



Fuels Safety Communicates

Natural Gas, Propane and Fuel Oil

Volume 2, Issue 1

July 2001

MESSAGE FROM VICE-PRESIDENT MICHAEL PHILIP

In the last issue of Fuels Safety Communicates, I talked about the recent client survey and the areas highlighted by you for improvement. I promised to keep you up to date.

The third priority on your list was "Harmonize Regulations". Well, it's finally done. New regulations for each of the fuels sectors have been adopted with the proclamation of the new *Technical Standards & Safety Act*. This event marks the culmination of 4 years of work undertaken in conjunction with our Industry Advisory Councils, our Technical Advisory Committees and many other stakeholders. My thanks go to each and everyone of them for a job well done!

One of our goals was to ensure consistency across the different fuels sectors and we believe that this has been accomplished. I hope you think this too. If not, let our Engineering Department know (www.tcoombes@tssa.org). We, and the Ministry of Consumer & Business Services, are committed to a process of continuous improvement.

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Technical Standards and Safety Act Becomes Law

The new *Technical Standards and Safety Act* and its supporting regulations was proclaimed and became the law in Ontario on June 28, 2001. The new *Act* replaces the seven statutes that TSSA previously administered. These included the former *Energy and Gasoline Handling Acts* with which you are familiar. The single *Act* ensures that the legal rules and responsibilities that apply to the industry sectors falling under TSSA jurisdiction are consistent.

Each industry sector is also subject to the applicable regulations under the new *Act*. These regulations set out administrative requirements for each sector. Each of the regulations adopts a technical code. Exceptions to National Codes that apply in Ontario are set out in a Code Adopting Document (CAD) published by TSSA.

Highlights of the changes reflected in the new regulations, CAD's and codes are provided below. Check our web site www.tssa.org for further details.

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PLEASE REGISTER ON OUR WEB-SITE

Want to be updated by e-mail, want to get the latest information first, then we suggest you register on our web-site www.tssa.org and you will have the information as fast as it can be communicated!!!!

The new regulations adopt the latest versions of the CSA B149 series of codes and the latest B139 code. It is important that you become very familiar with the new Act, applicable regulations and codes. Together they set out your legal, safety and technical responsibilities. We are currently developing, in conjunction with CSA, a one-day seminar that will cover the changes and highlight common safety issues found in the field.

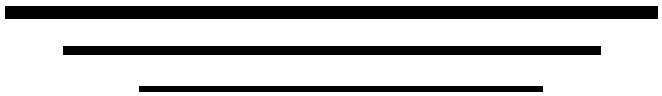
Meanwhile, we continue to make progress on the two top priorities highlighted in the last issue.

Many non-registered contractors have been identified and will shortly be getting a visit from their 'friendly' inspector. Again, I urge you to bring any helpful information to our attention. Your name will not be used.

Our continuing public education activities are highlighted elsewhere in this issue.

It costs approximately \$35,000 to send out each edition of Fuels Safety Communicates. Please register to receive the newsletter electronically at www.tssa.org and help reduce this cost. Finally we are considering allowing trade advertising to support more frequent issues. Do you think that is appropriate? Let me know at mphilip@tssa.org.

Please remember that Fuels Safety Communicates is your paper. Yes, it will contain information that we think is important but we also want your input on what you want to see. Please let us know.



Gaseous Fuels

A new 'Gaseous Fuels' regulation replaces both the former Ontario Gas Utilization Regulation and the Ontario Propane Regulation as they applied to the installation of appliances. This new regulation and CAD adopt the CSA B149.1-00 "Natural Gas and Propane Installation Code" which includes both natural gas and propane installation requirements. These requirements include new specifications for copper tubing, infra-red construction heaters and types of venting systems.

This regulation also adopts the CSA B149.3-00 'Code for the Field Approval of Fuel-Related Components on Appliances and Equipment'.

Propane Storage and Handling

A new 'Propane Storage and Handling' regulation replaces the former Ontario Propane Storage, Handling and Utilization Regulation as they applied to propane tank and cylinder installations. The regulation and CAD adopt the CSA B149.2-00 "Propane Storage and Handling Code".

When the new regulation comes into effect, Ontario Ministry of Transportation (MTO) stations (the stations that are authorized by MTO under the Highway Traffic Act) will not be authorized to perform the 5-year inspection on propane fuelled vehicles unless they have registered with TSSA as a propane conversion centre. To register as a conversion centre, please contact our Licensing at mjohnson@tssa.org or (416) 325-2924 (1-877-682-TSSA).

This regulation also adopts the CSA B149.5-00 "Installation Code for Propane Fuel Systems and Tanks on Highway Vehicles"

Compressed Natural Gas

The new regulation and CAD adopt the CSA B108-99, "Natural Gas Fuelling Stations Installation Code". Numerous exceptions to the code, set out in the CAD, include a minimum maintenance chart. This chart details the type of verification/maintenance and frequency required for equipment mounted in a CNG refuelling stations.

Fuel Oil

The new regulation and CAD adopt the new CSA B139-00, "Installation Code for Oil-Burning Equipment" that sets out the requirements for the storage, handling and utilization of fuel oil. The new regulation, CAD and code include:

- New requirements for distributor inspections of installations
- New requirements for contractors/certificate holders and distributors when addressing unacceptable or unsafe conditions
- Registration for underground fuel oil tanks
- Upgrade requirements for underground fuel oil tanks including leak detection systems, overfill protection, and cathodic protection
- New requirements for addressing spills and leaks.

Oil and Gas Pipeline Systems

The new regulation and CAD adopt the CSA B662-99, "Oil and Gas Pipeline Systems". Exceptions to the Code, set out in the CAD, include the requirement for pipeline operators to have manuals describing their pipeline integrity management programs. This is a proactive program, wherein the operators need to document their management system, their records system, and their monitoring and mitigation programs, all aimed at ensuring that the operating pipeline is capable of performing safely.

How to Obtain the New Act, Regulations, CAD'S and Codes

You can see the latest copy of the Act and regulations at the Ontario Government Web Site www.e-laws.gov.on.ca or our TSSA Web Site www.tssa.org and the latest copy of the CAD's at our TSSA Web Site.

You may also pick up the paper copy at our office at 3300 Bloor St. West or request a copy to be mailed to you by writing to FSD Engineering or e-mail your request to tcoombes@tssa.org.

For copy of the latest gas, propane and fuel oil codes, contact CSA at (416) 747-4044 (1-800-463-6727) or visit their Web Site www.csa-international.org.

New Tracking/Invoicing System

In response to your feedback, TSSA is implementing a new invoicing system as part of our new computer and information systems. The new invoices will clearly indicate the work performed. These new systems will also allow TSSA to better serve you, our clients. Tracking of applications for drawing reviews, field approvals, variances, and inspections will be improved.

TSSA Web Sites

TSSA has two Web sites:

www.tssa.org – for Clients and General Info

www.public-safety-first.com – for Consumers

We know that our client site is getting 'long in the tooth' and is difficult to navigate. Look forward to the launch of a completely redesigned site in the fall.

One improvement will help reduce multiple mailings that some of you have been experiencing. In the meantime, please bear

with us if you still receive more than one copy of FSD Communicates.

New Fee Schedule Effective July 1, 2001

As announced in the last edition of FSD Communicates, fees are changing effective July 1. If you are renewing your licence registration or certification after July 1, your renewal notice will reflect the fee change.

Regulatory Issues

Rheem Water Heater Corrective Action Program

The Rheem Vent Corrective Action Program, which was initiated in December 2000, is ongoing. This program involves retrofitting the plastic vent system on Rheem PV40 and PV50 water heaters, manufactured between 1992 and 1996. Since initiating the program, a significant number of vent separations have been discovered. Protect your customers by inspecting the vent system of their water heaters and taking the appropriate action. The affected water heaters have serial numbers 0192J86099 through 1296J26914 and 0192K89566 through 1093K65614. See www.public-safety-first.com for more details of the problem. Please call Rheem Canada at 1-800-371-4955 for details of the retrofit program.

Central Furnace Installation in Construction Applications

TSSA issued Advisory NG 00/01 in February 2000 setting out interim guidelines allowing the use of central furnaces for construction heating. Since then an ad-hoc working group was formed by the Standards Committee to consider this issue. This working group has now agreed that central furnaces may be used for construction heat subject to certain conditions. These conditions are similar to those laid out in the TSSA Advisory. The

TSSA Advisory will remain in effect until the standard is changed.

Indirect Fired Tobacco Kilns

In response to industry requests, TSSA worked cooperatively with manufacturers and installers to assist CSA in developing certification requirements for the conversion of existing direct fired tobacco kilns into indirect fired kilns through the addition of burner-heat exchanger systems. This work resulted in the development of CSA TIL R-1“ Interim Certification Requirements for Tobacco Drying Equipment – April 11, 2001”. This document was subsequently accepted in Ontario as per Advisory NG 01/1 dated April 12, 2001.

Approximately 13,000 tobacco kilns are being converted from direct fired systems to indirect fired systems.

During discussions with tobacco growers, TSSA also reminded farmers that installations and servicing of gas fired tobacco drying equipment must be performed by registered contractors and properly certified technicians.

Common Infractions – Watch Out for These

Vent Termination

Section 7.14.8 (a) of the CGA B149.1-M95 states that a vent shall not terminate “directly above a paved sidewalk or paved driveway which is located between two single family dwellings and serves both dwellings”. The intent behind this section is to prevent ice build-up.

TSSA will consider granting a variance for a low-condensate fireplace installation with the vent terminating 7’ above grade. However installation of such a vent termination needs TSSA review and approval. For details, please contact FSD Engineering at tcoombes@tssa.org or (416) 325-1615 (1-877-682-TSSA).

Vent Size Derating

General Venting Requirements 3 & 4 in Appendix B of the Gas Code require reduction of vent capacity under certain conditions. Often installers 'derate' in steps rather than in one lump value as required. This method may lead to an error in the allowed capacity of the vent and, in consequence, require a larger than necessary vent to be installed. Chart sizing tables included in vent manufacturer literature often contain this error. Watch out for it.

Example:

A flex liner and TY fitting are installed to reduce a capacity of 200 CFH to 140 CFH (30% reduction). When the calculation is done incorrectly in two stages (200 CFH – 20% = 160 CFH, 160 CFH – 10% = 144 CFH), 144 CFH results instead of the correct answer of 140 CFH.

Base Tee on Fuel Oil Furnaces

Many of the sites that TSSA Inspectors visit have problems created by improperly vented fuel oil appliances. One of the more common errors is the failure to install a base tee in the venting. Some people believe that it is acceptable under certain conditions to simply not install a tee. This is not the case. A FSD Advisory issued in July 1996 addressed this misconception. It directly stated that "a tee is required for all chimney liners serving fuel oil appliances".

In order to help address this misconception, the language used in the latest version of the B139 Fuel Oil Code was made very specific. Section 4.2.2.5 of the Code, states that "an appliance or burner shall not be connected to an unlined masonry chimney. Such chimneys shall be relined (a) in accordance with CSA Standard CAN/CSA-A405; or (b) with a chimney liner certified to ULC Standard CAN/ULC-S635 and installed in accordance

with the certified installation instructions. Such liners shall include a base tee."

HeatSmart® Safety Tips

Although winter is over, it doesn't mean that we can overlook safety in using gas appliances. Incidents that occur during the heating season can also happen in summer. The following are some examples. You may wish to provide your clients with these lessons and safety tips.

Carbon Monoxide Poisoning

Make sure that appliances (furnaces, other fuel-burning appliances, vents and chimneys) at home are properly maintained and inspected by authorized service personnel on an annual basis to prevent the serious hazard of CO poisoning. In summer time, watch out in particular for bird nests that may be built inside or around the vent and that can block the exhaust flow. Finally, when the CO detector alarm sounds, don't assume this is a false alarm; call for service immediately.

Recent Cases

Case 1 – The homeowner assumed that an alarming carbon monoxide (CO) detector was defective and unplugged it prior to retiring for the evening. The next morning family members awoke with symptoms of CO exposure and called the local fire department who recorded 600 ppm CO upon initial entry. The water heater was found to be defective.

Case 2 – A carbon monoxide incident (CO) occurred at a residence. Five people were sent to hospital as a precautionary measure. The fire department recorded 170 ppm CO in the basement of the house. The local gas company recorded 300 ppm CO in front of the heating boiler and 8000 ppm CO in the flue. The boiler had not been maintained since 1997.

Case 3 – A carbon monoxide (CO) incident occurred in a residence. Two adults and a

child in the residence were advised to seek medical attention for precautionary reasons. 400 PPM of CO was registered in the home. The local gas company was called in and, after checking they found that the fire bricks in the combustion chamber of the home's 24 year old hot water heating boiler had deteriorated. The bricks fell on the burner causing carbon monoxide to enter the home. There was also no liner in the masonry chimney.

Case 4 – A carbon monoxide exposure occurred at a manufacturing facility resulting in more than 20 workers being transported to hospital. The investigation has revealed numerous violations of the Natural Gas and Propane Codes including:

- Unapproved natural gas appliances in use
- Natural gas appliances being maintained by persons not certified under the Energy Act
- Inadequate combustion air to natural gas appliances
- Not maintaining natural gas appliances in accordance with the manufactures' instructions
- The use of unapproved hose and fittings in propane services.

Flammable Products

As you know, one should always keep flammable & combustible materials, such as aerosol cans and paint thinners away from fuel-burning appliances. When servicing fuel-burning appliances, please watch out for this hazard and advise your clients accordingly.

Recent Cases

Case 1 – A fire occurred at a private residence caused by combustibles stored too close to a natural gas fired appliance. The contents of an aerosol can, stored among other combustible material next to a natural gas water heater, vented or leaked out. The pilot light of the water heater acted as the source of ignition, sparking the blaze.

Case 2 – A fire occurred resulting in an estimated damage of \$150,000 and a worker suffered from first degree burns to the back of his head. Workers were using varsol mixed with varathane when the explosion occurred. The water heater pilot and furnace pilot were in the 'on' position, however it could not be definitively determined if either pilot was the source of ignition. The volatile liquids were both labelled as being highly flammable and not to be used near sources of ignition. The water heater had a sticker indicating that substances which have flammable vapours should not be used near the pilot.

Working Tips

Maintain & Protect Equipment

See how proper maintenance and protection of equipment can save money. Tell your clients!

Recent Cases

Case 1 – A fire broke out that destroyed a natural gas roof top heater causing \$12,000 in damage. The cause was found to be a gas leak from a dislodged 1" pipe nipple. The supply line was installed approximately 30 years ago.

Case 2 – A fire in a store caused the contents to be significantly water damaged from the store's sprinkler system. A forklift struck and severed a natural gas supply line. The escaping gas ignited from an unknown source. The gas supply line and equipment were not properly protected.

Case 3 – A kitchen worker received second degree burns to her face when she opened the door to a natural gas oven. The investigation revealed that the oven was poorly maintained and the burner ports near the pilot light were blocked. When she opened the oven door, the accumulated gas shifted and ignited from the pilot.

Do it Properly & Follow Instructions

When installing or operating an appliance, make sure you do it properly and follow instructions. Also ensure that your clients are advised of the proper operating procedures, make a note in the work order that you have done so. This is your obligation and proper instruction will avoid incidents and protect you from potential claims.

Recent Cases

Case 1 – A fire occurred in a home involving a natural gas furnace. There were no injuries. The investigation revealed that a heating contractor installed a humidifier on the natural gas furnace improperly. The improper installation resulted in the high limit safety switch being rendered inoperative.

Case 2 – A fire occurred shortly after a new delivery of propane to a residence. There was heavy charring behind each of the propane appliances. The investigation found that the fire was related to a regulator overpressure caused by an overfilled propane tank. The damage is estimated at \$200,000.

Case 3 – A small explosion at a trailer park led to a female being taken to hospital with burns to her arms. Property damage was restricted to the furnace. The cause was attributed to user error. The burner was recently converted from propane to natural gas. The user was not following the lighting instructions and was trying to ignite the pilot through a relief panel mounted directly in the combustion chamber.

Case 4 – A restaurant employee pulled a fat fryer out from the wall, creating tension on the flexible gas connector. A leak developed and caught fire. The unit, according to the gas code, should be chained to the wall to prevent any tension on the flexible connector. Someone had previously removed the chain to facilitate cleaning.

StartSmart®

With the warm summer months around us, campers, cottagers and backyard barbecue enthusiasts are gearing up for entertaining and cooking outdoors. Barbecues are back in action. A recent survey conducted by TSSA indicated that only 40% of the public were able to recall the need 'to open the barbecue before lighting' and only 18% knew that it was important to 'clean the venturis'!

To help ensure that Ontarians are enjoying their barbecues free of incident, we are once again embarking on a province-wide public education campaign, StartSmart®, to prevent avoidable gas barbecue fires and explosions. StartSmart® posters and brochures will be featured at key barbecue and retail outlets across the province. StartSmart® tags, which can be attached to the cylinder or the barbecue, are also available to remind users of tips on the safe operation of barbecues.

We are very pleased to announce that, this year, OPA has joined us in promoting the StartSmart® program.

Last year's program was a tremendous success. The StartSmart® program reached thousands of Ontario residents with important BBQ safety information through the tour and through strategic partnerships. StartSmart® information was distributed to 600 Liquor Control Boards of Ontario (LCBO) outlets, local fire departments, Canadian Tire, Home Hardware, Home Depot and propane dealers.

TSSA's StartSmart® Safety Team will be touring the province again this summer in our Safety Cruiser. They will be visiting fairs, carnivals and retail outlets in cities and towns across the province. For details and latest schedule visit our public safety Web-site www.public-safety-first.com or contact Michele Vanderwoude at mvanderwoude@tssa.org or (416) 325-9236 (1-877-682-TSSA).

Our dream is to have a StartSmart® safety tag hanging on every barbecue or cylinder.

With your help we will make barbecuing a safe activity that is free of incident. We urge you to obtain a supply of the tags and attach them to your customers cylinders when you are refilling them.

TSSA is offering the brochures and tags at no cost. If you are interested in participating in this program, contact Michele Vanderwoude at mvanderwoude@tssa.org, or (416) 325-9236 (1-877-682-TSSA).

Quality Assessment Programs Update

Contractor Quality Assessment Program

This voluntary program was formally launched in June 2000 and is designed to recognize the high standard of work performed by contractors and their staff. The program includes verifications of legal requirements and provides individual training to all fuel employees. The main focus of the program is to provide education/consultation services and to distinguish the quality players. To date over 50 contractors have been Quality Assessed and their comments have been as follows:

"It was the best money I ever spent"
"Company moral increased"
"I partnered with TSSA in this program"
"I improved my due diligence"

Become a leader among your peers – inquire about the Contractor Quality Assessment Program today. Quality Assessed Contractors include: Climatecare companies, Ultramar contractors, Honeywell, Enbridge, Lennox, E.S. Fox, The State Group and many independents.

Facility Quality Assessment Program

This voluntary program was launched in November 2000 and is designed to recognize the high standard of fuels related work

performed by companies and their staff. Facilities (any places that have fuels related equipment) are responsible for the safe operation of such equipment. This TSSA program is designed to assist facilities in attaining compliance and ensuring safe, efficient use of their fuels equipment. Companies that have participated in the program, include Ford Canada, Daimler Chrysler, Navistar International, Meritor Suspension, ESAM Group and McNeil Consumer Healthcare. Become a leader among your peers and better ensure safety in your plant – inquire about the Facility Quality Assessment Program today.

For more information on either program, contact Sandra Cooke at scooke@tssa.org or 416-325-0211 (1-877-682-TSSA).

Gas Turbines

Approval

Under section 14 of Ontario Regulation 546/96, gas turbine engines are exempt from approval as required in section 10 of the Energy Act.

The exemption under section 14 applies only to the approval requirement for turbine engines and does not include the fuel features (valve trains and controls) that are connected to the engines. These are subject to requirements under the Ontario Gas Utilization Code that requires components be certified and approved.

TSSA is working with the turbine industry to develop minimum safety requirements for turbine installations. In the meantime, the fuel features (including valve trains and controls) for turbines need to be submitted to TSSA for review and approval.

Use of Certified Technicians

Section 14 of the Energy Act requires that people performing service and repairs on hydrocarbon appliances and equipment must hold a certificate for that purpose. This requirement has been misinterpreted by some members of the industry as being exempt under section 14 of Ontario Regulation 546/96. This is not the case.

Under the new regulations, manufacturers' employees will be able to obtain an Industrial Maintenance Technician Certificate. This will only allow them to install and maintain manufacturer's equipment located at an industrial facility.

In the meantime, the industry must engage appropriately certified technicians to work together with the manufacturer's qualified personnel in installing or servicing the fuel features of turbines.

For people who are interested in participating in the discussion of the above issues or for further clarification, contact Solomon Ko at sko@tssa.org or (416) 325-1674 (1-877-682-TSSA).

CONTACTS

Main Switchboard: (416) 325-2000

Toll Free Number: 1-877-682-TSSA (8772)

Engineering Dept. tcoombes@tssa.org
(416) 325-1615

Chief Engineer jwastle@tssa.org
John Wastle (416) 325-9608

Inspection Dept. mdafonseca@tssa.org
(416) 325- 0289

Regional Manager klanger@tssa.org
South/West Region (416) 325-9623
Ken Langer

Regional Manager mscarland@tssa.org
North/East Region (416) 325-5476
Mike Scarland

Fax Number for the above is (416) 326-1662

For inquiries about how to apply for a licence, registration or certificate or their status, contact:

Certification kmcilveen@tssa.org
(416) 325-2803

Licensing and mjohnson@tssa.org
Registration (416) 325-2924

Manager of Licensing, abrown@tssa.org
Registration, Certification (416) 325-2571
and Accounts Receivable
Ann Brown

Fax Number for the above is (416) 326-1663

For inquiries about qualifications to obtain certification, contact:

Training/Certification training@tssa.org
Service 94160 325-9230

Consultant pconnors@tssa.org
(416) 325-5475

Fax Number for the above is (416) 325-2774

Communications mvanderwoude@tssa.org
(416) 325-9236

Vice President mphilip@tssa.org
Fuels Safety Division (416) 325-9605
Michael Philip