CONSTRUCTION SAFETY *magazine*

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Winter 2004/05

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Drywall Sanding
Ergonomics and Hygiene

Construction Safety Magazine

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Construction Heaters

by Ray Hopkins B.A.S., Construction Safety Association of Ontario

Ontario construction projects require heating in winter to keep workers warm, prevent pipes from freezing, pour and cure concrete, apply dry wall and paint, thaw frozen ground, and do other jobs.

Whatever the reason, you may need a construction heater this winter. So what are your options?

Construction heaters are designed to meet national standards. Units manufactured for Canada must comply with Canadian Standards Association standard CSA 2.14-2000.

Salamander heaters mix fuel with air which burns in an open chamber.

You can choose from numerous sizes and types of heaters. Fuels include natural gas, propane gas, oil, kerosene, and electricity. Some heaters can be operated on one or more fuels.

Other design features include

- thermostats to regulate temperature, leading to lower fuel consumption and emission levels
- safeguards such as an automatic shut-off switch (if the flame should go out) and tip switch (if the heater is accidentally knocked over)
- vaporizers to speed conversion from liquid propane to gas for high demand units and cold temperatures.

Construction heaters are designed for outdoor use and should not be operated indoors unless manufacturer's instructions for ventilating emission gases are followed and the unit is installed in accordance with applicable codes.

Only workers holding a current record of training (ROT) certificate for operating construction heaters are permitted to install and operate the units.

Construction heaters can be divided into two categories based on ventilation requirements: direct-fired and indirect-fired.

Direct-Fired Heaters

Direct-fired heaters release all of the heat generated by the flame (and the emissions that result) directly into the heated area.

Direct-fired heaters operate like a gas fireplace in your home—but without a chimney to remove combustion products. This type of heater therefore requires openings such as windows and doors to vent emission products outside. The exception to this is the electric heater, which by design is a direct-fired heater, but does not produce combustion emissions.

Direct-fired heaters operate with an open flame (or heated element in the case of infrared heaters). Depending on the fuel burned, the condition of the heater, and the supply of air, the combustion process produces carbon dioxide (CO_2), carbon monoxide (CO), other gases, and suspended particles.

In addition, depending on the fuel, varying amounts of moisture are emitted. With adequate ventilation through windows, doors, and other openings in the building, these emissions can be vented outside.

For more information, refer to "Construction Heater Emissions" in our last issue (Autumn 2004).

Infrared heaters work by burning fuel and heating an element until it glows red hot, thereby giving off radiant heat.

This direct-fired heater can be placed outdoors to combine large amounts of outside air with combustion gases, thereby reducing the concentration of emissions.

Electric heaters are direct-fired but generate heat without the moisture and combustion emissions of direct-fired gas and oil heaters.

Indirect-Fired Heaters

These heaters can be set up in the heated space or outside. The flame is enclosed in a heat exchanger that separates combustion products from the air to be heated.

This system resembles a home furnace where combustion products are directed up a chimney and heat is transferred through a heat exchanger to supply the home with heated air free of emissions.

An indirect-fired heater is commonly located outside where combustion emissions vent directly to the atmosphere. No open flame is introduced to the workspace.

Heated air is ducted (or heated liquid is piped) to areas intended for heating. The heat generated by an indirect-fired heater is not captured 100% as it is with a direct-fired heater. But there is no need to ventilate emissions. This allows the building to stay airtight and retain all the heat produced.

Heat Transfer

Ducts, hoses, and other methods can be used to transfer heat for various purposes.

A hydronic heater basically consists of a heater, pump, and heat transfer hoses. The unit heats a fluid, then pumps it through hoses to the location requiring heat.

The hose typically runs along the ground under an insulating blanket. Heat is absorbed directly into the surface for ground thawing or concrete curing.

Hydronic Heater

The air in a work space can also be heated using a liquid that is first heated, then pumped through hoses. But instead of lying on a surface to distribute heat, the hoses are connected to liquid-to-air heat exchangers.

This diagram shows a multi-level setup using a system of liquid-to-air heat exchangers on different floors. The main unit sits outside the building and warms the heat transfer fluid. A pump then circulates the heated fluid through a series of hoses to the heat exchangers placed throughout the building. Each heat exchanger's fan draws cooler air from the room and blows it across heated coils to produce warm air. The fluid then returns to the main unit for re-heating.

Flexible ducting is often used for cold weather applications to deliver heated air to various temporary and permanent shelters or work spaces. The ducting can be treated to repel mildew, rot, and water. It can also be treated to provide flame resistance. Ducting may be wire-reinforced to prevent collapse and support bending.

This oil-fueled indirect-fired heater vents emissions outdoors while heated air (free of emissions) is ducted indoors.








Fall-Arrest Rescue

Fall protection must include an emergency rescue plan. How will you rescue a worker who has fallen and is suspended in a fall-arrest system? Answering some basic questions can help in developing a rescue plan.

If a worker's fall is arrested...

1. **Will someone see it happen?**
   - ❑ Co-workers
   - ❑ Other trades
   - ❑ Plant personnel
   - ❑ Public

2. **How will the worker call for help?**
   - ❑ Voice
   - ❑ Whistle
   - ❑ Cell phone
   - ❑ Telephone

3. **Who will the worker call?**
   - ❑ Nearest co-worker
   - ❑ Supervisor/employer
   - ❑ Building superintendent
   - ❑ 911 where available
   - ❑ Fire department/ambulance

4. **Is information available?**
   - ❑ Emergency phone numbers
   - ❑ Site address
   - ❑ Directions and access for fire truck or other emergency services
   - ❑ Which floor/how high up
   - ❑ Worker's condition after fall

5. **How will rescue workers get to worker?**
   - ❑ Ladder
   - ❑ Keys to building and roof
   - ❑ Elevator
   - ❑ Pull worker in through window or balcony
   - ❑ Pull worker up to roof
   - ❑ Climb/rappel down the building/structure
   - ❑ Aerial equipment from ground
   - ❑ Suspended access equipment

6. **What rescue equipment is needed?**
   - ❑ Ladder
   - ❑ Rolling scaffold
   - ❑ Suspended access equipment
   - ❑ Ropes
   - ❑ Aerial ladder truck
   - ❑ Boom truck or scissor lift
   - ❑ Climbing/rappelling equipment
   - ❑ First aid kit

7. **What if the worker is injured?**
   - ❑ Rescue within 15 minutes
   - ❑ Qualified first-aider
   - ❑ Emergency services notified
   - ❑ Hospital alerted

8. **How will the public be protected?**
   - ❑ Assign someone to direct traffic
   - ❑ Set up barriers

9. **How will the accident scene be protected?**
   - ❑ Prevent further injury or damage
   - ❑ Set up barriers
   - ❑ Preserve wreckage
   - ❑ Aid investigation later

10. **Are there other considerations?**
    - ❑ Working alone
    - ❑ Language barrier
    - ❑ Unusual features of building/structure
    - ❑ Wind
    - ❑ Other hazards
    - ❑ No 911 in area
    - ❑ No emergency services nearby
    - ❑ Distance from high rescue teams

Are you planning a diving operation in Ontario?

Legislated requirements put a premium on health and safety

Divers employed in Ontario are required to comply with the requirements of *Diving Operations* (Ontario Regulation 629/94) and the Ontario *Occupational Health and Safety Act*.

The responsibility for compliance rests not only with the divers' employer but also with the owner who contracts with the diving company.

The following are key points from Ontario Regulation 629/94 and the *Occupational Health and Safety Act*.

Competency

The Act requires that an occupational diver and diving supervisors be competent persons.

"Competent person" is defined as one who

- is qualified because of knowledge, training, and experience to organize the work and its performance;
- is familiar with the provisions of the Act and regulations that apply to the work; and
- has knowledge of actual or potential danger to health and safety in the workplace.

Training to a level equal to or exceeding the requirements of CSA Standard 2275.4-02 *Competency Standard for Diving Operations* is required by the Ministry of Labour (MOL). Documentation of training must be available at the dive site.

Note: Recreational diving certification is NOT acceptable for occupational diving purposes in Ontario.

Each diver, dive supervisor, and diver's tender must be qualified in first aid and cardiopulmonary resuscitation (CPR). Proof of qualification must be available at the dive site. Each occupational diver must be certified as medically fit to dive. A physician who is knowledgeable in diving and hyperbaric medicine must conduct the diving medical. The medical certification must also be available at the dive site.

Dive Supervisor

A knowledgeable and competent diving supervisor must supervise each occupational diving operation. The supervisor must be competent in the techniques being used, must remain on site, and must be in direct control of the diving operation.

Minimum Crew

A minimum crew of three must be present at each diving operation and must include a diver, a standby diver, and a diver's tender. The standby diver or tender must be a competent diving supervisor. The minimum crew requirement will change according to depth, equipment used, degree of hazard, and other conditions.

Notice of Diving Operation

A *Notice of Diving Operation* must be submitted to the MOL before the diving operation starts. Refer to section 5 of the regulation for specific requirements.

SCUBA Restrictions

Restrictions have been placed on the use of self-contained underwater breathing apparatus (SCUBA) for occupational diving purposes.

SCUBA cannot be used when a diver is

- working near or in an operating underwater intake
- working near or in a pipe, tunnel, duct, or other confined space
- working at a water control structure
- using any power tool, hoisting device, explosive, burning equipment, or welding equipment
- placing any materials underwater in a way that poses a risk to the diver's health or safety
- operating at depths in excess of 100 feet
- working near sewage, industrial effluent, or any of the other conditions specified in Part XI of the regulation—"Contaminated Environments."

Surface-supplied diving equipment must be used in place of SCUBA when any of the above prohibitions apply.

Depth Restrictions

SCUBA must be limited to a depth of 100 feet. The use of air as a breathing medium is restricted to 165 feet. Beyond 165 feet, the diver must use an appropriate breathing mixture. Before the diving operation begins, the MOL must be notified of the intention to use such a mixture.

Safe Dive Procedures

Every employer engaged in diving operations must prepare a site-specific, safe diving operational plan and contingency plan. These procedures must be based on a comprehensive evaluation of diving hazards and be available at the dive site.

Standby Diver

A standby diver must be on the dive site at all times and be able to render assistance while diving is in progress. The standby diver must be able to enter the water immediately if required.

Specific Diving Hazards

This requirement deals specifically with the requirements for lockout, hazardous mechanisms, intakes, pipes, tunnels, and contaminated environments.

Owner Responsibility

An owner who contracts with a diving company must provide the company with any information necessary to control hazards. The owner must also ensure that diving activities are coordinated and supervised and that a *Notice of Diving Operation* has been submitted to the MOL before work begins. These and other requirements are spelled out in sections 5-10 of the regulation under "Duties of Employers, Constructors and Owners."

Comment on the Diving Regulation

The Commercial Diving Labour-Management Health and Safety Committee invites public feedback on *Diving Operations* (Ontario Regulation 629/94). A convenient reply form is provided at www.csao.org/t.tools/t9.labormanagement/LMDocUnderReview1.cfm

Deadline for comments is 1 October 2005. A full review and report will be completed by 31 December 2005. The most up-to-date copy of the regulations is available at

www.e-laws.gov.on.ca Search "Diving Operations".

This version includes amendments, so far unpublished, which were made to the regulations in June 2004.

For further information contact the nearest MOL office or the MOL Provincial Diving Specialist:

416-931-6552
bob.landry@mol.gov.on.ca

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Water	Blue
Sewer	Green
Reclaimed / treated water	Purple
Temporary survey marks	Pink
Proposed excavations	White

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Drywall sanding: Dust exposure and ergonomics

by Dru Sahai and Peter Vi, Construction Safety Association of Ontario

Health

Almost every construction project involves installation of drywall for interior walls. One step in drywall finishing is sanding the drywall compound.

Currently, workers sand the compound manually using a hand-held block or a long-handled pole (Figure 1) with a piece of sandpaper at the end of a swivel plate.

Stress

To create sufficient friction for sanding, the worker applies pressure to the manual sander. This results in stress on the back, arms, and wrist.

Dust

Sanding also generates high levels of dust including respirable silica. Inhaling this dust causes eye, nose, throat, and respiratory tract irritation, coughing, phlegm production, and breathing difficulties. Worse, it increases the risk of silicosis and lung cancer.

Sander

One way to control these health hazards is to use an electric shrouded ventilated rotary sander (SVRS).

The SVRS collects particulates by drawing air through the space between a) the outer circumference of the rotating abrasive pad and b) the inner surface of the shroud covering the abrasive pad. The dust then passes into a vacuum collection system equipped with a high-efficiency filter.

Figure 1. Sanding drywall with a pole sander.

Figure 2. Shrouded ventilated rotary sander attached to vacuum.

Study

Three partners undertook a study to document the potential ergonomic and hygiene benefits of using an SVRS to prevent musculoskeletal injuries and dust-related illness. The partners were the International Brotherhood of Painters and Allied Trades District Council 46, the Interior Systems Contractors Association, and the Construction Safety Association of Ontario.

The study took place in a newly constructed home at the Interior Finishing Systems Training Centre in Toronto. We selected two very similar rooms—A and B—to compare dust concentrations generated by conventional pole sanding with those generated by an SVRS. The total sanding area for room A was 256 ft^2, and for room B, 286 ft^2.

Eleven subjects participated in the study: seven journeymen and four apprentices from the Painters' Union. While all participated in the dust measurement portion of the study, only ten participated in the ergonomic portion.

Each subject participated in two test runs for dust measurement:

1) using the pole sander in one room
2) using the SVRS in the other room.

Room and method of sanding were randomly selected.

To measure respirable dust concentrations, we used a TSI, model AM510, SidePak™ in conjunction with a Dorr-Oliver cyclone. The aerosol monitor is a small, direct-reading, data-logging unit.

While measuring respirable dust, we also measured muscle activity using electromyography (EMG). EMG signals were recorded by attaching surface electrodes to the skin above the following four muscles, selected to estimate muscle loads on the shoulders and forearm:

— left upper trapezius
— right upper trapezius
— left flexor digitorum superficialis
— right flexor digitorum superficialis.

Results: Respirable Dust

The research data indicate that the SVRS was very effective in capturing most of the respirable airborne dust.

Pole-sanding exposures ranged from 0.394 to 3.767 mg/m^3 with a mean value of 1.686 mg/m^3. SVRS exposures ranged from below background levels to 0.458 mg/m^3 with a mean of 0.073 mg/m^3. The difference between the two sanding methods was found to be highly significant ($p<0.05$) and represents a 96% reduction in respirable dust exposure.

This finding is consistent with other studies involving similar sanders.

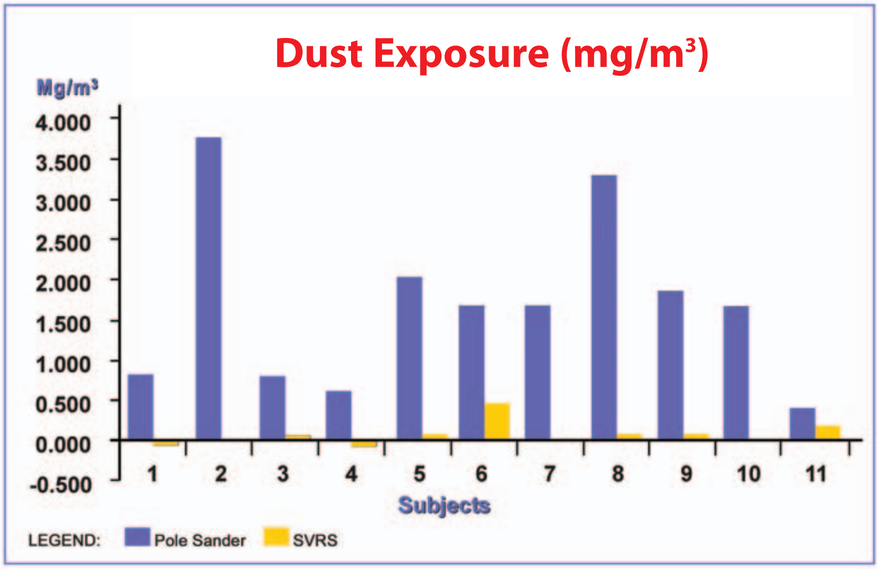
From bulk samples, we detected an average concentration of 5% silica in the drywall compound used in this study—demonstrating that dust control is a continuing concern for drywall finishers.

Results: Ergonomics

Despite the large differences in weight between the SVRS (8 lbs) and the pole sander (2 lbs), working with the SVRS required significantly ($p<0.05$) less static load levels in the left and right trapezius muscles and the right forearm flexor. The median load level (dynamic work) involved significantly less muscle activity in the left and right trapezius muscles and in the right forearm flexor when a worker used the SVRS.

With the SVRS, there were significantly higher muscular rest durations for the right and left trapezius muscles and the left forearm flexor muscles than with the manual sander. Only the right trapezius muscle was found to have a significantly higher rest frequency with the SVRS.

With a manual pole sander, workers expend great muscular effort to create a high friction force between the sanding paper and the wall. Using the SVRS, however, requires comparatively little muscular effort because most of the sanding force is generated by the machine. In this case, the muscular effort observed in workers' upper extremities served to support and guide the SVRS along the wall.



Comparing Muscle Use

Amplitude domain analysis summaries of sanding using manual and machine methods

	SVRS		Manual Pole Sanding		P-Value
	Mean	SD	Mean	SD	
Static level (p: 0.10)					
Left trapezius	0.964	0.60	1.57	1.31	0.05*
Right trapezius	0.876	0.528	1.57	0.88	0.036*
Left forearm flexor	1.82	1.17	2.82	1.38	0.065
Right forearm flexor	2.08	1.21	4.13	2.14	0.008*
Median level (p: 0.50)					
Left trapezius	7.05	3.03	8.79	4.21	0.024*
Right trapezius	7.32	2.94	10.62	4.48	0.009*
Left forearm flexor	7.6	3.95	10.18	4.91	0.10
Right forearm flexor	9.74	3.70	13.07	4.98	0.034*
Peak level (p: 0.90)					
Left trapezius	21.16	7.49	23.38	8.03	0.287
Right trapezius	24.94	10.02	25.83	8.88	0.556
Left forearm flexor	23.90	11.13	22.83	12.87	0.786
Right forearm flexor	23.53	6.48	26.94	8.86	0.279

** Significant at $p<0.05$*

Based on the ergonomic and hygiene measures, we conclude that the SVRS is an effective method for drywall sanding and recommend that the SVRS be used to control drywall dust. The SVRS has many advantages over pole sanding.

Some advantages of the SVRS

— It significantly reduces exposure to drywall dust. Workers are much less likely to suffer adverse health effects.
— It greatly reduces the need for respiratory protection.
— It can significantly reduce cleanup time because it controls drywall dust so well.
— It is easy to use and unlikely to cause musculoskeletal problems.
— It is ideal for situations where creating dust is a problem—for example, renovations in occupied buildings, new construction when other trades are in the area, work in hospitals or medical facilities where patients must be protected, or work around dust-sensitive electronic equipment.

Some disadvantages of the SVRS

— The vacuum is not portable enough to be used in some circumstances—e.g., on a scaffold.
— The vacuum hose can create a tripping hazard.
— The round shape of the sanding head means it cannot fully sand corners.
— The vacuum and sander require electrical power that is not always available, especially on new construction sites.

Acknowledgements

This project was funded by a research grant from the Workplace Safety and Insurance Board (Ontario). The authors are grateful to the International Brotherhood of Painters and Allied Trades District Council 46 and the Interior Finishing Systems Training Center for their support.

New Appointments at CSAO

General Manager and Assistant General Manager

Michael Gallagher, President of the Construction Safety Association of Ontario, is pleased to announce the appointment of Roy O'Rourke to the position of Executive Vice-President and General Manager, and Doug McVittie to the position of Assistant General Manager.

Roy and Doug each bring 25 years' experience to their new positions.

Roy has academic degrees in business management and marketing. He earned his certificate of qualification in the sheet metal trade, and was a member of Local 30. Over the years, he managed CSAO's labour-management and advisory departments. Roy is widely known and respected in the industry.

Doug's academic credentials include diplomas in civil engineering technology and occupational health and safety. Before joining CSAO, he worked at the Bruce Heavy Water Plant. Over the years at CSAO, Doug has managed research, technical services, program and product development, and field operations across Ontario. He is currently Operations Manager.

Roy and Doug will assume their new positions on January 1, 2005, when Don Dickie, the current Executive Vice-President and General Manager, steps down after more than 33 years at CSAO. Don has been General Manager for the past nine years.

Be a professional

Advice from Don Dickie's 33 years of experience at CSAO

Construction Safety interviewed Don Dickie, CSAO's Executive Vice-President and General Manager. He retires at the end of 2004.

***Construction Safety:* What advice would you give a new construction worker?**

Don Dickie: I strongly believe that occupational health and safety is an integral part of doing your regular job properly. If you're a good, skilled, proud worker, health and safety will never be a problem. It's nothing more than doing the job right the first time.

So my advice is: Be a professional in everything you do.

***CS:* Is CSAO good at getting knowledge to workers?**

DD: We do a good job with those workers we can get to. We get to these workers through the unions or apprenticeship programs. Or maybe they're lucky enough to work for one of the big companies out there that take health and safety seriously, and we will come into contact through the employer.

If a worker doesn't fall into one of those categories, we have a tough time getting to them. The only way our information will reach them is if that person goes looking for it – or if the employer does. So we depend on someone seeking us out – whether it's the worker, the employer, or even a supervisor. Someone in the company has to be a "health and safety convert" for our information to reach the jobsite.

This is why one day we will have entry-level training for workers new to the industry. Once that happens, we'll have a few more believers and a few more people actively involved in preventing injuries and illness.

***CS:* What do you think of the labour-management network?**

DD: There's not a single doubt in my mind that the way to achieve things in our industry is to work with both labour and management, because we're looking for long-term solutions that will survive over time and through changes in political leadership.

When you align solely with one side, you divide in order to conquer. You polarize the industry, and you start the pendulum swinging back and forth. The result is that you have no long-term solutions. There's no "quick fix" in occupational health and safety. It has to be a long-term, sustained enterprise that has full buy-in from the industry.

You have to work a lot harder to get the agreement of both labour and management. But when you do, and you implement programs and solutions that are acceptable to both, you end up with a lasting solution. We have not had to back out of agreements.

***CS:* What was your first project at CSAO?**

DD: My first task back in 1971 was to help organize an international crane conference. In those days, about a quarter of all fatalities involved cranes and rigging. And there were a lot of fatals. In 1973 there were 54. In 1966, there were 72. So we started a whole lot of initiatives on cranes and rigging. Today our record on crane safety is the envy of the world.

***CS:* You won an engineering medal for that.**

DD: Yes – actually the medal was for that and for bringing the CAD-7 experience-rating program into place for contractors in Ontario.

***CS:* Do you have any criticism of CSAO?**

DD: I suppose we're not quite as willing to challenge the industry and ourselves as we should be. It's tough to bite the hand that feeds you. There are some areas that are not as advanced or involved as they might be.

We have not done a good job at controlling occupational health problems. The hazards that we're aware of now, we were aware of 20 or 30 years ago – but we still have too many fatalities. These are the age-old problems of lead, silica, and asbestos.

***CS:* What's the future of CSAO?**

DD: I think that the biggest challenge is what are now referred to as non-traumatic injuries – such as repetitive strain and musculoskeletal disorders. These occur over time, and their costs are just horrendous. So we are going to be dealing with more ergonomic issues as time goes on. It's a massive problem.

But in general, CSAO will probably have two objectives: to work on stopping all accidents, and then to work at keeping the industry at zero accidents.

Ontario

Ministry of
Labour

ALERT

DAVIT ARM SYSTEM FAILURE

Alert 24: ISSN 1195-5228
Produced by the Construction Health and Safety Program
Revised: August 2004

Hazard summary

This is an alert to building owners, employers and workers who use a davit arm system to support suspended work platforms.

This davit system is part of the "supporting structure" for boatswain's chairs and elevating/suspended work platforms and their attachments, which are used extensively in window washing and building facade repair work operations.

The Ministry of Labour is aware of an incident where an aluminum davit arm collapsed while the system was hoisting a suspended work platform with two workers. The platform was only four feet above ground level at the time of the collapse. None of the workers sustained injury.

This davit arm system that failed in this situation was manufactured in 1990. It was installed on the roof of the building for the purpose of window cleaning operations. A competent person visually inspected the system during the annual anchor inspection, as required by Section 41 of Ontario Regulation 859 for Window Cleaning. The inspection report did not identify any deficiency in the davit arm system.

The Ministry of Labour's incident investigation found that the welds which connected the beams to the shoulder collar were the likely cause of this accident. A further investigation by welding specialists found the existing welds to be deficient and that they failed to support the structural loads applied to the system during hoisting of the suspended work platform.

Other Incidents

The Ministry of Labour's investigation team also learned that a similar davit arm failure contributed to the death of a worker in the City of Montreal. The cause of that failure was due to "deficient welds."

Hazard Locations

All buildings where window-washing operations and building facade repair are carried out using elevating/suspended work platforms and boatswain's chairs that are suspended by a davit system.

Recommendations

It is recommended that owners of buildings where davit systems are installed on the roof conduct the following before commencing window washing or building facade repair work.

1. Have the davit arm system inspected and verified by a competent person or a professional engineer to ensure that the system can support the loads applied to it.
2. Have the welds inspected to ensure structural integrity and conformance with CSA Standards Z271-98 Article 5.4.1 (welding of steel) and Z271-98 Article 5.4.2 (welding of aluminum).
3. If the welds or other components of the system are defective, withdraw the system from service and do not use it until the appropriate corrective action is taken.

Legal Requirements

All workplace parties, including the building owner, should be aware of the requirements under Ontario Regulation 859 with regard to window cleaning. The following provisions in the regulation have particular relevance to this situation:

41. (1) The owner of a building mentioned in section 39 or 40 shall cause all anchor points and permanently-installed suspended scaffolds to be inspected by a competent person,

(a) before being used for the first time;

(b) thereafter as often as necessary but not less frequently than recommended by the manufacturer of the anchor points or the suspended scaffolds, as the case may be and, in any case, at least once a year; and

(c) when informed under section 43.

(2) Maintenance and repairs of a permanently-installed suspended scaffold shall be performed in accordance with the manufacturer's instructions.

(3) The competent person making the inspection required by subsection (1) shall immediately upon completion of the inspection report to the building owner any defects or hazardous conditions detected in the anchor points and any permanently-installed suspended scaffold.

(4) A building owner shall ensure that any faulty anchor point is repaired and is suitable for use for window cleaning and sill work before being used.

(5) A building owner shall keep a record of the inspections of any anchor points and any permanently-installed suspended scaffold at a building in a log book to be maintained and retained as long as the anchor points and suspended scaffold are used, showing,

(a) the date on which each inspection is made;

(b) the name and signature of the person making the inspection; and

(c) any modifications or repairs made to an anchor point or a suspended scaffold, including the date they are made and the name and signature of the person making the modifications or repairs.

43. If an employer, supervisor or worker believes that any anchor point or related structure that is used to support a suspended scaffold, suspended work platform, boatswain's chair, similar single-point suspension equipment or lifeline is defective or inadequate, the employer, supervisor or worker shall inform the building owner of this fact immediately.

HEALTH AND SAFETY PLANNING

You're ready to develop an effective health and safety program for your company when you understand

√ that health and safety is good for business

√ that you can benefit from Ontario's construction safety performance

√ that you have partners to help you—WSIB, MOL, and CSAO

√ that you have responsibilities under the law

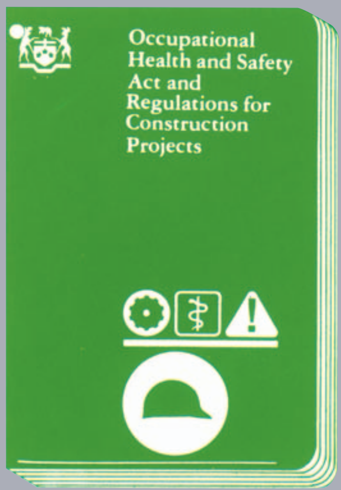
√ that effective accident prevention requires both a policy and a program

√ that you can profit from experience rating, safety groups, and claims management.

The assessments you pay to the WSIB entitle you to the full range of products and services available from CSAO. Make use of the training, consultation, and other resources you help to pay for and own.

New edition available May 05

Know the Law



One book is absolutely essential for what employers and workers need to know about health and safety on site. That's the ***Occupational Health and Safety Act and Regulations for Construction Projects.***

Regulations covering every aspect of health and safety on construction sites are spelled out in the "green book."

Topics range from protective equipment to housekeeping, from confined spaces to traffic control, from ladders and scaffolds to welding and cutting.

Copies are available from Publications Ontario at 416-326-5300 or from CSAO at 416-674-2726 or 1-800-781-2726.

QUICK START

Item	Quantity recommended	Price	Quantity ordered
Occupational Health and Safety Act and Regulations for Construction Projects – New edition available May 2005	1 for each supervisor	$16.00	
Construction Health and Safety Manual – fully illustrated, over 200 pages, comprehensive guidelines on equipment, hazards, health, tools, equipment, and safe work practices	1 for each supervisor	N/C*	
CSAO Training Catalogue – description of programs and courses, including schedule of dates, times, and locations	1 for the company	N/C*	
Basics of Supervising – home study program covering all the health and safety points a competent supervisor must know and follow; includes two manuals and a workbook to be completed by participant	1 for each supervisor	N/C*	
Construction Health and Safety Representative – home study program covering the rep's role and responsibilities, health and safety legislation, jobsite inspections, and accident investigation; includes two manuals and a workbook to be completed by participant	1 for each supervisor and health and safety rep	N/C*	
Entry Level Training – set of four interactive CDs covering legislation, site safety, PPE, materials handling, and back care; an introduction for new workers, a refresher for experienced workers	1 set for the company	N/C*	
Products and Services – comprehensive catalogue of all the CSAO resources available to improve your health and safety performance	1 for the company	N/C*	
Basics of Fall Protection training kit – Use the kit to train your workers in fall protection and meet your legal obligation to do so; includes Record of Training and Answer Sheet	1 for the company	$24.95	
Basics of Fall Protection: User's Guide – to be issued to each worker you train in fall protection; includes proof-of-training card	1 for each worker	$19.95 pkg. of 5	
Safety Talks – 70 talks on practical, hands-on topics to be delivered by supervisors or health and safety reps to workers on the job	1 for the company	N/C*	
A Guide to Developing Health and Safety Policies and Programs – step-by-step procedures, including a model program laying out responsibilities, emergency planning, worker orientation, etc.	1 for the company	N/C*	

*No charge for employers registered in one or more WSIB construction rate groups.

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