

17 WORK AT HEIGHT

17.1 Introduction

17.1.1 Anyone working in a location where there is a risk of falling may be regarded as working at height. This includes undertaking work inside a tank, near an opening such as a hatch, or on a fixed stairway. Further guidance is contained in marine guidance note MGN 410(M+F).

S.I. 2010/332 and MGN 410(M+F)

17.1.2 Work at height should be subject to risk assessment, and suitable control measures should be taken to protect those who may be put at risk. Depending on the severity of the risk, a permit to work may be required (e.g. for working aloft).

17.2 General

17.2.1 Work should only be carried out at height if there is no reasonably practicable alternative to doing so. Where a reasonably practicable alternative does exist, it should be adopted. Where work must be carried out at height, the Company must ensure that such work is properly planned, appropriately supervised and carried out in as safe a manner as is reasonably practicable. Planning should include the carrying out of a risk assessment, which may include consideration of potential risks from falling objects or fragile surfaces and planning for emergency situations. Guidance on planning for emergency situations while working at height can be found in Annex 17.1.

17.2.2 Only competent persons should engage in any activity relating to work at height, or use of equipment for work at height, including the organisation, planning and supervision of such activities. Where a seafarer is being trained to undertake such work, they must be supervised by another seafarer who is competent to supervise and undertake that activity.

17.2.3 Personnel under 18 years of age, or with less than 12 months' experience at sea, should not work aloft unless it forms part of their planned training, and unless they are accompanied by a competent person or otherwise adequately supervised.

17.2.4 Work equipment should be selected that is fit for purpose and meets the requirements of Chapter 18, Provision, care and use of work equipment, of this Code. It should be used in accordance with safe procedures and good practice.

S.I. 2006/2183

17.2.5 Personnel working at a height may not be able to give their full attention to the job and, at the same time, guard themselves against falling. Proper precautions should, therefore, always be taken to ensure personal safety when work has to be done aloft or when working outboard. It must be remembered that the movement of a ship in a seaway and poor weather conditions, even when alongside, will add to the hazards involved in work of this type. A stage, ladder, scaffolding, bosun's chair or scaffold tower should be used when work is to be done beyond normal reach. Any equipment being used should be in a good state of repair.

17.2.6 Personnel working aloft should wear a safety harness with a lifeline or other arresting device at all times (see section 8.10). A safety net should be rigged where necessary and appropriate. Additionally, where work is done overside, a working lifejacket (personal flotation device) or buoyancy garments should be worn (see section 8.12) and a lifebuoy with sufficient line attached should be kept ready for immediate use. Personnel should be under observation from a person on deck.

17.2.7 Other than in emergency situations, personnel should not work overside whilst the vessel is under way. If such work has to be undertaken, lifeboats or rescue boats should be ready for immediate use. Any such work should be closely monitored/watched by a responsible person.

17.2.8 Before undertaking work near the ship's whistle, the officer responsible should ensure that it is isolated and that warning notices are posted on the bridge and in the machinery spaces.

17.2.9 Before undertaking work on the funnel, the officer responsible should inform the duty engineer to ensure that steps are taken to reduce as far as practicable the emission of steam, harmful gases and fumes.

17.2.10 Before undertaking work in the vicinity of radio aerials, the officer responsible should inform the radio room or person in charge of radio equipment so that no transmissions are made whilst there is a risk to personnel. A warning notice should be placed on the communications equipment or the equipment isolated.

17.2.11 Where work is to be done near the radar scanner, the officer responsible should inform the officer on watch so that the radar and scanner are isolated. A warning notice should be put on the radar equipment until the necessary work has been completed.

17.2.12 On completion of the work of the type just described, the person responsible should, where necessary, inform the appropriate person that the precautions taken are no longer required and that isolations and warning notices can be removed.

17.2.13 Work aloft should not be carried out in the vicinity of cargo working unless it is absolutely essential. Care must always be taken to avoid risks to anyone working or moving below. Suitable barriers should be erected and warning notices displayed.

17.2.14 Tools and stores should be sent up and lowered by line in suitable containers, which should be secured in place for stowage of tools or materials not presently being used. Tools should be secured by a lanyard, e.g. to the seafarer's wrist or harness, when in use. No one should place tools where they can be accidentally knocked down and may fall on someone below, nor should tools be carried in pockets from which they may easily fall.

17.2.15 Tools should be handled with extra care when hands are cold and greasy and where the tools themselves are greasy.

17.3 Portable ladders

17.3.1 Working from ladders should be avoided as far as possible but, where necessary, personnel must use a safety harness with a lifeline secured above the work position, where practicable.

MGN 410(M+F)

17.3.2 A portable ladder should only be used where no safer means of access is reasonably practicable. It is very important that the ladder is checked regularly by a competent person. Annex 17.2 (reproduced from MGN 410(M+F)) gives further guidance.

17.3.3 Wooden ladders should not be painted or treated so as to hide defects and cracks. When not in use, they should be stowed safely in a dry, ventilated space away from any heat source.

17.3.4 Portable ladders should be pitched at 75° from the horizontal, on a firm base, properly secured against slipping or shifting sideways and be so placed as to afford a clearance of at least 150 mm behind the rungs. Where practicable, the ladder should extend to at least 1 metre above any upper landing place, unless there are other suitable handholds.

17.3.5 When portable extending ladders are in use, there should be sufficient overlap between the extensions.

17.3.6 Personnel negotiating a ladder should use both hands, and not attempt to carry tools or equipment in their hands. When working, three points of contact with the ladder should be maintained (both feet and a handhold).

17.3.7 Planks should not be supported on rungs of ladders to be used as staging, nor should ladders be used horizontally for such purposes.

[!Insert picture of a portable ladder near here!]

17.4 Cradles and stages

17.4.1 Cradles should be at least 430 mm (17 inches) wide and fitted with guardrails or stanchions with taut ropes to a height of 1 metre (39 inches) from the floor. Toe-boards add safety. Annex 17.3 (reproduced from MGN 410(M+F)) gives further guidance.

MGN 410(M+F), Annex C

17.4.2 Planks and materials used for the construction of ordinary plank stages must be carefully examined to ensure adequate strength and absence of defects.

17.4.3 Wooden components of staging should be stowed in a dry, ventilated space and not subjected to heat.

17.4.4 Ancillary equipment, ladders, blocks and gantlines should be thoroughly examined before use.

17.4.5 When a stage is rigged overside, the two gantlines used in its rigging should be at least long enough to trail into the water to provide additional lifelines should a person fall. A lifebuoy and line should be kept ready nearby.

17.4.6 Gantlines used for working aloft should not be used for any other purpose and should be kept clear of sharp edges when in use.

17.4.7 The anchoring points for lines, blocks and lizards must be of adequate strength and, where practicable, be permanent fixtures to the ship's structure. Integral lugs should be hammer tested. Portable rails or stanchions must not be used as anchoring points. Any anchoring points should be treated as lifting points and should be inspected/tested in accordance with Chapter 19, Lifting equipment and operations, of this Code.

17.4.8 Stages and staging that are not suspended should always be secured against movement. Hanging stages should be restricted against movement to the extent practicable.

17.4.9 In machinery spaces, staging and its supports should be kept clear of contact with hot surfaces and moving parts of machinery. In the engine room, a crane gantry should not be used directly as a platform for cleaning or painting, but can be used as the base for a stable platform if suitable precautions are taken.

17.4.10 Where personnel working from a stage are required to raise or lower themselves, great care must be taken to keep movements of the stage small and closely controlled.

17.4.11 Guidance for rail and trolley systems for overside working is in MGN 578(M).

MGN 578(M)

17.5 Bosun's chair

17.5.1 When used with a gantline, the chair should be secured to it with a double-sheet bend and the end seized to the standing part with adequate tail. Annex 17.3 (reproduced from MGN 410(M+F)) gives further guidance.

MGN 410(M+F), Annex C

17.5.2 Hooks should not be used to secure bosun's chairs unless they are of the type that, because of their special construction, cannot be accidentally dislodged, and have a marked safe working load that is adequate for the purpose.

17.5.3 On each occasion that a bosun's chair is rigged for use, the chair, gantlines and lizards must be thoroughly examined and renewed if there is any sign of damage. They should be load tested to at least four times the load they will be required to lift before a person is hoisted.

17.5.4 When a chair is to be used for riding topping lifts or stays, it is essential that the bow of the shackle, and not the pin, rides on the wire. The pin in any case should be seized.

17.5.5 When it is necessary to haul a person aloft in a bosun's chair, it is generally done only by hand rather than by using a winch. In the case of mast access on large sailing yachts, a winch may be used by a competent person, providing a risk assessment has been completed and effective safety measures put in place to control the risks identified.

17.5.6 If a seafarer is required to lower themselves while using a bosun's chair, they should first frap both parts of the gantline together with a suitable piece of line to secure the chair before making the lowering hitch. The practice of holding on with one hand and making the lowering hitch with the other is dangerous. It may be prudent to have someone standing by to tend the lines.

17.6 Working from punts

17.6.1 Punts should be stable and provided with suitable fencing. Unsecured trestles and planks should not be used to give additional height. Safety lines and a working lifejacket should be used.

17.6.2 Before a punt is put to use, the person in charge should have due regard to the strength of tides and other hazards, such as wash from passing vessels.

17.6.3 When work is to be done at or near the stern or near bow/stern thrusters, the person in charge should inform the duty deck and engineering officers so that equipment is

isolated and/or warning notices placed in the engine room, on the bridge and at any local controls.

17.6.4 The duty engineer and deck officers should also be informed by the person in charge when personnel are working in the vicinity of ship's side discharges so that they are not used until the work is completed. Equipment should be isolated and/or notices to this effect should be attached to the relevant control valves and not removed until the work is completed.

17.7 Scaffolding, including scaffolding towers

17.7.1 Annex 17.4 (reproduced from MGN 410(M+F)) gives further guidance.

MGN 410(M+F), Annex B

17.7.2 Only scaffolding of an approved design should be used and rigged in conformity with a generally recognised configuration. If necessary, a calculation of its strength should be carried out and recorded. Appropriate procedures for conducting testing should be followed and when replacing components care should be taken to ensure compatibility with the existing scaffolding. Retesting of the structure may be required.

17.7.3 Care should be taken when assembling and dismantling the scaffold.

17.7.4 Great care should be taken to ensure the stability of the structure and safe access to it. If it is a mobile structure, it should be securely fixed to ensure that it cannot inadvertently move while in use.

17.7.5 Anyone rigging or dismantling scaffolding should have received adequate training.

17.7.6 Measures, such as adequate safety rails, should be incorporated to prevent the risk of persons or objects falling off.

17.7.7 Care must be taken to ensure that the safe working load of the structure is not exceeded.

Annex 17.1 Emergency planning for work at height

1. Planning should also take into account the possibility of emergencies occurring that result in workers requiring rescue from where they are working at height. Sources of available guidance are listed in Annex D of MGN 410(M+F) – note, in particular, the Work at Height Association guidance as regards rescue. In conjunction with the risk assessment, consideration must be given to circumstances that might occur when work is undertaken at height and how rescue could be achieved. The following questions may be a useful guide:
 - What type of emergency could occur requiring the rescue of a worker, e.g. is it likely to be a fall from height to the deck or into an open hold, a fall that leaves a worker suspended from a safety harness or from the equipment on which they were working, or might it even involve a full or partial collapse of that equipment?
 - Is access likely to be readily available to the worker or workers concerned should a rescue situation occur?
 - How difficult will it be to recover a fallen or suspended worker from a hold to deck level or to lower a fallen or suspended worker to deck level?
 - What level of competence will be required of those involved in the rescue?
 - Will any specialist equipment be required?
 - Are there any hazards that could potentially be encountered during the rescue, e.g. is the worker requiring rescue in an area where oxygen deficiency or other hazardous atmosphere could be a problem for rescuers?
 - Is appropriate protective equipment readily available to rescuers in situations referred to in the bullet point above?
 - Are rescuers, or others on board, appropriately trained in the provision of appropriate medical care to a worker who has fallen or become suspended whilst working at height?

Note: This list is only illustrative and should not be considered definitive.

[MGN 410\(M+F\)](#)

2. It is understood that seafarers will wish to rescue a colleague in distress as quickly as possible. However, experience shows that undue haste can result in additional casualties, because appropriate safety precautions are not followed by potential rescuers before a rescue is attempted. Whilst, therefore, the aim should be to rescue the casualty as expeditiously as possible, the health and safety of the rescuers themselves should not be put at risk.
3. When a ship is in port, there may be a tendency to await the arrival of the local emergency services. However, there may be delays to the emergency service. It is, therefore, essential

that appropriate procedures and measures are in place on board to deal with any emergencies and rescues that could potentially arise, whether at sea or in port. The aim in any situation requiring the rescue of a person suspended whilst working at height should be to rescue the suspended person, whether injured or uninjured, as safely and promptly as possible, having regard to all the circumstances including the health and safety of the rescuers.

4. A person left suspended at height in a harness for a significant period of time may suffer from symptoms like suspension syncope or suspension intolerance. This includes tingling in arms and legs and feelings of faintness.
5. During and after rescue, standard first-aid guidance should be followed. If a rescuer is unable to immediately release a conscious casualty from a suspended position, elevation of the legs by the casualty or the rescuer where safely possible may help prolong tolerance of suspension. Up-to-date guidance on the treatment of suspension syncope/intolerance is given on the Health and Safety Executive (HSE) website, along with 'Advice for first-aiders responding to harness suspension incidents'.

Annex 17.2 Requirements for ladders

1. A ladder shall be positioned so as to ensure its stability during use.
2. A suspended ladder shall be attached in a manner that:
 - makes it secure;
 - ensures it cannot be displaced; and
 - prevents it from swinging.

The last two bullet points do not apply to a rope ladder.

3. Portable ladders shall rest on footing that is stable, firm, of sufficient strength and of suitable size and composition safely to support the ladder so that its rungs or steps remain horizontal.

Where, owing to the movement of the ship, it is not reasonably practicable to ensure that the rungs or steps of a portable ladder remain horizontal, all appropriate measures to ensure the stability of the portable ladder shall be taken.

4. The feet of a portable ladder shall be prevented from slipping during use by:
 - securing the stiles at or near their upper or lower ends;
 - using an anti-slip device; or
 - any other arrangement of equivalent effectiveness.
5. A ladder used for access shall be long enough to protrude sufficiently above the place of landing to which it provides access, unless other measures have been taken to ensure a firm handhold.
6. No interlocking or extension ladder shall be used unless its sections are prevented from moving relative to each other while in use.
7. A mobile ladder shall be prevented from moving before it is stepped on.
8. A ladder shall be used in such a way that:
 - a secure handhold and secure support are always available to the user; and
 - the user can maintain a safe handhold when carrying a load by hand.

Annex 17.3 Requirements for rope access and positioning techniques

Equipment should be inspected before each use, and thoroughly examined by a competent person at least every three months, in accordance with a specified schedule.

1. A rope access or positioning technique shall only be used if:
 - subject to the next bullet point, it involves a system comprising at least two separately anchored ropes, of which one ('the working rope') is used as a means of access, egress and support and the other is a safety rope;
 - the seafarer is provided with and uses a suitable harness and is connected by it to the working rope and the safety rope;
 - the working rope is equipped with safe means of ascent and descent and has a self-locking system to prevent the seafarer falling should they lose control of their movements;
 - the safety rope is equipped with a mobile fall prevention system that is connected to and travels with the seafarer;
 - the working rope and the safety rope should take different leads;
 - ropes should be protected from right angles or sharp edges;
 - the tools and other accessories to be used by the seafarer are secured to their harness or seat or by some other suitable means.
2. A rope access or positioning technique may involve a system comprising a single rope where:
 - the risk assessment has demonstrated that the use of a second line would entail higher risk to persons; and
 - appropriate measures have been taken to ensure safety.

Annex 17.4 Requirements for scaffolding

1. Strength and stability calculations for scaffolding shall be carried out unless:
 - a note of the calculations, covering the structural arrangements contemplated, is available; or
 - the scaffolding is assembled in conformity with a generally recognised standard configuration.
2. Depending on the complexity of the scaffolding chosen, an assembly, use and dismantling plan shall be drawn up by a competent person. This may be in the form of a standard plan, supplemented by items relating to specific details of the scaffolding in question.
3. A copy of the plan, including any instructions it may contain, shall be made available for the use of the person supervising and the seafarers concerned in the assembly, use, dismantling or alteration of the scaffolding.
4. The bearing components of the scaffolding shall be prevented from slipping by:
 - attachment to the bearing surface;
 - provision of an anti-slip device; or
 - any other arrangement of equivalent effectiveness.
5. The load-bearing surface of the scaffolding shall be of sufficient capacity.
6. The scaffolding shall be positioned to ensure its stability.
7. Wheeled scaffolding shall be prevented by appropriate devices from moving accidentally during work at height.
8. The dimensions, form and layout of scaffolding decks shall:
 - be appropriate to the nature of the work to be performed;
 - be suitable for the loads to be carried; and
 - permit work and passage in safety.
9. Scaffolding decks shall be assembled in such a way that their components are prevented from moving inadvertently during work at height.
10. There shall be no dangerous gaps between the scaffolding deck components and the vertical collective safeguards to prevent falls.
11. When any part of a scaffold is not available for use, including during the assembly, dismantling or alteration of scaffolding, it shall be:
 - marked with general warning signs in accordance with the Merchant Shipping and Fishing Vessels (Safety Signs and Signals) Regulations 2001; and
 - suitably delineated by physical means preventing access to the danger zone.

12. Scaffolding shall be assembled, dismantled or significantly altered only under the supervision of a competent person and by seafarers who have received appropriate and specific training in the operations envisaged in accordance with regulation 12 of the Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 No. 2962 and regulation 11 of the Merchant Shipping and Fishing Vessels (Provision and Use of Work Equipment) Regulations 2006 No. 2183, which shall include:
- understanding the plan for the assembly, dismantling or alteration of the scaffolding;
 - safety during the assembly, dismantling or alteration of the scaffolding;
 - Appropriate procedures for conducting testing as necessary
 - measures to prevent the risk of persons or objects falling;
 - safety measures in the event of changing weather conditions that could adversely affect the safety of the scaffolding;
 - permissible loads; and
 - avoid combining old and new components where possible, with regular testing where the compatibility of parts may be at question.
 - any other risks that the assembly, dismantling or alteration of the scaffolding may entail.
13. For the purposes of this annex, 'competent person' means the person possessing the knowledge or experience necessary for the performance of the duties imposed on that person by this annex.