WHITEMORE
FIRE CONSULTANTS, INC.

January 2016

INSIDE FIRE

Duane A. Wolf, PE

Fire Losses Involving Heating Appliances & Related Equipment

With cold weather upon us, the number of fires which are reported on the television or in the newspaper will be on the increase. Some of these fires will be associated with either winter weather or subsequent use of heating appliances. In other cases, the heating appliances will at least have to be considered as a potentially causative factor since they were in service. These heating appliances would typically include furnaces, boilers, fireplaces and space heaters which can ben fueled by a variety of fuels including natural gas, propane, fuel oil and wood. The purpose of this article will be to present some discussion to be considered when evaluating these heating appliances as potentially causative factors in a fire loss.

Furnaces & Boilers

Furnaces and boilers are generally used for heating entire structures or large portions of structures. Both furnaces and boilers are most commonly used with natural gas and propane with propane being more common in rural locations. There are still some fuel oil fired furnaces and boilers in-service, but

Whitemore Fire Consultants, Inc.
952-461-7000 (Office)
952-461-7100 (fax)

www.whitemorefire.com

What's Inside this Newsletter

Fire Losses Involving Heating Appliances & Related Equipment (Continued from Page 1)

their use in the Midwest is steadily declining. Waste oil furnaces can also be popular in automotive repair shops and other locations where a significant quantity of waste oil is available. The distinction between furnaces and boilers is related to whether the appliance heats air or water. A furnace heats air which is circulated by a fan through various ducts which supply the heated air to various locations within the structure. Boilers heat water which is then either circulated by pumps via pumping to various radiators or, in the case of steam, is circulated by buoyancy (difference in density) via pipes to various radiators.

As is typical of all fire investigations, burn patterns are some of the first pieces of physical evidence which are not only observed, but the burn patterns must also be considered when evaluating a furnace or boiler as a causative factor for a fire loss. Are there extensive burn patterns in the vicinity of the heat exchanger on a furnace which might be consistent with a failed heat exchanger? Is the most significant damage near the controls for the appliance which might be indicative of a component failure? Is there evidence of sooting in the vicinity of the burner tubes or heat exchanger? Evidence of sooting can be indicative of a pre-existing malfunction with the combustion process on the appliance. Additional details to be considered include the age of the appliance, recent observations of the operation of the appliance and any recent service work on the appliance. These three items can be of particular importance in situations where the appliance was observed to be operating differently prior to the fire or if recent service work had been performed on the appliance.

boiler, and possible sooting of the heat exchanger portion of the boiler. The latter two conditions can contribute to elevated temperatures in the bottom (base) of the boiler potentially causing the ignition of the floor beneath the boiler. A final scenario to consider with boilers is settling of the boiler legs into the flooring over time resulting in decreased clearances between the bottom of the boiler and combustible flooring beneath the boiler. Some boilers have small legs which can be prone to settling into the flooring beneath the boiler. If the flooring occasionally gets wet, this can be of particular concern. As the legs settle into the flooring, the clearance between the base of the boiler and the combustible flooring is reduced, potentially to the point of the flooring being ignited as a result of the increased temperatures due to the decreased clearances.

Kayla Buszmann

WELCOME!

Whitemore Fire Consultants, Inc. is pleased to announce the addition of Kayla Buszmann as our new Finance/Office Manager. Kayla comes to us from Sightpath Medical, where she has extensive financial and administrative background. We are excited to have her be a part of our team, exuding enthusiasm, humor, and a wonderful personality and work ethic. Kayla replaces Amy Powell, who left us in December to pursue other opportunities.

Kayla is a newlywed, recently married to her husband Justin. During her free time she enjoys spending time with her family and friends, working out and baking.

When you call the office, Kayla will be that friendly voice on the other end of the telephone happily ready to be of service. Please take the time to welcome her and if you're in the area stop by.

Fire Losses Involving Heating Appliances & Related Equipment (Continued from Page 1)

As for fuel oil fired furnaces and boilers, they generally require annual service which includes replacing the nozzle, adjusting the air supply to burner, changing the oil filter and vacuuming soot from the heat exchanger as needed. As the quality of waste oil can be quite variable, waste oil furnace manufacturers generally recommend even more frequent service and maintenance (such as routine service two or three times during a single heating season). Aside from many of the same considerations with gas fired appliances, the service history on fuel oil and waste oil fired appliances can be an even greater consideration in the evaluation of these appliances

Fireplaces

As opposed to furnaces and boilers which tend to run more frequently and are used as a primary heating source, fireplaces are generally operated on a more sporadic basis and are generally used as a supplemental heat source in an individual room. Fireplaces are typically gas fired (natural gas or propane) or wood fired. All fireplaces whether gas fired or wood fired have specific clearance requirements around various locations on their cabinets. Some manufacturers include metal standoffs which are attached to the fireplace cabinet by either screws or pop rivets. These standoffs are integral components to the fireplace and should never be removed from the cabinet to facilitate an installation. If some vacant holes are observed on the cabinet of a fireplace, the cabinet should be further examined for additional evidence of standoffs having been previously installed or the fireplace manual consulted for possible information regarding the placement of standoffs.

Unfortunately, it does happen that standoffs are removed from a fireplace to facilitate its installation. This can especially be the case when the framing for the fireplace installation has been completed and the opening is inadequate for the fireplace. In addition, there can be other clearance requirements contained either within the installation manual for the fireplace or placed directly on the fireplace cabinet. Fireplace fires caused by inadequate or improper clearances to combustibles typically exhibit damage patterns where the most significant charring is adjacent to a location on the cabinet where the proper clearance was not maintained.

As far as standoffs and clearance requirements on wood burning fireplaces are involved, they are also important. In many cases, the standoffs provide an even greater clearance on wood burning fireplaces and the required clearances to combustibles can be even greater. The installation manual should always be consulted for specific requirements. Additionally, some wood burning fireplaces are equipped with a gas igniter. It should be noted that manuals generally refer to the gas burner as an "igniter" and recommend that it only be used to facilitate the ignition of the wood in the fireplace. Continuous operation of the gas igniter in conjunction with burning wood in the fireplace can result in elevated temperatures at the base of the fireplace and subsequent ignition of the flooring beneath the fireplace.

Space Heaters

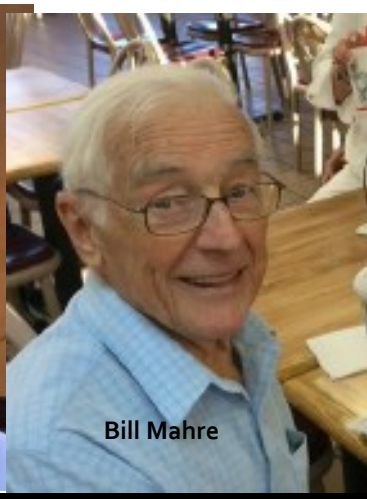
Space heaters are typically portable heating units which can be used to heat a small area temporarily or they can be larger units which can be used to provide temporary heat for larger spaces such as homes under construction in the winter. Most of the smaller portable space heaters are the radiant type of heater which typically operate with kerosene or similar fuel. Typical items to consider when evaluating these types of heaters are the fuel being used in the heater and clearances to combustibles. Occasionally, an improper fuel is added to a space heater and a fire and/or explosion subsequently occurs. Additionally, these radiant type heaters have clearance requirements for nearby combustible materials.

Larger space heaters or construction heaters can be used as temporary heat sources in shops and construction projects to provide a temporary source of heat. Many of these larger heaters are propane fired so the routing of the hose from the propane source to the heater and clearance from the discharge end of the heater are two items to consider when evaluating these larger space heaters or construction heaters.

A Look Back at 2015 . . . .

Happy Retirement to Mike LaPointe
From Acuity Insurance Company

Back to the Basics Seminar



Bill Mahre

Welcome to 2016!!! Is it just me or do most of you think that 2015 just flew by? Or maybe I have just lost all concept of time. At any rate, here we are embarking on a new year. This is the time that I usually reflect on last year and the business relationships and friends we have made and lost.

Sadly, last January we said goodbye to Bill Mahre, of Propane Technical Services, who was a friend and colleague to all of us. One of the gifts that Bill left for all of us is a library of videos on gas explosion tests, incidents and knowledge. Bill's son, Bill Jr. met with me early last April and provided me with boxes, and boxes and more boxes of all the research material and video that Bill accumulated over the 50+ years of his career. I knew that this was something that we just had to share with the fire community. So we have converted all of the VHS tapes to DVD's and uploaded them to a digital format. We have provided the digital media to the IAAI-Minnesota Chapter to develop the ***Bill Mahre Memorial Library*** that will have the ability to provide this valuable information to fire investigators for years to come. While the IAAI facilitates the access to this information, it can be obtained in the interim through our Drop Box by requesting a link from our office staff. We also want to recognize the retirement of Michael LaPointe of Acuity Insurance. Mike and I go back to the days when he was in charge of the Milwaukee Police Department Bomb/Arson Unit. We have worked countless fires throughout the years and I wish him the very best in his retirement.

We are happy to announce that Kayla Buszmann has joined our company as Finance/Office Manager (see the announcement on Page 2 of this newsletter). Kayla brings an energy to our office and she is looking forward to meeting all of you that work with us.

We have been working hard to improve our technology and response to our clients' needs. One of these improvements is a new website that will soft launch later this month. Part of the website will include an app that can be downloaded to your mobile device. This app will allow you to submit your loss from your phone, which will quickly and efficiently get your claim investigation started. This website will also be the host of our newsletter, Inside Fire, The Fire Line, and Recalls . . . Short messages will be sent out when new additions are added.

Another technology improvement we have made this year is uploading our data to an offsite storage facility . This will allow us access to historical information as well as current and past file information immediately. By backing up this important information daily, protects our clients work product.

We have a lot to be grateful for and appreciate all of our business relationships, friends and colleagues that work with us everyday. Thank you for your continued patronage and support.

Happy New Year!

Robert B. Whitemore, CFI
President

Fire Losses Involving Heating Appliances & Related Equipment (Continued from Page 1)

Venting of Heating Appliances

With a few exceptions, nearly all appliances which operate indoors and utilize natural gas, propane, fuel oil, waste oil or wood as their fuel source utilize vent piping which is used to convey the hot combustion products to the outdoors. Some examples of these appliances which utilize these fuels but not require vent piping include gas cooking appliances, ventless fireplaces and construction/space heaters. Depending on the type and manufacturer of the vent piping, the necessary clearance to combustibles will be variable. Most fires related to the installation of vent piping involve clearances to combustibles. The necessary clearance will vary by piping manufacturer, so identification of the piping manufacturer is always important. Typically, fires caused by inadequate clearances between vent piping and combustible materials exhibit the most significant fire damage adjacent to the vent piping where the combustible material was either in contact or in close proximity to the vent piping. Typical combustible materials found in close proximity to vent piping include cellulose insulation and framing materials. A common question is, "How long does it take for a clearance issue between vent piping and nearby combustibles to manifest itself in a fire?" Based upon the experience of this investigator, the timeline can be as short as the first several times that the appliance is operated after it was installed or insulation was added to the attic. It can also be as long as several years later. It just depends on a number of factors and no prediction model currently exists that covers a significant number of situations.

Weather Related Factors

Along with colder temperatures, snow and ice tend to accompany the winter season. Snow and ice can be factors associated with winter fire losses. Icing of regulators (particularly ice over the vent opening) can result in the over pressurization of downstream portions of the gas system. This can result in failures and subsequent fires/explosions. If a fire/explosion loss occurs during icing conditions or in locations where icing of the regulator vent can occur, over pressurization of a gas system as a result of an ice covered regulator vent should be considered. Additionally, gas piping failures do occur as a result of snow/ice sliding off higher elevations such as roofs and impacting the piping. On steel roofs where large quantities of snow and ice can slide off the roof at a time, gas piping should be examined if a failure/fracture exists in an area where the piping may have been struck by snow/ice sliding off a roof.

These types of failures as a result of piping fractures can result in explosions as a result of the ignition of large quantities of unburned gas or fires initially observed on the exterior of buildings in the vicinity of failed/fractured gas piping.

Final Notes

The purpose of this article is to present some background information on things to consider when evaluating heating appliances and related equipment for their potential role in a fire loss. While this article presents a number of items to consider, it is not considered to be all inclusive, nor can any "checklist" be a substitute for a thorough investigation performed by a competent team of investigators and engineers. As always, every investigation will have unique facets physical evidence which will need to be considered as the investigation is performed.

Carrier Recalls Terminal Air Conditioners

The United State Consumer Product Safety Commission in cooperation with Carrier Corporation of Farmington, Connecticut has voluntarily issued a recall of the Packaged Terminal Air Conditioners (PTAC) and Heat Pumps (PTHP). The power cord plug can overheat posing a fire hazard to consumers.

Approximately 285,000 (about 185,000 were previously recalled in November 2007) units were sold at HVAC dealers and factory-direct sales from January 2002 through December 2009 for between $425 and $675.

This recall involves Packaged Terminal Air Conditioners (PTAC) and Packaged Terminal Heat Pumps (PTHP) sold under the Bryant, Carrier and Fast brand names. Recalled units include those with original power cords and those that received a supplemental power cord as part of the 2007 recall. The recalled units have capacities of 7,000; 9,000; 12,000 and 15,000 BTUs and plug into 208/230 volt, 20 amp outlets. The following brands and eight models are being recalled:

- Carrier models 52CE, 52CQ, 52PE and 52PQ
- Bryant models 840 and 841; and
- Fast models 840 and 841

Model and serial numbers are located on the ratings/data plate on the right front of the unit, underneath the removable front panel. A complete list of the serial numbers involved in this recall is available by calling Carrier or at www.carrier.com.

Consumers should stop using and unplug the recalled units and contact Carrier to receive a free replacement. For more information, please visit www.carrier.com and click on Important Product Recall.

KTM North America Recalls Competition Off-Road Motorcycles

The United State Consumer Product Safety Commission in cooperation with KTM North America of Amherst, Ohio has voluntarily issued a recall of the Competition Off-road Motocross Motorcycles. The molded fuel hoses could leak at the radius or the ends of the hose, posing a fire hazard.

About 1,800 vehicles were sold at KTM authorized dealers nationwide from December 2014 through April 2015 for between $9,000 and $10,200 for model year 2015 Motorcycles and from May 2015 through September 2015 for between $8,400 and $9,300 for model year 2016 Motorcycles.

This recall involves model year 2015 KTM SX-F Factory Edition and 2016 SX-F motocross motorcycles with 250cc to 450cc, 4-cycle engines.

Recalled KTM motorcycles are orange and black with the KTM logo on both sides of the shrouds covering the fuel tank. The engine size and "SX-F" are on both sides of the rear fender below the rear of the seat.

Model year 2015 motorcycles will have the letter F in the 10th position of the vehicle identification number (VIN). The VIN is located on the right side of the steering head.

Model year 2016 motorcycles will have the letter G in the 10th position of the vehicle identification number (VIN). The VIN is located on the right side of the steering head.

Consumers should immediately stop riding the recalled motorcycles and contact an authorized KTM dealer to schedule a free repair. For more information, please visit www.ktmusa.com and click on "Service."

Victorian Trading Company Recalls Tealight Holders

The United State Consumer Product Commission in cooperation with Victoria Trading Company has voluntarily issued a recall of their tealight holders. The diameter of the hole in the top hat is too small which can allow heat to build up and create cracks in the surface, posing a fire hazard.

Approximately 1,000 units were sold at Victorian Trading Company and Trading Company Wholesale and online at www.victoriantradingco.com from September 2014 through October 2015 for about $20.

The recall affects John Snowball, Esq., Tealight Holders. The tealight holder is a snowball-shaped character with a wire monocle on his right eye, a cigar in his mouth and a black top hat with a yellow band above the brim on his head. Tealight holder measures 4.5" x 4.5" x 6." There is a hole in the back of the item to hold the tealight. Clear stickers with Victorian Trading Company logo are on the bottom of the tealight holders.

The firm has received three reports of cracks in the holder. No fires have been reported.

Consumers should immediately stop using the tealight holder and contact the firm for instructions on returning the product for a full refund. For more information please visit www.victoriantradingco.com and click on "Product Recalls."

Breville Recalls Pressure Cookers Due to Risk of Burns

The United State Consumer Product Safety Commission in cooperation with Breville USA has issued a voluntary recall of the Breville Fast Slow Cookers. The sealing gasket can be incorrectly inserted upside down on the lid which can allow the unexpected release of built-up pressure. This poses a risk of burns to the user or consumers nearby.

About 35,600 units were sold at Bed, Bath and Beyond, Best Buy, Macy's, Sur la Table and Williams Sonoma stores nationwide and online, and online at Amazon.com and BrevilleUSA.com from September 2012 through October 2015 for about $180.

This recall involves Breville 6-quart capacity domestic programmable electric pressure cookers with a brushed stainless steel construction and a 3-way safety system. The safety system consists of a locking lid, safety valve and a pressure release button. Pressure cookers with model number BPR600XL and batch numbers between 1235 and 1529 are included in the recall. The model number and batch code are located on the bottom of the unit.

Consumers should immediately stop using the recalled pressure cookers and contact Breville for a replacement sealing gasket and updated instructions.

For more information, please visit www.brevilleusa.com and click on the "BPR600XL Recall" link.

WHITEMORE
FIRE CONSULTANTS, INC.

PO Box 1261
Prior Lake, MN 55372
Telephone: 952-461-7000

www.whitemorefire.com

Are You On Our Distribution List?

Don't miss a single issue of *Inside Fire*, our quarterly newsletter or our fire-related recall notifications. If you currently are not on our email distribution list, visit our website at:

www.whitemorefire.com

Click on "registration", complete the form and press "submit". It's easy and you won't miss a thing!

Submit Your Loss Online

Easy ..... go to the **Whitemore Fire Consultant's** Website:

www.whitemorefire.com

Click on "Submit a Loss" tab . . . .

Complete the online form and press "submit" and you will receive an electronic confirmation of our receipt of your loss request. You will also receive a response from our on-call representative as well as a follow-up all during the next business day.