

The vision of NCCCO's founding fathers who took the bold step of establishing this country's first national certification program for crane operators has also endured: A global lifting environment in which crane and crane-related risks are reduced, performance records improved, training needs stimulated and overall safety enhanced.

20 Years of certification: What have we learned so far? **Graham Brent** reports exclusively for **ACT**.

# Has the mission been achieved?



**T**he years may have passed, but the mission given to us by the industry that established NCCCO over 20 years ago has remained unchanged: To develop effective performance standards for those who work in and around cranes; provide fair, valid and reliable assessments of their knowledge and skill; and act as an authoritative industry resource of related information.

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safety enhanced.

It's not too often at NCCCO that we look back. We're typically caught up in the future, further refining our organization's mission and vision to make crane operations in North America safer for those whose work brings them into contact with cranes. But the 20th anniversary of NCCCO has given us a great opportunity to reflect on our history, to identify some lessons learned and to assess whether we have met the goals assigned to us by the lifting industry.

From the outset, we committed to not do any training. That may seem odd given that training was a key component in the Ontario experience<sup>[1]</sup> that, in large part, inspired the U.S. initiative. While training is clearly critical to the process of knowledge and skills evaluation, our philosophy has always been that certification should remain completely separate from training so it can provide a third-party, wholly independent assessment of the training's effectiveness with each candidate. It's a model we believe has led to a high level of integrity and a robust evaluation process.

## Learning curve

While we started in 1996 with just one program – for mobile crane operators – NCCCO has expanded over the years

into 25 certifications in 10 categories that embrace multiple activities within the lifting industry. And there's been a learning curve; at the outset, it took us three years just to complete the practical portion of our first certification program. Now we can develop a certification program from scratch, with both written and practical components, in little more than 12 months.

In that first year, NCCCO certified about 800 individuals – all of them mobile crane operators. Fast-forward 20 years, and this represents our average monthly test volume, to the point where the number of operators, riggers and other personnel certified through CCO certification programs is closing in on 125,000, and the number of certifications issued has surpassed 300,000. As impressive as these numbers might be, we are more concerned with what they mean in terms of the impact that training and certification can have on fulfilling NCCCO's core mission: reducing accidents and fatalities related to cranes.

As much talk as there is about the impending OSHA rule<sup>[2]</sup>, it's worth observing that all these certifications were issued without a federal requirement. True, some states' requirements (for example, California or Pennsylvania) have had a significant impact, but it's the emergence of certification as an



### THE AUTHOR

**Graham Brent**, CEO of the National Commission for the Certification of Crane Operators (NCCCO), had the

opportunity to speak to the National Safety Council's Annual Congress last fall on the occasion of NCCCO's 20th anniversary. This article is based on his presentation "Credentialing in Construction: What Have 20 Years of National Crane Operator Certification Taught Us?"



## NCCCO has developed strategic partnerships with an array of organizations.

employment requirement that has been crucial to the success of NCCCO's mission.

In recognition of employers' commitment to crane safety through certification, NCCCO has developed an Employer Recognition Program, "Committed to Crane Safety," while operators and others have their achievements recognized through the Star Program, now enrolling the very first 4-Star members<sup>[3]</sup>.

The real value of certification clearly lies in the opportunities it provides companies to mitigate risk while, for the operator, holding the credential can be career-enhancing. Actually, safety is exponentially improved when a company certifies not just crane operators, but signalpersons, riggers, inspectors and lift directors as well, thus completing what we call the Safety Circle of Responsibility<sup>[4]</sup>.

## Coming to the table

We've also learned that if you want a truly useful, value-adding program, you bring everybody to the table. This is as true now as it was when we started; the table is not complete until everyone has an opportunity to come to it. Following the success of the first CCO certification programs, a number of organizations have decided either to co-develop programs with NCCCO or adopt existing ones. In many cases, these efforts have evolved into strategic partnerships to create additional and enhanced programming. Partnerships recently established with the Pile Driving Contractors Association (PDCA) and the National Wireless Safety Alliance (NWSA) are the latest in a long line of strategic relationships that will see the established safety benefits of NCCCO's core programs positively impact other industries.

Psychometric guidance that provides for the scientific analysis of exams, verifies the testing methods, and measures their efficacy, is an essential key to successful certification. For example, NCCCO testing data has provided conclusive evidence that, of the four main knowledge areas tested in mobile crane operator certification, (jobsite, operation, technical knowledge and load charts), it is the

complete and correct interpretation and understanding of load charts that presents the greatest challenge to operators. And that has much more to do with structured training – or the lack thereof – than seat time or other field experience.

The simple fact is that interpreting load charts is not intuitive, it has to be taught. With the wide variety of cranes and the charts that accompany them in the field, it's not necessarily a knowledge set that transfers well from one crane to another. Proper third-party psychometric guidance and methodology has enabled us to create testing that validates candidate knowledge, discovers these weaknesses and addresses them through the program.

When NCCCO started, it was anecdotally reported that the average age of a crane operator was 50 or even older. A demographic study undertaken by NCCCO suggests this may have fallen slightly in recent years – good news for employers keen to engage the next generation of operators<sup>[5]</sup>. But what's clear is that there is variation by crane type as well as by crane-related occupation<sup>[6]</sup>. This makes sense when you consider that skills often correlate with experience.

Understanding the correlation between skill level and knowledge to age is important in what we do. The point here is that each individual must be trained, tested and certified on the specific type of equipment he/she is operating because there can be substantial differences between them. Skills can be

transferred, but one must still be certified appropriately.

## Maintaining integrity

As with any high stakes testing, program integrity is constantly under siege. Because of the value CCO certification offers, it seems some are willing to go to great – and sometimes highly creative – lengths to misrepresent their certification status. These challenges can be offset by diligently ensuring all policies and procedures are followed, and proactively taking action where that integrity might be threatened. NCCCO's Ethics and Discipline Committee is central to that effort. An easily accessible public database of certification-holders launched a couple of years ago – VCO Online<sup>[7]</sup> – has also done much to stamp out fraud and cheating as has, incidentally, the migration of most CCO certifications to video-monitored computer-based testing.

But when all is said and done, the central question has to be: Does it work? All along, the number one outcome we hoped for was for lives to be saved – and all the evidence points to that being achieved. Whether we look at California, where crane-related fatalities have fallen 80 percent<sup>[8]</sup>, or review the experience of states such as West Virginia or Washington, where serious crane accidents have all but disappeared, lives are being saved and injuries are in decline.

The same picture emerges from insurance companies that track incidents involving cranes, employers who maintain their own records and operators themselves. Surveys of CCO certificants have provided ample testimony that crane operations are safer, and that operators perform better as a result of CCO certification<sup>[9]</sup>. In addition, there are >7

## CRANE ACCIDENTS <sup>(8)</sup>

JUNE 2002-2005 VS. JUNE 2005-2008

FATAL ACCIDENTS	2002-2005	2005-2008	
High-Voltage line contacts	5	1	
Struck by Loads	4	0	
Mobile Cranes Overturned	1	1	
<b>Total Cases</b>	<b>10</b>	<b>2</b>	<b>80% decrease</b>

NON-FATAL ACCIDENTS	2002-2005	2005-2008	
High Voltage Line Contact	7	4	
Struck by Loads	18	3	
Mobile Cranes Overturned	5	6	
<b>Total Cases</b>	<b>30</b>	<b>13</b>	<b>57% decrease</b>

collateral benefits that further speak to certification actually being an investment rather than a cost. Employers report increased productivity and reduced maintenance costs as a result of their equipment being operated by properly trained and certified operators.

So, to sum up, it's been a long road to success at NCCCO, and the early years were undeniably difficult. But the effort of the hundreds of industry volunteers that have built program after program for the benefit of those who work with and around cranes has been well worth it. To know that the vision of a safer workplace is being achieved, as the original founders believed it could be, through professional credentialing, is incentive enough to continue pursuing their goal for the next 20 years and beyond. ■

operators to be certified by November 2014 has been delayed until at least 2017.

- (3) While crane operators are critically important for the safety of a lift, responsibility is also shared among the riggers, signalpersons, crane inspectors and lift directors.
- (4) 4-Star Recertificants are those who have re-certified four times, i.e. they are entering their fifth, five-year period of certification.
- (5) This is why NCCCO has partnered with the SC&RA and KHL Group for the Lift & Move USA series of events aimed at attracting high school students into the lifting industry.
- (6) A study of CCO certificants showed that a lattice boom crane operator is, on average, three years older (at 46) than for operators across all crane types, while articulating crane operators are the youngest group, at 37 years old on average. Crane Inspectors and Lift Directors came in at 50 and 55



years old, respectively.

- (7) Online verification of all NCCCO certificants can be accessed 24/7 at [www.verifycco.org](http://www.verifycco.org)
- (8) Cal-OSHA's six-year analysis of crane accidents in California revealed an 80 percent decline in crane-related fatalities and a 57 percent drop in non-fatal accidents following mandatory certification.
- (9) Several hundred CCO recertificants were surveyed in 2009 and again two years later. Eighty-seven percent said that CCO certification "had made crane operations safer." "Safety used to be an afterthought; now it is the most important aspect of any construction project" was typical of the responses received.

## Footnotes

- (1) Ontario, Canada reported an 80 percent drop in crane-related deaths once training and licensing was mandated in the Province in 1978-9. Crane and rigging accidents as a percentage of all construction accidents also fell 50 percent.
- (2) OSHA's requirement for most construction crane



**This article was taken from a speech given by Graham Brent at the National Safety Council Congress & Expo last year in Atlanta.**



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