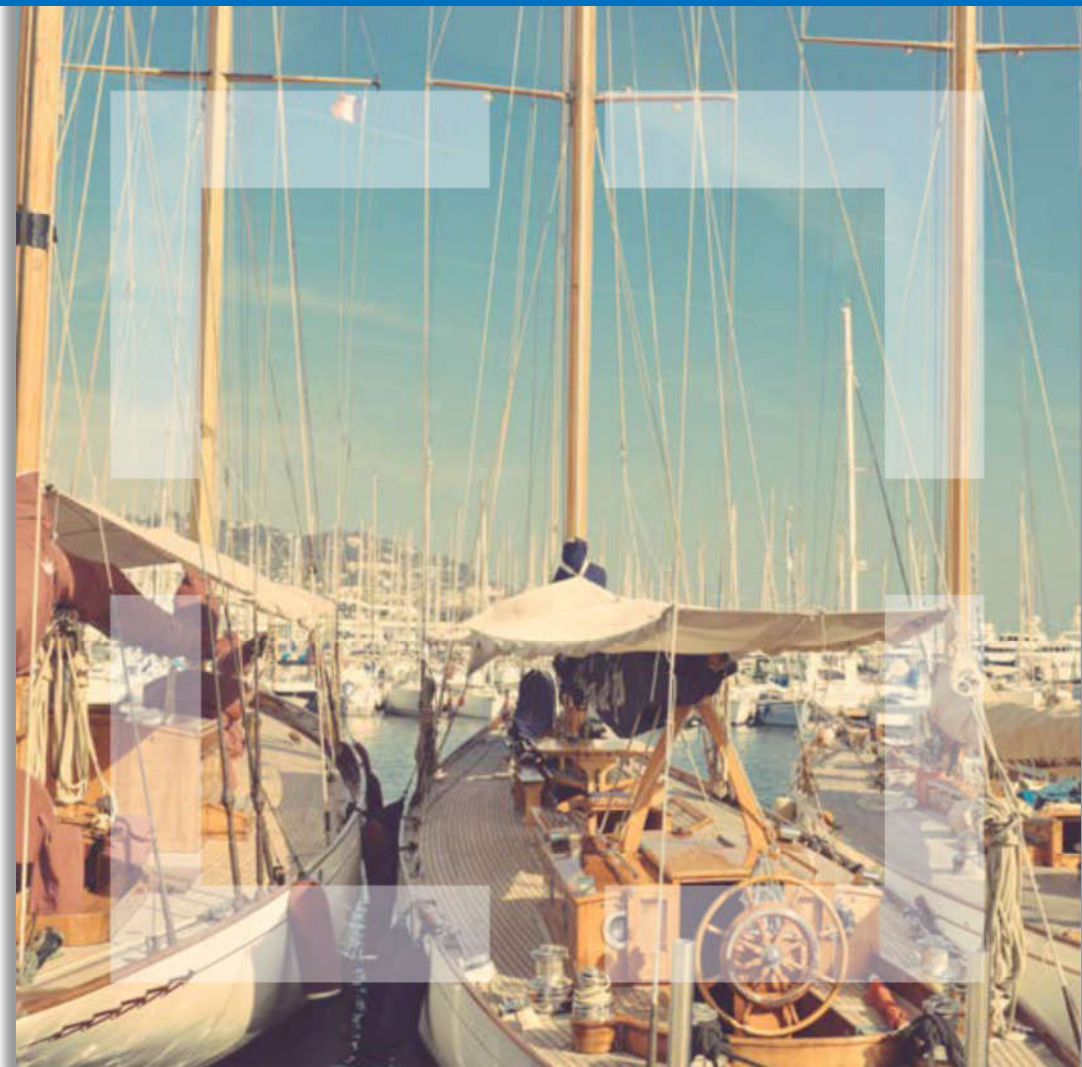




Fire safety in guest harbours and marinas

CFPA-E Guideline No 15:2022 F





The CFPA Europe develops and publishes common guidelines about fire safety, security, and natural hazards with the aim to achieve similar interpretation and to give examples of acceptable solutions, concepts, and models. The aim is to facilitate and support fire protection, security, and protection against natural hazards across Europe, and the whole world.

Today fire safety, security and protection against natural hazards form an integral part of a modern strategy for survival, sustainability, and competitiveness. Therefore, the market imposes new demands for quality.

These Guidelines are intended for all interested parties and the public. Interested parties includes plant owners, insurers, rescue services, consultants, safety companies and the like so that, in the course of their work, they may be able to help manage risk in society.

The Guidelines reflect best practice developed by the national members of CFPA Europe. Where these Guidelines and national requirements conflict, national requirements shall apply.

This Guideline has been compiled by the Guidelines Commission and is adopted by the members of CFPA Europe.

More information: www.cfpa-e.eu



Copenhagen, July 2022
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Contents

1	Introduction	4
2	Scope	4
3	Definitions.....	4
4	General recommendations	4
4.1	Generally	4
4.2	Fire risk assessment	5
4.3	Fire safety plan	5
4.4	Prevent the spread of fire between boats	5
4.5	Fire extinguishing equipment.....	5
4.6	Routines if a fire occur and if the fire risk is increased	6
4.7	Information to the guests	6
4.8	Training of the staff.....	6
4.9	Access for the fire brigade and other rescue units, water supply.....	7
5	Fuel stations.....	7
5.1	Generally	7
5.2	Regulations.....	7
5.3	Fire safety precautions.....	7
5.4	Training of the staff.....	8
6	Yards for on land storage of pleasure boats	8
7	Reference Publications	8
	European guidelines	9

Key words: harbour, yacht, marina

1 Introduction

Fires and explosions in pleasure boats are feared incidents. Especially on board a boat with limited evacuation possibilities, a fire might cause tragic consequences.

The elements of risk in such premises consist mainly of highly combustible materials, storage, and use of flammable gas for cooking and heating and storage of fuel for the machinery.

So far, the European communities have been spared for devastating fires in guest harbours and marinas, but incidents and fires occur and the risk of a serious fire with fire spread between boats cannot be excluded. The risk also includes danger of injuries and fatalities.

2 Scope

The guideline is primarily intended for the public. It is also aimed at the rescue services, consultants, safety companies and the like so that, in the course of their work, they may be able to help increase fire safety in society.

This guideline is meant for guest harbours/marinas for yachts and leisure boats and yards for on land storage of boats. We will use the word "marina" generally in this guideline. On land storage in this context is limited to storage of one-by-one boat on scaffolds and poles. Storage in "boat hotels" is in buildings and should be treated accordingly.

The aim of this guideline is to prevent injuries, loss of life and loss of property in fires on board pleasure boats or in marinas. It will recommend fire precaution measures taken by the owner of the harbours and measures the boat owners may take to protect themselves from fires and explosions when they are visiting a harbour.

These precaution rules will also be useful to prevent fires in boats out on the sea.

This guideline does not cover restaurants and similar buildings that may occur on a marina.

3 Definitions

Guest harbour: Harbour where pleasure boats may come at anchor and stay overnight. The guest harbour often have a reception, toilets, showers, fuel station and kiosks. The guests must pay a fee for the service.

Marina: Marinas offers more extended service than guest harbours. Marinas often offers services like repairs, yacht charter, long-time renting of berths, lifting, launching and storage on land.

Leisure boat: A boat or yacht to be used for leisure time, weekends, and holidays.

4 General recommendations

4.1 Generally

Pleasure boats are mostly made of combustible plastic. Flammable liquids and gases are present in the form of fuel. Electrical installations are becoming more complex in modern boats with batteries

that are difficult to extinguish in case of fire. In combination, this means that the risk of fire can be great and needs to be managed. The owner of the marina is responsible to provide sufficient firefighting equipment easy to access and easy to find.

4.2 Fire risk assessment

The staff of the marina should perform a risk analysis for the marina, which includes fires, drowning and other accidents. The risk assessment should also deal with precautions on how to prevent fires and other accidents in the harbour. The result of the fire risk assessment should be a fire safety plan, see next chapter 4.3.

4.3 Fire safety plan

The fire safety work should include a fire safety plan which documents the location of fire-fighting equipment, routines for the checking of equipment, access for the fire brigade and routines if a fire should occur, for example how to move boats in case of a fire.

The intention of fire safety plan in this guideline is to reduce the risk of fire spread to neighbouring boats and reduce the consequences if a fire occurs. Fires in marinas happens mainly in the boats and people are injured due to fires in their boats. It is therefore the boat owner, who can reduce the risk of a fire in his boat by preventing fire and having relevant fire-fighting equipment on board. The greatest risk for fire spread between boats is when boats are unmanned or at night when people are sleeping and the time for discovering and fighting the fire is delayed.

The responsible staff at the marina should undertake different fire precaution tasks to achieve a good fire protection. The following general recommendations will deal with the most important tasks. For further information see also Guideline No. 1-F "*Fire protection management system*".

4.4 Prevent the spread of fire between boats

In a marina the boats should be placed in a way that the spreading of a fire can be stopped, boats should be able to move if a fire occurs.

Berthing alongside other boats makes it difficult to reduce the number of boats, as it in principle is possible to continue to berth boats outside each other if there is space in the harbour. This may complicate the access with fire equipment from the quay and delay the moving of boats away from the fire. The staff may have to find other solutions for arriving boats if the harbour tends to get crowded.

It is often difficult to create a sufficient distance between the boats also where they are berthed direct to the quay and therefore the number of boats in one section should be reduced. Where boats are berthed with the bow or the stern against the quay, especially in marinas where many boats are unmanned, it can be necessary to make a partition at each 40 meters. The partition should make a free distance of at least five meters or about two boat-widths.

A safe distance may also be obtained by using minor piers with moorings only for about 12-15 boats, or for bigger piers make fixed distances between the boats by using so called Y-booms.

4.5 Fire extinguishing equipment

The marinas fire extinguishers should be placed so that they are available to all boat crews. Fixed fire hose reels are recommended in harbours containing 80 boats or more. The equipment should be placed with good visibility at each pier and in connection with a reception or a service-establishment. It might if possible be placed together with other equipment for life saving or emergency.

The distance between the equipment and the boats should normally not exceed 25 m.

Marinas, which from time to time are visited by a great number of boats which makes the required berthing complicated should be equipped with additional extinguishers and/or establish night watch.

Boats, which are used for overnight accommodation should have smoke alarms and fire extinguisher installed.

Fixed fire hose reels should have a capacity of at least 50 l per min. with a pressure of 0,6 Mpa.

Portable fire extinguishers should be of dry powder type with a content of at least 6 kg.

The equipment should meet the national requirements and standards.

4.6 Routines if a fire occur and if the fire risk is increased

Written instructions on what routines apply in the event of a fire must be available to staff. These instructions should contain how to:

- Alert the guests in their boats,
- alert the fire brigade,
- move the boats,
- fire fighting,
- reduce the damage.

The staff should also have routines for the cases where the fire risk is increased by too many boats in the harbour. In these cases, additional night watches should be established.

4.7 Information to the guests

Information should also be available to the guests in the marina. Information about fire prevention, fire response, where to find fire extinguishing equipment and other emergency information.

4.8 Training of the staff

The responsible staff of a marina should be trained in:

- How to prevent fires, explosions, and other accidents,
- how to act if a fire or an explosion should occur and to alert and rescue the guests,
- how to alert the fire brigade,
- how to operate the fire hoses and extinguishers.

A risk analysis should be performed, and an emergency plan should be established, and exercises and training should be made twice every year. The analysis should contain all the above mentioned subjects and point out where the risk for a fire or other accidents is most probable. Measures to reduce the risk should be considered.

Fire safety signs referring to emergency equipment, assembly points, fire alarms, phone number to emergency units, etc. must be placed round about the plant.

A documentation containing all control points and how they are fulfilled should be prepared and kept for the supervision of the authorities.

4.9 Access for the fire brigade and other rescue units, water supply

If a fire or accident should occur, it is important that the fire brigade have a good access to every part of the marina. Consult the fire brigade to get the necessary information about the width, height and axle load of their fire engines and the minimum swing radius they can manage. On the plant there must be arranged for places where the vehicles can be lined up.

The access routes must be free of obstacles and parked cars.

It is also important to decide the maximum distance to the water supply (hydrants or cistern). The water supply must give the necessary quantity of water and pressure.

5 Fuel stations

5.1 Generally

In a fuel station, you can refuel the boat with gasoline or diesel. It might also be possible to access propane bottles for cooking or heating appliances.

5.2 Regulations

The design of fuel stations and handling of flammable liquids and gases are regulated by European and national legislation. Experts in this area should be consulted when any repairs or maintenance work should be performed in these premises.

5.3 Fire safety precautions

The same fire safety precautions mentioned above in chapter 4.3 are also valid for fuel stations. In addition, the following precautions should be taken into consideration:

- Everybody staying at a plant for fueling is obligated to act carefully to prevent fires and explosions.
- Everybody is obligated to act in accordance with displayed instructions.
- The responsible personnel should verify that the plant satisfies the respective regulations.

Boats should be moored in a way so that it quickly can be moved in an emergency. Other boats should wait for a free space before entering the fuel station.



Fuel station for boats in Lyngør Norway

5.4 Training of the staff

Except what is described in chapter 4.8, the staff working at a fuel station shall have a basic knowledge about the fire-risk related to fueling of boats and what measures that should be undertaken to minimize the risks. It is mandatory that the responsible staff knows the regulations very well and realize the commitment, which follows the rules

6 Yards for on land storage of pleasure boats

On land storage in this context is limited to storage of one-by-one boat on scaffolds and poles. Storage in "boat hotels" is in buildings and should be treated accordingly.

The storage shall be inspected by staffs responsible for the storage prior to approval of the storage of each boat. The inspection shall ensure the removal of any gas canister and portable fuel can, that batteries are disconnected and that fixed fuel containers are either empty and ventilated or at least 95% full.

Hot work shall only be performed by persons trained for the activity and accordingly to national regulations.

Unattended battery charging shall not be permitted.

The distance between the boats should preferably be 4m. The boats should be in blocks of 30 boats each and with 8 m between the blocks. The distance between any boat and any building should be minimum of 8 m.

Fire extinguishing equipment should be in every block of 30 boats in an easy visible and accessible location.

The owners of such yards should consult the official fire brigade to establish the needed access routes of the fire brigade.

7 Reference Publications

- Statens Räddningsverks allmänna råd om brandskydd i gästhamnar, SRVFS 2006:3.
- Direktoratet for samfunnssikkerhet og beredskap (DSB): Campingplasser og gjestebåthavner.(Camping sites, Marinas and Guest Harbours).
- The Norwegian Building Regulations
- The Norwegian Fire Regulations
- Brannskydd i samband med landförvaring av fritidsbåtar. Rapport 5295. Lunds Tekniska Högskola, Lunds Universitet. 2009

European guidelines

Fire

- Guideline No 1 F - Internal fire protection control
- Guideline No 2 F - Panic & emergency exit devices
- Guideline No 3 F - Certification of thermographers
- Guideline No 4 F - Introduction to qualitative fire risk assessment
- Guideline No 5 F - Guidance signs, emergency lighting and general lighting
- Guideline No 6 F - Fire safety in care homes
- Guideline No 7 F - Safety distance between waste containers and buildings
- Guideline No 8 F - *withdrawn*
- Guideline No 9 F - Fire safety in restaurants
- Guideline No 10 F - Smoke alarms in the home
- Guideline No 11 F - Recommended numbers of fire protection trained staff
- Guideline No 12 F - Fire safety basics for hot work operatives
- Guideline No 13 F - Fire protection documentation
- Guideline No 14 F - Fire protection in information technology facilities
- Guideline No 15 F - Fire safety in guest harbours and marinas
- Guideline No 16 F - Fire protection in offices
- Guideline No 17 F - Fire safety in farm buildings
- Guideline No 18 F - Fire protection on chemical manufacturing sites
- Guideline No 19 F - Fire safety engineering concerning evacuation from buildings
- Guideline No 20 F - Fire safety in camping sites
- Guideline No 21 F - Fire prevention on construction sites
- Guideline No 22 F - Wind turbines – Fire protection guideline
- Guideline No 23 F - Securing the operational readiness of fire control system
- Guideline No 24 F - Fire safe homes
- Guideline No 25 F - Emergency plan
- Guideline No 26 F - withdrawn*
- Guideline No 27 F - Fire safety in apartment buildings
- Guideline No 28 F - Fire safety in laboratories
- Guideline No 29 F - Protection of paintings: transports, exhibition and storage
- Guideline No 30 F - Managing fire safety in historic buildings
- Guideline No 31 F - Protection against self-ignition and explosions in handling and storage of silage and fodder in farms
- Guideline No 32 F - Treatment and storage of waste and combustible secondary raw materials
- Guideline No 33 F - Evacuation of people with disabilities
- Guideline No 34 F - Fire safety measures with emergency power supply
- Guideline No 35 F - Fire safety in warehouses
- Guideline No 36 F - Fire prevention in large tents
- Guideline No 37 F - Photovoltaic systems: recommendations on loss prevention
- Guideline No 38 F - Fire safety recommendations for short-term rental accommodations
- Guideline No 37 F - Fire protection in schools
- Guideline No 38 F - Fire safety recommendations for short-term rental accommodations
- Guideline No 39 F - Fire protection in schools
- Guideline No 40 F - Procedure to certify CFP-A-E Fire Safety Specialists in Building Design

Natural hazards

- Guideline No 1 N - Protection against flood

10 GUIDELINE No 15:2022 F

- Guideline No 2 N - Business resilience – An introduction to protecting your business
- Guideline No 3 N - Protection of buildings against wind damage
- Guideline No 4 N - Lighting protection
- Guideline No 5 N - Managing heavy snow loads on roofs
- Guideline No 6 N - Forest fires
- Guideline No 7 N - Demountable / Mobile flood protection systems

Security

- Guideline No 1 S - Arson document
- Guideline No 2 S - Protection of empty buildings
- Guideline No 3 S - Security systems for empty buildings
- Guideline No 4 S - Guidance on keyholder selections and duties
- Guideline No 5 S - Security guidelines for museums and showrooms
- Guideline No 6 S - Security guidelines emergency exit doors in non-residential premises
- Guideline No 7 S - Developing evacuation and salvage plans for works of art and heritage buildings
- Guideline No 8 S - Security in schools
- Guideline No 9 S - Recommendation for the control of metal theft
- Guideline No 10 S - Protection of business intelligence
- Guideline No 11 S - Cyber security for small and medium-sized enterprises



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