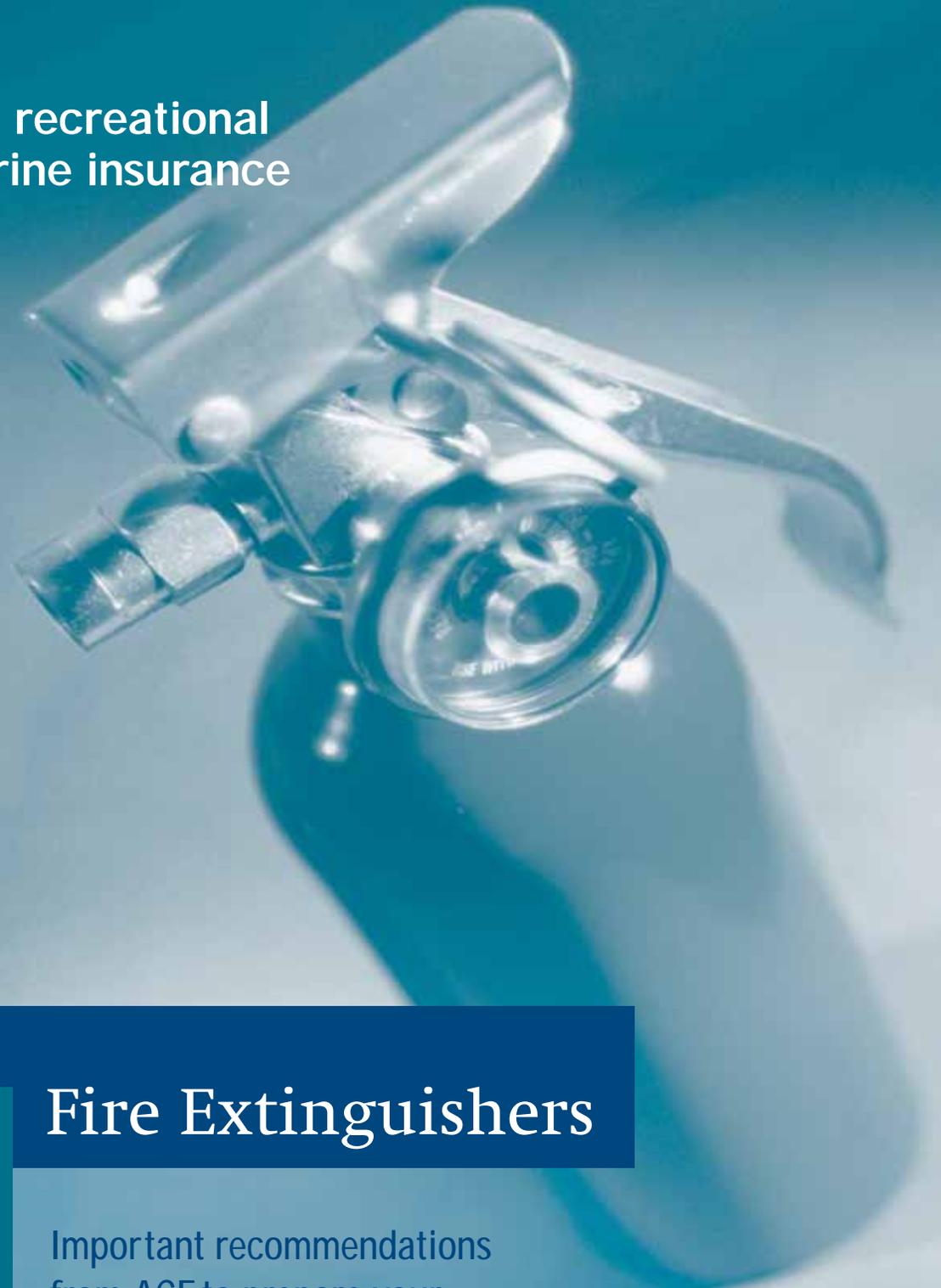




ace recreational  
marine insurance



## Fire Extinguishers

Important recommendations  
from ACE to prepare your  
vessel for fire emergencies

# Fire Extinguishers

Protecting boaters and their vessels, whether they are 20 or 200 feet in length, requires experience, industry knowledge and a degree of creativity. ACE Recreational Marine Insurance® has all this and much more. After two centuries of insuring yachts and boats of all sizes and types – beginning in 1792 when our predecessor company issued the very first marine policy in the United States – ACE stands as the nation’s oldest marine insurance provider, offering our clients unparalleled products, service and stability.

As a leader in promoting maritime safety and as a special courtesy, ACE is pleased to provide you with this exclusive publication on fire extinguishers. We hope you will find it both interesting and informative.

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# General Fire Extinguisher Information

What is there to know about fire extinguishers? You just grab one and put out the fire, right?

This casual attitude about fire extinguishers is common, but a fire at sea is one of the worst disasters you can experience. Any fire onboard has the potential to destroy your boat, and place the lives of you and your passengers in grave danger. Hopefully you will never experience a fire at sea, but you need to be prepared to protect yourself and those onboard.

So while it may sound as simple as grabbing an extinguisher and putting out a fire, there really is much more to know. Do you know where they are on your boat? Whether you have the right type of extinguisher to fight fires on boats? Have your extinguishers been maintained and will they work when needed? Do you know how to use an extinguisher correctly to put out a fire? All equally important questions you need to address well in advance of an emergency fire situation.

## Location and Number of Extinguishers

It is not unusual for ACE's marine surveyors to hear a boat owner say, "The dealer put a couple of fire extinguishers on the boat when I bought it. I put them in a drawer to keep them out of the way. It will only take a minute for me to find one."

Fire extinguishers must be at your fingertips to be of any use in fighting a fire. If you need to go looking for them once a fire has started, you will waste precious time during which the fire may grow quickly out of control and your boat could be lost.

The U.S. Coast Guard (USCG) has regulations for what it feels is the absolute minimum number of extinguishers the average boat of any length needs onboard. Is that adequate? Neither the National Fire Protection Association (NFPA) nor the American Boat and Yacht Council (ABYC) believes that it is. They both recommend at least one more extinguisher above the USCG minimum. For instance, on any boat 40 feet and over, but not over 65 feet in length, ABYC and NFPA recommend at least 4 extinguishers. Boats 26 feet to under 40 feet in length should have at least 3 extinguishers, and boats under 26 feet should have at least 2 portable fire extinguishers. Note: ABYC and NFPA standards mirror USCG regulations for boats 65' and longer.

Think about where a fire is most likely to occur on your boat. If you thought of the engine compartment or galley, you're right. So it makes the most sense to mount your fire extinguishers near these areas. The best locations to mount extinguishers are in areas aft of the engine

compartment (cockpit area); forward of the engine compartment (accommodation areas); outside the engine compartment (not inside it); in the galley area; and at the helm. By doing this, you should be able to grab an extinguisher before you reach the location of a fire.

ACE's staff of marine surveyors are available to answer questions regarding the size and number of extinguishers you should have onboard your particular size of boat.

## Choosing an Extinguisher

Now that you know the best places to mount your extinguishers, you need also to confirm that you have the correct type onboard to fight the classes of fires found on a boat.

Fires are classified A, B, C, D & K depending on what materials are burning. Class A – wood, fabric, paper and plastics; Class B – flammable liquids; Class C – electrical; Class D – combustible metals; and Class K – cooking oils and greases such as animal and vegetable fats. Boats contain materials that are mainly included in Classes A, B and C. For this reason, ABYC and NFPA recommend type ABC extinguishers except when the extinguisher is specifically intended for machinery space protection. In that case, the extinguisher can be type BC.

The most common extinguisher and the most recommended for use on boats is dry chemical. Other options include carbon dioxide (CO<sub>2</sub>) and halogenated or clean agent. CO<sub>2</sub> extinguishers are heavy and usually found as fixed systems inside engine compartments. Halogenated or clean agent extinguishers include the halon agents as well as the newer and less ozone-depleting halocarbon agents.

Certain types of extinguishers are designed to be mounted in enclosed machinery spaces and discharge automatically or remotely when a fire is detected. These "fixed extinguishing systems" quickly and safely extinguish a fire without opening hatches, and thereby exposing the fire to additional oxygen. The fast response of these extinguishers often minimizes the damage when a fire occurs in an enclosed space.

Any extinguisher you choose should be noted as for use in marine applications. Make certain the label includes "Marine Type USCG" and is listed or approved by a recognized independent testing laboratory such as UL, FM or CSA.

# Inspection and Maintenance

## Inspection and Maintenance

Once you have the appropriate number and type(s) of extinguishers mounted in the correct locations, you're off to a good start.

Extinguishers need routine inspection and maintenance like everything else on your boat, and you can't expect them to work properly if you haven't performed these duties regularly and as instructed. You can perform extinguisher inspections as part of your monthly routine inspection process.

An inspection is a quick check to visually determine that the extinguisher is properly placed and will operate when deployed. Maintenance, as distinguished from inspection, means a complete and thorough examination of each extinguisher.

An inspection is a check to visually determine that the extinguisher:

1. is in its designated place;
2. is conspicuous;
3. is readily accessible;
4. has not been activated or emptied (partially or completely);
5. has not been tampered with;
6. has not sustained any obvious physical damage or been subjected to corrosion; and
7. if equipped with a pressure gauge and/or tamper indicators, that each shows the condition to be satisfactory.

A maintenance check involves disassembling the extinguisher and:

1. examining all its parts;
2. cleaning and replacing any defective parts;
3. reassembling and recharging.

Maintenance should only be performed by fire equipment contractors. Your marina should be able to provide the names of local fire extinguisher maintenance contractors, and the typical maintenance cost in your area.

## Inspection and Maintenance Tips

- Dry chemical extinguishers should be inspected monthly and should also undergo an annual maintenance check.
- Dry chemical extinguishers should be frequently removed from their brackets and shaken to make sure the powder is free flowing and is not caked. Striking the bottom of the extinguisher with a hand or soft mallet can help loosen the powder.
- Carbon dioxide and clean agent extinguishers present a challenge since weighing them is the only way to determine if they are fully charged. Semi-annual weighing is advised.
- Non-rechargeable Halon extinguishers needing service should be returned to the manufacturer or a qualified servicing company for recovery of the Halon.
- Each extinguisher should have a tag attached indicating the date of the last thorough maintenance check.

## ABCs of Portable Fire Extinguishers

Class of Fire	Extinguishing Agent	Size	Discharge Time	Directions for Use
<p>ORDINARY COMBUSTIBLES</p>  <p>Wood, cloth, paper, rubber, many plastics, and other common materials that burn quickly</p>	<ul style="list-style-type: none"> <li>• Tri-class (ABC) Dry Chemical</li> <li>• Water should be used on Class A fires ONLY!</li> </ul>	2 1/2 - 10 lb.	8-25 sec.	<p>1. Pull Pin      2. Aim at Base of Fire</p>  
<p>FLAMMABLE LIQUIDS</p>  <p>Gasoline and other flammable liquids, oil, grease tar, oil-based paint, lacquer and flammable gas</p>	<ul style="list-style-type: none"> <li>• Tri-class (ABC) Dry Chemical</li> <li>• Regular (BC) Dry Chemical</li> <li>• Carbon Dioxide</li> <li>• Halon</li> </ul>	5-10 lb.	8-12 sec.	<p>3. Squeeze Handle      4. Sweep Side to Side</p>  
<p>ELECTRICAL EQUIPMENT</p>  <p>Energized electrical equipment, including wiring, fuse boxes, circuit breakers, machinery and appliances</p>	<ul style="list-style-type: none"> <li>• Tri-class (ABC) Dry Chemical</li> <li>• Regular (BC) Dry Chemical</li> <li>• Carbon Dioxide</li> <li>• Halon</li> </ul>	1-7 lb. 9-14 lb.	8-15 sec. 10-15 sec.	<p>Most portable extinguishers work this way. Read and follow the directions on your extinguisher.</p> <p><b>Check your extinguisher frequently!</b></p>

# Using a Portable Fire Extinguisher

Once a fire starts there is little time for experimentation, and improper use may injure the operator as well as delay putting out the fire. During your inspection and maintenance routine, read the instructions for use printed on the extinguisher. A good acronym to help you remember the proper use of an extinguisher is P.A.S.S., which stands for:

## **P**ull the pin at the top of the extinguisher.

The pin releases a locking mechanism and will allow you to discharge the extinguisher.

## **A**im at the base of the fire, not the flames.

This is important! In order to put out the fire, you must extinguish it at its source.

## **S**queeze the handle slowly.

This will release the extinguishing agent in the canister. If the handle is released, the discharge will stop.

## **S**weep from side to side.

Using a sweeping motion, move the fire extinguisher back and forth until the fire is completely out. Operate the extinguisher from a safe distance, several feet away from the fire, and then move closer towards the fire once it begins to diminish.

Be sure to read the instructions on your fire extinguisher, and please keep in mind that different fire extinguishers recommend different distances from which to operate and fight the fire.

**Dry chemical extinguishers** usually have a locking mechanism which must be released. Aim the extinguisher at the base of the fire and squeeze the operating lever. Attack the fire near the edge and move toward the back of the fire while sweeping the nozzle rapidly from side to side. Do not point the initial discharge directly at the burning surface because the high velocity of the stream can splash and scatter the burning material, making things worse.

**Carbon dioxide and Halon extinguishers** usually require two hands to operate. Hold the cylinder upright and remove the locking pin. Squeeze the operating lever and aim at the base of the fire. Sweep slowly across the fire. Repeat in spurts several times, even after the flames are extinguished, to avoid reignition. The gas rushing out of a CO<sub>2</sub> extinguisher is loud and may catch you off guard if you are not expecting it.

## In Case of Fire at Sea

You are enjoying a great day of boating when someone smells smoke. How you handle the situation will affect the ultimate safety of you and your passengers, and the outcome for your vessel.

1. Shut down all systems. Of course, there are exceptions such as when you are making a passage through a narrow, tricky channel, but the quicker you can shut down the better. You are now dead in the water, so move quickly and deliberately.
2. Grab your extinguisher.
3. Assemble everyone on the bow with life jackets on and don't neglect to put on your own.
4. Assign someone to immediately radio a Mayday. It is best if the Mayday procedure is posted near the radio.
5. Give your position, name of vessel, type of vessel, number of people aboard and the status of the situation.
6. Keep giving continual updates on your situation until you no longer need assistance.
7. Feel all hatches before opening when you are looking for the fire. If hot, do not open.
8. If you can safely approach the fire, use the nearest fire extinguisher and begin putting out the fire. Remember the acronym P.A.S.S. Pull the pin. Aim at the base of the fire. Squeeze the handle and Sweep from side to side.
9. If the fire is located inside an enclosed machinery space, discharge the clean agent extinguisher (CO<sub>2</sub>, Halotron, etc.) through the fire extinguisher access port, usually a 3" to 4" opening, or the smallest opening available. If you are not sure the fire is out, discharge another extinguisher before opening the hatch. Note: Once you open the hatch, the incoming air can provide oxygen to reignite or feed the fire.
10. Always try to be on the outboard side of the hatch when you open it. This way, if it does flash or explode, you are closest to the water. Remember, you are wearing your life jacket.

Many fires on boats are small and can be contained easily but never take chances. Fires that start small can grow large very quickly because there is so much to burn onboard.

Every fire at sea is dangerous, and all have the potential to be disastrous. With the proper equipment, maintenance and safety precautions, you can be prepared to fight an onboard fire.

## Smoke Detectors

While it is vitally important to have the proper fire extinguishing equipment onboard your boat – and have the knowledge of how to use it properly in an emergency – the rapid and early detection of a fire is paramount in successfully containing and extinguishing boat fires. To do this, you need at least one and preferably more functioning smoke detectors onboard, installed outside the vessel's sleeping area and/or the main cabin. If there are doors to individual sleeping spaces, it would be prudent to install an alarm inside each space as well.

Whether individuals sleep onboard or not, these alarm(s) could warn not only people who may be onboard the boat, but may also warn people in the marina of a potential problem onboard when the boat is docked and unattended.

The National Fire Protection Association (NFPA) has required smoke detectors on boats 26 feet and greater with accommodation spaces since 2004. These detectors can be hard-wired or a battery operated version, but they should all be listed by Underwriters Laboratories (UL). Smoke alarms shall meet ANSI/UL 217, Standard for Single and Multiple Station Smoke Alarms, as it applies to "Smoke Alarms for Use in Recreational Vehicles" (visit [UL.com](http://UL.com) for more information), or be listed for marine applications.

Smoke detectors should also meet the standards of ANSI/UL 268, Smoke Detectors for Fire Protection Signaling Systems, or be listed for marine applications.

Generic smoke detectors designed for use in your home may work onboard for a short time but they are not designed nor intended to hold up in the harsher marine environment. Smoke detectors that are UL Listed for Recreational Vehicles are designed to withstand the environment found on most boats. (UL has recently adopted a standard for Marine Smoke detectors which mirrors the one for Recreational Vehicles however none are currently being manufactured with this specific Marine standard.)

You should consult the manufacturer's instructions for proper placement and number of smoke detectors for your particular boat size.

## Carbon Monoxide Detectors

Some manufacturers of smoke alarms also sell carbon monoxide detectors/alarms and have combined them into single units designed to sound an alarm whenever smoke or carbon monoxide is detected. Both NFPA 302 and ABYC require carbon monoxide detectors on gasoline powered vessels, thus consideration should be given to installing such a combination unit if your vessel meets the prerequisites.

## Inspection and Maintenance

Remember, both smoke and fire detectors need maintenance and inspection on a regular basis, as do your fire extinguishers. Please pay particular attention to battery operated units and ensure the batteries are charged and functioning on a regular basis. A good practice is to conduct a monthly "push button" test of these alarms. Also, semi-annual replacement of batteries is recommended, in the Spring and Fall when daylight saving changes occur, similar to what one would do with home-installed smoke detectors.

# General Procedures to Process Claims

If the worst should occur and you do experience an onboard fire, with a loss to your vessel or an injury onboard, the following steps should be taken to process an insurance claim:

1. For the record, photograph the damaged vessel or property and make a list of all damages and suspected problems. If the vessel or property is in danger of suffering further loss, take all necessary steps to preserve and prevent further damage. Do not begin repairs other than those necessary to prevent further damage.
2. Promptly call your insurance agent or insurance company to report the loss. Estimate the percentage of damage, i.e., cosmetic, water damage, total loss, etc.
3. Contact repair yards and/or contractors to obtain estimates for repairs. You do not have to wait for an adjuster/surveyor to get estimates.
4. An adjuster, insurance company surveyor or independent surveyor acceptable to the insurance company will be instructed to survey the damages. A boat owner can elect to hire a second surveyor, at his own cost, to conduct an independent survey of the vessel. The boat owner should arrange to accompany the surveyor on the initial damage survey.
5. Have your inventory list, receipts, inventory pictures, photos of damages and repair estimates ready for inspection by the adjuster/surveyor. You will need to provide both a “proof of loss” and “release/payment order.”
8. In the event of a dispute, the boat/property owner may hire a second surveyor/adjuster, at the owner’s expense, to represent the owner’s side of the dispute. A third party will be designated to listen to both sides and arrive at a decision.
9. If the boat/property owner agrees on the estimates and the company designated to do the repairs, the insurance company issues a check with both the repair firm and owner/mortgagee listed as payees on the check.
10. When the work is completed to the owner’s satisfaction and approval, the check is co-signed and the repair firm is paid.
11. If a total loss of a vessel exists, a check is issued by the insurance company to the boat owner and mortgagee – usually for an amount equal to the agreed value, or the fair market value of the vessel.
12. In the event of a total loss, be prepared to surrender the vessel’s documentation papers and/or title, original insurance policy, any remaining equipment and the damaged vessel itself.

Promptly call your insurance agent  
to report the claim or loss.

6. After conducting the survey, the adjuster/surveyor files a damage report with the insurance company, and sends a copy to the boat/property owner, if required.
7. The boat/property owner files a statement of loss with the insurance company explaining what took place, when, where and why. It includes specific lists of known damages along with sketches or drawings.

## Remember!

If a vessel or property is insured and damages have occurred, a report of loss and/or damage should be made to the insurance agent and/or company as soon as possible. A telephone call will suffice to put them on notice. This should be followed up with a written notice. Provide all the details that you can on this first notice, such as:

- (a) exact location of vessel or property and accessibility;
- (b) structural condition of vessel, extent of property damage (e.g., holes in hull, major or minor damages);
- (c) did the vessel partially sink and is the machinery and/or interior wet? Was property flooded?
- (d) must the vessel be removed immediately; if so, to what location?

## Information Sources

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