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SMALL STEPS

By Cathee Johnson Phillips

As this issue went to press in mid-December, some good news hit the presses – the distribution of one coronavirus vaccine for full use had begun, with others approved for limited use. This news competed for attention, however, with unwelcomed reports about the surge in cases and deaths across the United States. USA Today reported that the country had hit a record one-day high of more than 3,000 deaths and was running out of hospital beds in some areas. According to Reuters, North Dakota and South Dakota continued to have the highest death rates per capita in the country.

The BBC reported that the U.S. had the most cases and number of deaths; Brazil, the second highest number of deaths; and India, the second highest number of cases. European countries were stabilizing, while the numbers across Latin America and the Caribbean, Africa, Asia, and the Middle East were generally decreasing.

Suffice it to say that, as 2020 drew to a close, the global scaffold and access industry was still contending with keeping workers safe and companies open during a pandemic. And, the Scaffold and Access Industry Association (SAIA) leaders, members, friends, and staff remained committed to supporting the industry through education, training, and leadership.

The SA Magazine staff also remains committed to doing our part, which is only possible because of the SAIA Council Chairs and Co-Chairs and other SAIA members and friends who provide relevant and informative articles and columns. This issue and every issue reflect hours of time and effort by contributing authors.

We are very grateful, and, beginning with this issue, we are taking steps to show that gratitude more clearly. We are now including author photos and short company profiles with each article – of course, if an author prefers not to include their photo, that is fine! We hope that including the photo and profile will also help to build and strengthen connections within the industry.

Please consider this your call to submit articles, article ideas – or questions – for future issues. Do you have a question about the industry generally or a specific one about safe practices in a certain situation? The answer to your question may be published in an upcoming issue. Either way, we will be sure to forward your question to the appropriate SAIA expert.

Just send an email to the editor, Cathee Johnson Phillips, cathee@saiaonline.org, with your articles, article ideas, press releases, or questions. Thank you and please be safe!
Benefits of SAIAU Training

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- Electronic Industry Resources
- Complimentary Job Board Listings
- Advantage Membership Program (AMP)
The Scaffold & Access Industry Association (SAIA) 2015-2024 Strategic Plan is based on: “a bold vision for the scaffold and access industry, going beyond what SAIA can achieve on its own.” The year 2020 tested this vision and brought unprecedented challenges to the industry. Meeting these challenges was not easy and not without cost. Chief among the lessons learned was that this bold vision is still needed today, perhaps more than ever before.

We are stronger together when it comes to safety, and we must have a unified message to increase worker safety. One way that we can achieve this is through building the association’s relationships within the industry. As we move forward into 2021, the SAIA will be expanding its reach by seeking new alliances.

Recognizing the achievements of our colleagues also helps to bring us together, and award season has begun. Visit us online for information on submitting a project award and to nominate your peers for an association award. The winners will be announced during the SAIA Annual Convention and Exposition to be held August 29 to September 2 in Cleveland, Ohio.

The SAIA 2021 Committee Week is still on track to take place April 26-29 in Coral Gables, Florida. Representatives from all major sectors of the scaffold and access industry attend this annual meeting. We hope that this week will help to bring a sense of normalcy back to the industry as we come together and reconnect in person.

Committee Week focuses on the work of the SAIA’s councils: their projects, goals, and objectives; issues facing their respective industry segment; emerging trends; and any new programs, initiatives, or activities for the coming year. We have had a few council changes – be sure to visit us online to see the new faces and current projects.

As we enter the new year, let us take the lessons learned from the pandemic and continue to grow as an association and industry. We must continue to give of our time and energy to build our education program and to mentor the next generation. We are truly stronger together, and I look forward to working with you in 2021.

Sincerely,

Michael

As we enter the new year, let us take the lessons learned from the pandemic and continue to grow as an association and industry. We must continue to give of our time and energy to build our education program and to mentor the next generation.
One of the many goals of the Scaffold and Access Industry Association (SAIA) is to help scaffold and access industry entities ensure that scaffold and access equipment are designed and manufactured correctly, operated safely and maintained properly.

Applying our available resources can prevent worker injuries and eliminate incidents that can cause job site injuries, property damage, disrupt operations and cause project delays.

Visit our store to review all of our available products including the new ANSI/SAIA A92 Standards and ANSI/SAIA A11 Standards.
What is a suspended scaffold?
A suspended scaffold is a temporary platform suspended by ropes or other non-rigid means from an overhead structure.

What are “non-rigid means”?
A rubber band is a non-rigid means. So is Grandma’s clothesline. More specifically, fiber/manilla rope, wire rope, or cable are all examples of non-rigid means.

In other words, it’s a scaffold that hangs? No. A hanging scaffold is a platform that is supported by rigid means such as steel tubes from an overhead structure. It may also be known as a hung scaffold.

Why does a worker have to utilize personal fall protection equipment on a suspended scaffold since it is required to have a guardrail system? It is required in case the platform disappears, as in the rigging failing and the platform falling out of the sky.

Well then, why bother with a guardrail system? The guardrail system is there so you don’t walk off the platform.

How come the top rail on a suspended scaffold can be lower than on other scaffolds? It’s because suspended scaffold users are shorter than average. Not really. It has been determined by federal authorities, the Occupational Safety and Health Administration (OSHA), that since you have to utilize personal fall arrest equipment, the guardrail system is secondary and therefore serves more to “delineate the scaffold edge, restrain movement, provide handholds, and prevent mis-stepping.”

Why do suspended scaffold failures always make great news stories on the evening news? Seeing a worker desperately hanging onto a dangling broken scaffold while his fellow worker is swaying back and forth while suspended from his harness makes a fantastic photo op. And the exciting rescue adds to the drama. Of course, what isn’t explained to the viewer is that somewhere someone failed to do things correctly. There is just no excuse for a suspended scaffold failure.

Why do suspended scaffolds fail? Somebody screwed up. Either the scaffold wasn’t properly rigged, the scaffold was overloaded, or the operator/user did something stupid like operate it in high winds.

Should suspended-scaffold users have training? Yes. They’ll be hanging by a rope thinner than your little finger, many meters/feet in the air, relying on a hoist that works on friction, supported by a pile of metal weights above you. What could possibly go wrong?

Who gives that training? Some evidence suggests that anyone can. However, only trained, qualified instructors must be used, that is individuals who understand how the equipment is assembled, how hosts operate, and how to calculate the required counterweight; know and understand the applicable regulations, codes and standards; and can adequately convey that information to the student.

How strong does the rope holding up a platform have to be? It must be six times stronger than the load that will be applied. For example, if the suspended load is 1,000 pounds (450 kilograms), then the rope must hold 6,000 pounds (2,800 kilograms).

Do I have to use wire rope? Nope. You can use Grandma’s clothesline as long as it has a safety factor of 6. If Grandma is using a clothesline that holds that much, I’d like to meet Grandma!

Can I use u-bolts to secure the ropes? No, you cannot use u-bolts on any rope suspending human beings. Use fist-grips, also known as j-clamps.

Is the required safety factor of 6 for all components of a suspended scaffold? No, just the rope. The safety factor for all other components is 4.

Does that mean that the counterweight is four times more than what is necessary to balance the load? That is correct. Just don’t tell the erectors who have to carry all those extra counterweights.

What is a tieback rope? It is a rope that attaches to the cantilever beam at one end and attaches to an appropriate anchor, typically attached to the structure upon which the suspended scaffold is installed.

If the cantilever beam and hardware, including the counterweight, have a 4-to-1 safety factor, why is a tie-back rope required? The primary purpose of the tieback rope is just that: Tie back the beam so that it doesn’t move or displace. Secondly, it holds everything from pitching over the edge of the roof.

How strong does the anchor for the tieback rope have to be? It has to have a safety factor of 4.

How do I know that the anchor has sufficient strength? Have it designed by a qualified person; don’t guess.

I cannot imagine not going up to the roof to inspect everything before operating the scaffold for the day. Strange things happen to scaffolds and rigging when nobody is looking.

Have a technical question for SA Magazine you’d like to see answered here? Let us know! Send an email to dhg@glabeconsulting.com with your question.
Can I hook your fall-protection lifeline to the tieback anchor?
No. The lifeline must be attached to a separate anchor.

So, I will need four anchors for a two-point suspended scaffold that has two occupants? Yes. Two anchors for the workers and two anchors for the two sets of rigging.

How many counterweights are required when a cantilever beam system is used? It depends on the backspan, how far the beam cantilevers reach, and how much sticks back into the building.

Who determines how many counterweights are required? The qualified person does.

I was thinking of using water as a counterweight; is that okay? Only if it is frozen and stays that way. You must use a “non-flowable” weight; 50-pound (23-kilogram) steel plates are most commonly used.

Why is the cantilever beam usually in two pieces? It makes it easier to get them in the elevator.

How do the workers on a cantilever beam be supported? Two sets of rigging.

What’s a parapet? Typically, two domesticated animals. Maybe not.

A parapet is a low wall at the edge of the roof, and its height is determined by the building designer. If it is at least 39 inches high, it will serve as a guardrail for scaffold erectors. If it is below that height, then the erectors must utilize fall protection equipment.

How do I determine the strength of the roof? Contrary to common practice, you cannot guess. Consult a qualified person. If it is new construction, it will be the structural engineer who designed the building. For existing structures, the information can often be found in the design drawings that were used when the structure was constructed. If that information is not available, then a qualified engineer can help. In reality, however, it often seems that neither the erectors nor the users give it a thought, even though the roof is getting loaded with hundreds of pounds of counterweights.

Can any parapet be used to support a parapet clamp? No. It has to have sufficient strength to resist both a downward load and an overturning load. Usually, only concrete parapets have adequate strength. A qualified person, usually a qualified engineer, can answer the strength question.

Who determines how many workers can you put on a two-man stage? Two workers and their tools.

Can a single worker operate a two-point suspended scaffold? It is not recommended unless the appropriate electrical controls are installed. It is not acceptable to run from one end of the scaffold to the other to raise or lower the scaffold.

Where can I find more information regarding the safe erection and use of suspended scaffolds? There is a wealth of information available from the Scaffold and Access Industry Association. Find it under the Resources tab at www.saiaonline.org.

About the Author
David H. Glabe, P.E., is President of Glabe Consulting Services Inc. and Founder of DH Glabe and Associates. Contact him at dhg@glabeconsulting.com.
East Coast Rigging and Scaffolding of Florida recently made restoration efforts possible for a 20-plus-floor condominium utilizing Layher scaffolding for the façade and to accommodate swing stages. The six-month restoration effort was completed in October 2020.

General contractor Starsouth Stucco put out a call for bids in February, opening the door for East Coast Rigging to prepare a proposal for the potential project. The ultimate goal was to support the replacement of brick veneers that make up the façade of the north and south building sides.

The high rise, the tallest in Tallahassee, had been losing facings for months in a highly trafficked district, and time was of the essence to prevent injury to pedestrians. The building’s downtown location – across the street from the state Supreme Court and library – make it a high-profile site with increased foot traffic.

The Winning Design
The East Coast Rigging and Scaffolding team planned the scaffold design using Layher Allround for each of the two façades, scaffolds to suspend swing stages, and a transfer platform allowing vertical access. The motorized platform was designed to operate from a position 40 feet above the sidewalk to accommodate a pedestrian walkway for overhead protection and keep traffic moving safely.

Starsouth Stucco awarded East Coast Rigging and Scaffolding the bid at the end of March. With work set to begin in April, Operations Manager Al
Ferreras immediately requested material from Layher’s yard in Ocala, Florida. Lighter weights and smart packing drove down the shipping costs. Reduced component weights combined with logical shipping practices prevent the need for about one of every 10 shipping loads, resulting in savings to clients.

Layher high-tensile steel products come in over 4,000 parts with corrosion-protected galvanized steel to make up the system. Thanks in part to the lightweight system, which reduced field hours and risk exposure, East Coast Rigging and Scaffolding completed the south build in two-weeks with a crew of about 10. They staged the façade-scaffold build from the ground level and the suspended-scaffold build from the rooftop.

**Project Challenges**

Project challenges included a limited rooftop to accommodate the build and equipment, making the swing stage necessary, and a significant slope on the building’s south side. To accommodate the gradient difference, East Coast Rigging and Scaffolding constructed a 20-foot scaffolding tower on one end that bridged to meet a 50-foot tower on the other end. An
adjustable swivel jack made the work possible. Because hurricane season runs June through November, it was additionally important that the scaffolding, though temporary, be sufficient to withstand potential weather extremes, like wind.

With the south-side scaffolding in place, Starsouth Stucco went to work on the restoration. Demolition conducted via the platforms necessitated additional trips to dispose of material, requiring extra care. The setup, however, proved sufficient to accommodate the needs of the demolition crew, stucco restorers, and painters necessary to get the job done.

After their success on the building’s south side, East Coast Rigging and Scaffolding reproduced the scaffolding build on the north-facing front. Restoration work was completed in October.

About the Author
Dolores Díaz is Senior Writer at Chicago Editing. Contact her at ddiaz@chicagoediting.com.
SAN FRANCISCO FAÇADE RECLAD

AN INNOVATIVE DESIGN FOR SUSPENDED SCAFFOLDING PROVIDED SAFE ACCESS FOR THE FAÇADE RECONSTRUCTION OF 633 FOLSOM STREET.

BY JAMIE P. KELLY AND DAN FENELON
Greg Beeche Logistics, LLC (GBL) was selected by Plant Construction to provide a temporary work access system for the recladding and five-story expansion of the office building at 633 Folsom Street in San Francisco, California. The project included the installation of 336 fiber-reinforced polymer (FRP) sunshades or hoods to the unitized glass curtain wall. The hoods were custom-engineered to control daylight and reduce glare, and each hood weighed approximately 300 pounds and measured 15-feet-high by 6-feet-wide by 2-feet-deep.

GBL collaborated with Permasteelisa North America and Kreysler + Associates to design, engineer, fabricate, and install a custom façade access and hoisting system to allow the installation to proceed safely and productively. The GBL temporary work access system incorporated proprietary and patent-pending technology.

GBL’s solution used a multi-level suspended scaffold capable of harboring four FRP hoods as well as four workers. This platform was suspended from a custom mobile support carriage that rode on a full perimeter, five-foot-gauge, dual roof track covering approximately 450 linear feet.

Because of the light-capacity roof deck, elevated pedestals were mechanically anchored to the roof-framing members every 24 feet on center. The pedestals provided support for the tracks and transferred the working loads to the roof-framing members at the gridline intersections. Innovative, state-of-the-art track turntables were integral to the roof tracks and were located at each of the five corners of the roof structure. H-frame grillage beams were mechanically anchored to the roof-framing members to support the turntables.
Streamlined Access
These leading-edge turntables allowed the support carriage to traverse an elevation of the building and be relocated to an adjacent elevation, all with the suspended scaffold remaining in the air. The entire cornering process took 10 to 15 minutes. This approach streamlined the post-installation scheme by eliminating the need to land the scaffold for a conventional relocation, which could have taken up to a day to complete.

With the help of GBL’s in-house designed and built electronic controls, the support carriage autonomously traversed along the roof tracks using an underslung traction hoist and perimeter drive wire rope, which was reeved through each of the five turntables’ diverter sheaves and terminated at the extreme ends of the roof track system. Additionally, because the upper-most hoods were pre-installed to the glazing units prior to GBL mobilization, a traversing-platform-support “cathead” and counterweight “cathead” were incorporated into the carriage. The catheads were fully synchronized by means of linear positioning sensors and weight-to-reach ratios and traversed the carriage booms, moving in and out from the center of the carriage mast using rack and pinion drive. This allowed the suspended scaffold to boom out and ascend/descend outside of the installed hoods and then draw in to install the undulated hoods.

A Safe Staging Area
The post-installation scheme was a logistical challenge. Due to the location of the building, the sidewalk bridge that provided overhead protection for pedestrians...
had to be re-engineered and oversized to double as a landing platform for the suspended scaffold and a staging area for the hoods. The hoods were pre-furnished with two steel slings located at the center of gravity (CG) points for lifting. Using a trolley-mounted electric chain hoist hung from the scaffold’s setting monorail, the hoods were tipped up and transferred to trolley-mounted steel slings hung from the scaffold’s storage monorails.

Once all four hoods were loaded onto the scaffold, workers would ascend and traverse to the floor level and elevation of the building where the hoods needed to be installed. Utilizing the scaffold’s tilt-down deck extensions, workers gained access to the vertical and horizontal hood brackets that were part of the unitized glass curtain wall mullions. While rigged from the scaffold’s setting monorail, the hoods were pressed onto these brackets and fastened with set screws.

This portion of the project was successfully completed in October. See the video of the access system in operation at https://youtu.be/C7Etrtx6t6E.

**About the Authors**

Jamie P. Kelly is Vice President at Greg Beeche Logistics (GBL), located in New York City and Waterford, New York. Co-author Dan Fenelon is Design Team Leader + Project Manager at GBL. Contact them via email at jamie.kelly@gregbeeche.com or phone at (518) 237-8444.
SCULPTURE PLATFORM GIVES SAFE ACCESS

A CUSTOM SUSPENDED ACCESS PLATFORM FACILITATES QUARTERLY CLEANING AND MAINTENANCE FOR A PERMANENT ART INSTALLATION AT THE NEW SALT LAKE CITY INTERNATIONAL AIRPORT.

BY KIT CARROLL
ince the 1960s, the Salt Lake City International Airport (SLC) has grown into a western hub, while adapting to new security needs and other evolving safety requirements. The SLC had been serving more than 26 million passengers a year with facilities designed to serve half that volume. After years of planning by the Salt Lake City Department of Airports, the $4 billion rebuild of the airport began in 2014. The first phase of the New SLC included Concourse A-West and Concourse B-West and opened in September and October of 2020. Phase II is scheduled to open in 2024/2025.

When considering a redevelopment of airport facilities in 2012, airport authorities envisioned a space with artwork that visitors would talk about long after passing through its concourses. The art installations at the New SLC vary from large-scale vinyl wraps and architecturally integrated elements to murals and enormous 3-D wall features.

One particularly striking piece is a sculpture titled The Falls. This 80-foot tall escalator well sculpture uses light-sensitive dichroic glass fins and light-refracting glass rods to project colors and patterns on adjacent surfaces. Designers considered this installation a focal point of a high-traffic area as passengers enter the new terminal from the parking garage.

Maintenance access needed to be out of sight.

The sculpture presented challenges in terms of installation and future maintenance. Designers wanted maintenance equipment not to be visible when not in use, which meant it needed to be easily disassembled or stored in a unique way. The space around the artwork is narrow, eliminating standard platforms and floor lifts as options. The access solution would have to be a special one.

Rooftop Anchor, Inc., the primary contractor for this one-of-a-kind project, reached out to Sky Climber, LLC to develop a solution. Interior or atrium platforms are not common, and the shape and storage of this one made it even more unusual. The solution came in the form of a suspended access platform that conforms tightly to the outer profile of the artwork and, when not in use, tucks into the base of the column out of sight.

Sky Climber LLC

• SAIA Member

The Sky Climber brand represents a multi-national family of companies brought together to meet a variety of safe access needs across several business verticals. Sky Climber LLC designs, manufactures, and distributes suspended access equipment used in industrial/commercial construction and maintenance applications. Learn more at https://skyclimber.com/home/.
The final oval platform design measured 20 feet long by 10 feet wide. The platform walkways needed to be narrower than traditional Sky Stage Ultra (SSU) platform elements, and so special stirrups, connecting frames, floors, and fixed angle corners were built. A removable dancefloor designed to fill in the center of the oval allowed crews to install the sculpture suspension points to anchors in the ceiling and assemble the complete sculpture. Once installed, the dancefloor elements were removed. The remaining platform conforms to the outer profile of The Falls for future maintenance.

Four compact electric hoists power the oval shaped platform, accompanied by a central control box (CCB) and wire winders. When not in use, operators can simply remove one pin from each of the hoist mounts to swing the hoist motor assemblies downward for a lower profile and compact storage.

The dance floor sections in the center of the platform were designed to be removed after the artwork was attached to the ceiling.
To launch the platform, wire ropes attached to rooftop anchors are first fed down from the roof via rigging sleeves and dropped more than 80 feet down to the platform level. The rigging sleeves allow for safe maneuvering of wire rope through or around structures and allow for rigging equipment to remain hidden and out of sight. Keeping the platform and wire rope elements out of sight allows the artwork to take center stage in this three-story elevator well. This custom suspended access platform facilitates quarterly cleaning and maintenance for this sculpture.

Sky Climber LLC and Rooftop Anchor, Inc. provided equipment, engineering services, and operator training for both installers and the artist for this project. The artist, Gordon Huether, was the recipient of a 2018 Society of American Registered Architects (SARA) National Design Award for designing The Canyon, The Falls, The Column Plates and Benches – all of which are located in the New SLC.

About the Author
Kit Carroll is Marketing Manager at Sky Climber, LLC. Contact her at kcarroll@skyclimber.com or (740) 203-3952.
CREATIVE ACCESS TO A SKYBRIDGE

THE 2020 SCAFFOLD & ACCESS INDUSTRY ASSOCIATION (SAIA) SUSPENDED ACCESS PROJECT OF THE YEAR AWARD WAS PRESENTED TO PCI SCAFFOLD IN COLLABORATION WITH D.H. CHARLES ENGINEERING AND ANDERSEN CONSTRUCTION FOR THE T-MOBILE: TERRACE AND 4 NEWPORT (NOW KNOWN AS BUILDING 1 AND BUILDING 2) CONNECTOR SUSPENDED PLATFORM PROJECT.

BY TORRY IYALL
The ongoing $160-million, multi-phase renovation of the T-Mobile headquarters in Bellevue, Washington, included building a new sky bridge to connect Building 1 and Building 2. The bridge location presented several challenges in providing safe access for the trade workers to install mechanical, electrical, and plumbing (MEP), glazing systems, and the metal panel soffit for the bridge.

**The Challenges**

The bridge is 19 feet, 6 inches wide and spans 97 feet between the buildings. It runs at a 23-degree angle and slopes seven feet from Building 1 to Building 2. The bridge location is such that access via an articulating boom lift or scissor lift was not possible. Additionally, the bridge span is directly over a steep, forested hillside that made a supported access platform inefficient.

Andersen Construction approached PCI Scaffold to provide a design and proposal for access. Based on the exterior envelope assembly, the PCI team determined they needed to design platforms that would not require attachment points at the soffit or sidewall/glazing areas and that construction could be completed without the need to “patch back” at the attachment points. To provide access to the bridge walls and soffit,
they proposed providing large-area motorized suspended platforms and Altrex platforms supported by swing-stage rigging placed on the bridge roof.

The PCI team consulted with D.H. Charles Engineering during the bidding phase to determine feasibility. After a quick review, the D.H. Charles engineers confirmed that it was within the capacities of standard material. After Andersen awarded PCI the project, PCI contracted with D.H. Charles for the engineering. D.H. Charles provided Andersen with reaction loads in time to allow design and fabrication changes that would support the scaffold system.

The Design
The design used 16 sets of standard rolling-roof rigging dollies over W8x10 sills with 24-foot modular aluminum beams, which spanned the bridge roof and equally supported the edges of the platforms below. The beams counterbalanced each other and eliminated the need for counterweight. Since it was necessary to anchor the rigging to the structure, tapped studs were welded to the steel roof structure of the bridge. Andersen provided 4-inch sleeves around the anchor points and was able to complete the roofing and waterproofing of the bridge prior to installation. The rigging beams were cabled down to the tapped studs with swivel hoist rings and turnbuckles.

Andersen and Pride Electric provided multiple dedicated power supplies at the roof level, and after PCI completed the roof support structure, they were able to begin the platform assembly. The initial plan was to pre-assemble the platforms on site and place them with the assistance of a mobile crane. Due to schedule and site constraints, a mobile crane was not available at the time of installation. Instead, PCI constructed a launch
Platform at the south end of the bridge on the steep hillside below the bridge; the platform was 30 feet square and 40 feet tall.

Successful Installation
The installation took place in three phases: (1) the temporary work platform; (2) the under-bridge platforms and swing-stage rigging; and (3) the swing-stage platforms. Each phase included pre-task site checks by the PCI foreman and the implementation of fall protection plans. After the installation and inspection were completed, PCI provided training to the users. The project was completed in August 2020.

Andersen’s Senior Superintendent Chad Furstenwerth described the project as one of the most challenging in the T-Mobile campus renovation. He said that the PCI team’s “creativity in the design for the soffit-access portion of the scaffold and the temporary ‘fabrication tower’ to facilitate its erection saved countless hours for the façade installation teams and minimized disturbances to the critical slope vegetation below.”

About the Author
Torry Iyall is Senior Estimator at PCI Scaffold. He can be reached at Torry.Iyall@pcg.com or 206-794-8507.
THE RISKS OF RUSHING SAFETY TRAINING

THE SCAFFOLD & ACCESS INDUSTRY ASSOCIATION UNIVERSITY (SAIAU) OFFERS COMPREHENSIVE TRAINING TO ITS MEMBERS THAT IS SPECIFIC TO STANDARDS IN THE UNITED STATES AND CANADA. THE TRAINING CONTENT AND FORMAT ARE CAREFULLY AND THOUGHTFULLY DEVELOPED. HERE’S WHY THAT IS SO IMPORTANT.

BY JEN ROSENTHAL, MDES, CTDP

The Train Station
The Train Station is an international training consultancy based in Canada. The company’s network of trainers and training developers, designers, and visual communication specialists collaborate with businesses and organizations to develop high-quality, accessible, participatory training programs. Learn more at https://www.trainstn.com/.
In 2009 a crew of six men were working on a suspended scaffold when it collapsed on Christmas Eve. The crew was 13 stories up when the scaffold platform split in two. One worker managed to hold onto a 13th-floor balcony, but five men plummeted to the ground. Four died, and one suffered serious injuries. The men ranged from 25 to 40 years old and were from Latvia, Uzbekistan, and Ukraine. Investigation into the accident revealed the following:

- Fall protection was not in place.
- Only one of the six workers was properly secured to a safety lifeline.
- The equipment had not been properly inspected.
- Many other safety violations had taken place.

Less than an Hour of Training
The construction company involved in the case pleaded to criminal negligence causing death and was eventually fined $750,000 plus a victim surcharge — the first time in Ontario that the Criminal Code had been used to hold a company responsible for a worker's death. During the court proceedings one of the surviving crew members who had been seriously injured told the court he had received less than an hour of safety training.

In an attempt to reduce their workers’ time away from the job, some companies seeking safety training take shortcuts in the training such as cutting out breaks, learning activities, or discussion — or just by teaching to the test. Most of these companies don’t have time to listen to a summary of adult education principles that explain why these solutions are not effective. However, it is the ethical duty of training professionals to work with clients to maximize the effectiveness of the training programs. When that effectiveness is measured in human lives, rushing training is not an option!

The ethical case for safety training in the workplace seems clear: No one should get hurt at work, and training workers and supervisors on safe behavior, equipment use, communication, and procedural controls should reduce the risk of injury. Many large builders and operators make statements that agree with this principle in their corporate value statements. They claim they’re on a “journey to Zero” or that they prioritize “everyone goes home safe.” These statements aren’t just good public relations; most of these companies take that goal very seriously. But people are still getting hurt at work.

Focus on Compliance Can Lead to Shortcuts
According to the U.S. Federal Occupational Safety and Health Administration (OSHA), there were 4,779 worker fatalities in private industry in calendar year 2018. Of those, 1,008 or 21% were in construction — that is, one in five worker deaths that year were in construction. According to Association of Workers’ Compensation Boards of Canada (AWCBC) statistics, 1,027 Canadian workers died due to work-related causes in 2018. Of those, 199, or 19.4% were in construction — again, one in five worker deaths were in construction.

Human factors account for a significant percentage of these workplace injuries and fatalities, which is the reason that training is mandatory in a large number of industries. Unfortunately, these industries are primarily concerned with a need to maintain their workforce certifications to remain compliant. This focus on compliance can lead to shortcuts being taken in training programs and un-ethical training companies offering “quick and easy” options for obtaining or maintaining these certifications.

Safety training is a sector of the learning and performance industry that is fraught with ethical issues, especially when it comes to construction and heavy industry, where lives are at stake. This risk factor suggests that it should be at the forefront of innovating new technologies and approaches to reduce that risk. Unfortunately, old fashioned techniques, disproven training myths, and low standards dominate the industry.

The Science of Adult Learning
Training professionals know that for training to be effective and for the learning to be successfully applied on the job, it takes more than a few hours in a classroom or online. There are cognitive processes involved in moving information from the short-term to long-term memory, and practice is essential for the retention and application of new knowledge and skills.

Short-term Memory
Cramming a lot of information into a few hours of instruction is not going to result in effective learning. According to Harvard University cognitive psychologist George A. Miller’s theory regarding “The Magical Number Seven, Plus or Minus Two,” most adult learners are able to store between five and nine items of information at once in their short-term memory. Once they exceed this limit, they run the risk of overloading their mental pathways, and they cannot absorb any new information.

Memory Retention
Adult minds are also affected by how they are exposed to the information, in particular, the time they have to absorb the key concepts. Adults must review, recap, and repeat information on a regular basis to remember it. Hermann Ebbinghaus introduced the “forgetting curve,” which stipulates that memory retention is a function of the relative strength of memory over time.
the forgetting curve and knowledge retention rates have shown that adults tend to forget about 90 percent of what they learn within the first month. This means that they must review and actively recall the information before that time limit, or else they tend to forget it completely.

A related concept is the strength of memory that refers to the durability of that memory in the brain. The stronger the memory, the longer period of time a person is able to recall it. A typical graph of the forgetting curve purports to show that humans tend to halve their memory of newly learned knowledge in a matter of days or weeks unless they consciously review the learned material.

**Overconfidence**

Then there is the factor of overconfidence to consider. The Dunning-Kruger Effect hinges on the fact that many people simply don’t know what they don’t know, even in areas where they’re completely out of their depth. “You need expertise to be able to recognize lack of expertise accurately,” according to University of Michigan psychologist David Dunning. Those with the least ability are most likely to overrate their skills to the greatest extent. They tend to rate their expertise almost as favorably as actual experts do. Everyone has pockets of incompetence that they don’t recognize. People lacking knowledge and skills in particular areas suffer in two ways: They make mistakes and reach poor decisions. Those same knowledge gaps prevent them from identifying and learning from those errors. “Poor performers lack the expertise to identify how poorly they are performing,” said Dunning.

It is easy to see, considering the above concepts, why human errors are likely to persist if training programs are just approached from a compliance perspective. Given the life-and-death stakes for worker safety, ethical considerations require that training professionals pay attention to these adult education concepts and develop robust safety training programs that include discussion, practice, and interaction as well as sufficient time to process the new information to ensure learning retention and application on the job.

**References**


OSHA Commonly Used Statistics https://www.osha.gov/data/commonstats

**About the Author**

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SAIAU Training Programs: The Ethical Choice

The Scaffold & Access Industry Association University (SAIAU) offers comprehensive Competent Person Training (CPT) in Supported and Suspended Scaffold that is specific to United States and Canadian standards and also offers Journeyman Scaffold Training in Canada only.

The training incorporates U.S. Federal Occupational Safety and Health Administration (OSHA) regulations and standards established by the American National Standard Institute (ANSI) and the Canadian Standards Association (CSA Group). Regulations differ from state to state and province to province, and the training is designed to allow instructors to cover regulations for every location.

The SAIAU develops its training programs in collaboration with adult education/training specialists to ensure that the training reflects best practices. The training content and format reflect the need to be user-friendly for today’s workers. Certified instructors from the SAIA Accredited Training Institutes (ATIs) teach the courses, which ensures that students receive the highest level of training possible from industry experts.

According to Jen Rosenthal, training development specialist at the Canadian-based Train Station, the CPT and Journeyman programs offer an ethical solution in providing employee safety training. Unlike other CPT training programs that offer quick, one-hour online certification sessions that are only about compliance, the SAIAU CPT training typically takes eight hours and requires students to complete homework before the training. This one-day format gives students a better chance to retain what they learn and put it into practice on the job site.

There are more than 100 ATI locations in North America. The SAIAU is currently seeking new training centers in both the U.S. and Canada. For more information on the training programs or becoming an ATI, please contact Daphne Reitz, SAIA training manager at daphne@saiaonline.org or (816) 595-4860.

Read more about the training programs and ATIs at https://www.saiaonline.org/trainingandeducation.
SUSPENDED SCAFFOLD CROSSWORD  By Harold Gidish

Across
2  Part that saves
5  Minimum rigging safety factor
6  Wire rope termination
12  Move me while suspended
14  I connect the hoist
15  Permanent rigging device
17  I check up on your manufacturing
19  Policing agency
24  Split the juice
25  Don’t use if it’s over 25 MPH
26  No sparks, Power source
29  Prevent items from falling
30  Hang from concrete walls
31  At the termination of a rope
32  Part that hangs
33  Twisted rope

Down
1  Keeps you inside the platform
3  Power flow measurement
4  No power descent
7  Replaced the old belt
8  Short for “minimum safe approach” from power lines
9  Thread
10  Electrical protector
11  Load limit
13  Secure the connection 16 Power safety protector 18 Red button
20  Type of power
21  Used to calculate required weights
22  Morphing platform
23  Supplies the power
27  Change the shape
28  Prevent items from dropping

Word List
AERIALTRANSFER
AMPS
BREAKER
CAPACITY
CONTROLLEDDESCENT
CORD
Davit
EMERGENCYSTOP
FORMULA
FOURTOONE
FULLBODYHARNESS
GFCI
GUARDRAIL
MODULAR
MSAD
OSHA
PARRAPETCLAMP
PNEUMATIC
ROPELAY
SAFETY
SINGLEPHASE
STIRRUP
STRAND
STRESS
SUSPENDED
SWEDGEFITTING
TETHER
THIMBLE
TOEBOARD
TWISTLOCK
UNDERWRITERSLABORATORY
WINDSPEED
YOKE

About the Author
Harold Gidish is a member of the Scaffold & Access Industry Association (SAIA) Board of Directors and Chair of the Suspended Council. He is General Manager of Sky Climber Access Solutions, LLC in California. Contact him at hgidish@skyclimber.com.

View the answers on page 34.
Susan Kline is CEO of Lyn-Lad Grp Ltd., CEO and chief financial officer (CFO) of Lynn Ladder Co., Inc., and co-owner of Lynn Ladder and Scaffolding Co., Inc. and Vanguard Manufacturing with her brother Alan and two non-Lynn Ladder siblings. The companies, long-time members of the Scaffold & Access Industry Association (SAIA), manufacture and distribute ladders, scaffolding, truck equipment, and specialty items. Additionally, Lyn-Lad’s rental division offers a full range of products and erection and dismantling services.

SA Magazine: Please tell us how you became involved in the scaffolding industry.

Susan Kline (SK): I am the third generation of my family to work in the industry. My father and grandfather started Lynn Ladder in 1946. It was called Kline Ladder Co.

I attended Springfield College in Massachusetts and earned a bachelor’s degree in biology and a minor in chemistry. The college had the best field hockey team in the Northeast, and I played both field hockey and lacrosse. I wanted to stay in shape over the summers, and during the summer of my freshman year, my father, who had previously kept me sheltered from the business, finally let me work in the yard. I loaded scaffold trucks and made ladders. I enjoyed that but never intended to stay in the family business.

SA Magazine: What happened to cause you to stay?

SK: I was injured on the job in 1972 and ended up working in the office. At first when I would answer the phone, the customers would say “Put on one of the guys,” but eventually people got used to talking to me. I found out that I really liked the business – and the people.

In the late 1970s, I took a few years off to earn my MBA at Boston College. I didn’t want to come back and work for my dad unless I knew I could make my own living. Out of graduate school, I applied to two companies and was hired by Coopers and Lybrand, the largest accounting firms in the world at the time. I worked in the small business group and did everything for these businesses, from negotiating loans to tax returns. The Boston Symphony was my general practice client. I was lucky to listen to them practice during my lunch breaks.

After three years with Coopers and Lybrand, I knew I was prepared to go back and work for my dad in 1982 and eventually became controller and took charge of accounting and collections. In the late 80s, I moved to New Hampshire and ran Vanguard Manufacturing for many years. When my father died in 1996, I became CFO of the family companies. After the 2008-2009 construction downturn, we downsized the business to make it more profitable. We closed six of our 12 locations, and we have made a profit every year since. We became smaller and more efficient. Today, we have annual revenues of $16 million and support 90 to 100 families. We don’t owe the bank any money, and we haven’t borrowed in many years.

SA Magazine: What do you believe are some reasons for your ongoing success?

SK: I have one rule – treat people how you want to be treated. This is how I raised my 27-year-old daughter Cody, who helps with our social media in a part-time capacity.

My management philosophy is simple – Family First. When someone needs time off for family, we make it work. I’m here to make the business run and make sure I have the best people for the job. I know almost everyone who works for us and I care for all of them.

My job is twofold: to help families make a decent living and for our company to end the year in the black. It is that simple.

SA Magazine: Has it been challenging to keep your employees and their families safe during the COVID-19 pandemic?

SK: We follow all the CDC guidelines and have taken extra steps to support our employees. One thing we’ve done is to create “offices” for two children for their remote learning, so their mothers can come to work. The kids are a joy, and they get to join in on all our festivities. Before Thanksgiving we all sat down to a Thanksgiving dinner. The kids have their own space with their own desks and swivel chairs. They’re safe, they love it, and it’s a win for everyone.

SA Magazine: How do you handle the stress of leading your family’s company through this and other difficult times?

SK: Nature photography is my “let go.” It’s my passion, and I’ve traveled across the globe to pursue this passion. Of course, that travel has been on hold due to the coronavirus, but I hope to be able to travel soon. This year, I have been “backyard birding.” (Editor’s Note: View her photography at www.susanklinephotography.com.)

SA Magazine: What is the one thing you would want our readers to take away from this article?

SK: Keep family first. That’s what matters.
Quali-T-Group (QTG) has sold its tube mill and is now exclusively dedicated to manufacturing steel tubing products. This is a crucial step for the centenarian family business, which is investing close to $20 million in a new plant with state-of-the-art equipment.

QTG’s new 76,000-square-foot air-conditioned plant will be built in Bromont, Quebec. The company will triple the size of its current headquarters in the town’s industrial park. The overall project will require an investment of approximately $20 million, $8 million for the building and nearly $10 million in state-of-the-art equipment. The industrial building should be operational by June 2021.

The recent sale of their steel tubing division was essential for QTG to remain at the forefront of its field. “We decided to sell to a competitor because this part of the market has been tough for the last 10 years. We’d rather be the best in our niche than only a single player among many,” said Giancarlo Talarico, QTG president.

The company will also invest $2 million in employee training. Over the next two years, QTG plans to add some 20 people to its current 55-person team.

“Our team is our strength. Our customers come to us for our expertise first and foremost,” said Talarico. “In 2017, we tripled our revenues. We’ve had to manage continuous growth…. Today, we are on the cusp of some very exciting challenges.”

Currently, 40% of QTG’s clientele comes from the United States, 40% from Quebec, and 20% from the rest of Canada.
Sunbelt Rentals has received a Remarkable Achievements and Visionary Elites (RAVE) Award from Cornerstone OnDemand, Inc., in recognition of its commitment to learning strategy innovations for its employee training programs.

The timing of the award showcases the Sunbelt Rentals commitment to education, especially during the COVID-19 pandemic. The company was able to move multiple in-person training offerings to virtual instructor-led trainings to address travel restrictions. In one span of eight weeks across April and May, 111 virtual sessions were delivered to 4,125 teammates on topics ranging from COVID-19 safety protocols to leveraging technology for sellers in a remote environment. One longstanding in-person driver training course was redesigned for virtual delivery, resulting in a 51% gain in course completion.

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