Safety from the sky

Features
- Safety talk: Silica—Installing and finishing drywall
- School bus safety cameras
- Utility pole hazards
- Mandatory construction hazard awareness training
- Safety applications for drones
- Self-retracting devices and lifelines near leading edges
- Certification training

A specialized approach to health and safety
Silica—Installing and finishing drywall

Some drywall tasks can release dust with high concentrations of silica particles into the air. These tasks include:
- Cutting drywall (e.g., making holes for light fixtures, plugs, switches, etc.)
- Sanding drywall joint compound
- Cutting cement board
- Disturbing settled dust

When inhaled, silica particles travel deep into the lungs. Over time, these particles can cause the following health issues:
1. Respiratory problems
2. Silicosis
3. Lung cancer
4. Scleroderma

**Explain dangers**

Respiratory problems—Inhaling silica particles can cause:
- Irritation to the throat and airway
- Persistent coughing
- Breathing difficulties
- Chronic obstructive pulmonary disorder (COPD)—a combination of chronic bronchitis and emphysema that is often fatal

Silicosis—Silicosis is caused by an inflammation and buildup of scars on the lungs, which makes breathing extremely difficult. Once silicosis starts to develop, it continues to get worse even if exposure to silica stops. This disease is often fatal. Many people who have silicosis develop other health problems, such as heart disease, tuberculosis, and lung cancer.

Lung cancer—Many scientific organizations have confirmed that exposure to silica causes lung cancer, a debilitating disease that is often fatal.

Scleroderma—Scleroderma is a disorder of the connective tissue that holds various body parts together. The skin becomes tight and thick, making it difficult for a person to move. It can cause serious problems, such as damage to the kidneys, lungs, digestive system, and heart.

**Identify controls**

- Educate workers on the health effects of silica exposure and controls for preventing exposure during drywall cutting and sanding tasks. Workers must be trained on WHMIS (Workplace Hazardous Materials Information System) and know where to find Safety Data Sheets (SDSs) for hazardous products.
- Turn off heating, ventilation, and air-conditioning units to reduce the spread of dust to other parts of the workplace.
- Warn other trades about the risk of silica exposure, and limit entry into the work area.
- Ventilate the work area while cutting and sanding. Open windows and doors and use mechanical fans to dilute contaminated air.
- Always wash your face and hands before eating, drinking, or smoking and before going home.
- Use an electric shrouded ventilated rotary sander (SVRS). It can reduce silica dust levels by about 96%. This type of sander draws air through the rotating pad into a shroud and passes it through a vacuum collection system with a high-efficiency particulate air (HEPA) filter (see image right).
- Vacuum the workspace with a HEPA vacuum attached to either a manual sander or an electric SVRS. Because silica particles are extremely small, a conventional vacuum will blow the dust back into the air.
- Use respiratory protection whenever you are working with materials containing silica. Silica particles are so small that you may not even see the hazardous dust in the air. For most drywall sanding and cutting applications, use an elastomeric half-mask air-purifying respirator with P100 filters. Before using a respirator, every worker must have a fit test and a user seal check performed and be trained to select, use, and care for a respirator.

**Demonstrate**

- Show your crew an elastomeric half-mask air-purifying respirator.
- Demonstrate how to put on and wear the respirator. Perform a seal check.
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On the cover...

Drone use on the job is becoming more and more prevalent. Read about Enwin’s use of drones at the Windsor utility.
With some 30,000 students travelling to school in Waterloo Region every day, safety is always on the mind of Benoit Bourgault, the General Manager of Student Transportation Services (STS) for the region.

Bourgault finds it disconcerting the serious injuries in this area of transportation are a result of children being hit by drivers who don’t stop for the red flashing lights of a school bus. It’s a practice that Bourgault hopes to put an end to.

“The thing that keeps me up at night is the number-one complaint I get from bus drivers in the area—the fear that somebody will fail to stop for them while a child is crossing the road.”
Bourgault said on average there are about 500 to 700 violations a week by drivers in the region who don’t stop for school buses. So on receiving support from the Waterloo Region Police Service, his department mounted cameras on the stop arms of six of their buses as a pilot program. (Stop arms are stop signs on school buses that swing out when the bus opens its doors.)

“For a number of years I’ve been aware that stop-arm cameras have been in use in other jurisdictions in Canada (Alberta) and in the U.S. And we constantly get inquiries from parents asking us why we don’t have them here, so we started looking into it,” said Bourgault.

The STS found a company that would mount the cameras, monitor the footage, and report the results directly to the police. And the results that came from the pilot program revealed a frequency of almost one violation per bus per day.

With those results in hand, Bourgault was able to persuade both school boards in the region to move forward with installing the cameras on their buses.

Fitting the buses could cost $16,000 per bus, which was more than the school boards could afford, but the Waterloo Region offered to cover the cost. With violations costing drivers between $400 and $2,000 for a first offence, and between $1,000 and $4,000 for subsequent offences, the cost of the cameras is expected to be recouped in fines.

Since distracted driving is on the rise, Bourgault sees an ever greater need for the stop-arm cameras.

“It drives me crazy to think that people would be on their phones while going through the red light of a school bus stop arm, but we already have too many cases where distracted driving is suspected.”

The camera itself has seven heads mounted on the side of the bus to view every lane, and it captures video imagery of the 10 seconds before and after the stop arm of a bus is fully extended.

Bourgault acknowledges that these cameras are only one part of the solution, but he believes they are a step toward improving the safety of the students who use the buses. The important thing that is still needed is public awareness of the cameras, and that will come from the violators, who will be up in arms at the fines they’ll have to pay.

“There’s a very important safety rule already in existence—don’t run a red light. So for the people who will be getting upset about something like this, you need to understand that it doesn’t take much for a seven-year-old to get distracted and run across the street. It doesn’t take much for a teenager to text on their phone and not pay attention to their surroundings. This technology will improve the safety of those children.”

The Highway Traffic Act of Ontario says that when a school bus is stopped on the road with its upper red lights flashing and the “Stop” sign deployed, drivers must come to a complete stop in both directions. The owner of a vehicle can also be charged if their vehicle does not stop for a school bus, even if they were not driving it at the time. Passing a stopped school bus can have severe consequences.

A driver or car owner can be fined between $400 and $2,000 for a first offence, and between $1,000 and $4,000 for subsequent offences. A person also runs the risk of being given six demerit points on their driver’s licence.
Utility poles present hazards from the time they are delivered to the worksite until long after their use is ended and they are removed. That’s why it is important to always consider what those hazards are and how best to deal with them.

Utility poles come in various heights, grades, and materials. They range from 30-foot, Grade 2 cedar to 60-foot, Grade G concrete. Each has its own unique qualities and safety issues.

Not all procedures and practices listed here will satisfy every situation or meet every requirement. Before any work begins with pole handling, a hazard analysis or job safety analysis must be done. A tailboard talk must be held and documented every day, and all appropriate personal protective equipment (PPE) must be used.

The pole pile
A pile of poles can look quite stable even when it is ready to topple over. It is important to check the stability of the pole pile before climbing on top. The preferred method for lifting a pole is to lift it from one end to move it to a more stable area of the pile. It is even safer to avoid climbing on the pile if that is possible. Stay clear of the pole bin whenever making a lift. When piling poles, do not put any of them in a dangerous position, and make sure the pile is stable when you leave.

The pole trailer
When loading poles onto a trailer, make sure the truck is stable before beginning work. Check the load charts to make sure the lift can be made safely. Check the winch line and the drum. And to prevent shock loading, do not allow the line to run up one side of the drum. If the poles require stabilizing on the trailer, use a cant hook and stay away from any pinch points.

The worksite
When the pole is dropped off, new hazards may be encountered, including traffic, overhead powerlines, and more. Take all necessary precautions to protect the crew by setting up proper work area protection (see Ontario Traffic Manual Book 7).

When unloading poles:
• Check overhead for communications cables and powerlines, and remember the electrical safe limits of approach.
• Obtain all necessary locates, and stay clear of the auger while unloading the poles.
• If working close to live lines, obtain a hold-off and ground the truck or, if possible, have the circuit isolated and grounded.
• If the circuit is to remain energized, install cover-up on the lines and use pole guards.

Anyone in contact with the pole should use a rope or cant hook to guide the pole and wear the right class of rubber gloves as well as all other PPE.
Pressure-treated wood poles have become popular due to their longer life and cleaner appearance, but again, they come with their own unique hazards. Pressure-treated poles that contain chromate copper arsenate (CCA) should be treated with caution. This substance is associated with potential skin and eye irritation, allergic reactions, and in some cases, cancer. Wear gloves and long-sleeved shirts when handling them, and never burn them.

For the birds
A long-standing problem with wood poles is their attraction for some of our feathered friends. Woodpeckers in particular have taken a liking to the new pressure-treated poles as nesting locations. The nest holes are a hazard when you are climbing. They can also make it difficult to change hardware from a bucket. If the holes are small enough, an epoxy patch can be applied to fill them, but sometimes that doesn’t solve the problem. The woodpeckers may simply return to the pole and make a new hole. In some cases, the only answer is to replace the pole. Remember, when removing cedar and pine poles, watch for those that may still have creosote butts. Creosote must be disposed of properly.

As an alternative to wood, steel poles are lighter, longer-lasting, non-shrinking, recyclable, and also woodpecker-proof. The drawbacks include rusting and less flexibility.

Another option is concrete. Concrete poles offer a clean appearance, pre-drilled holes, and superior strength (they can be made to be self-supporting). They are also woodpecker-proof. On the down side, the rebar used to strengthen the concrete can rust and, of course, concrete is extremely heavy.

The latest poles in design are made of fibre-reinforced plastics. They weigh less than a third of a wood pole of the same size and grade, and they come in sections for easy transport. These “plastic” poles have many advantages: they are strong, resist ultraviolet rays, can be drilled, are non-toxic to the environment, and are long-lasting. However, they are more expensive than traditional poles and cannot be climbed.

Each kind of pole has pros and cons, and each comes with specific hazards and work procedures. Whatever kind you decide on, always keep all possible hazards in mind and ensure that all workers know exactly what their jobs are when working around utility poles.

Pole removal
When removing poles, many of the same precautions and barriers are needed as when they were being installed. A pole jack is highly recommended in the removal of poles as it lowers the stress on the boom considerably. The pole jack comes with a pinch hazard, so be aware of that when working with this tool. When removing poles, make sure the properly rated sling is used and is high enough above the balance point.

Poles come with different shapes, sizes, and hazards
Today’s utility poles have moved beyond just the traditional cedar, pine, or even steel or concrete to include new hybrid plastic-and-wood composites and fibreglass. While these new, modern poles have many advantages over the old styles, they also come with their own problems.

One of the most significant differences between the new poles and the old is weight. Concrete poles weigh more than twice as much as cedar or pine and more than three times as much as steel. Concrete poles over certain heights will require special installation equipment. Keep in mind that, in some cases, moisture will add to the weight of a pole. It is important to understand the various weights involved when preparing for lifting and installation.

As well, poles made of fibreglass, composites (wood-and-plastic mix), and steel and concrete combinations are all being researched and installed.
Mandatory construction hazard awareness training coming to Ontario

Mandatory hazard awareness training for workers in the construction industry has been discussed for a long time by labour groups, employer associations, and government. While there has been some agreement that it would be beneficial for industry as a whole if everyone had a basic understanding of the hazards they may face and how to deal with them, there hasn’t been much agreement on exactly what this training would look like.

The Ministry of Labour recently revived that debate when it announced plans to proceed with mandatory Construction Health and Safety Awareness Training. This training will give all workers in the construction industry a basic understanding of the common hazards and how to recognize them. It’s meant to be a first step, so further health and safety training will still be necessary depending on the specific type of work being done. For example, a worker might need further training in working at heights or in confined spaces.

Draft standards

Last summer, the Ministry of Labour released two draft standards for review during a consultation period. The first was a draft Program Standard describing the proposed criteria for what an approved training program must include. The second was a draft Provider Standard that described the proposed requirements that must be met by the group or organization offering the training. This is similar to the Working at Heights Training Standard, where one standard governs the program content and the other governs the provider’s qualifications.

When you read the draft Construction Health and Safety Awareness Training Program Standard, you see program requirements such as a minimum length of 6.5 hours and a maximum of 24 students per class. You see that online programs do not meet the draft standard, but distance learning does if it includes a video link that allows for interaction in real time. The draft Program Standard also clearly defines the required learning outcomes.

The draft Provider Standard says what an organization has to do to become an approved training provider. Like the Working at Heights Training Standard, in order to be valid, the Construction Health and Safety Awareness Training must come from a provider that has been approved by the Chief Prevention Officer. This ensures that the quality and content of training are consistent all over the province.
Enforcement

Once the final standards are released, they will need to become law before they can be enforced. For this reason, the Ministry of Labour is proposing an amendment to the Occupational Health and Safety Act (OHSA). If passed, the amendment will apply to employers who engage in construction work as defined by OHSA and regulated by the Construction Projects Regulation (O. Reg. 213/91). It will require employers to ensure that their workers obtain the Construction Health and Safety Awareness Training, in one of two ways.

Proposed Option #1

Workers must complete a program from a provider that has been approved by the Chief Prevention Office. Since training by an approved provider is tracked by the government, it is transferable from one employer to another.

Proposed Option #2

If the workplace has 20 or more workers and a Joint Health and Safety Committee (JHSC), workers may take a program that their employer has developed and that the JHSC has approved. Under this option, a worker’s training is not transferable from one employer to another.

The proposed amendment includes a two-year transition period to give employers time to ensure that their current employees receive the training.

Comments during consultation period

During the consultation period, two issues in particular kept coming up. One was why all workers, and not just new workers, will have to take the training. The other was why online training will not be allowed even though it is in some other provinces.

Another point that was mentioned often was the fact that option #2 could undermine the principle of having a training standard since everyone will not be subject to the same process. It is also unclear where unions fit in. Since they are not employers with active JHSC’s, they would not fall under option #2, but some people think they should. There were questions about the transferability of the training and if it would take the place of the current general awareness training that all employees in Ontario must take. The Ministry of Labour is reviewing all the comments submitted during the consultation period and expects to release them soon.

To read the draft standards and the proposed amendments to OHSA, visit Ontario’s Regulatory Registry at ontiocanada.ca/registry.
For businesses that are health-and-safety-conscious, it’s always a priority to remove workers from dangerous situations. In certain cases that could mean adding new procedures; in others it could mean using new tools that move workers out of harm’s way.

ENWIN Utilities Ltd., an electricity distribution company that serves the city of Windsor, is now able to do both with its unmanned aerial vehicles (UAVs), which are commonly known as drones.

After working with Transport Canada for six months, ENWIN received a standing Special Flight Operations Certificate to fly UAVs for use in infrastructure inspection and maintenance.

The utility can now begin to use multi-rotor unmanned helicopters equipped with cameras to routinely check transformers, powerlines, and other infrastructure that is necessary to maintain the safety and reliability of the local distribution system.

Jean Pepin, who is the lead UAV pilot for ENWIN, sees a lot of potential for this kind of equipment. “It’s a great tool to have in the toolbox,” said Pepin, who just completed a reclosure inspection program cataloguing data from 100 inspections.

“What’s really nice about this is the geo-tagging ability. It gives our technicians greater reference points now for field work, and we can use UAVs to analyze things like the cleanliness of the insulators and connection points, and we hope to add infrared cameras in the future.”

ENWIN also has a long record of working with first responders in the Windsor area, including Windsor Fire and Rescue Services and Windsor Police Services. When a tornado ripped through Windsor this past fall, Pepin was on site using the UAV for emergency hazard assessment.
The August 24 tornado gave us a chance to see ENWIN’s drone in action for the first time,” said Windsor Fire Chief, Bruce Montone. “They have capabilities that can help prevent, assess, and manage fires, as well as enhance our community emergency management in the event of a declared City emergency.”

When the power is out after a storm and working conditions may be dangerous, an aerial assessment of a large area can be done in about 15 minutes.

“After the storm came through, it was hard to see what we were working with from the ground,” Pepin said. “Once I had the drone in the air, we could see the actual path of the tornado and recognize hazardous debris; we could see damage that needed to be addressed, and we could see where the lines were lying.”

For a utility, there are many benefits to working with drones—it costs less to inspect infrastructure; service can be assessed, repaired, and restored more quickly; and ultimately workers can be removed from dangerous situations.

“What’s really nice about this is the geo-tagging ability. It gives our technicians greater reference points now for field work...”

“Having a UAV can definitely make work processes more efficient; it can even create jobs through being able to see things we wouldn’t normally be able to see. But like any tool we have at our disposal, it will come down to how we incorporate it into our tool box.”

Transport Canada oversees drone-related regulation in the country. The federal department can provide information on the “Do’s and don’ts” for using an unmanned vehicle (UAV) as well as the various legal requirements for their use.

As well Transport Canada has created a drone use reporting tool to keep track of any incidents.

Travel restraint versus fall arrest

Ontario Regulation 213/91: Construction Projects, requires workers to be protected by the highest-ranked method of fall protection that is practicable. The methods of fall protection are ranked as follows:

1. a travel restraint system
2. a fall restricting system
3. a fall arrest system
4. a safety net

A travel restraint system is the highest-ranked choice because it prevents the worker from falling over the edge. For this reason, it is preferred over a fall restricting or fall arrest system, which limits a worker’s fall but doesn’t prevent it from happening.

Since there is no lifeline or lanyard to rub against the leading edge, a travel restraint system is the best option for this kind of work.

If a fall arrest system must be used, follow these prevention tips to help make sure that your lifeline or lanyard doesn’t break in the event of a fall.

Leading edge work

A leading edge is the unprotected end of a formwork, floor, roof, deck, or other walking or work surface. Those can be very dangerous places to work if proper safety precautions are not taken. Although using proper fall protection equipment is one way to protect yourself, failure can still occur. The best way to eliminate the fall hazard is by using guardrails or a travel restraint system.

When you are working on a leading edge or other sharp work surface, the lifeline or lanyard—including a self-retracting lifeline or lanyard (SRL)—can become frayed or cut as it hits and rubs against the edge. As a result, if a worker fell, the force of stopping the fall would likely cause the lifeline or lanyard to break.

When working at heights, workers often rely on fall protection equipment to keep them safe. New training standards and regulations from the Ministry of Labour have put a spotlight on the importance of proper training in the use of fall protection equipment. Many workers have taken the required training and use fall protection equipment regularly. However, in some situations, like working on a leading edge, training and experience may not be enough.

Take extra precautions with lanyards, self-retracting devices, and lifelines near a leading edge
• Inspect the equipment before each use.
• Attach the lifeline to an anchor point overhead or as high as possible so the lifeline is vertical. If it is horizontal, it can drag along the edge and be damaged.
• Select an anchor point that is directly behind the worker to limit the fall distance as much as possible and prevent the lanyard from running over the edge.
• Ensure that sharp edges are covered or protected (e.g., use edge softeners such as rubber bumpers or padding).
• Use SRLs in travel restraint so that workers cannot fall. Make sure that the payout (length) is shorter than the fall hazard (distance to the edge). If the line is long enough to go over the edge, the worker is not in travel restraint.
• Use SRLs that are specifically designed for leading edge work. They are classified as SRL-LE and certified by ANSI Z359.14 and CSA Z259.2.2-14. The CSA standard was published only recently, so ANSI-certified SRL-LEs will be easier to find.

Several employers have decided to remove from service all SRLs that don’t meet the criteria for leading edge protection. That will make it impossible for a worker to use the wrong type of SRL.

If you or your workers are working near a leading edge, take extra precautions and follow these safety tips. For information on IHSA’s Working at Heights training program, visit ihsa.ca/training. To download the complete safety advisory on this topic, visit ihsa.ca/products and click on Free Downloads.
The Ministry of Labour (MOL) announced that the 2014 Joint Health and Safety Committee (JHSC) Certification Training Standards came into effect on March 1, 2016. This meant that all JHSC Certification training programs and training providers had to be approved by Ontario’s Chief Prevention Officer (CPO).

Under the 2014 Standard, all approved certification programs must have a generic Part One and a sector-specific Part Two. In addition, those who become certified under the 2014 Standard must take a Certification Refresher training course every three years to maintain their certification.

IHSA offers all three parts of the certification training—Part One; Part Two for four sectors: construction, transportation, utilities, and aggregates; and the Certification Refresher course.

There are two situations in which the Certification Refresher is required:

1. Those who become certified under the 2014 Standard must complete a Certification Refresher training course every three years to maintain their certification.

2. If more than six months have passed since completing Part One, participants must either take a Certification Refresher training course before taking Part Two, or apply to the MOL for an exemption.

However, those who have been certified under the 1996 Standard do not require Certification Refresher training.

In an effort to meet the needs of their membership by the implementation date, IHSA has worked hard to become one of a handful of training providers to be approved by the CPO to deliver all three sections of the JHSC training.

If you would like to learn more about the certification training IHSA can offer, visit IHSA.ca/training

**KEY TERMS**

**JHSC Certification** – Where a Joint Health and Safety Committee (JHSC) is required at a workplace, at least two JHSC members—one management and one worker—must be certified by the Ministry of Labour (MOL) except on a project with fewer than 50 workers or expected to last less than three months. Anyone who wishes to act as a Certified Member on a JHSC must take and successfully complete JHSC Certification Training.

**1996 Standard** – The current JHSC standard (i.e., 1996 Standard for Joint Health and Safety Committee Certification Training). All current JHSC Certification training in Ontario is in compliance with and done under this standard.

**2014 Standard** – The new JHSC standard established by the MOL. As of March 1, 2016, all JHSC Certification training must be in compliance with the 2014 Standard.
Supervisors play an important role in the workplace. They need to know their responsibilities when it comes to health and safety and how to engage workers, managers, and owners to maintain safety in the workplace.

They need to know their responsibilities under health and safety law, have effective communication skills in order to convey vital safety requirements, and have the knowledge to supervise highly skilled people working in high-hazard environments.

The Infrastructure Health and Safety Association provides these supervisory courses that can help workers make the transition to this important safety role.

**Basics of Supervising and Basics of Supervising—Federally Regulated**

These two courses provide supervisors with the information they need in order to understand their roles and responsibilities under provincial or federal health and safety law and what health and safety tasks they need to ensure they are in compliance.

**Communication Skills for Supervising Health and Safety NEW!**

This program provides information that goes beyond the Basics of Supervising training program and provides supervisors with the specific communication tools they need to implement critical health and safety solutions. Includes an IHSA Supervisor Log Book (RF008)

**Incident Investigation and Reporting Awareness**

Participants in this course learn to conduct an incident investigation and prepare an incident report based on their investigation.

**Introduction to Hazard and Risk Management**

This program provides the tools to assist those involved in developing or enhancing their organization’s hazard and risk management system. Through structured exercises and case studies, participants will be introduced to concepts, methods, and tools used to create, implement, evaluate, communicate, and maintain a successful hazard and risk management system.

These are just a few courses in a series of programs IHSA is creating to meet the needs of Ontario’s infrastructure supervisors working in high-hazard environments. Watch for additional courses in 2017.

Quoted prices are for members only. Please visit [ihsa.ca](http://ihsa.ca) for non-member pricing.
Do you have the posters you need on your site?

Construction employers must have an Emergency Response poster (P103), a JHSC or H&S Rep poster (P041 or P029), and DANGER signs in hazardous areas (P022, P093). Companies should also post signs to indicate what type of PPE is required on site (P031). These posters and many more are available to order from ihsa.ca.

Get IHSA’s latest safety products!

Concrete Finishers Health and Safety Manual (M073)
This health and safety manual contains the information they need to protect themselves from the hazards they face in the workplace.

Electrical Construction and Maintenance Workers’ Safety Manual (M010)
This pocket-sized manual was written for electrical workers and is a useful tool that apprentices, journeypersons, supervisors, and management can use to help keep safety in mind when planning work.

Health and Safety Guide: Masonry, Tile, Terrazzo, and Allied Trades (B013)
This pocket-sized guide provides an introduction to the most common health and safety hazards faced by workers and small employers in the masonry, tile, terrazzo, and allied trades.

Visit ihsa.ca to see these and other important safety manuals.