Guidance on the
Transfer of Personnel to and from Offshore Vessels and Structures

International Marine Contractors Association

www.imca-int.com

IMCA SEL 025 Rev. 1, IMCA M 202 Rev. 1
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IMCA promotes improvements in quality, health, safety, environmental and technical standards through the publication of information notes, codes of practice and by other appropriate means.

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- Safety, Environment & Legislation

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This document has been revised to include the equipment and practices that are currently used in the offshore renewable energy industry.

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Note: Photographs are for illustrative purposes only and may not represent current good practice

1 Glossary of Terms

A number of specialised terms are used in this document. It is assumed that readers are familiar with most of them. However, a number of them, although in use for many years, could be misinterpreted. These terms are defined below to ensure that readers understand what is meant by them in this document.

Crew boat	A vessel which is used in the transport of offshore support personnel, deck cargo and below-deck cargo such as fuel and potable water to and from offshore installations
CTV	Abbreviation used in the offshore renewable energy industry for crew transfer vessel. May also be WFSV – wind farm service vessel
FRB	Fast rescue boat
FRC	Fast rescue craft
GRP	Glass reinforced plastic
IACS	International Association of Classification Societies
IMO	International Maritime Organization
IMPA	International Maritime Pilots' Association
ISPS Code	International Ship & Port Security Code
Marine Co-ordinator (MC)	Client personnel in offshore renewable energy industry responsible for co-ordinating all marine operations including personnel transfer
MODU	Mobile offshore drilling unit
OIM	Offshore installation manager
OMHEC	Offshore Mechanical Handling Equipment Committee
PLB	Personal locator beacon
PPE	Personal protective equipment
PTW	Permit to work
SIMOPS	Simultaneous operations
Small boat	A craft that is likely to be stowed on a larger vessel, platform or other offshore structure, usually less than 10m in length. Such craft are likely to be launched and recovered using a davit arrangement
SOLAS	Safety of Life at Sea Convention
Structure	Offshore installation that is fixed or floating
Surfer	This is typically a crew boat fitted with a purpose built arrangement intended to dock with a suitable fitting on the receiving vessel or installation to aid the safe transfer of personnel
WFSV	Wind farm service vessel
Work Boat Code	UK Regulations for the construction, certification, manning and operation of commercial vessels of less than 24m load line length

2 Executive Summary

One of the activities specific to offshore operations is the transfer of personnel between vessels and other offshore structures. Such transfers can include movements of personnel at crew change and shift change from vessel to vessel and also between vessels, offshore structures, barges and crew boats as well as to and from the quayside.

Within the offshore industry (particularly in the offshore renewable energy industry), there has been an increase in the requirement for the transfer of personnel to offshore vessels and structures, with this trend set to continue. Personnel transfers in the offshore renewable energy industry primarily involve transfer to and from vessels of 10m to 30m in length, operating independently from a mother vessel or from a port.

This document is intended to provide guidance for the offshore industry on the safe transfer of personnel at sea. It covers risk assessment, training and competence, responsibility, equipment and communications, and focuses on the main methods of personnel transfer between vessels, offshore structures and the quayside. The primary methods of personnel transfer covered are:

- personnel transfer carrier;
- gangways, bridge or accommodation ladders, including motion-compensated hydraulic gangways;
- small boat or launch;
- larger crew boat or support vessel;
- mating 'surfer' structures allowing personnel to transfer safely.

For each case, the document covers the main safety issues and gives some information about the specialist equipment that may be involved, such as 'surfers', as well as special duties or responsibilities of personnel involved, particularly with regard to communications.

Personnel transfer by helicopter is a separate subject adequately addressed elsewhere and is not covered in this document.

3 General Issues

For all personnel transfer operations, every operation should follow approved company procedures. These procedures should identify the necessary controls, i.e. permit to work, risk assessment and toolbox talks required. They should clearly identify weather and sea state limitations and also the roles and responsibilities of the personnel involved.

Vessel to vessel transfer should be planned to avoid transfer during the hours of darkness. If transfer of specific personnel becomes unavoidable at night, this should be dealt with in a specific and dedicated risk assessment and the operation only undertaken when it is considered safe to do so.

Personnel being transferred should be briefed prior to the transfer and should be familiar with the method of transfer and the equipment being used. Personnel involved in a transfer should be physically able to make the transfer, should understand the intended activity and should have agreed to the transfer method being proposed. Personnel being transferred should have valid offshore medicals, offshore survival training and be wearing the appropriate PPE such as, for example; an IMO approved inflatable life jacket fitted with light, whistle and PLB. In selecting the type of life jacket to be used the possibility of a fall from height should be taken into account. According to the on-location risk assessment, immersion suits suitable for avoiding cold water shock should be worn.

It is not possible to accurately establish at what water temperature cold water shock occurs to a person who unexpectedly enters the water. Some experts state that this can occur at a water temperature of below 10°C, others say it can happen when the water temperature is below 15°C. Clearly there is no consensus. As there are a number of physiological factors that can influence cold water shock, it is difficult to define a set temperature. Thus it is recommended that an assessment of the risks associated with the work activity is undertaken, including, for example; sea state, current, weather, height of transfer, vessel type, fitness of person being transferred, estimated time to recover the person from the water, etc. to identify the correct PPE (thermal protection) required, to ensure the safety of the person, should they fall in the water.

Personnel joining or leaving a vessel or offshore structure at crew change may not be wearing appropriate PPE – such as safety boots, for example. A risk assessment, including these factors and consideration of the length of time individual personnel have been travelling and their tiredness, should be conducted prior to the transfer.

In medical evacuation cases, specific risk assessments and methods would be required which should be covered under the location emergency plan. The plan should cover scenarios that are likely to be encountered.

All luggage/equipment should be transferred as a separate operation. Personnel should not carry luggage/ equipment during the transfer. The exception to this could be when using a gangway/bridge system.

3.1 Risk Assessment

All personnel transfers at sea, irrespective of the method, should be treated as a stand-alone operation and a formal risk assessment should be carried out beforehand. The risk assessment may be completed once and included as part of the daily safety briefing or toolbox talk. However, should conditions change at the time of the transfer, the impact of these changes should be considered and appropriate management of change procedures implemented as necessary. If there are any concerns regarding the safety of the operation, the transfer should not take place. Any changes to equipment or procedures should result in the risk assessment being reviewed and updated.

If the transfer is not considered to be part of normal operations, or if specifically required as part of an operating procedure, then it should be covered by a valid permit to work (PTW) or crew transfer permit, and recorded as such. Account should also be taken of any international or local regulations, codes of safe working practice, or company or client requirements governing transfer of personnel at sea.

Risk assessment of personnel transfer at sea should include (but not be limited to) the following issues:

- necessity of the transfer and alternatives available;
- frequency of transfers and numbers of personnel involved;
- environmental conditions:
  - wind speed and direction
  - sea state including swell height and direction

  - current or tide speed and direction
  - visibility
  - water temperature
  - rain, snow, ice and lightning;
- vessel movement (pitch, roll and heave);
- action of the water upsurging between vessels or structures in close proximity;
- lighting in all areas of the transfer operation;
- slip/trip hazards;
- station keeping ability of the vessel(s) involved;
- seaworthiness of all vessels, crew boats or small boats employed;
- condition of all equipment used in personnel transfer, including certification where appropriate;
- operability and constraints of lifting equipment;
- condition and availability of life saving equipment;
- communications;
- any simultaneous operations (SIMOPS) or other relevant activities in the area;
- training and competence of all personnel involved in assisting with and making the transfer;
- during personnel transfer, the potential for man overboard is always present. Consideration should be given to the recovery of personnel (possibly unconscious or with injuries) from the water;
- availability of personnel locator beacons (PLBs) and tracking systems for man overboard scenarios;
- consideration should be given to actions required in the event of injury to personnel during transfer.

Those involved in any personnel transfer activity should be briefed with regards to:

- safety aspects of the transfer;
- company or client requirements and procedures and any regulatory requirements;
- communications;
- potential emergency situations;
- operational requirements for the personnel being transferred.

3.2 Training and Competence

Whatever method of transfer is employed, all personnel involved in the transfer, whether making the transfer or assisting with it, should have received sufficient training to provide assurance of their competence. This would include industry specific training where appropriate. This is particularly the case for crane operators and personnel involved in lifting, for the coxswains and crews of small boats and for the crew of larger vessels or 'crew boats' involved in personnel transfer. It should be noted that there can be different training requirements between the personnel transferring and those assisting the transfer, i.e. vessel crew. All passengers should be provided with a full briefing prior to the transfer, for the particular method or device to be used.

3.3 Responsibility

The duties of personnel supervising or otherwise involved in personnel transfer should be clearly defined. The people likely to be involved are:

- Master(s) of the vessel(s) involved in the transfer;
- offshore installation manager (OIM) of the offshore structure/mobile offshore drilling unit (MODU)/barge;

- marine co-ordinators planning and despatching personnel for transfer in the offshore renewable energy industry;
- coxswains and crew of personnel transfer vessels including FRB/FRC crew;
- crane operators;
- banksmen and/or deck crew at each end of the personnel transfer operation;
- personnel being transferred.

The responsibility for the safety of personnel during the transfer lies with the respective Masters or OIMs of the vessels or offshore structures involved. There should be full co-operation between the respective Masters or OIMs. They should consider and evaluate, with appropriate input from other relevant personnel, whether or not the transfer can safely take place. The responsibility and final authority to determine if the transfer should proceed remains with the Master of the vessel from or to which the personnel are being transferred. However, if the person being transferred is unhappy with the transfer procedure, weather conditions, equipment or any other part of the transfer process, then they have the right to not proceed with the transfer.

3.4 Communications

Radio and visual communications between the personnel involved should be established prior to transfer operations. Communications should be maintained during operations and should be tested and verified at regular intervals throughout the transfer operation. All participants involved in the transfer should be briefed prior to the transfer to ensure that the procedures to be followed are understood. See IMCA D 046/IMCA M 205 – *Guidance on operational communications*.

4 Types of Personnel Transfer

The methods of transferring personnel between vessels, offshore structures and the quayside considered in this document are:

- personnel transfer carrier;
- gangways, bridge or accommodation ladders, including motion-compensated hydraulic gangways;
- small boat or launch;
- larger crew boat or support vessel;
- mating 'surfer' structures allowing personnel to transfer safely.

There may be some cases where more than one technique is used; for example, persons transferring by small boat or crew boat may additionally need to make use of personnel transfer carriers, ladders or gangways.

4.1 Personnel Transfer Carrier

IMCA SEL 019/IMCA M 187 – *Guidelines for lifting operations* – contains useful guidance for lifting operations.

Subject to local regulations, company and client procedures, transfers by personnel carrier to or from vessels or offshore structures can be undertaken using a number of different devices. The three main devices used are:

- Collapsible net – the oldest personnel transfer carrier design, in which personnel are transferred whilst holding onto the outside of the lifted structure. This type requires the tension to be maintained in the crane wire. The use of these non-rigid type carriers should be discouraged due to carrier instability, especially when they are submitted to any kind of vessel/crane movement;
- Rigid basket – unsecured, standing passenger position, within a rigid internal or external framework with impact protection from a cushioned base;
- Rigid capsule – secured seated passenger position, stainless steel frame and buoyancy for floating and self-righting. In some cases seating is mounted on a suspension system.

Figure 1 – Personnel transfer using a rigid basket (photo: Seaway Heavy Lifting)

Figure 2 – Personnel transfer using a transfer capsule (photo: Reflex Marine)

In some situations, crane transfer may be the only feasible means of transferring personnel at sea, for example, when there is a significant height difference between respective decks. Crane transfers should only be undertaken when transfer is essential and cannot be undertaken by other means.

In the offshore renewable energy industry crane transfer may be the only method of transfer from jack-up installation vessels. Careful consideration should be given to the type of vessel with which the personnel carrier will be used. The CTVs commonly used for transfers in the offshore renewable energy industry have very limited deck space, generally have well decks with raised bulwarks and are difficult to keep in a precise position below a crane if they are not 'pushed on' to a boat landing. This makes their use for crane transfer limited. A detailed risk assessment should be carried out before planning such an operation.

The following additional factors should be taken into consideration:

- the necessity of the transfer and alternatives available;
- the suitability of the vessel(s) to maintain station;
- size of the landing area on the vessel with particular attention to obstructions that may interfere with the carrier in a drive off/drift off scenario;
- the likely route of the carrier during transfer and any differences in freeboard between the vessels or offshore structures involved;
- any wind speed, vessel movement or other operating limitations of the crane to be used;
- any other operations that may directly or indirectly affect the transfer.

It should be ensured that:

- the crane operator is competent for man-riding operations;
- the crane is fully operational and certificated for man-riding operations;
- the transfer carrier is visually inspected before starting the transfer;
- communications between banksmen, crane and vessel are in place and working;
- environmental and vessel motion conditions are suitable;
- relevant crane operator and banksmen have good visibility of the pick-up, transfer and landing area.

4.1.1 Equipment

The crane used in the transfer operation should be adequate and suitable for lifting persons and should be certified for man-riding; that is, for use in carrying personnel, under any relevant legislation, company and client requirements. Freefall or non-powered lowering should not be used during personnel carrier transfer operations. The transfer carrier should be correctly rigged onto the crane prior to transfer and the crane hook pennant should be of sufficient length to keep the hook well clear of the personnel being transferred. A positive locking device should be used between the crane hook and the personnel transfer carrier. The certification, security and integrity of the entire lifting system, including wire ropes, rigging, shackles, safety slings and hooks, should be checked as appropriate for man-riding.

Tag lines are often attached to the underside of the carrier to enable control of the swing when raising and lowering the carrier. Consideration should be given to the length/position of the tag lines to guard against the possibility of the tag lines becoming snagged.

The personnel carrier should provide protection from the potential risks of crane transfer. These risks are falling, lateral impacts, hard landings and immersion. The personnel carrier should be checked before use and should be in good condition at the time of use. The carrier should be marked with its safe working load. It should be appropriately certified with a current certificate of test and/or inspection. The carrier must not be operated beyond its safe working load.

Procedures should be available setting out methods of maintenance and storage together with instructions related to inspection before use.

4.2 Gangway, Bridge and Accommodation Ladder Transfer

Gangways and accommodation ladders are the primary means by which personnel transfer between a vessel and the quayside, and occasionally from one vessel or offshore structure to another. There is a wide variation in types of gangway. Gangways and accommodation ladders should be constructed of appropriate material, be of appropriate width and should be fitted with non-slip walkways and handrails. Equipment should be regularly inspected and maintained; including a visual check to ensure it is clean and free of slip/trip/fall hazards. Appropriate certification of the gangway or accommodation ladder may be required. Where there is the possibility of personnel falling from the gangway or accommodation ladder, an appropriate safety net should be used. The safety net should not be attached solely to the gangway or accommodation ladder. If a gangway type, for example, such as an Ampelmann™ is to be used, then the use of a safety net may not be required due to the gangway sides being enclosed. This should be verified by a risk assessment. Where required, a life buoy fitted with a line and water activated light should be readily available.

Gangways and accommodation ladders should be adequately lit along their full length. Their approaches and egress routes should be kept free of obstructions and trip hazards and should provide direct and safe access to the deck at each end. Gangways and ladders should not be used at angles of inclination which render their use unsafe. All gangways and personnel using them should be monitored and controlled. The fittings, such as stanchions and handrails, should be monitored and adjusted as required. When mounted onto a bulwark, a bulwark ladder or other arrangement fitted with handrails should be in place so personnel do not have to jump or climb down to the deck.

4.2.1 Bridges

Some larger vessels (for example heavy-lift crane vessels, pipelay barges, accommodation vessels or MODUs) have long (around 50m) bridges to effect transfer of personnel. These can be fixed at one end and slide on rollers at the other end to allow for relative movement. Such equipment can also be hydraulically controlled and can be lifted into place and supported by a crane or else have its own dedicated support mechanism. They may be fitted with alarm systems activated by a certain amount of movement. The bridges and the personnel crossing them should be closely monitored and controlled.

4.2.2 Heave Compensated Gangways

These are purpose-designed gangways mounted on a vessel which connect to another vessel/ offshore structure to allow personnel to pass safely across. They are fitted with hydraulic active heave compensation which adjusts the gangway length and/or horizontal/vertical angles to compensate for the vessel relative movement. Some systems can compensate for the six degrees of movements associated with the pitch, heave and roll of a vessel offshore which effectively widens the weather window when accessing the structures. In the case of gangway failure there should be a well documented and practised survival/emergency plan in place before any transfer is attempted. Such equipment may also be fitted with a 'traffic light' system to prevent movement of personnel onto the gangway if any automatic adjustments are taking place. In the offshore renewable energy industry the use of dynamically stabilised gangways is becoming more widespread. Some are adapted to also assist in cargo transfer, such as carriage and positioning of grout hoses. Care should be taken to ensure that such stabilised gangways are always used within their design criteria.

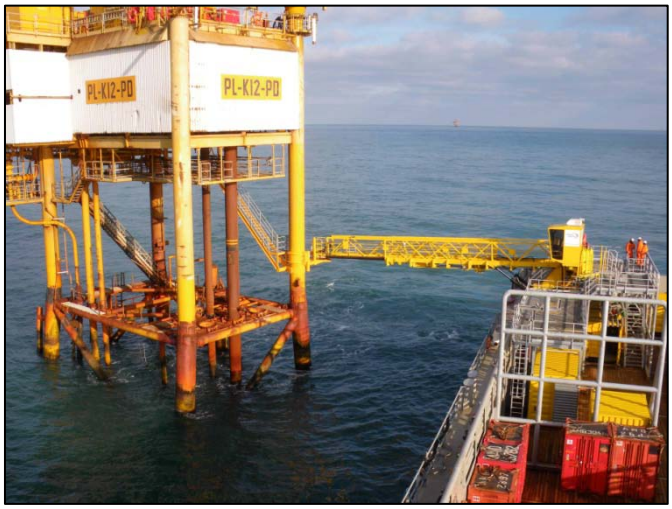

Figure 3 – Personnel transfer using a purpose-designed hydraulic gangway (photo: Mermaid Offshore)

Figure 4 – Personnel transfer using a dynamically stabilised gangway (photo: Ampelmann)

Other factors to take into account when considering the use of gangways, bridges and accommodation ladders include:

- the angle at which the gangway or accommodation ladder is installed;
- the height difference between access points on vessels and any movement resulting from tidal changes;
- vessel beam is suitable to provide stability to platform;
- the requirements of the ISPS Code particularly with reference to gangway watches when in port.

4.3 Offshore Renewable Energy Industry Transfers

Transfer of personnel in the offshore renewable energy industry follows similar principles to that in the traditional offshore construction or oil and gas industries but there are some differences:

- The majority of personnel transfers are made using small vessels of 10m to 30m in length using a 'surfer' arrangement (see section 4.5.1.1);
- Crew transfer vessels (CTVs) in the offshore renewable energy industry are generally of a displacement less than 500 tonnes and those mating with surfers are normally limited to 100 tonnes due to impact forces on the boat landings. Most boat landings are limited to a static impact force of between 200 and 240 kN and an emergency dynamic impact of 1,000 kN though the specifics for each structure will need to be determined at the time;
- Personnel are primarily transferred from a base port ashore or accommodation offshore to the foundation structure of the wind turbine or other renewable energy generator and return at the end of the day;
- Depending on the capability of the CTV, transfers are generally limited to 12 passengers, with only a few vessels certified to carry over 12;
- The potential wave height in which transfer can take place can vary from location to location. In all cases, it should be demonstrated that the risks identified in section 3.1 have been appropriately assessed and mitigated. The maximum wave height at which transfer is allowable may be increased through use of transfer access systems such as dynamic gangways or active fenders;
- CTVs may also carry cargo which can be handled on the forward or after decks using the cranes mounted on the renewable energy structure or installation/support vessels;
- Landing areas for personnel transfer by carrier are often small or limited which can impact safe transfer;
- Personnel being transferred should be using the appropriate PPE as described in section 3. Additionally, personnel should have received appropriate training in climbing and, according to the on-location risk assessment, be wearing immersion suits that are suitable for climbing.

4.4 Vessel to Vessel Transfer Using a Small Boat

For the purpose of this document a small boat is any craft of a type likely to be stowed on a larger vessel, platform, barge or offshore structure, and most often launched and recovered from some form of davit. Typically such craft are less than 10m in length. Vessel to vessel transfer using a small boat should only be undertaken when alternative means for the transfer are impracticable or less safe. Such transfers can be particularly challenging, particularly for inexperienced personnel. A person should be available in the small boat and on the vessel or offshore structure to assist those being transferred.

Weather and sea state should be assessed by the Masters of the vessels involved so as to determine if it is suitable for the use of a small boat and to allow close approach and safe transfer even when making a lee. A small boat and crew should be standing by and available for launching from one of the vessels.

In the offshore renewable energy industry, it is becoming more common to use small boats launched from an offshore accommodation vessel. These small boats should be outfitted with a 'surfer' bow fender arrangement for transferring personnel to the offshore renewable energy structure boat landing.

4.4.1 Equipment

The small boat used should be outfitted for the number of persons to be transferred and should comply with applicable regulations for the area of operation. Persons being transferred should use an approved inflatable life jacket and, for colder climates, an appropriate survival suit should be worn.

The coxswain of the small boat employed for the transfer should ensure that:

- the small boat is sound and fully operational;
- emergency equipment (water, radio, flares, torch, man overboard equipment, etc.) is available onboard;
- lifebelt and heaving line are available for use from either station at the transfer point.

4.5 Crew Boat Transfer

Personnel transfer can also be accomplished using larger vessels, sometimes referred to as 'crew boats'. For the purposes of this document a 'crew boat' may be defined as a vessel which is used in the transport of offshore support personnel, deck cargo, and below-deck cargo such as fuel and potable water to and from offshore installations. Such vessels may not be required to have either an International Safety Management (ISM) or an International Ship Security certificate (ISPS), although it would be good practice to follow the principles outlined within those two codes.

The seaworthiness, size and type of the crew boat to be used in the personnel transfer should be carefully considered, as should the length of the voyage and the means of transfer from the crew boat to the destination vessel. Crew boats used should be appropriate to the area of operations, for example the prevailing sea and weather conditions. It may be appropriate to obtain documentary confirmation of the competence of the personnel handling the crew boat, as well as the condition of the vessel being used, before going ahead with a crew boat transfer.

In the offshore renewable energy industry CTVs are generally between 10 and 30m in length, have a displacement of less than 100 tonnes and are often of catamaran construction for stability at zero speed. Construction material in smaller vessels is usually aluminium with glass reinforced plastic (GRP), however steel and carbon fibre are also used. Propulsion can be by fixed or controllable pitch propellers or azimuthing type units, and some vessels could be assisted with bow or stern thrusters. Use of water jets can be used for increased manoeuvrability. Dynamic positioning systems are not currently commonly fitted but higher specification vessels may have joystick control. As the majority of vessels are less than 24m in load line length and carry no more than 12 passengers these are non SOLAS Convention vessels and fall under their flag states' domestic workboat construction and certification rules. However there is a trend for larger, high specification CTVs to be constructed according to classification rules with many of the International Association of Classification Societies (IACS) producing rules specific for the offshore renewable energy industry. Some European countries enforce domestic construction and crew certification standards which may require vessels in those countries to apply for a cabotage certificate.

4.5.1 Embarkation/Disembarkation

The means of embarking and disembarking personnel to and from the crew boat at either end of the transit is very important. This should be conducted in as safe a manner as possible, as it can prove to be the most hazardous part of the operation.

In practice, personnel transfer by crew boat may also include transfer by small boat, personnel carrier, gangway, surfer or accommodation ladder. Consideration should be given to the available deck space and layout before planning to do transfers via accommodation ladders. Participants involved in the transfer should be briefed on the procedures and on the life saving and emergency equipment available.

When the crew boat comes alongside a vessel or offshore structure, relative movement should be taken into consideration, as should the relative heights of the decks between which personnel transfer is made. Assistance should be available at either end of the personnel transfer and there should be an experienced person present to supervise the moment of transfer and maintain communications with the bridge. However, in the case of unmanned structures this assistance may not be available. Personnel should only step across with the ability to freely use both hands and some form of handrail or support should be provided. Where necessary there should be access in or through bulwarks using movable gates, such that personnel need not climb over rails or bulwarks during transfer.

The relative position of fenders on vessels and units should be taken into account, together with any likely action of the water surging up between the crew boat and the vessel or structure when in close proximity.

4.5.1.1 Surfers or Boat Landings

Specially designed attachments to crew boats, larger vessels and offshore structures, often referred to as 'surfers' or boat landings, are sometimes used. These may take the form of a purpose built device on the bow of a crew boat ('male' section), designed to fit into a receptacle frame or structure on a larger vessel or offshore structure ('female' section).

The 'female' section will consist of vertical tubes connecting to the structure foundation or larger vessel. Care should be taken to ensure that these boat landing tubes are of sufficient strength to absorb the impact of the CTV in heavy weather, and of sufficient length to accommodate the tidal range and wave height rise and fall. This should ensure that the bow of the CTV cannot land on top or be trapped underneath the tubes and that the structure is suitably supported along its entire length. The bow fender arrangement for these vessels is particularly important as it needs to be of a suitably adhesive material to ensure high friction. This should prevent the bow slipping during transfer and will absorb and transfer the impact into the vessel structure. Additionally it will provide a suitable landing position for the Master to manoeuvre onto the boat landing and give sufficient 'step over distance' between the nose of the fender and the ladder to ensure the safety of the transferred personnel if the bow slips. This step over distance is generally between 500 and 650mm, but as boat landings are not of standard designs this can change between projects.

The crew boat or smaller vessel approaches and docks with the 'surfer' receptacle allowing personnel to step safely across.

Figure 5 – Personnel transfer from a crew boat to a larger vessel using a 'surfer' (photo: Saipem)

Figure 6 – Personnel transfer from a CTV to an offshore wind turbine boat landing (photo: Workships Contractors)

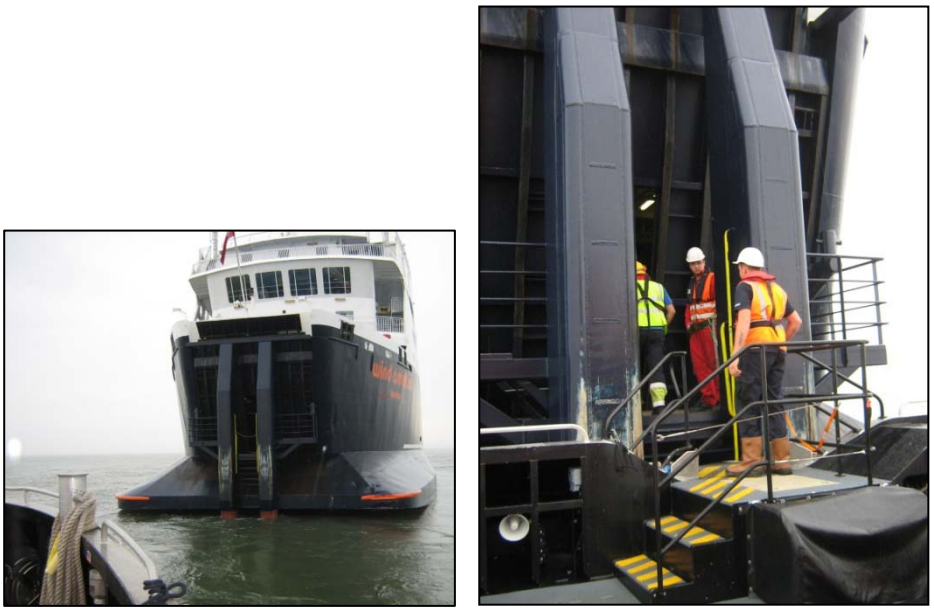

Figure 7 – Personnel transfer from a CTV to an offshore accommodation vessel boat landing (photos: Workships Contractors)

4.5.1.2 Transfer Access Devices

In the offshore renewable energy industry there are technological developments to increase both the safety and availability of transfers in increased weather conditions through the use of transfer access devices. These use mechanical methods to grip the boat landing and/or provide a dynamically stabilised access to the ladder.

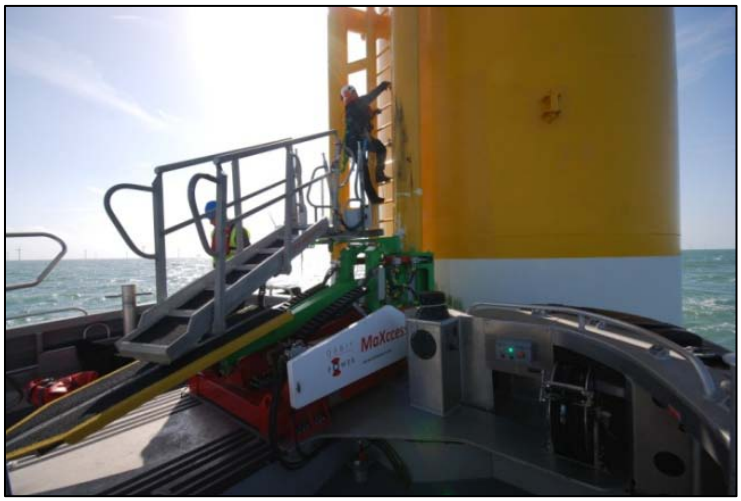

Figure 8 – Personnel transfer from a CTV using a transfer access system (photo: Osbit Power Ltd)

4.5.1.3 Swing Ropes

The use of swing ropes is not recommended in this guidance. Their use has, however, been seen in a few areas. If local regulations and relevant company and client procedures allow their use for personnel transfer, great care should be taken and at least the safety aspects highlighted in the guidance in this document should apply, particularly with reference to the safety of equipment, the familiarity of personnel with the equipment and method of transfer, their fitness and ability to use such equipment and the need for appropriate planning, control and supervision of transfer.

4.5.2 Equipment

The crew boat used for the transfer should be in seaworthy condition. IMCA S 004/IMCA M 189 – *Common marine inspection document* – provides guidance on the selection of a suitable vessel. The following areas in particular should be considered for personnel transfer operations:

- visibility of the transfer area by the Master either directly or via closed circuit television (CCTV);
- clear deck space in the transfer area free from obstructions, including room for a vessel crew member to assist transferring personnel;
- suitable securing arrangements for the crew member to be tethered when assisting in transfer operations;
- non-slip deck coatings at and around the transfer location;
- personnel locator beacon (PLB) system for man overboard incidents;
- ability to recover a person from the water using only the minimum number of persons onboard.

There should be appropriate materials and equipment on board, including radar, up-to-date charts for the area in which the crew boat is operating, radio, navigation, safety and emergency equipment, to ensure the safety of the personnel in transit.

4.5.3 Passenger Accommodation and Safety Equipment

Crew boats should have sufficient life jackets and life rafts for all personnel onboard and be certificated to carry the actual number of persons onboard. A safety briefing should in all instances be provided before the start of the voyage. It should include alarm signals, muster stations, location of life jackets and life rafts, firefighting equipment, escape routes in the event of emergencies, location of emergency equipment such as flares etc., location of toilet and other comfort facilities and the approximate length of the voyage. Escape routes should also be clearly signed.

Crew boats should have sheltered seating areas with comfortable seating appropriate to the duration of transit, sufficient potable water available for the number of personnel in transit and appropriate toilet facilities. Crew boats engaged in longer voyages should have further relevant facilities available which could include a galley to prepare meals for personnel in transit, an appropriate supply of fresh water, a mess room and appropriate sleeping areas. Where this is necessary the crew boat should have sufficient personnel and stores to prepare meals for personnel in transit. Appropriate care should be taken to minimise seasickness and fatigue amongst personnel in transit. Suspension seating with full-height back rests and safety belts for protecting personnel from vibration and collision impacts may be fitted in some instances.

Luggage should be stored in a sheltered area and separate arrangements should be made for the safe transfer of luggage to and from the crew boat at either end of the journey.

4.5.4 Pilot Transfer

Pilot ladders, for use by pilots boarding or leaving a vessel, are purpose-made ladders fitted with wide spread rungs at a particular spacing and rigged together with manropes. Pilots are competent with their use and it should not be assumed that other personnel would be proficient in climbing or descending a pilot ladder, or fit to do so.

National maritime safety administrations are urged to accept ladders complying with *ISO 799:2004 – Ships and marine technology – Pilot ladders* – as complying fully with the requirements of the *1974 International Convention for the Safety of Life at Sea (SOLAS) Chapter V Regulation 23 – Pilot transfer arrangements*. Brief guidance on the use of pilot ladders is also published by the International Maritime Pilots' Association (IMPA). This is available for download from the IMPA website (www.impahq.org).

Further detailed technical specification for pilot ladders can be found in IMO Resolution A.889(21).

5 Further Information

Further information can be found in the following documents:

- SEL 019/IMCA M 187 – *Guidelines for lifting operations*
- IMCA D 046/IMCA M 205 – *Guidance on operational communications*
- IMCA S 004/IMCA M 189 – *Marine inspection for small workboats (Common marine inspection document for small workboats)*
- IMCA SEL 08/01 (information note) – *Guidelines on transfer of personnel by on the UK continental shelf*
- IMCA SEL 36/04 (information note) – *Personnel transfer by basket*
- SOLAS Chapter V Regulation 23 – *Pilot transfer arrangements*
- IMPA – *Shipping industry guidance on the rigging of ladders for pilot transfer*
- National Workboat Association – *Good practice guide for offshore energy support vessels*
- RenewableUK – *Vessel safety guide*
- Offshore Mechanical Handling Equipment Committee (OMHEC) – *Lifting of personnel offshore: Transfer between installation and vessel*