Trade Reclassification — Sprinkler and Fire Protection Installers as a Compulsory Trade

Introduction
Currently, all mechanical trades in Ontario are compulsory certified underneath the College of Trades except for Sprinkler and Fire Protection Installers. As organizations intimately involved with this trade, this is a major concern for us. Not only is sprinkler and fire protection installer the only mechanical trade that does not fall underneath compulsory certification, but it is the only trade that deals with the life and death of Ontario citizens. Sprinkler systems are vital tools for combating fires in the early stages and must be installed properly and maintained by licensed, certified and trained workers. The Canadian Automatic Sprinkler Association and UA Local 853 commend the Ontario College of Trades for creating this formal review process and are recommending to the college that sprinkler fitting be classified as a compulsory trade.

Our request for compulsory status has been fully supported by the following organizations:

- Canadian Automatic Sprinkler Association
- UA Local 853 Sprinkler Fitters of Ontario
- The Ontario Sprinkler Provincial Advisory Committee
- The Council of Canadian Fire Marshals and Fire Commissioners
- Ontario fire chiefs
- Canadian Association of Fire Chiefs
- UA Canada
- Ontario Municipal Fire Prevention Officers Association
- Fire Marshal’s Public Fire Safety Council
- Ontario Fire Marshal
- Toronto Fire Services
- Toronto-Central Ontario Building and Construction Trades Council
- Provincial Building & Construction Trades Council of Ontario
- Canadian Federation of Labour — Ontario Council
- Ontario Pipe Trades Council
- Construction Safety Association of Ontario
For the past two decades, numerous submissions for trade reclassification have been submitted from our industry; unfortunately, a lack of clarity and no formal guidelines have proven to be problematic for the success of the review. We fully agree that when designating a trade compulsory, there are widespread implications within the trade industry that must be considered for each case. However, with Sprinkler and Fire Protection Installers, numerous industry stakeholders are in agreement on creating compulsory status.

We have thoroughly engaged related trades in the process of preparing this trade review application; both the Plumber and Steamfitters Trade Board and the Facilities Mechanic/Technician Trade Board are supportive of the reclassification of the trade.

This submission will aim to display the clear case and need for compulsory certification for sprinkler and fire protection installers. However it should be noted that some aspects of the industry are not accounted for by comprehensive data. Yet, we thoroughly believe that it will be necessary to have certified sprinkler and fire protection installers due to recent changes mandating the installation of sprinkler systems in high-rise buildings and long-term care facilities.

It will simply not be enough to have systems installed these buildings — installers must be properly trained and certified to complete the work and ensure continued maintenance of the sprinkler systems. When fires break out, sprinkler systems are needed right away, and we must be sure that they function properly to save lives and prevent the destruction of property.
Scope of Practice: A Highly Regulated and Complex Industry

Sprinkler installation is a complex trade. Installers have intimate knowledge of building and fire codes and the standards/methods for the installation of sprinkler systems. The install of systems vary; wet, dry, pre-action, deluge and chemical fire protection and extinguishing systems are a few — this includes more than 1,000 different kinds of sprinkler heads, all with unique design requirements.\(^1\)

Within the Sprinkler and Fire Protection Installers trade, the following duties are performed, according to the *Ontario College of Trades and Apprenticeship Act, 2009*:

- Planning proposed installations from blueprints, sketches, specifications, standards and codes.
- Laying out, assembling, installing, testing and maintaining high- and low-pressure pipeline systems for supplying water, air, foam, carbon dioxide or other materials to or for fire protection purposes.
- Measuring, cutting, reaming, threading, soldering, bolting, screwing, welding or joining all types of piping, fittings or equipment for fire protection of a building or structure.
- Installing clamps, brackets and hangers to support piping, fittings and equipment used in fire protection systems.
- Testing, adjusting and maintaining pipelines and all other equipment used in sprinkler and fire protection systems.
- Operating and utilizing necessary tools and equipment for the installation of sprinkler and fire protection systems.\(^2\)
- Service and repair sprinkler systems.
- Inspection, testing and maintenance of sprinkler and fire protection systems.
- Prepare cost estimates for clients.
- Installing devices and apparatus for utilization by local fire services for use during an emergency.
- Maintain high- and low-pressure piping, equipment and devices to supply fire protection systems with water, foam, carbon dioxide and other materials in hospitals, commercial buildings, manufacturing plants, airports, airport hangars, warehouses, homes and apartment buildings.

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\(^2\) Section 41 O. Reg 275/11 *Ontario College of Trades and Apprenticeship Act, 2009*. 
When viewing pipe installations, it may appear simplistic; however installing fire protection sprinkler systems is a complex job. The components used within the trade are similar to plumbing, but the way in which they are used and work must meet the strict building and fire codes required by the province. The National Fire Protection Association Standards, referenced in the 2006 edition of the Ontario Building Code, contain more than 2,000 pages and is consistently revised with new regulations and advancements in technology.

Because of this consent change within the trade, it is essential that sprinkler fitters are aware of the updates and are trained to current standards for the industry. Appropriate levels of knowledge of these changing standards are vital to the scope of sprinkler and fire protection installers and should not be overlooked. If these complex and integrated systems are not properly installed, serviced and inspected by trained workers up to date with any recent changes to standards, it puts people and property within the building at risk.

To properly install automatic sprinkler systems, tradespeople must have a thorough understanding of water pressure, water supplies and their interconnectedness with fire pumps, backflow preventers and the various types of sprinkler heads that are best suited for each system. They must understand the hydraulic calculations for systems and their relationship with the available water supply to meet the exact pressure and flow requirements.

Ultimately, automatic sprinkler systems need to work when fires begin. They are first and only line of defence for building occupants and contents in the case of a fire.
Health and Safety

Apprentices & Journeypersons
One of the major benefits of trades that exist within the compulsory classification is enhanced safety for apprentices and journeypersons on the work site. Compulsory certification of sprinkler and fire protection installers will also enhance the health and safety of workers. By ensuring that apprentices and journeyperson have received the appropriate training for the installation of sprinkler systems, job sites will become a safer place for all working there.

Sprinkler fitters work in a complex and hazardous environment. By reclassifying sprinkler fitters as a compulsory trade, it will decrease the number of workplace fatalities and injuries and ensure that apprentices are aware of the appropriate steps when handling dangerous materials. There are numerous harmful and hazardous materials that sprinkler fitters deal with on a daily basis. From exposure to asbestos and lead during installations to working in awkward positions — typically on ladders — with large amounts of vibration from power tools used. Ultimately, having properly trained professionals is an important set for the safety of all tradespeople on a work site.

Compulsory certification of sprinkler and fire protection installers will help improve the health and safety of sprinkler fitters and sprinkler fitter apprentices by ensuring all of them receive the requisite health and safety training that would be part of the certification process.

These risks are present in many different scenarios encountered by sprinkler and fire protection installers on a daily basis. Having properly trained and certified workers is an important measure for the safety of all tradespeople on an active job site. The risk posed by human error — sprinkler and fire protection systems improperly installed and/or not properly maintained — can be catastrophic.

The challenge is in identifying systems that are improperly installed or not properly maintained as they haven’t been put into use, and the shortcomings will not be evident until it is too late. This risk to public
and private property and people’s lives is best avoided by ensuring sprinkler and fire protection systems are installed and maintained by individuals certified to industry and government standards: “Because sprinkler systems are sophisticated enough to require competent fire protection engineering and because they function best in buildings with a complete, integrated system of fire protection, using proper procedures when installing and maintaining sprinkler systems is especially important.”

In terms of statistics, the Workplace Safety and Insurance Board does not separate sprinkler fitter from the pipe trades, and thus stats unique to the trade are impossible to obtain. However, it is worth noting that in the WSIB category for pipe trades, sprinkler fitter is the only one that does not fall underneath compulsory certification. With compulsory certification, workers would be receiving instructions of the minimum safety requirements under the Occupational Health and Safety Act. This has the ability to result in a reduction of lost time from injuries, which then leads to lower WSIB premiums.

## The Public

While the safety of apprentices and journeypersons is important, it is equally important to ensure the safety of the public. Most trades that have a direct impact on public safety are classified as a compulsory trade. In the interest of the health and safety of the public, it is vital that sprinkler fitters be added to this list.

Sprinkler systems are becoming increasingly more prevalent in the new construction of homes, particularly long-care facilities and high-rise apartments. This increase in their installation is because properly installed and maintained automatic sprinkler systems are widely accepted “as the sign most

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effective method for fighting the spread of fires in their early stages.” While their increased use is promising, it is crucial that they are installed properly and maintained on a consistent basis by tradespeople who are trained and certified to industry and government standards.

The record of sprinkler systems live saving abilities is impressive. The National Fire Protection Association notes that there are no cases of a fire killing more than two people in a building that has automatic sprinkler systems installed and operating properly. Moreover, Dr. John R. Hall, Jr., Assistant Vice-President for fire analysis and research at the NFPA, mentions that in all forms of fire protection, problems typically arise from human error more often than mechanical or electrical issues. This risk for human error is problematic for fire safety, and yet another reason to be concerned about sprinkler fitters not receiving the appropriate level of training.

As mentioned previously, the increased market demand for automatic sprinkler system installation is beginning. This will prompt an increase in uncertified workers installing automatic sprinkler systems, which will lead to poor quality work and potential disastrous results in the case of a fire. One example of poor installation from unqualified workers is currently happening at the Canadian Forces Base in Trenton, Ont. A complete automatic sprinkler system is being replaced at the base because of human error during installation. While there was a qualified sprinkler fitter and apprentice on the work site, because of time restraints unqualified contractors were asked to help with the installation. Fortunately no one has been hurt because of the faulty installation, however it does mean that 70 sprinkler heads must be replaced — a serious economic and time loss.

To underscore the importance of ensuring sprinkler systems are properly installed and maintained, it is helpful to understand some of the serious health risks a fire may pose to the public. These risks are

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5 [http://www.firesprinkler.org/pressarea/fact2.html](http://www.firesprinkler.org/pressarea/fact2.html)
6 [http://www.firesprinkler.org/pressarea/fact2.html](http://www.firesprinkler.org/pressarea/fact2.html)
much higher in buildings without sprinklers or with improperly installed and maintained systems.

Fatalities and injuries due to fire are most often caused by smoke inhalation and not the flames themselves. Common chemicals that are produced as a result of a fire are asphyxiant gases such as carbon monoxide and hydrogen cyanide, and irritant gases such as hydrogen chloride and oxides of nitrogen. For individuals in the immediate vicinity of a fire environment (room or building), asphyxiant gases can become lethal in a matter of minutes.

Incidents involving fire in buildings often lead to a flashover fire, where the limited amount of oxygen in an enclosed space leads to all of the combustible materials and gases igniting at the same time at a high temperature. In many cases, flashover can take place before the arrival of fire services. This kind of fire produces high levels of carbon monoxide, hydrogen chloride, carbon dioxide as well as other organic and inorganic gases. Fires involving plastics – which are in abundance in many buildings, commercial, residential or otherwise – pose the greatest hazard to public health for those at close range to the fire as well as those outside the immediate vicinity.

These hazards are not hypothetical. Ontario’s poor record on fire safety in general and in seniors’ residences in particular is a testament to the need for properly trained apprentices and journeypersons to install sprinkler systems. The incidents below involve fires where there was no sprinkler system in retirement homes.

- 1980 – Twenty-five residents of the Extendicare Retirement Home in Mississauga are killed in a fire.
- 1995 – Eight residents of the Meadowcroft Place Retirement Home in Mississauga die in a fire.

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2008-2009 - Fire at Rowanwood Retirement Residence home in Huntsville caused more than $8 million in damage. Two off-duty police officers alerted the residents and all 56 seniors escaped.

- A fire at the Niagara Falls Cavendish Manor Retirement Residence resulted in the hospitalization of 11 seniors, including three in critical condition.

- A fire at the Muskoka Heights retirement home in Orillia resulted in the deaths of four seniors; three others have permanent brain damage.

Again, the importance of compulsory certified workers properly installing and maintaining sprinkler systems cannot be underestimated — for vulnerable groups in particular, and the public at large. A malfunction or system failure may pose the same health risks as a fire with no sprinklers at all.

The Environment
Fires in buildings without automatic sprinkler systems are extremely destructive and produce large amounts of waste water and greenhouse gas emissions.

To illustrate, it is estimated that between 1999 and 2008, house fires in the United States generated 980 million kilograms of carbon dioxide. If those residential buildings had been sprinklered, the emissions would have been reduced to 21 million kilograms — roughly equivalent to the annual greenhouse gas emissions of 234,766 people. The debris from these fires is rarely salvageable and typically ends up in local landfills throughout the province — an environmental burden that can be avoided with the proper installation and maintenance of automatic sprinkler systems.

Sprinklers also help reduce greenhouse gas emissions from fires. Large amounts of carbon dioxide are release when buildings experience a fire. In a controlled test of fires in sprinklered and non-sprinklered rooms, carbon monoxide in the room was 420 times higher in the non-sprinklered room and carbon

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dioxide was 24 times higher.\textsuperscript{13} It was found that the use of sprinklers in a fire can reduce greenhouse gas emissions by as much as 97.8\%.\textsuperscript{14} With the rapid increase in climate change, any unnecessary carbon emissions must be avoided. Sprinkler systems have the ability to do this. Moreover, the carbon footprint that is then used for the construction of new building after the fire only adds to the environmental damage that could be avoided.

Water conservation is another environmental concern addressed by sprinkler & fire protection installers. Sprinkler Systems have the ability to reduce large quantities of water that are typically used by fire departments when putting out the flames.

Compulsory certification is necessary to ensure that sprinkler systems operate as designed and prevent significant environmental damage.

**Economic Impact**

**Journeypersons, Apprentices & Employers**

When reclassifying a trade as compulsory, it is important to examine the economic factors that may or may not be affected. In the case of reclassifying Sprinkler and Fire Protection Installers, both management and labour in the trade are supportive. This is an indication that the compulsory designation is being south for the benefit of the trade as a whole and not just one party over another.

Sprinkler and Fire Protection Installers are a compulsory trade currently in Manitoba. Within that jurisdiction there is no evidence of any negative impacts on industry stakeholders. Manitoba has reported that with strict building codes, there has been an increased demand for sprinkler system

\textsuperscript{13} Bill, Robert G., Jr.; Ditch, Bejamin; and Wieczorek, Christopher J. “Environmental Impact of Automatic Sprinkler Fires,” Research Technical Report, FM Global, page. 44.

\textsuperscript{14} ibid. page 61.
installers with wages that are comparable to trades in other provinces.\textsuperscript{15} Furthermore, wages for sprinkler fitters in Manitoba\textsuperscript{16} are significantly lower than the wages offered for sprinkler fitters in the GTA.\textsuperscript{17}

**The Public, Trade Unions, Associations & Training**

Beyond health and safety, the public experiences serious negative economic impacts in the case of a fire. In the event of a home fire, homeowners can expect financial losses 90\% lower than those that occur from fires in unsprinklered homes.\textsuperscript{18}

Neither is there any evidence that indicates compulsory certification of sprinkler and fire protection system installers will result in an increase in the cost of their services. As noted above, the wages paid to sprinkler system installers in provinces like Manitoba, where it is a compulsory trade, are not out of line with other parts of Canada.

But it will reduce liability to government and industry and will maintain a skilled workforce that in turn contributes to economic growth.

Without compulsory certification, there is no mechanism to protect consumers from fraudulent installations. Designating sprinkler fitters as compulsory would ensure that all installations, repairs, maintenance and retrofits are done by qualified workers and provide an avenue of recourse for consumers unhappy with the service provided.

When the system is installed correctly the first time, and maintained by a trained and certified tradesperson, there will be the cost savings of not having to replace a faulty system and the reduced risk of your property being lost in a fire. Furthermore, this application is supported by a wide array of other

\textsuperscript{15} http://www.gov.mb.ca/tce/apprent/mb_trades/sprinkler.html
\textsuperscript{16} http://www.gov.mb.ca/tce/apprent/forms/pdf/construction_wage_table.pdf
\textsuperscript{17} UA Local 853 and CASA Re: Sprinkler Fitter and Fire Protection Installer Ratio Review Submission,
\textsuperscript{18} http://www.homefiresprinkler.org/index.php/home-fire-sprinkler-facts
trades and professional associations, as well as the Ontario Sprinkler Joint Training and Apprenticeship Committee.

**Other Jurisdictions: Classification of Similar Trades in Canada**

For sprinkler fitters, there are serious concerns about their labour mobility and the fluidness of trade requirements throughout the country. Currently, the trade of sprinkler and fire protection installer is recognized as a red seal trade that allows skilled workers to move from one part of the Canada to another. This mobility because of certification puts a bigger emphasis on the need for a uniform standard for all sprinkler fitters are to meet before they enter the job site.

This is an important opportunity for Ontario to recognize the importance of a uniform standard for the trade and ensure that workers who come to Ontario are properly trained and certified as sprinkler fitters. Ultimately, compulsory certification can work as part of an effort to attract skilled workers to Ontario.

In Canada, Manitoba, Quebec, New Brunswick and Nova Scotia have all made the decision to designate sprinkler fitters a compulsory trade. Also, the trade is under review for reclassification in Alberta, Saskatchewan and Newfoundland. For Manitoba, their decision to grant sprinkler fitters compulsory status was on the basis that it would enhance public and worker safety, consumer and environmental protection as well as offered added value and quality to the work being completed by tradespeople.

With the rise of numerous provinces ensuring compulsory certification for sprinkler and fire protection installers, it will be important for Ontario to get on board and guarantee that sprinkler fitters from Ontario are properly trained and qualified.

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19 [http://www.red-seal.ca/tr.1d.2@-eng.jsp?tid=221&tid=221](http://www.red-seal.ca/tr.1d.2@-eng.jsp?tid=221&tid=221)

Supply & Demand of Journeypersons in the Trade
The sprinkler and fire protection installer Training Delivery Agent (TDA) and the trade itself have ample capacity to handle an increase of apprentices and journeypersons. In 2012, the Ontario Sprinkler Joint Training and Apprenticeship Committee (JTAC) had an average of 11 apprentices each month—a total of 135 over the whole year. At a minimum, the TDA has the capacity to double its training capacity.

Furthermore, we have the avenues to employ people who are interested in becoming sprinkler and fire protection installers. The opportunity is there— but there are good reasons (outlined throughout this submission) that they should be trained and qualified. There is an extremely high demand for certified workers; we currently have a minimal two per cent unemployment rate for Local 853. Contractors across the province are looking for sprinkler fitter apprentices. Certification will not change that demand, however it will guarantee that the people working on the job sites are fully trained and qualified.

Attraction & Retention
Training as a sprinkler fitter is a clear path to a rewarding and flexible career. There are very few people who pass through the sprinkler fitter TDA who do not end up practicing the trade for life, or something very close to it. The majority of people who get a sprinkler fitter ticket practice the trade as a journeyperson and are able to work seamlessly across Canada. Currently, those within the trade who are not certified cannot work as journeypersons in Quebec, Manitoba, New Brunswick or Nova Scotia, as they require compulsory status.

Apprenticeship completion rates are high. Our numbers show the current completion rate for sprinkler fitter apprentices is at 80 per cent, with 95 per cent of the apprentices who complete their apprenticeship going on to obtain their Certificate of Qualification. Those numbers are high because the TDA has taken the initiative to ensure its registered apprentices are properly trained and certified to
install fire protection sprinkler systems. Moreover, apprenticeship completion rates in the trade are consistently growing at a rate of two per cent a year.\textsuperscript{21} The challenge remains to ensure non-union sprinkler fitters are properly trained and certified to do this important job. Compulsory certification will only work to enhance the already strong complete rate.

With recent provincial actions to integrate sprinkler systems into the building code, it is anticipated sprinkler system installers will be in increasing demand in Ontario.\textsuperscript{22} Compulsory certification will ensure people who are certified to industry and government standards perform the new work coming to the trade.

Because sprinkler fitting is not a compulsory trade, there is no impetus for non-union contractors to register their people, and if they do they are less likely to complete the process. Establishing sprinkler fitters as a compulsory trade will mandate employers to ensure their apprentices are trained to provincial standards and provide assurance to apprentices that their training and standards are uniform across the trade.

The industry took the initiative to move to a 1:1 ratio to grow the trade and ensure its solid training standards are preserved in addition to having confidence in this ratio as the right balance to attract and retain workers.

The ratio supports not only classroom instruction through the TDA, but also mentoring in the field that allows apprentices to get a more hands-on experience with the hazardous working environments of sprinkler fitters. Recruits are attracted to the rigorous training and supports offered to get an apprentice through to journeyperson status.

\textsuperscript{21} Ontario Construction Secretariat, “Completion Counts: Raising Apprenticeship Completion Rates to Address Skills Shortages.

Ultimately, it is important to the industry that workers be attracted to the trade of sprinkler and fire protection installer for the high-quality training and terrific career prospects and are retained as skilled workers and journeypersons in Ontario.
Central Ontario Building Trades (COBT): Sprinkler and Fire Protection Installers Classification Review Support Letter

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Board of Governors
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Dear Board of Governors:

We, the Central Ontario Building Trades, representing over 80,000 skilled trades men and women in Ontario, support the reclassification of Sprinkler and Fire Protection Installers as a compulsory certified trade. It is our understanding that the work done by Sprinkler and Fire Protection Installers is complex in nature and vital to the health and safety of the Ontario public.

As members of the trade community, we consistently strive for excellence in all areas of construction work. By ensuring that Sprinkler and Fire Protection Installers are compulsory certified, it continues to promote such excellence through safe and reliable trade work. More importantly, sprinkler systems are one of most important tools in combating fires in their early stages. They must be installed properly by certified and trainer trades people to ensure their life saving ability is not compromised when needed.

We stand beside numerous other affiliated stakeholders in our proclamation that Sprinkler and Fire Protection Installers must be reclassified as a compulsory trade.

Thank you for your time and consideration in this matter.

Sincerely,

James St. John
COBT Business Manager/Financial Secretary