



ADVANCED FIREFIGHTING STUDY GUIDE





Advanced Firefighting

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Time	Day 1	Day 2	Day 3	Day 4
8:00 AM	<p>Introduction to Resolve Academy</p> <p>Basic Review</p> <p>SOLAS/IMO</p> <p>Ships Construction</p>	<p>Gear Issue</p> <p>Walkthrough</p> <p>S.C.B.A.</p> <p>Search & Rescue</p> <p>Hose handling</p> <p>Foam inductor</p>	<p>Fire Scenario 1 Fire in the ECR room</p> <p>Debrief</p> <p>Fire Scenario 2 Fire in the ECR with one missing person</p> <p>Debrief</p>	<p>Stability & Damage Control</p> <p>Fire Investigation</p> <p>Crew Drills</p>
12:00	Lunch	Lunch	Lunch	Lunch
13:00	<p>Tactics and Strategy</p> <p>Fire Control Plans</p> <p>Pre-Fire Planning</p>	<p>Topside Burn</p> <p>Burn Demo</p>	<p>Fire Scenario 3 Fire in the ECR room with Fire team relief</p> <p>Debrief</p> <p>Fire Scenario 4 Top deck fuel fire with extension into the ECR room. In addition, one person is missing from Muster.</p>	<p>In-Port Fire Fighting and Interface with Shore-Based Firefighters</p> <p>IMDG Code</p> <p>Inspection and servicing of Fire Equipment</p> <p>Yachts</p>
				Final Exam

USCG/MCA Advanced Firefighting Study Guide

Minimum Standards

1. List 3 major classification societies.

DNV/Lloyds/ABS

2. Name the two Flag State Agencies.

U.S.C.G. & MCA

3. What does STCW stand for?

Standards of Training, Certification & Watchkeeping

4. What are the 3 types of vessel designations recognized by SOLAS?

Passenger/Tanker/Cargo

5. Fire resistant ratings for bulkheads are found in what chapter of SOLAS?

SOLAS-CH-II-2

6. What is the meaning of a class A-60 Division?

Class A rated doors or bulkheads rated to withstand heat and smoke for 60 minutes

7. When & why was S.O.L.A.S. established?

Est. 1914 due to the 1912 Sinking of the Titanic

8. MARPOL is:

Marine Pollution from ships

9. The IMO regulation (SOLAS regulation 10.10.4) requires all new ships from 1st July 2014 to equip their firefighting teams with at least two of these?

Portable Radios

Vessel Types, Construction and Arrangement

1. What are the three Categories of vessels?

Passenger, Cargo, Tankers

2. List the 3 most common construction materials.

Steel / Aluminum / Composite

3. An opening that allows movement between main vertical zones above the main deck is known as?

Fire Doors

4. An opening in a bulkhead that allows movement between subdivisions below the main deck level is known as?

Watertight Doors

5. After a passenger vessel is classified, it must meet the requirements of special, intensive surveys conducted when?

Every Year

6. Class A bulkheads that extend vertically from top to bottom to hold back heat; smoke & flooding water are referred to as?

Main Vertical Zones

7. What are the two “Rated” bulkhead configurations? What class bulkhead is recognized but is not rated?

Class A & Class B Class C is not rated

8. Stairways and Escape Trunks are protected by what Class bulkheads?

Class A-60

9. On a Container ship loaded by crane(s), where are Shipping containers displaying Hazardous Materials placards supposed to be stowed?

Above the main Deck and away from the superstructure

10. What does the ship designation RORO indicate?

A vessel that has ramps and decks to drive motorized vehicles on and off for transport. Roll-off, Roll-off

11. What does the designation T.E.U. mean regarding container vessels?

Twenty-foot equivalent unit

12. Regarding Bulk Carriers, what does the term geared mean?

The vessel has its own means of transferring cargo. (E.g. cranes, screw augers)

13. Describe a Watertight Door’s purpose.

Holds water both in and/or out

14. Describe a Weathertight Door's purpose.

Keeps out rain, sea spray, rough waves

15. Describe a Fire Door's purpose?

To block access to areas that are not suitable emergency exits such as elevators

16. The recommended procedure for opening an individually dogged door that may have pressure behind it is to first release what?

Hinged side dogs top & bottom when present

17. When opening a door that is hot to the touch, what three disciplines must we keep in mind?

Cool the door, stay out of the swing path of the door, take a position opposite the hinge side of the door

18. What are the characteristics of a Class 3 watertight door?

Class 3 doors can be operated closed from the bridge

19. The ventilation system that serves the car decks on a Car Carrier is mainly to do what?

Exhaust CO from the spaces during loading and offloading internal combustion motorized vehicles

20. When controlling ventilation should smoke be pushed through or pulled from the ship?

Pulled from the ship

21. Upon recognition of a fire onboard, ventilation should be:

Secured, shut down and isolated

22. What is the purpose of Fire Stop Insulation for cable runs that penetrate through a rated bulkhead?

Stop the extension of heat and fire gasses by filling in the void with the same rating as the bulkhead

Fire Behavior

1. The most hazardous part of smoke is what?

Carbon Monoxide

2. What are the 4 elements of the fire tetrahedron?

Fuel/Heat/oxygen/Chemical Chain Reaction

3. What are the most suspect areas of the ship concerning fire?

Galley, Engine Room, Laundry Room

4. What are the leading causes of fires onboard ships?

Hot Work, Poor Housekeeping, Spontaneous Combustion, Fuel Transfer

5. What's the leading cause of laundry room fires aboard marine vessels?

Improper cleaning of lint traps

6. Flaming combustion cannot be supported below what oxygen concentration?

16%

7. The transfer of heat from one body to another body by direct contact is known as:

Conduction

8. A hand held a few inches above a flame feels the heat by:

Convection

9. A hand held a few inches to the side of a flame feels the heat by:

Radiation

10. When a fuel reaches a temperature high enough to produce enough flammable vapor to flash but not sustain fire is what point?

Flash Point

11. Temperature at which fuels produce vapors sufficient to support continuous combustion once ignited by an outside source is known as:

Fire Point

12. The minimum and maximum percentage of a substance in air that burns once it is ignited is known as:

Flammable Range

13. Another name for a small fire in the ignition or growth stages is:

Incipient

14. The tendency of gases to form layers according to their temperature is known as?

Thermal Layering

15. A condition that occurs when flames move through or across unburned gases during a fire's progression is known as:

Rollover

16. An explosive ignition of gases that results when air enters a compartment and mixes with hot, unburned gases is known as.

Backdraft

17. What are the North American classifications for fire? What are European classifications?

A/B/C/D/K A/B/C/D/E/F

Boundary Cooling/Stability

1. Boundary cooling is intended to provide adequate water to:

Help prevent failure of the ship's structure

2. What is the term used to describe the vessel's ability to return to an upright position when heeled by an external force?

Stability

3. An upward force perpendicular to the surface of the water and equal to the weight of water displaced by the vessel is:

Buoyancy

4. What does the term freeboard reference?

Water line to upper most complete deck

5. The tendency of a liquid to remain level in a compartment as a vessel inclines or heels:

Free Surface effect

6. The free surface effect of loose liquids anywhere in a vessel impairs stability by decreasing the:

Metacentric height

7. How often should crewmembers measure liquids in all compartments, including void spaces and cofferdams?

Once Daily

8. How often is the ships draft checked? The draft markings are how big? The distance between the markings is how much?

Daily / 6in / 6in

9. An internal force on a vessel causes this effect.

List (E.g. people evacuating to one side of the vessel, free surface water, cargo shifting)

10. What are the 3 general states of vessel stability?

Positive / Neutral / Negative

11. Every 100 GPM (379 L /min) of water flow adds _____ tons of seawater per hour.

25 tons

12. Setting/Designating a “Boundary” means:

Containing the fire heat and smoke to an area controlled by bulkheads, door and decks to stop fire extension.

Shipboard Organization

1. Who is responsible for the overall safety of the crew and passengers?

Master / Captain of the vessel

2. Who is responsible for sizes up of a fire?

On-scene commander

3. When does size up end?

When the event is over

4. What basic information is the On-Scene Leader responsible for when informing the Bridge?

Conditions (smoke, what's burning), Actions (what is being done),
Resources needed (additional help, hose line)

5. Who oversees the hose team if there is no hose team leader?

Nozzle Person

6. What is the purpose of the BA Controller position?

Responsible for monitoring the time on air & consumption of air for Fire
Fighting teams operating in a confined space

7. When is the Incident Command System utilized aboard ship?

During any emergency event, big or small

8. When is it important to change from an Incident Command System to a Unified Command System?

When you have multiple agencies involved

9. What determines which team serves as the primary fire attack team?

The location of the fire

10. Who is normally the on-scene leader for an engine room fire?

Chief engineer

11. What agency can assist with information and notifications during a shipboard emergency while in Port.

Coast Guard

Shipboard Firefighting

1. What is an offensive strategy?

Making entry into an affected space to address a fire

2. Planning for an incident considering attack, control & mitigation is referred to as:

Strategy

3. Executing a plan design for operating on a particular incident is considered:

Tactics

4. List the 5 parts of tactical priorities (R.E.C.E.O.) of your fire teams.

**Rescue, Exposure Protection, Contain/Control, Extinguish, Overhaul
When complete then Ventilate**

5. During an emergency, life safety is considered a what?

Priority

6. Protecting the vessel by addressing a fire may sometimes take priority over this procedure.

Search & Rescue

7. Search and rescue procedures in these types of vessels can be time consuming and labor intensive:

Passenger

8. This method of fire attack directs the stream of water directly at the seat of the fire:

Direct attack

9. This method of fire attack directs the stream of water above the fire to generate steam that cools the space:

Indirect attack

10. The key indicator for choosing a method of fire attack is usually determined by:

Stage of the fire

11. What is the first thing you should do before opening a door that may contain fire?

Check for heat

12. What are three things that should be done prior to opening a door that is hot to the touch?

Cool the door / take a position opposite the hinge side / stay out of the path of travel

13. This is the process of searching for and extinguishing remaining fire after the main body of fire has been extinguished.

Overhaul

14. Why would you use ventilation during a fire?

Remove heat and smoke / increase visibility

15. Dewatering procedures begin as soon as.

Free Surface water begins to build up on a deck

16. In the event of a fire, when should lifesaving appliances be ready to go?

At the onset of the event

17. The largest and most important responsibility during fire emergencies on passenger vessels is:

Crowd control

18. Which types of fires are most often encountered in engine rooms / machinery spaces?

Class B & C/Flammable liquid/Electrical

19. Stack fires are usually caused by:

Poor maintenance / and buildup of carbon deposits

Fire Investigations

1. What are the 4 categories of cause?

Accidental, Natural, Intentional, Undetermined

2. Fire Investigations are based on:

Facts & Evidence

3. Why are pictures taken on cell phones welcome evidence?

They provide, Time & Date Stamp

4. Evidence of an accelerant would be a _____ on water.

Hydrocarbon Sheen

5. It is important to maintain control of a fire scene by not _____ evidence.

Disturbing

Crew Training

1. This document states where each person is to go during a specific emergency and what each person's responsibilities are:

Muster List / Station Bill

2. What are priority assignments on the Muster List during a General Alarm emergency?

Fire, Medical, Man Overboard, Abandon ship

3. During a fire emergency, all crew members not present and accounted for during a muster are assumed to be:

Trapped / Injured or threatened by the fire

4. What is the international standard for General Emergency Alarm.

7 or more short blasts followed by one long blast of the ship's horn

5. What is the main purpose for fire drills?

Increases an individual's skill / Identifies weak spots/ Teamwork

6. Communications between members of a firefighting team should be:

Clear / Concise / Acknowledged / Timely

7. Drills onboard should be designed to be:

Realistic, Challenging, Safe

8. Crew members assigned to the fire party must be proficient with:

All PPE & firefighting equipment on board

Liaison with Shore-Based Firefighters

1. What percentage of ship fires occur while in port?

65%

2. Responding firefighters will first want to know if you have:

Accountability Anyone missing?

3. Responding firefighters will expect the captain to be where?

On the Bridge

4. What is the main concern around mooring lines?

Snap back

5. Where should the ship's Fire Control Plan be stored while in port?

At the base of the accommodation ladder or gangway

6. What is one way to connect fire hoses that have different type couplings?

International Shore Connection

IMDG CODE

1. When fighting a fire involving dangerous goods, what publication can be referenced to assist in the response action?

IMDG CODE- Emergency Schedules guide (ESG)

2. What are SDS sheets?

Safety Data Sheets

3. What does a placard on a shipping container indicate?

Hazardous Material

4. What are two important topics covered in the IMDG Code beyond Haz-Mat listings?

EMS Guide for First Aid, Reporting Procedures

5. The IMDG Code helps to ensure proper:

Secure packaging, correct marking & appropriate segregation of products

Fixed and Portable Fire Equipment & Systems

1. Sample of detectors and manual call points are required how often?

Monthly

2. Fire alarm panels are to be certified how often?

Annually

3. The secondary power system must make the detection and signaling system fully operational within _____ after the failure of the main power supply.

30 seconds

4. The minimum percentage of carbon dioxide needed to extinguish most Class B fires is:

34%

5. A carbon dioxide total flooding system for machinery spaces must discharge _____ percent of the total volume required to occupy the space within two minutes.

85 %

6. A time delay does what for a fixed CO2 system?

Sounds alarm / Shuts down Ventilation / Closes automatic dampers

7. MCA- CO2 Bottles for fix systems Hydrostatically tested every _____ years.

10 years

8. U.S.C.G – CO2 Bottles for fix systems Hydrostatically tested _____ years.

Every 12 years unless they have been discharged.

9. How often should the fusible link in a Wet Chemical suppression system be changed? Why?

6 months, subject to system load and fluctuations in heat

10. How often should fire pumps be run?

Monthly

11. How often are fire pumps flow tested?

Annually

12. MCA-How often is fire hose tested?

Sample testing annually and max time interval of 5 years

13. Coast Guard – How often is fire hose tested?

Annually

14. Most regulatory agencies require at least___ Fire pump(s) for most vessels.

2

15. AFFF Foam is effective on Class B fires because it does what?

Cools / Smothers and Separates

16. The process of mixing foam and water is called__. What other components are needed to make finished foam?

Proportioning, in-line foam eductor

17. What are the three (3) methods of applying a foam stream in a gentle application to prevent plunging or displacing burning liquid?

Roll-On / Bank down / Rain Down

Portable and Semi-Portable Fire Extinguishers

1. How often should a fire extinguisher be inspected?

Monthly

2. Fire Extinguishers require inspection by a licensed technician how often?

Annually

3. Dry Chemical Extinguishers extinguish a fire by:

Inhibiting/Interrupting the chemical chain reaction

4. Carbon dioxide extinguishers are effective in extinguishing which classes of fire, and at what range?

B / C and 3-5 feet (1-1.5m)

5. What's the best extinguishing agent for a grease fire in a galley?

Wet Chemical

6. When referring to portable extinguishers, what does P.A.S.S. stand for? (Add “T” for Test prior to “A”).

Pull / Aim / Squeeze / Sweep

7. What is the effective range of a pressurized water extinguisher?

40 Feet (12m)

Personal Protective Firefighting Gear

1. Firefighting protective clothing has how many layers and what are they?

3, Outer Shell, Moisture Barrier, Thermal Barrier

2. How often must fire-fighting (turn-out) gear be replaced?

Every 10 years

3. What NFPA code regulates fire-fighting gear?

NFPA-185

4. What are the three main components of an S.C.B.A.?

Backpack & Harness Assembly, Air Cylinder, Facepiece

5. At the very least, how often should an S.C.B.A. be inspected?

Weekly or after every use

6. Steel, Aluminum, & Carbon Fiber SCBA bottles should undergo hydrostatic testing every_____:

5 years

7. Should EEBDs be used for firefighting?

No, Escape Only

Fire Control Plans / Pre-Fire Planning

1. SOLAS requires that fire control plans be permanently displayed on the bridge and located where?

Outside the wheelhouse or adjacent to the gangway

2. What information would you find on a set of fire control plans?

Main Vertical Zones/Class A/B divisions/Fire Alarm/ Fire Sprinkler.....

3. Name three areas that would be a priority to pre-plan on a vessel.

Engine Room / Galley / Laundry Room / Paint Locker / Machine Shop

4. SOLAS requires fire control plans to be in the official language of the vessel's flag state and?

English

5. A plan for fighting fire that is worked out before a fire occurs is known as?

Pre-Fire Plan

6. All pre-fire planning should be based on a _____ scenario.

Worst case scenario



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7. How often should a pre-fire plan be tested?

Annually

8. A _____ is used to collect and organize pre-fire planning information.

Pre- Fire Survey Form

9. Construction considerations in performing a pre-fire survey should include what?

Classification Divisions
