LIFEBOAT

Passenger Ships 50% on each side

12.5% may be substituted by Liferafts

Atleast 37.5% should be lifeboats on each side

Launching appliances on each side.

For Passenger ships on short voyages, 30% lifeboat of the total number passengers,

and the remaining to be fulfilled by liferafts, with suitable launching appliances on each side.

Cargo Ships 100% on each side

Liferafts also 100% on each side.

If lighter liferafts which can be side to side transferred, then together on both sides 100%. If free fall lifeboat on aft. then 100%. additionally 100% liferafts each side with atleast one launching appliance on one side.

If less than 85mL ship, no need of lifeboat. Then Liferafts 100% on each side which can be easy side to side transferred; if not, then 150% on each side and a rescue boat which may be also a lifeboat may be used in making up this 150%.

Stowage Minimum Height: such that in 20deg list and 10 mtrs trim in the deepest condition

the lifeboat is always 2m above the water.

Stowed at least 1 boat's length fwd of the propeller in ships 80m-120m length,

otherwise 1.5boat's length fwd of the propeller.

Stowed such that it is prepared for launching and embarkation within 5 mins by 2 persons.

General Fuel: 24hrs @ 6knts. Requirements Light 12hrs 4.3 Cd

Can tow @ Speed 2 knts with a 25 person liferaft being towed.

Closed lifeboats to be self righting.

A ladder to board the lifeboat with the lowest step not more than 0.4m below the waterline.

In tanker and gas and chemical, a self container air system in the boat of 20hPa.

In tanker fire protectd boats 8 min withstand in fire.

All lifeboats to be capable of drop of more than 3 m in water.

withstand 3.5m/s slam on ship side.

lowering speed 0.4+0.02H m/s (h=waerline in lightest sea going condition upto head of the davit)

to be boarded by crew in less than 3 mns from abandon ship order.

to be launched in 10 mins from abandonship order.

capacity, ship's name and registry, and call sign or name printed on top.

2 means of release from fall.

onload release to be such that it is not done by mistake.

onload release to be tested every 1 year and mechanism to be overhauled every 5 years and every 5 years mechanism to be load tested to 1.1 times boat's full complement weight.

every five year 1.1 times launching appliance and winch brake load capacity to be tested.

construction-Free Fall lifeboat to be tested to be launched at a height of 1.3 times it free fall launching height.

2 independent rechargeable battery. If ships's supply then 50V recharging voltage, else solar powered.

280 N of buyancy of each person to board the lifeboat.

Painter length to be twice the stowage height or 15 meters which ever is greater.

One(of the 2 reqd) painter fwd always rigged capable of being disconnected frm inside the boat @ speed upto 5 knt engine being capable of running out of the water for 5 mins.

Maximum capacity of Lifeboat should not be more than 150 persons.

no loss of fuel oil and approx 250ml of lube oil los when boat is capsized.

Maintenance

Every week (Ship's Crew)

Visual check, check falls, check the inside condition, move out of stowed position, run engine for 3 mins, in passenger ship emercy lighting to be tested every week.

Emergency alarm to be tested weekly.

Monthly (Ship's Crew)

Lower the lifeboat (TURN OUT from stowd posn), Check all equipments as per shipboard list and check expiry dates and conditions, check falls, sheaves, lighting, engine, rudder movement, limit switch, test the emercy lighting on cargo ships.

Quarterly (Ship's Crew)

Lower the boat and manoeuvre in water.

Free fall lifeboats every 3 months perform all abandonship duties and sit in the lifeboat all crew, and explain release, but don't actually release. Then all move out of the boat and the boat to be launched either free fall or by secondary launching appliance, with or without the operating crew.

In either case the boat to be manoeuvred in water.

Every six months in free fall boat, the boat to be free fall launched by operating crew, or simulated launched.

Annually

By the manufcturer or Administration approved Organization(Class Surveyor) along with some other manufacturer.

Onload release mechanism to be operationallly tested by trained personnel.

launching appliance and winch brake at full lowering speed at 1 times its max. load.

5 Yearly

By the manufcturer or Administration approved Organization(Class Surveyor) along with some other manufacturer.

Onload release mechanism to be tested to 1.1 times the load after every overhaul. Overhaul to be done every 5 yrs. launching appliance and winch brake at full lowering speed at 1.1 times its max. load.

Embarkation

As per latest ammendments 2011, lower the lifeboat in water and through embarkation ladder, board the lifeboat.

LIFERAFTS

In Cargo Ships

100% if less than 185Kg and easy side to side transferred, else, 100% on each side.

For Tankers where Free fall lifeboat is employed with 100% capacity, Liferafts with 100% capacity on each side.

Ships Iss than 85m, no lifeboat, Liferafts 100% on each side less than 185Kg easy side to side transfer, else, 150% on each side.

A rescue boat which may also be used as a lifeboat may be used in fulfiling this 150% criteria.

If the distance of the stern or the stem from a survival craft exceeds 100m, then a liferaft shall be placed at the

fwd or aft of minimum capacity as the number of persons may work there, this need not have HRU.

In Passenger Ships

On Long International Voyages: 25% capacity liferaft of the total capacity of persons, with atleast one

launching appliances on each side.

On Short Intl Voyages: Liferafts to make up for the remaining amount of persons onboard not covered by lifeboat,

to make it 100% capacity.

In addition, 25% additional liferafts with one launching appliances on each side.

General

Withstand fall from the stowage height.

Requirement

lateral impact 3.5m/s

Painter length 10m+stowage height or 15m whichever is greater.

Markings on Container: Capacity, Stowage height, painter length, last serviced, SOLAS, solas pack, Serial number,

Instructions for launching, maker's name, approving authority

Markings on Liferaft: Serial Number, Capacity at the entrance, approving authority, maker's name.

Breaking stress of weak link: 2.2Kn + - 0.4Kn

Breaking stress of Painter: 7.5Kn, 10Kn, 15Kn for liferaft capacity <9, 9-25, >25 persons respectively.

Shall wihstand continuous jumping on the liferaft when it is inflated, in the water, from height 4.5m

Be inflated in less than 1 min in temp. 18-20deg, and less than 3 min in temp. -30deg.

Ballast water pocket 220Litres each for 10 persons liferaft to be filled 60% in 25secs.

If 12 persons or more, 2 entrances, one of which shall have a flexible ramp.

If 12 persons or more, 2 buoyant bailers and a folding knife.

Shall be capable of being towed at a speed of 3 knots by a lifeboat/rescue boat with a sea anchor deployed.

HRU works at 1.5-4m depth.

Maintenance

Monthly

Check General physical condition.

Check last servicing date of liferaft and HRU.

ensure painter connected to weaklink connected to deck.

No Obstruction for automatic launching arangement.

Annualy

Shore based servicing of Liferaft and HRU

This may be extended by 6 months by the Administration.

RESCUE BOATS

Number Cargo ships shall carry atleast one.

Passenger ships shall carry atleast one on each side (500GRT and above)

General length between 3.8 to 8.5m

a buyant painter of sufficient strength to marshall a liferaft and length 50m, which is not in the lifeboat equipments.

other differences from Lifeboat include the Hoisting speed(0.3m/s atleast).

onload realease mechanism maintenance same as lifeboat.

fuel: speed atleast 6 knots for 4 hrs.

stowed in a state of continuous readiness to be launched in the shotest possible time.

recovery of rescue boat to be in less than 5 mins in mod sea conditions.

capacity 5(seated)+1(Laying)

Immersion suit for all operating crew of rescue boat.

TPA: 10% of capacity(of the craft) or 2 whichever is greater to be present in liferaft, lifeboat and rescue boat.

Maintenance Visual Inspection every week.

Every month launch in water and manoeuvre.

Every week test the engine.

onload realease mechanism tests and survey as lifeboat

Inflated rescue boat servicing as per manufacturer's instructions.

PERSONAL LSA

Lifebuoy

Number regd: 8,10,12,14 for cargo ships of length less than 100, 100-150, 150-200, more than 200m respectively.

Number reqd: 8,12,18,24,30 for passenger ship's length of less than 60m, 60-120m, 120-180m, 180-240m, 240m and greater respectively.

Marked with ship name and registry. More than 2.5 kg

50% with light. Of these 50%, 2 lifebuoys (4.5kg or more) should have self igniing smoke signal capable of being released from bridge (MOB Buoy)

All Lifebuoys to be equally distributed on both sides as much as possible, and One lifebuoy out of the reqd number to be at the stern.

2 lifebuoys having a buoyant lifeline(8mm, 5Kn strength) of length twice the stowage height or 30m(whichever is greater) to be placed on each side near the accommodation.

withstand complete englufing in fire for 2 secs.

lifebuoys to be free from any obstruction.

lifbuoy light 2Cd, 2 hours

lifebuoy and accessories drop tested from stowage height or 30m.

lifebuoy smoke signal 15 mins and continue to emit smoke if in water for 10 seconds.

lifebuoy outer dia not more than 800mm, inner dia not less than 400mm.

Grab line length 4 times the outer diameter and 9.5mm dia line.

Have retro reflective tape. Inherently buoyant material lifebuoy.

Have buoyancy to hold an iron 14.5Kg in fresh water for 24 hours.

Every month check all lights, accessories of lifebuoy and their general condition and they are in proper place without obstruction.

Lifejacket

to be 100% of the persons onboard

additionally for persons working in remote areas of sufficient number as persons may work there.

10% of the passengers' "child lifejackets" onboard; or the number of children onboard. (Height or weight range of wearer marked on child Lifejkt)

2.5% of total passengers infant lifejackets onboard. (Infant=Less than 3 years or 5KG)

additional accessories to fasten the lifejacket for adults of 140Kg and above and chest girth 1750mm, for as many

number of such overweight adults onboard.

DG Shipping reqmt 5% of total crew adult overweight lifejackets onboard to suit 140Kg person or chest girth 1750mm.

withstand complete englufing in fire for 2 secs.

light 0.75Cd for 8Hours.

Ship name and registry marked.

Passenger ships additional 5% of total passengers, lifjacket to be present for persons working in

remote areas (Additionally than the ones mentioned above).

 $75\% \ of \ persons \ to \ wear \ it \ in \ 1 \ minute \ without \ instructions \ \& \ 100\% \ to \ wear \ it \ in \ 1 \ min \ with \ instructions \ \& \ such \ that \ it \ cannot \ be \ worn \ incorrectly.$

wearer to jump 4.5m in water without harm or damage and perform all duties of abandonment.

not lose more than 5% buoyancy in 24 hours immersion in fresh water.

unconcious wearer's mouth be brought up 100mm clear of water in less than 5secs and body be at an angle of more than 20deg to vertical. every month check all lights and accessories of lifejacket and general condition.

Immersion

100% of the persons onboard except if Administration removes it for it's vessels in tropical warm climate.

Suit

Additionally for the rescue boat operating crew.

Allows wearer to climb up and down 5m and perform all duties of abandonment and swim a short distance.

May or may not have inherent bouyancy. Has to be marked on it if it is to be worn with a lifejacket.

If not be be worn with lifejacket, all requirements to be fulfilled as that of a lifejacket.

Should not let the body temperature to drop more than 2deg in water of 5deg if it is not of inherent insulation, for 1hour.

Should not let the body temperature to drop more than 2deg in water of 0deg to 2 deg if it is of inherent insulation, for 6hours.

In Passenger ships Immersion suit for every operating crew in every survival craft except in administration waives it for warm tropical climate withstand complete englufing in fire for 2 secs.

Monthly Check the Zip(chain) for freeness, if required put vaseline/wax. Every 3 years pressure test the Immersion suit to detect any leakages.

Anti

For rescue boat operating crew.

Exposure

Buoyancy 70N

Suit

Must have whistle and Light.

Pocket for Walkie Talkie. Swim 25m to board liferaft.

Monthly Check the Zip(chain) for freeness, if required put vaseline/wax. Every 3 years pressure test the suit to detect any leakages.

TPA

TPA: 10% of capacity(of the craft) or 2 whichever is greater to be present in liferaft, lifeboat and rescue boat.

Waterproof bag, and should be such as the wearer can remove it when in water in not mre than 2 mins.

Thermal conductance of 7800W/(m2K)

In Passenger ships, it is to be supplied for all persons in the survival craft to whom Immersion suit is not assigned, except in Tropical warm climate by Administration.

PYROTECHNICS

Rocket Parachute Height: 300m

Parachute burning starts when max. height is reached.

Parachute burning 40secs

Parachute rate of descent not more than 5m/s

Bright red colour parachute and fire thereof such as not to damage the parachute.

Firing instructions on the casing.

When fired as per instructions should not cause discomfort to the operator.

Night signal.

Intensity of the Flare 30000Cd

QUANTITY: Bridge: 12

Lifeboat: 4

Liferaft: 4 (SOLAS PACK A); 2(SOLAS PACK B)

Expiry date as per manufacturer.

After expired, land ashore to Port Authorities and obtain landing certificate for proof of safe disposal.

Hand Flare Night Signal.

Intensity: 15000Cd Burning period 1 Minute.

Operating instuctions on casing and when operated accordingly not to cause discomfort to the operator.

Continue to burn if immersed in water 100mm below, for period of 10secs.

QUANTITY: Lifeboat: 6

Liferaft: 6(SOLAS PACK A); 3(SOLAS PACK B)

Expiry date as per manufacturer.

After expired, land ashore to Port Authorities and obtain landing certificate for proof of safe disposal.

Buoyant Smoke Signal Day Signal

Highly Visible Orange Burning period 3 mins.

Not to be swamped by seeway.

Continue to burn when submereged in water 100mm below for a period of 10 secs.

QUANTITY: Lifeboat: 2

Liferaft: 2(SOLAS PACK A); 1(SOLAS PACK B)

Expiry date as per manufacturer.

After expired, land ashore to Port Authorities and obtain landing certificate for proof of safe disposal.

PORTABLE FIRE EXTINGUISHER

General Mass 23kg Max.

CO2 and Dry Powder at least 5 KG, Water and Foam atleast 9Ltr.

No CO2 to be there in Accommodation.

Atleast 5 Portable Ext. to be onboard.

Atleast one foam extuguisher to be in machinery space.

If Boiler more than 175KW, then a 135Ltr Foam portable extinguisher to be in Boiler room.

One Portable Extinguisher to be there outside Boiler room.

All extinguisher for a protected space to be kept near its entrance.

No place in engine room to be more than 10m waking distance from a portable extinguisher.

A ship desgined to carry IMDG to have 12KG DCP for every Cargo space.

An extinguisher to have means to indicate whether It has been used.

For the first 10 extinguishers, 100% recharge available onboard, and for the remaining, 50% recharge should be

available onboard. But not more than 60 charges

If any extinguisher is of the non-rechargeable type, then complete sets of replacemnts for all such extinguishers in place of the above recharges.

Should be colour coded according to manufacturer Blue for DCP black for CO2

Marking of Extinguishers: Manufacturer, type and quantity of ext medium, type of fire, year of manufactur, test pr., instructions for use.

Maintenance

Weekly:

Check for proper Location, stowage, and general condition.

Monthly:

Check for physical condition of the extinguisher, its assemblies, hoses etc., shake the DCP extinguishers to prevent caking, check seal, and check pressure from pressure guage if provided.

Annual:

Check for charging pressure, weight all CO2 extinguishers and weight all the propellant cartridges.

If weight reduced more than 10%, then replace or recharge as available.

DG Shipping Regmnts: 1/3 of all the extinguishers to be Hydrostatically tested onboard.

if no means of hydrostatic testing onboard, then once every 3 years all the extinguishers hydrostatic presure testing ashore.

DG Shipping Reqmts: Water, DCP and Mobile DCP to be refilled and operationally tested every 3 years. Mechanical Foam every year.

NFPA(National Fire Protection Association, U.S.A.) Requirements: CO2 and Water, Foam - Hydrostatic Pressure Testing every 5 years,

DCP(Dry Chemical Powder) Extinguisher every 12 years.

FSS Code requirements: Hydrostatic Pressure Testing at 5.5Mpa or 2.7 times the Max. working pressure not more than every 10 years.

Portable Foam Applicator Unit AFFF renewal as per compny or manufacturer.

Five Year

As per FSS Code, one extinguisher of all the same type manuactured in the same year kept onboard to be discharged as part of the drill.

FIXED FIRE EXTINGUISHING SYSTEMS

Fixed CO2 Capacity to be that to meet the requirement of the largest compartment onboard

For Machinery spaces: 35-40% of gross volume; to be discharged out of which 85% discharged within the first 2 mins.

For Cargo Spaces: 30% of gross volume; to be discharged; out of which for container ships 2/3rd of required amount should

be discharged in the first 10 mins.

and for bulk carrier cargo spaces 2/3 of required amount to be discharged within the first 20 mins.

The storage space for the CO2 bottles to be easy access, aft of collission bulkhead, not more than

1 deck below the uppermost continuous deck,

should have 6 air changes per hour, direct access, away from the protected space.

Release Mechanism to be atleast by 2 places, remote and local.

Release mechanism to open the bottles separately, then open the main line valve to the cargo hold, separately.

Alarm should be sounded atleast 20 secs before the CO2 is released.

Alarm to be sounded at the opening of the Cabinet for the releasing of CO2

Alarm for the failure of the exhaust fans of the storage space.

Paint Store to be protected by CO2 should have for 40% of gross volume of store.

Maintenance: Monthly:

Visual Inspection of the stoage space, alarm for Exh. Fan failure.

All stop valves in closed position.

All alarm devices in place.

Fire dampers and doors for Local operation.

Check the cables and linkages for tightness.

Annual:

Boundaries of the protected space are properly sealed, no modifications made therein.

Corrossion of the piping system.

Check the discharge heads.

Check Fire doors and dampers for remote operation.

At every Intermediate, Periodical and Renewal Survey

Weight Test, if less than 90% of the original, then to be refilled.

Blow through using air or other suitable means to ascertain that piping and discharge heads are not blocked.

Hydrostatic Presure test date to be checked. Hydrostatic pressure test of 10% cylinders to be carried out every 10 years.

If any found faulty, 50% to be checked, again if any found faulty, then all to be checked.

Warning Alarms to be checked and other checks as per guideline.

FIXED CO2 DG SHIPPING REQUIREMENTS

Pressure testing of all CO2 piping Systems at 5, 10, and 15 year intervals

CO2 Alarm testing 5 years, every 15 years at full engine noise level.

Weight test every 2 years and if more than 5% reduction then refill. Radioactive instruments to measure such weight/level should be removed from ship before sailing.

CO2 piping blow through with air every 2 years.

Hydrostatic pressure testing of fixed CO2 bottles at 10 years, and after the 20 year interval, every 5 years.

FIXED FOAM FIRE EXT SYS

AFFF testing: 3 years after filling thereafter every year.

MISCELLANEOUS

Fireman's

2 in every ship.

Suit

Passenger ship, 2 for every 80m length including the length of every continuous passage,

and for more than 36 passengers, additional 2 for every vertical space.

For Tankers, addition 2 fireman's suit.

Contains a waterproof suit covering the entire body.

A hard helmet.

Rubber boots, fire proof and electrically insulated material.

Fire Axe, torch, gloves, Fireline of atleast 30m in length and 3.5Kn for 30minutes, SCBA.

All to be placed in an easily accessibile locations, and if more than 2 outfits, they should be widely separated.

For passenger ships, atleast 2 suit to be kept in each main vertical zone.

For IMDG Carrying Ships:

4 additional chemical protective clothing.

Monthly Inspection before and after the Fire drill.

SCBA

1200 Ltrs and 30mins capacity for a normal breathing person.

Weekly inspection of the bottles and its accessories.

Check for Hose, mask, Face sheild, check all straps and face masks for air sealing, keep all straps in loose condition, check charging pressure, whistle.

Yearly Air Quality tests by manufacturer.

2 additional SCBA for IMDG Carrying Ships.

For all SCBA's onboard, 2 spare bottles if no recharging facility available. If recharging facility available, then 1 spare for each SCBA.

Hydrostatic Pressure testing every 5 years.

EEBD

10 minutes minimum requirement.

A person should be capable of escaping hands free with it in the unactivated mode.

Should be properly kept at all the escape routes of machinery spaces.

Atleast 2 should be in accomodation spaces. One spare should be onboard and the training EEBD should be marked.

Maintenance and tests as per manufacturer.

Monthly inspection of proper location, charging pressure(as per manufacturer), and free from all obstructions, etc.

EEBD training to be carried onboard.

ISC

International Shore Connection

Outer Dia 178mm, Bolt Circle: 132mm, 4 holes for bolts 19mm dia, bolt dia 16mm and 50mm length, 8 washers and 4 nuts, thickness of flange 14.5mm.

Gasket of any material capable to withstand a pressure of 1N/mm2

Check physical condition and location once every quarter.

Fire Hoses

One for every 30m length of the ship but not less than 5 for ship more than 1000grt and not less than 3 in ships of less than 1000GRT.

In passenger ship, one for every hydrant.

Diameter as per the Administration.

Length not less than 10m.

For Machinery spaces: Lengh not more than 15m.

For Deck and other places, not more than 20m.

For ships more than 30m in breadth, not more than 25m.

Pressure testing every year.

In Passenger ships the hoses to be connected to the hydrants at all times in the interior locations.

Fire Nozzles in machinery spaces size not to be greater than 19mm, on deck and accommodation not to be greater than 12mm.

Hydrants

Location, number such as can provide water supply from 2 hydrants at any location on the ship, one of which shall be from one single length hose

Diameter of the hydrants and piping such as to maintain a flow rate of 140m3/hour.

Annual testing for function.

Fire Pumps

passenger ships: 3 on more than 4000grt and 2 on of less than 4000GRT.

2 on cargo ships of 1000GRT and above.

2 on cargo ships of 1000GRT and below, with one of them being driven by an independent power.

Total Fire Pump Capacity on Cargo ships to be 4/3rd of each bilge pump on the passenger ship of the same ship dimensions. Need not be more than 180m3/

Total Fire pump Capacity on Passenger ships to be atleast 2/3rd of the bilge pumps on passenger ships

Capacity of each fire pump shall be atleast 80% of the total fire pump capacity divided by the minimum required pumps, but not less than 25m3/hour.

This individual fire pump capacity shall be such as to be able to deliver the water to the hydrants such that with water being delivered through

2 hydrants with the remaining hydrants shut, the pressure at the remaining hydrants is as below:

Passenger ships: 4000GRT and below: 0.3N/mm2 and 4000GRT and above: 0.4N/mm2

Cargo Ships: 6000Grt and below: 0.25N/mm2 and 6000GRT and above: 0.27N/mm2

Bilge, Ballast, Sea Water, Sewage pumps May be accepted as Fire Pumps provided they meet this criteria and are not used for Oily Mixtures normally.

Shall be tested every month; and Annually flow test of all the fire pumps.

Emergency

Shall be located out of the machinery space, or be separatd by an A60 Bulkhead from the machinery space.

Fire

Shall be atleast 40% of the total capacity of the main fire pumps. But not lesser than the foll:

Pump:

Passenger shps of les than 1000GRT and Cargo Ships more than 2000GRT: 25m3/hour

Cargo Ships lesser than 2000GRT: 15m3/hour

Shall be Giving at least 2 jets of water at good pressure at all hydrants.

Shall be tested every month.

IMDG

4 Chemical resistive suits.

Additional

2 Additional SCBA sets with 2 spare bottles for each if no compressor onboard, else 1 spare for each.

Reqmts 12Kg DCP for every cargo space.

3 Additional Fire hoses and nozzles.

The required pressure at the hydrants to be maintained by the fire pump with water being delivered through 4 hydrants.

Cargo space to have 6 air changes per hour.



DRILLS

Passenger ship Fire and Abandon ship drills to be carried every week.

The entire crew need not participate but the passengers are to be encouraged.

The crew shall participate in one abandonship drill and fire drill once every month.

For voyages more than 24 hours, Abandon ship drill to be conducted in the first 24 hours after sailing.

If more than 25% of the crew has not participated in these drills in the previous month on that vessel, then

these drills in first 24 hrs after sailing.

If major overhaul or first time in service, or entire crew change, then these drills before sailing.

Cargo Ships Fire and Abandon ship drills to be carried every Month.

If more than 25% of the crew has not participated in these drills in the previous month on that vessel, then $\frac{1}{2} \left(\frac{1}{2} \right) = \frac{1}{2} \left(\frac{1}{2} \right) \left(\frac{1}{2} \right)$

these drills in first 24 hrs after sailing.

If major overhaul or first time in service, or entire crew change, then these drills before sailing.