).

medicine and information technology beyond recognition, a craftsman from the Middle Ages would be familiar with many of the tools and techniques used by today's masons and carpenters. More importantly, today's construction industry still bears many structural characteristics of the medieval guild system, including the apprenticeship system of training.

In the high middle ages, a masters' guild generally took responsibility for preserving the quality and traditions of the trade and initiating new members to a craft or "mystery." Youths entering the trade were bound or "indentured" to a particular master craftsman, who was already established in business. Over a period of years doing progressively more challenging hands-on tasks under the master's supervision, the apprentice acquired the skills of the trade. If he lacked the resources to set up his own shop immediately, he might temporarily work as a skilled "journeyman," traveling and selling his labor for hire to other masters while saving the money to set up his own shop (Renard 1918).

In late 19<sup>th</sup> century America a growing number of tradesmen found themselves remaining "journeymen" working for hire for much or all of their careers. But they formed associations – the craft unions – which assumed many functions of the guild. As a result, today's construction unions perform many duties reserved to management in the manufacturing, retail or service sectors. Union construction workers typically turn to their union, rather than their employer, for their job placement (through a hiring hall), training (through an apprenticeship fund), health insurance (through a union health and welfare fund) and retirement benefits (through a union pension fund).

Participating employers pay a tax or contribution toward these expenses for each hour they employ a union tradesman or tradeswoman. After Congress passed the Taft-Hartley Act of 1947, this arrangement was modified slightly. The law forbade employer payments to labor

organizations, but permitted the unions and employers to establish jointly-administered trust funds to administer apprenticeship, pension and health programs. This institutionalized a level of oversight for employers, though in practice the unions typically remain the active and dominant partner in establishing and operating these funds.

The system overcomes important collective action problems in an industry where an employer may need to hire hundreds of skilled workers for the duration of a major construction project but discharge them thereafter. Ford Motor Company retains workers for years and even decades, so if a training program will improve labor productivity the company can afford to afford to make that investment. A construction firm can't economically make a similar, unilateral investment in its own workers – they will likely be laid off when the current project is complete and tomorrow carry their valuable skills with them as they seek work from a competitor. The union, through its apprenticeship program, hiring hall, and benefits programs can train and supply workers to the industry as needed while assessing the costs proportionately on the participating employers.

One result is a vast network of training centers in which experienced union craftsmen instruct apprentices in the trade.<sup>4</sup> The scale of this effort is extraordinary: just four of the fourteen major U.S. construction unions (the United Association of Plumbers and Pipefitters, the Sheet Metal Workers, the United Brotherhood of Carpenters and the Ironworkers) reported a combined total of over 100,000 enrolled apprentices in 2011.<sup>5</sup> The training investment does not

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<sup>4</sup> Although a growing number of “open shop” (nonunion) firms also sponsor apprenticeship programs, the open shop training sector fares poorly in virtually every comparative measure. Bilginsoy (2002), looking at a sample of apprentices indentured in 1989, found that six years later union apprentices had graduated at twice the rate of their open shop counterparts. And in states that submitted data to the U.S. Department of Labor Office of Apprenticeship, union apprenticeship programs accounted for nearly two-thirds of new apprentices registered in 2009-2010 – even though fewer than 15% of U.S. construction workers overall were union members.

<sup>5</sup> In 2011 LM-2 reports submitted to the Department of Labor, these four trades reported a combined 106,503 apprentices. Not all trades separate apprentice membership on their LM-2 reports, so a total figure is not available. Retrieved from <http://kcerds.dol-esa.gov/query/getOrgQry.do>

end with apprenticeship but delivers skills upgrade training to experienced journeymen, a continuing education function that teaches new techniques and confers new credentials when demanded by changes in the industry and markets. The BCTD estimates that the funds collectively invest nearly \$1 billion in vocational training for the industry's union workforce. BCTD President Sean McGarvey told the *Engineering News-Record* (2013), "If we were a public university system, we would be the fourth largest public university system in the United States. That's how big our training operations are."

### **OSHA Outreach Training**

The OSHA Outreach Training Program, launched in 1971, is a voluntary "train-the-trainer" initiative about as old as OSHA itself.<sup>6</sup> Initially, OSHA permitted individuals to register for an intensive hazard awareness training course at the OSHA Training Institute. Upon completion these individuals were recognized as OSHA-authorized "Outreach Trainers" eligible to teach a basic 10-hour or 30-hour occupational health and safety curriculum in either the "construction" or "general industry" category. Recipients of their training received a card from OSHA indicating that they had received it.

Until 1992, the program's potential impact was limited by the OSHA's internal capacity to "train the trainer." In that year, OSHA began to authorize nonprofit organizations with proper credentials – like community colleges – to act as OSHA Training Institute Education Centers (OTIECs). With the OTIECs training additional outreach trainers and sending them into the field, the ranks of "OSHA-10" and "OSHA-30" cardholders in construction grew rapidly. In

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<sup>6</sup> Information in this section, if not otherwise indicated, has been provided by the OSHA Directorate of Training and Education. OSHA Directorate of Training and Education, "Overview of the OSHA Outreach Training Program" and "Outreach Training Program, FY 1990-FY2012."

1999, 129,909 students earned such cards in the construction outreach program, ten times the number who did so in 1991.

More than half the students participating in OSHA Outreach Training today are enrolled in “OSHA-10 for construction.” The ten-hour curriculum is designed to create awareness of the most important occupational hazards in the industry. The training must include:

- 1) Two hours explaining OSHA’s history and role, the right of workers to a safe workplace, and how to file a complaint
- 2) Four hours on the four hazards that claim the most lives on a construction site: falls, electrocutions, “struck-by” (for instance, vehicle accidents), and “caught-in or caught-between” (for instance, trench collapses)
- 3) Thirty minutes each on personal protective equipment (hardhats, gloves, safety glasses, respiratory protection etc.) and on health hazards (such as chemical exposures or airborne particles)
- 4) Three hours of electives and specialized related training

From the start, demand for OSHA Outreach Training in construction has dwarfed that for “general industry.” In fiscal year 1991, OSHA reports, 12,954 students participated in a construction 10-hour or 30-hour course; general industry students numbered 2,981. Although the construction industry employs less than 10% of the American workforce, the construction program has consistently accounted for more than 70% of OSHA outreach students.

Why did OSHA outreach training take hold so powerfully in the construction industry? The construction industry is a highly dangerous one; workers in construction suffer fatal occupational injuries at a rate well over twice the national average. According to the Department of Labor’s Census of Fatal Occupational Injuries (CFOI), workplace deaths claimed an average

of over 1000 lives per year in construction between 2003 and 2011.<sup>7</sup> These grim numbers add up to a hefty price tag in workers' compensation premiums – according to *RSMMeans Building Construction Cost Data 2013*, the average firm pays a bill amounting to nearly 15% of payroll for its trade employees.<sup>8</sup> Moreover, the construction industry operates by assembling a team of contractors and subcontractors for virtually every project. A growing number of construction owners refuse even to entertain bids from construction contractors with below-average safety records, and many construction managers or general contractors maintain the same policy when selecting their subcontractors.<sup>9</sup>

Yet even the 129,909 trained in 1999 represented less than 2% of the construction industry's workforce.<sup>10</sup> Many of the construction firms that embraced OSHA outreach training saw it as something only their health and safety specialists and supervisors needed. Many major general contractors adopted national policies requiring all supervisory employees to participate in OSHA-10 or OSHA-30 training, but not necessarily their trade employees. One workers' compensation insurance underwriter reflected a common industry perspective. "OSHA-10 or OSHA-30 is a *minimum* standard for supervision at a company" seeking a policy, he said, but he

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<sup>7</sup> U.S. Department of Labor, Bureau of Labor Statistics (n.d.). Fatal occupational injuries by selected characteristics, 2003-2011. Retrieved from [http://www.bls.gov/iif/oshwc/cfoi/all\\_worker.pdf](http://www.bls.gov/iif/oshwc/cfoi/all_worker.pdf)

<sup>8</sup> In 2013 U.S. workers' compensation insurance premiums were estimated at 13.7% of payroll for "skilled workers" and "foremen," 15.1% for "common building laborers," and 15.2% for "common building laborers." For especially hazardous trades the numbers were substantially higher, with premiums for roofers estimated at 29.6% of payroll and structural steel workers at 36.5% (Waier 2013).

<sup>9</sup> This is usually measured by the firm's "Experience Modification" on their workers' compensation insurance premium, but may also include OSHA citations.

<sup>10</sup> Estimates of employment in construction are inherently difficult to achieve because so many are self-employed. Based on household surveys, the Census Bureau reported 7.2 million employed in construction in 1990, rising to over 8.8 million in 2000. The reported figure exceeded 11 million at the peak of the housing boom, but has subsided back to the millennium levels – with 8.6 million in 2011, according to the Census Department. Retrieved from [http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_11\\_1YR\\_S2405&prodType=table](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_11_1YR_S2405&prodType=table)

was not concerned whether the craft labor force had similar safety training. “The supervisors are planning the work.”<sup>11</sup>

Other informants said that competitive pressures from nonunion firms prevent them from acting more aggressively on universal OSHA-10 safety training for the workforce. “It’s not a feeling that it [OSHA-10 training for craft workers - CS] is not important, but when projects require us to work in an open-shop environment it would prevent a lot of good contractors from bidding,” said an officer at one large firm. Another said he wished there was a law requiring OSHA-10 training for all construction labor, but without one, his firm couldn’t impose such a requirement on its subcontractors. “The subs would jack up their bids, and [my company] would be priced out of the market.”<sup>12</sup>

### **Safety Training for Workers, not Just Supervisors**

Union representatives considered safety training for craft workers a higher priority from the start. An interesting draft document from the BCTD presents their case.

We believe that the basic ideas are sound if not universal. They are:

1. Workers must themselves be provided basic safety and health training ----  
Everyone! Not just supervisors!
2. Unions must play the primary role in providing that training;
3. Safety training is essential both for quality construction and a civil society,
4. It is neither satisfactory nor smart to conduct construction work unless construction workers and their unions are heard, respected and the workers are provided essential training. [BCTD, 2001(?)]

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<sup>11</sup> Personal Communication, JR, Jan. 11, 2013. Information on general contractor OSHA-10 requirement from interviews with current and former safety officers at CH2MHill, Gilbane, Turner, and Clark Construction.

<sup>12</sup> Personal communication, AO, Feb.26, 2013; TS, Jan.15,2013.

In another industry, one in which management monopolized training and recruitment, that viewpoint might have been ignored. But unions in the building trades had an institutional role in industry governance, and union sector construction firm managers were accustomed to sitting with their trade union counterparts on jointly-funded committees responsible for apprenticeship, training, and marketing, where they discussed industry needs. In the 1990s, facing growing pressure from low-wage, nonunion competitors, major union-signatory construction contractors and affiliates of the Building and Construction Trades Department (BCTD) of the AFL-CIO formed a Construction Industry Partnership to investigate ways to give the union sector a competitive advantage, and the two sides quickly identified increased safety training for craft labor as a promising avenue. Reducing injuries through training would not only save craft workers from death and injury, but would reduce contractors' operating costs *without* calling on workers to offer wage and benefit concessions.

Moreover, the extensive network of employer-financed, jointly-administered training funds offered an economical vehicle for delivering large-scale instruction. Thousands of master craftsmen of proven teaching ability, distributed across hundreds of union training centers, were already in place instructing apprentices and journeymen in specialized trade skills. In other words, the union sector construction trades didn't have to build a university from the ground up – they had a university. Building Trades U. just needed to add a new course to the catalogue.

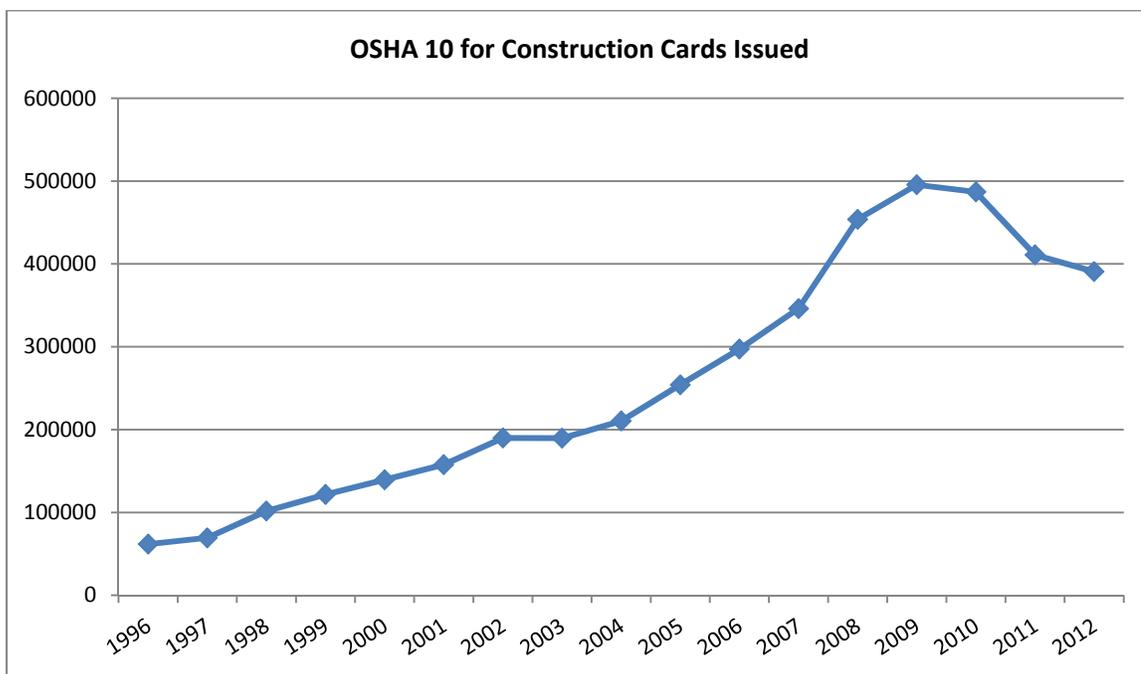
The BCTD does not directly govern the training operations; each of the joint apprenticeship and training funds are collaborations between individual construction unions – Bricklayers, Electrical Workers, Painters, etc. – and the contractors who employ their respective members. However, the BCTD was able to provide these affiliates two additional critical pieces

of infrastructure that made rapid adoption and delivery of the training practical and efficient: a standard curriculum (Smart Mark) and their own captive OTIEC (the National Resource Center).

Soliciting input from affiliated unions, union contractor associations, and occupational safety and health experts, the BCTD developed a standard OSHA-10 curriculum known as Smart Mark. Creating a single, high-quality curriculum for shared use offered the promise that everyone on the (union) construction worksite would arrive on the job with a standardized knowledge base on occupational safety and health. This is essential because a construction site involves many different trades and crafts working in close proximity; workers in one trade can be exposed to hazards generated by another, and need basic awareness of them. Perhaps as importantly, the Smart Mark curriculum relieved each of the 15 participating trades from expending time and resources developing an OSHA-compliant curriculum of their own. Each trade could take the existing course off the shelf, adding modifications and supplements as necessary.

In 1994, the BCTD joined with the National Labor College and West Virginia University's Safety and Health Extension program to form the National Resource Center: a captive OTIEC serving participating labor organizations. Under its umbrella, a team of "master trainers" from the different affiliated unions began to provide train-the-trainer courses to over one thousand "outreach instructors" from the local apprenticeship and training schools in their trade each year. These outreach instructors in turn taught basic health and safety courses to tens of thousands of their fellow union members annually, submitting information to the National Resource Center (NRC), which processed OSHA-10 and OSHA-30 cards for the students. By 1998, as the program began to take off, the BCTD transferred its administrative responsibilities to its sponsored non-profit: CPWR – The Center for Construction Research and Training.

### OSHA Outreach Training Covers the Construction Industry (Fig.1)



*Source: OSHA Directorate of Training and Education, 2012*

Few health and safety innovations in the construction industry in recent decades have spread so far and so fast without a federal mandate as did OSHA Outreach Training. As is clear in Fig. 1 above, OSHA training accelerated rapidly through the 90s and the 00s until the recession drastically culled the building industry. Even at current rates of instruction it appears that the share of industry workers with the valuable training is growing: according to the Bureau of Labor Statistics, while craft employment in 2012 is down nearly 30% from peak levels, OSHA-10 card issuance has subsided only about 20%.<sup>13</sup> From 1996 to 2012 OSHA reported

<sup>13</sup> The Bureau of Labor Statistics reports that seasonally adjusted payroll employment of craft labor in construction reached as high as 5.95 million in June 2007; in June 2012 only 4.217 million employees were reported (Employment, Hours and Earnings from the Current Employment Statistics Survey (National), Construction Industry, Production and Nonsupervisory Employees, extracted April 4, 2013). OSHA-10 cards issued peaked in 495,578 in FY2009, slipping to 390,695 in FY 2012. OSHA-30 cards, though issued in smaller numbers, followed a

4,376,819 OSHA-10 cards issued – depending on one’s assumptions about attrition, perhaps 25% or more of the industry’s workforce holds OSHA-10 cards.<sup>14</sup> A majority (53%) of all contractors participating in a 2013 McGraw-Hill industry survey reported that they required OSHA-10 training of all jobsite workers (Bernstein, Russo, and Laquidara-Carr, 2013).

Twenty-four different OTIECs were active by 2012. The building trades union programs represent only a fraction of each year’s training output, but it is by far the largest fraction. The NRC is by easily the largest OTEIC when measured by the number of Outreach Training Cards issued.<sup>15</sup> In Fiscal Year 2012, trainers authorized through the NRC issued 103,744 cards; the next-largest program issued only 53,775.

The union-based effort is remarkably efficient as well. In FY2012, the University of Texas at Arlington trained 5,918 outreach training instructors, more than any other OTIEC, but their instructor network in turn provided outreach training to only 33,622. The NRC trained 2,692 training instructors but issued over 100,000 cards. It’s not hard to see why the union construction sector has delivered this training to its labor force with such efficiency. Nonunion employers are required to build an expensive in-house training operation from scratch or contract piecemeal with consultants. Freelance instructors and schools are dependent on individual workers seeking them out and registering in sufficient numbers to build a class. The union-administered training and employment referral system for the organized construction sector

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similar trend. (Payroll employment only counts employees, and is substantially different from total construction employment reported by the census, which would also include independent contractors.)

<sup>14</sup> Based on the OSHA-10 card issuance statistics provided by the OSHA Directorate of Training and Education, if 5% of the cardholders retired or otherwise left the industry each year, that would leave about 3.4 million active in the industry; if 10% left, it would leave only 2.7 million. Some of the cards are issued to previous cardholders, either because they have lost their original card or because they have taken it again as a “refresher.” In any case, even 2.2 million current cardholders would represent roughly 25% of employment in the construction industry.

<sup>15</sup> Although the NRC includes partners offering general industry training, construction health and safety training administered by the construction trades unions comprises great majority of its activity.

relies on an existing training apparatus and enjoys the benefits of a pooling of resources across many employers.

Moreover, the unions have vigorously promoted safety training for craft labor through their own institutions and as a matter of public policy. Virtually every construction trade union has incorporated an OSHA-10 and/or OSHA-30 training into its apprenticeship curriculum. It is typically one of the first classes taken by new apprentices – one that likely saves many lives. A study of workers' compensation claims data in Washington state found that young workers (16 to 24) who received safety training saw a dramatic 42% reduction in occupational injuries (Dong, Entzel, Men, Chowdhury, and Schneider, 2004).

The unions have also actively promoted safety training requirements as a matter of state and local policy. It isn't a difficult case to make: imagine the ironworker who is supporting two children before a crippling fall renders him or her unable to work. The worker is no longer a contributing taxpayer will likely have to rely on public benefits to survive; other members of the community will need to make up the lost public revenue and cover the tab for any welfare benefits.<sup>16</sup> Federal and local government bodies already often assign prevailing wage requirements, goals for local hiring, and/or set-asides for minority and woman-owned businesses to public contracts. Unions and safety advocates have likewise pressed legislators to mandate health and safety training for workers employed in public construction work.

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<sup>16</sup> These are just a few of the possible costs incurred to community. For more information see Ruttenberg (2013).

**State Laws Mandating OSHA Outreach Training in Construction (Table 2)**

<b>Jurisdiction</b>	<b>Year</b>	<b>Coverage</b>
Rhode Island	2002	City and State financed construction projects over \$100,000
Massachusetts	2004	City and State financed construction projects over \$10,000
Connecticut	2006	State financed construction projects over \$100,000
New Hampshire	2007	City and State financed construction projects over \$100,000
New York	2008	City and State financed construction projects over \$250,000
Missouri	2009	All Public works
Nevada	2009	All Construction work, public and private

Starting with Rhode Island in 2002, six states passed laws restricting work on publicly financed construction to workers with valid OSHA-10 training cards, and there is some evidence that the spillover effects have raised the bar for safety training on large private construction jobs as well (Roelofs 2012). The state of Nevada went further after a series of tragic deaths at high-profile but privately-financed construction projects on the Las Vegas Strip (Berzon, 2008; Ryan, 2009). The 2009 Nevada law required OSHA-10 cards for *all* workers employed on construction sites, public or private – and OSHA-30 cards for those working as supervisors. Even as such mandates make construction work safer, they improve the competitive position of unions and union-signatory contractors. “Unions have been progressive about this [getting workers OSHA Outreach Training]” explained a vice president of one such major national contractor. “The open shop has not.”<sup>17</sup>

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<sup>17</sup>Interview AO, Feb.26, 2013.

It is hard to see how this could have happened without the activity of the building trades unions. Not only did they advocate for these laws, but the scale of their training activities in the past decade made them possible. Twenty years ago there simply weren't enough craft workers with OSHA outreach training to make such policies practical; today hundreds of thousands of men and women in the union construction trades have OSHA-10 or OSHA-30 cards in their pockets. A contractor can readily get sufficient numbers of workers with the necessary training credential through a union hiring hall. The availability of this growing pool of safety-trained workers has in turn inspired a growing number of construction owners like energy plants, universities, factories, and hospitals to demand the same for workers employed on *their* projects.<sup>18</sup>

In the recession years between October 2009 and October 2012, building trades outreach trainers working with the NRC issued 154,170 OSHA-10 cards and 66,317 OSHA-30 cards – over 220,000, all told. This almost certainly represents the largest labor-led occupational health and safety training initiative in the United States.

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<sup>18</sup> The Tennessee Valley Authority, Toyota motors, and Harvard University are some institutions that require OSHA-10 for all craft labor on their construction projects. In some cases this requirement has been incorporated in a Project Labor Agreement.

### Critical Issues for the Future of Union-Based Safety and Health Training

The experience of the building trades unions in developing their OSHA outreach training apparatus highlights four critical issues to consider regarding the future of union-based safety and health training programs. They are 1) funding; 2) efficiency; 3) impact assessment; and 4) training programs as an element of “strategic campaigns” for occupational safety and health goals.

#### *Funding*

#### Union-Based Occupational Safety and Health Training Programs by Estimated Size and Primary Funding Source

Employer Contributions	Federal Grant
<b>10,000+</b>	<b>10,000+</b>
<i>CPWR*</i>	TMC*
<i>LIUNA</i>	USW
<i>UBC</i>	
<b>1,000-10,000</b>	<b>1,000-10,000</b>
<i>BAC</i>	IAFF
<i>IBEW</i>	ICWUC*
<i>Insulators</i>	CWA
<i>Ironworkers</i>	SEIU
<i>IUOE</i>	UAW
<i>IUPAT</i>	UFCW
<i>OPCMIA</i>	
<i>Roofers</i>	
<i>SMWIA</i>	
<i>UA</i>	

Building trades in italics; consortia indicated with \*

In theory, it would be possible for unions and their members to self-fund occupational safety and health training programs, financing them out of union dues. In fact, this almost never happens. With the possible exception of the AFT and AFSCME programs, none of the identified major union safety and health training programs are primarily dues-supported. The building trades programs are primarily funded through contractually negotiated employer contributions; the others are primarily supported through federal grants.

Most federal grant funding for these programs comes through two sources: OSHA's Susan Harwood Training Grant program and the Worker Education and Training Program (WETP) administered by the National Institute of Environmental Health Sciences (NIEHS). The Susan Harwood Grant Program is a descendant of the New Directions grant program begun in the 1970s to support labor and community group occupational safety and health training initiatives. Each year since the millennium the program has provided \$10-11 million to subsidize training activity by nonprofit organizations each year since the millennium; much of this funding goes to curriculum development and other capacity building tasks. Twelve different labor organizations were among the 56 FY2012 awardees, dividing \$2.2 million between them. Awards for this group ranged from a low of \$122,418 to a high of \$185,512.

WETP is the more substantial source of funding. This program was born of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and designed to ensure that workers remediating toxic waste sites were trained in the safe handling of hazardous wastes. Today it supports training for workers across the nation cleaning up superfund sites, department of energy facilities once processing fuel for nuclear weapons, or simply being trained for hazardous waste handling as a disaster preparedness measure. In the 2010-2015 cycle, funding

of \$36 million per year was to be divided between 20 awardees, ten of them labor organizations. Among the awardees were CPWR, ICWUC, USW, LIUNA, IUOE, SEIU and the UAW.

One danger is self-evident: the future of most union-based safety and health training programs is dependent on the future of two government grant programs. This is alarming, to say the least, in a time of massive budget deficits and partisan political battles over reducing them. An unfortunate budget agreement could conceivably eliminate overnight every occupational safety training program outside the building trades.

Even if the federal grant programs continue to be funded at existing levels, dependence on these sources defines a limit to the scale of labor-led health and safety training initiatives. There simply is not enough grant money available for occupational safety training programs on the scale of those administered by the building trades unions' apprenticeship and training funds. There is no central repository or accounting mechanism by which we can total up the building trades' investment in occupational safety training – every local union or district council training fund keeps its own books – but the volume of OSHA outreach training can give a starting point for estimating this investment in health and safety.

Despite the recession, between October 2009 and October 2012 the building trades unions working with the National Resource Center (a substantial minority work with other OTIECs and would escape this count) trained an average of more than 50,000 workers in OSHA-10 classes and more than 20,000 workers in OSHA-30 classes annually. The nonprofit Mid-Atlantic Safety Council bills \$195 per person for OSHA-10 training and \$595 for OSHA-30 (Mid-Atlantic Safety Council, 2013). At this bill rate the itemized OSHA outreach training alone delivered by the participating apprenticeship programs would be valued at **\$21.7 million**. This figure would not include the large volume of *other* occupational health and safety classes

delivered by these programs. If other labor-led occupational safety and health training programs aspire to significant growth, they must find additional sources of funding beyond federal grant support.

Many labor activists dedicated to occupational health and safety advocacy are adamantly opposed to occupational safety and health training programs like those of the building trades that entail joint elements granting employers a share of control or oversight (Merrill 1994). This is indeed a limitation imposed by the funding system and structure. When labor and management are strongly divided on an issue, it must be pursued by the union rather than the joint training fund, using more adversarial procedures: collective bargaining or government regulation. (For example, the contractor associations and labor organizations are deeply divided over safe levels of exposure to crystalline silica, and unions have both negotiated language in collective bargaining agreements and sought a revised OSHA rule to address the problem.) However, there is considerable consensus about most occupational hazards; the scope of this limitation is smaller than one might expect.

It's good practice for any nonprofit institution dependent on outside support to diversify its funding base, and union safety and health training programs generally fall into this category (even if unions themselves are supported by member dues, helping explain why they have endured through so many changes in the political and social environment). And in fact, very few of the union occupational health and safety funds rely exclusively on one or the other funding stream identified here. The building trades have expanded their training capacity through the grant funding from the Susan Harwood, NIEHS and local grant programs. And many unions outside the building trades – such as the Service Employees, Utility Workers, and Machinists –

operate joint labor-management training funds for one purpose or another, and therefore have a potential avenue for expansion if needed.

### *Efficiency*

The limited funding available for health and safety training programs make efficient use of resources a must if the training is to reach a significant number of workers. The first requirement is a steady and consistent demand around which to program the instruction. No matter how valuable the information or well-designed the program, a union that offers safety and health training to members on a voluntary basis during their free time might draw a handful of activists but seldom more. Even one of the best-run programs, the Oil, Chemical and Atomic Workers (OCAW) program, offering a \$50 incentive, found difficulty securing sufficient participation by this means (Slatin 2001).

Successful programs have found several ways around this difficulty. For the building trades unions, the apprenticeship system goes a long way toward securing steady and predictable demand. Most or all of the trades have mandated OSHA outreach training for incoming apprentices, incorporating it into their respective training curricula. In addition to the apprentices, the OSHA-10 training card is now a credential required by many construction owners and contractors. Journeymen seeking eligibility for jobs constitute another large pool of workers who willingly seek out this training from their union training centers on nonwork time.

The network of joint training centers similarly enables an efficient use of instructional resources. The funds can offer regularly scheduled safety and health instruction in a large network of locations – usually within driving distance of a worker’s home – without the costs of maintaining idle staff, equipment and facilities in between classes. The network, instructors,

equipment and facilities are already in place and engaged in vocational skills training. They can be detailed to occupational safety and health training for the period they are needed and returned to standard uses thereafter.

The most successful labor-based occupational health and safety training programs outside the building trades unions achieve similar economies through the use of collective bargaining. By incorporating occupational safety and health training requirements into union contracts they can guarantee access to thousands and even tens of thousands of workers on terms allowing for efficient scheduling. Both the United Autoworkers (UAW) and the United Steelworkers (USW) have labor agreements in place in key sectors (auto manufacturing and oil refineries respectively) granting release time to workers in order to participate in union-led safety and health training. Both programs use rely heavily on peer trainers who remain on the company payroll, and conduct much of the training on the employer's premises – relieving the union of the obligation to maintain extensive rosters of idled staff and facilities in between training courses.

### ***Impact Assessment***

Impact assessment is a challenge for occupational safety and health training programs everywhere. Very few controlled studies exist linking occupational health and safety training – union-based or otherwise – to health outcomes. Retrospective studies that can effectively segregate those with training from those without are expensive and difficult. An experiment where occupational health and safety training were deliberately withheld from a control group is inconceivable for ethical reasons, and might well provide spurious correlations in any event. Workers frequently conceal accidents or injuries fearing employer retaliation (Lipscomb 2013,

Dong 2011), but safety training programs emphasize faithful reporting of accidents and injuries. A successful training program might produce both an increase in reported injuries and a decrease in actual injuries.

Consequently evaluations of occupational safety and health training programs are largely limited to data which can be gathered by participant tests and surveys (Sokas, Jorgensen, Nickels, Gao, and Gittleman 2009; Cary et al. 1997; Kurtz et al. 1997; Brown and Nga 1992; Daltuva et al. 2004; Mukherjee et al. 2000; Hilyer et al. 2000; Lippin 2000). Pre- and post-testing of knowledge, attitudes, and beliefs are useful in identifying an essential prerequisite to action, but don't directly address the actions themselves. Surveys documenting participants' self-reported behavior changes can help identify these actions, but raise questions about the reliability of the responses received.

But are individual participant survey responses the only way to assess the impact of a union safety and health training program? The experience of the building trades unions with OSHA-10 training offers a potential supplement to these measurements – a different level of analysis. Has the training program been responsible, in whole or in part, for meaningful institutional change at the industry level? What is the industry doing differently as a result of the union's initiative?

In the case of the building trades' program, the answer is clear. OSHA outreach training, confined largely to supervisory employees in the 1990s, is now administered to a large segment of the commercial construction workforce, both union and nonunion. (Although a population-based survey would be necessary to determine the true extent, by 2011 some four million cards had been issued to workers in an industry employing fewer than nine million.) It appears that the BCTD take-up of OSHA outreach for craft labor and the accompanying actions by unions was

critical to the program's takeoff. Today OSHA outreach training for craft labor is widely promoted by owners, contractors and insurers, but it was not so when the trades first incorporated it into their training and apprenticeship programs.

Other major unions sponsoring training programs identify similar stories of impact. In the 1980s the Service Employees International Union identified blood borne pathogens (BBP) – especially HIV and hepatitis – as a major occupational health concern for members in health care. At the time, health care workers routinely handled patients without gloves and masks, and hepatitis C infected some 17,000 of these workers each year, killing approximately 300. The union committed significant safety and health training resources to creating an awareness of BBP transmission and to promoting the use of “barrier methods” (e.g. gloves and masks) to protect workers from infection. Today gloves are routine and hepatitis C infection insignificant.

The Steelworkers Union, which inherited a dominant position in oil refining after mergers that brought former OCAW locals into its fold, directed much of its occupational safety training in that sector towards process safety issues. The persistence of catastrophic fires and explosions in the sector has inspired dogged union efforts to introduce a “triangle of protection” (TOP) safety training program at every represented refinery. TOP trains employees and management to investigate the root causes of accidents and near misses, identifying administrative solutions and engineering controls rather than falling back on a lazy attribution of worker error (McQuiston et al., ). In 2010 the union reported having trained 17,477 workers, including a corps of 2000 “worker-investigators.” TOP is a widespread presence in the refinery sector (and to a lesser extent in other USW sectors), and staff report significant progress on issues like safe siting – ensuring that trailers housing nonessential personnel, for example, are located a safe distance from volatile chemical processes. (TM, personal communication, 2013).

One essential factor is shared by all three of these programs that exercised an industrywide impact: an industrywide presence. This can mean a majority – Steelworkers union members are estimated to produce 64% of America’s refined oil (Hobbs 2012) – but a majority may not be necessary. A large and well-organized minority with a nationwide presence can exercise such an influence. In 2013, the SEIU reported representing more than 1.1 million health care workers; in 2012 the BLS estimated that 820,000 (13.2%) of construction workers were union members.

### **Strategic Union Campaigns for Occupational Safety and Health**

In each of these cases, union-based occupational safety and health training played an important role in driving industrywide changes to improve worker safety. But none of them were achieved by training alone. In each case unions identified a priority goal or issue and made training an element of a comprehensive, strategic campaign to change conditions in the workplace. In each case unions leveraged a variety of tools to secure their goal.

In the case of the building trades, in the 1990s the building trades unions identified the need for universal, standard hazard awareness training for craft labor as a priority goal. Recognizing the potential of the then-small but growing voluntary OSHA outreach training program in construction, they launched a multifaceted campaign to promote the OSHA-10 card as a standard credential for construction craft labor. The BCTD designed a standard curriculum and joined with labor allies to create a captive OTIEC to service the program. However, to propagate the program required use of collective bargaining tools. The local union programs that deliver the training to workers depend on contributions negotiated with local employers and

associations. And at the national level, the unions and signatory contractors negotiate the components of the apprenticeship curriculum. Within a decade, most or all of the trades had incorporated an OSHA outreach training requirement – either the 10 hour or 30 hour variety – into national apprenticeship standards. Finally, the unions pressed the issue through public policy at the state level.

The building trades unions also had political resources to use advancing the requirement, and did so to great effect. Starting with Rhode Island, several state building trades councils promoted laws adding OSHA-10 training requirements to public procurement contracts, so that contractors bidding on public projects would be obliged to employ workers with valid OSHA-10 training cards. Union contractors, with ready access to such workers through their hiring halls, were either neutral or supportive of these policy initiatives, and open-shop contractors who objected often lacked the political weight to thwart them on their own. Consequently, seven states enacted OSHA-10 requirement laws of one kind or another, creating enough demand for the policy to take off – and increasingly make the jump to private sector owners and contractors, even those in the open shop.

The story is similar in the other cases where a union-driven program has been part of an industrywide change in practices. Training and education helped create awareness of the scale of blood borne pathogen transmission among healthcare workers and acceptance of the use of gloves and masks in routine patient handling. But SEIU, working with other health care unions, advocated strongly for new regulations that effectively slashed the Hepatitis-B infection rate: the 1992 OSHA Blood Borne Pathogen Standard that required employers to provide the Hepatitis vaccine to employees, and the 2000 Needlestick Safety and Prevention Act requiring use of new, safer technologies. Major SEIU healthcare contracts advocacy for new regulations – specifically,

a mandate that employers offer a Hepatitis-B vaccine to at-risk workers – that virtually wiped out the disease as an occupational hazard. Employer responsibility to provide the hepatitis-B vaccine is routinely included in contracts negotiated by SEIU healthcare union locals.

The Steelworkers' effort in the oil refineries offers a remarkable example of a comprehensive union safety and health campaign. The campaign has built on decades of work stretching back to the days when many of these local unions were affiliated with OCAW, when that union pioneered its innovative model of safety training relying on peer-trainers leading small groups of workers in problem-solving activities. Over the past decade the Steelworkers have waged a multifaceted campaign on process safety issues in the petrochemical industry, pressing employers to adopt the TOP program and creating an employer-paid but union-nominated full-time process safety representative in each refinery.

The campaign has involved research and public education: in the wake of the deadly 2005 explosion at a BP refinery in Texas City which killed 15 workers, the union investigated contributing factors (like deferred maintenance, nonessential personnel sited near volatile processes, and venting that put both workers and communities at risk of dangerous chemical releases). The union surveyed other refineries to document the extent of the problem, sharing its findings with the public (Anderson et. al. 2007). The campaign has involved politics: USW representatives have repeatedly testified before the U.S. Congress to highlight the extent of the public danger. The campaign has employed regulatory tools: BP agreed to implement TOP as part of an OSHA settlement following the catastrophic accident. The campaign has employed collective bargaining: in both 2009 and 2012 the union made Process Safety demands a central element of its bargaining platform, advancing the union program at each step.

## **Discussion**

Many unions direct initiatives to protect worker safety and health in their industry, and at least twenty-two of them – plus three union-sponsored consortia – direct or coordinate union-led safety and health training programs. Case studies have documented many of them, but the largest such program, administered by the several building trades unions, has been little studied.

In the 1990s the building trades adopted what was then a modestly-sized, voluntary OSHA program used mainly to instruct supervisory level employees – OSHA outreach training for the construction industry – and embarked on a campaign to make it standard for union construction craft labor. The unions built on their existing network of apprenticeship and training funds to spread the training across the union sector, and pressed states to adopt laws requiring workers to receive the training prior to employment on some or all construction sites. Two decades later, the training has become a standard requirement in many segments of the construction industry. What does their experience tell us about the future of union health and safety training programs?

The building trades were fortunate enough to inherit a structure of well-financed training funds based on relatively large negotiated employer contributions (many as high as \$1 per hour the contractor employs a union trades employee). Although the building trades unions safety and health training programs benefit from substantial federal grant support, their scale is not limited by the availability of federal funds. The project of providing OSHA outreach training across the union construction industry would have been impossibly ambitious if these unions had to rely exclusively or even primarily on federal funding.

I was a bit surprised to discover that the major union-run safety and health training programs outside the building trades unions seemed to rely on federal grants as their primary – and sometimes exclusive – source of support. This raises important questions about the future of labor-led safety and health training programs, suggesting very limited room for expansion and very real risks in a period of large budget deficits. However, it is notable that several unions outside the building trades, large and small – from the SEIU to the UAW to the Utility Workers – operated established joint training funds with employers that could address safety and health topics if desired.

The most successful union safety and health programs have succeeded in conquering one of the major challenges of building a program: efficient use of resources. Many occupational safety training programs (and for that matter, workforce development programs of all sorts) have foundered on the costs of maintaining idle staff, equipment and resources when demand is slow. All too often, the struggle to recruit students consumes more energy and money than program delivery! The high-volume labor-led training programs have overcome this obstacle in one of two ways, both of which essentially “borrow” the resources of a larger going concern on a pro rata basis. The building trades unions employ training fund staff and facilities temporarily detailed from vocational skills training; industrial unions like the UAW and the USW “borrow” the employer’s own resources by using company employees on paid leave for much of the training and doing so at the company’s own facilities.

The difficulty of assessing program impact has long frustrated occupational safety and health advocates. The construction unions’ success in promoting OSHA-10 training in the construction industry an additional perspective: is it possible to look at a union training program and plausibly link it to a general change in industry practices? SEIU training helped create

awareness of the hazard and acceptance of the use of gloves in patient handling, thus playing an important role in the successful campaign to eliminate most hepatitis-b transmission. USW training, and the work of TOP “worker-investigators,” have successfully identified and documented multiple process safety management issues, generating progress on issues like safe siting of nonessential personnel.

It’s also important to acknowledge that training ALONE did not achieve any of these changes. In each case, the labor organization identified a safety and health goal, and then pursued it using a variety of means: occupational health and safety training, collective bargaining, public relations and political influence. Labor organizations have come to adopt as conventional wisdom that organizing and bargaining today succeed best when pursued through a “strategic campaigns” perspective. Judging by the examples of OSHA-10 promotion in construction, process safety in oil refineries and blood borne pathogens in construction, it appears that this approach is the most promising for unions with safety and health goals as well.

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*Appendix – A note on the data sources*

Author's estimates of training activity by international unions based upon pooling multiple data sources, including:

- National Resource Center training records
- Susan Harwood grant reports and documents
- NIEHS/WETP grant reports and documents
- LM-2 Reports
- OSHA Training Institute Data
- 990 reports for participating nonprofit organizations
- Personal communications with directors of union-led training programs
- Annual reports and other published documents produced by the programs
- Case studies analyzing the different union health and safety training programs

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