

## FALLS FROM A HEIGHT

### SUMMARY

1. The number of accidents involving falls from a height declined in 2001/02 when compared to previous years. However, falls from a height still account for a significant proportion of the major injuries arising in shipyards and therefore remain a cause for concern.

### BACKGROUND

2. Paper 45/D identified that if the shipbuilding and repair industry is to meet the Revitalising Health and Safety Targets, efforts need to be made to reduce the number of accidents arising from falls from a height. This paper continues the discussion by updating the accident data contained in 45/D.

3. Provisional data for 2001/02 indicates a decline in the number of accidents involving falls from a height. The majority of this decline was due to a significant reduction in over 3 day accidents. By contrast there was only a slight decline in the number of major injuries arising from falls from a height, which account for 23% of the major injuries in shipyards. As a result falls from a height continue to give cause for concern. This is reinforced by a recent fatal accident involving a crew member falling over the edge of a dry dock. The dry dock edge protection was badly corroded.

4. Appendix 1 attached contains a draft Sector Information Minute (SIM) on falls from a height. Paper 45/D contained details of falls from a height accidents investigated by HSE Inspectors over a 4-year period. Appendix 2 of the SIM reproduces these accidents and for each one adds appropriate preventative measures.

5. Appendix 2 attached contains summaries of notifiers' initial comments taken from F2508s received in relation to falls from a height in ship yards and boat yards over a 2-year period. The accidents have been grouped according to the casual agent involved, ladders and stepladders together accounting for the biggest proportion of the accidents (51%). A person slipping off a ladder is the most commonly quoted cause of accident and descending a ladder is the most commonly quoted activity being undertaken at the time of the accident.

### ACTION

6. Members are asked to:

- note the preventative measures detailed in appendix 1 and to:
  - verify where appropriate that they have such measures in place; and

- comment on these measures at the 47<sup>th</sup> SSHSCC meeting including whether there is any additional/alternative action that could be taken.
- to note the significant role played by ladders and stepladders in falls from a height and to discuss action that members can take either individually or collectively to address either this issue or falls from a height in general. Possible action including for example a ladder awareness week, the use of toolbox talks, audits focusing on the use and condition of ladders and stepladders etc.

## APPENDIX 1 – DRAFT SECTOR INFORMATION MINUTE

<b>Health and Safety Executive Field Operations Directorate Engineering and Utilities Sector Falls in shipyards</b>		<b>Sector Information Minute</b>	
		<b>SIM /2003/</b>	
<b>Cancellation Date</b>	<b>For FOD SIU use</b>	<b>Open Government Status</b>	<b>Fully Open</b>
<b>Version No &amp; Date</b>	<b>For FOD SIU use</b>	<b>Author Unit/Section</b>	<b>Engineering and Utilities Sector</b>

### FALLS FROM A HEIGHT IN SHIPYARDS

Falls from a height are a significant hazard and are an important cause of fatal and major injuries in shipyards. This SIM identifies the main causes of such accidents and preventative measures that can be taken.

#### BACKGROUND

1 While the number of accidents involving falls from a height in shipyards has recently declined they still account for 23% of major injuries. Historically they remain the single most significant cause of death. It is therefore appropriate for inspectors to raise this issue when visiting shipyards as part of the falls from a height priority programme. Inspectors are asked to note the areas of concern identified below and the preventative measures that can be taken. The SIM should be read in conjunction with the shipyard guidance contained in the falls from a height topic pack.

#### ACCIDENT HISTORY

2 Provisional accident data for shipyards for 2001/02 shows a welcome drop in the number of accidents involving falls from a height (see appendix 1). Falls from a height now accounting for 9% of all shipyard accidents compared to 15% for the period 1996/97 to 2000/01. It is not clear however whether this reduction in falls will be sustained. The majority of the reduction was also in over 3-day accidents, the proportion of major injuries involving falls from a height only showing a slight decline. Falls from a height remaining the second most important cause of major injuries. There has also been a recent

shipyard fatality involving a high fall. As a result falls from a height remain a cause for concern for the Sector. Inspectors are therefore asked to continue to raise this issue as part of the falls from a height priority programme when visiting shipyards.

## ACCIDENT PROFILE

3 FOCUS investigation reports for falls from a height in shipyards from 1998 to 2002 are summarised in appendix 2. The summaries have been grouped according to the main causal factors listed according to their order of importance. With the exception of falls through open voids the factors identified appear similar to those for falls in other industries. Action that could have prevented the accident is detailed including action that was taken after the event. Inspectors are asked to consider the issues raised when assessing the measures that shipyards have in place to prevent falls from a height from wherever work activities are carried out.

### Appendix 1 – Accident history

<b>FALLS FROM A HEIGHT - HIGH FALLS</b>							
	96/97	97/98	98/99	99/00	00/01	01/02	Total
F & M*	18	12	10	9	10	7	66
>3 day	13	10	12	12	10	1	58
Total	31	22	22	21	20	8	124

<b>FALLS FROM A HEIGHT - LOW FALLS</b>							
	96/97	97/98	98/99	99/00	00/01	01/02	Total
F & M	18	15	28	20	14	13	108
>3 day	38	44	56	41	45	10	234
Total	56	59	84	61	59	23	342

<b>FALLS FROM A HEIGHT - HEIGHT NOT KNOWN</b>							
	96/97	97/98	98/99	99/00	00/01	01/02	Total
F & M	7	4	3	2	3	2	21
>3 day	5	8	11	9	7	11	51
Total	12	12	14	11	10	13	72

<b>TOTAL FALLS FROM A HEIGHT IN SHIPYARDS</b>								
(Number of fatalities in brackets - all high falls)								
	96/97	97/98	98/99	99/00	00/01	01/02	Total	Yearly aver.
F & M	43 (2)	31 (1)	41 (1)	31 (1)	27	22	195(5)	32
>3 day	56	62	79	62	62	22	343	57
Total	99	93	120	93	89	44	538	89

Appendix 2 – Accident profile and preventative measures UNSAFE SCAFFOLDING/STAGING	
Accident	Preventative measures
<p>Staging less than 2m above deck slipped apart causing IP to fall 3 m between decks.</p> <p>Platform less than 2m above deck with inadequate edge protection, positioned adjacent to stairway. IP fell 5m sustaining multiple injuries.</p>	<ul style="list-style-type: none"> <li>▪Where staging is adjacent to deck stairwells make sure the additional height is considered and guardrails are fitted. Where there is a drop of less than 2m guardrails should be fitted where the risk assessment deems it necessary.</li> <li>▪All staging regardless of height to be erected by nominated persons who are suitably trained.</li> <li>▪Provide adequate supervision by trained individuals (specific courses are available for those who have to inspect scaffolding including charge hands and safety officers) to ensure scaffolding is erected correctly.</li> </ul>
<p>Scaffold board fell from scaffolding due to a missing tie. Scaffold inspected weekly but lack of a tie possibly overlooked due to volume of scaffolding.</p>	<ul style="list-style-type: none"> <li>▪A scaffolding examination regime, which includes a tagging system for sections of staging or discreet units of staging.</li> </ul>
<p>Tower scaffold partially dismantled after use. IP accessed the scaffold to inspect the work; while he knew the scaffold was unsafe he thought it would be okay, as just short-term access was needed.</p>	<ul style="list-style-type: none"> <li>▪Completely dismantle scaffolding as soon as it is not required.</li> <li>▪Where scaffolding is incomplete attach signs warning it is not to be used.</li> <li>▪Make employees fully aware: i) of their legal obligation not to put their own safety at risk. ii) all work at a height is inherently dangerous regardless of how short or minor it is.</li> </ul>
<p>IP fell from Youngman board on tower scaffold base. The board overhung the scaffold support and toppled when IP stood on end.</p>	<ul style="list-style-type: none"> <li>▪Provide those who use scaffolding with a basic ability to identify unsafe scaffolding.</li> <li>▪Persons who erect tower scaffolding should be competent with suitable training.</li> </ul>
<p>IP had to saw off the overhanging lengths of wooden planks on a storage platform. As he stepped onto the wooden planks they gave way causing him to fall 3.5m. A lack of lighting meant it was not possible to see that the boards had dry rot.</p>	<ul style="list-style-type: none"> <li>▪Make sure all work areas are adequately lit and that the condition of staging used for storage is periodically checked. For further details on lighting see HSG38 <i>Lighting at work</i>.</li> <li>▪Scaffolding boards should be checked that they suitable for continued use before they are reused</li> </ul>
<p>IP fell 2m from staging when scaffold boards moved. The staging was floodlit but IP was in an area of shadow.</p>	

OPEN VOIDS	
Accident	Preventative measures
<p>Large opening in deck had been covered with plastic film to prevent dust entering hull. No edge protection or covers provided. IP stepped onto plastic not realising what it was and fell over 2m causing serious injuries to head and back.</p>	<ul style="list-style-type: none"> <li>▪Pre-start survey to identify existing voids in work areas and along access/egress routes, plus those that will be created by the work.</li> <li>▪Permanently close over the open void as soon as is possible</li> </ul>

<p>IP stepped into tank opening, which he thought was covered, but was not. Opening covered by rubbish, subsequently properly covered.</p>	<p>as is possible.</p> <ul style="list-style-type: none"> <li>▪Where the void cannot be permanently closed: i) provide blanking plates or temporary covers that are of an adequate strength, light enough to handle and cannot be readily dislodged; or ii) erect guard rails fastened in position.</li> </ul>
<p>IP fell through a gap where an old stairway had been whilst searching attic storage area in the dark. The temporary edge protection provided was not secured.</p>	<ul style="list-style-type: none"> <li>▪Prohibit non-load bearing items e.g. cardboard, dustsheets, floor coverings etc. from covering open voids.</li> <li>▪Keep the immediate area around the void clear of debris and well lit so that it is clearly visible.</li> <li>▪Establish a procedure for managing the risks associated with open voids that identifies the hazard they present and the control measures needed.</li> <li>▪Instruct employees and supervisors in the dangers presented by open voids and maintain a high level of supervision to ensure established procedures are followed.</li> <li>▪Hold regular toolbox talks to remind people of the hazards and the control measures needed.</li> </ul>
<p>IP fell through opening whilst laying lighting necklace through fuel tanks prior to work commencing. He had not been provided with lighting for himself.</p>	<ul style="list-style-type: none"> <li>▪Provide all workers who may have to work in the dark with suitable temporary lighting; torches should be a last resort. Note: lighting (or any other electrical equipment) must be suitable for the environment.</li> </ul>
<p>IP fell through a hole in the engine room where a floor plate had been removed.</p>	<ul style="list-style-type: none"> <li>▪Return floor plates to position as soon as is possible.</li> </ul>
<p>IP fell through an open hatchway during the fitting out of a vessel.</p>	<ul style="list-style-type: none"> <li>▪Provide hatch covers, which can support a person's weight but remain easily handled.</li> </ul>

<p><b>USE OF LADDERS</b></p>	
<p><b>Accident</b></p>	<p><b>Preventative measures</b></p>
<p>IP accessed a platform 3 m above floor level using a wooden ladder. The ladder was not tied or footed despite help being available. The ladder slipped on the floor.</p>	<ul style="list-style-type: none"> <li>▪Identify the need for safe access and make sure it is available before work commences.</li> <li>▪Eliminate the need for ladder access wherever possible e.g. by using a fixed stairway where access is needed over a long period of time.</li> </ul>
<p>IP climbed a ladder to access a lifting shackle on top of a container. The ladder slipped on the ship's deck, which was wet. IP fell to the deck fracturing ribs.</p>	<ul style="list-style-type: none"> <li>▪Make sure all employees and supervisors are aware of the need to either tie a ladder or have it footed.</li> </ul>
<p>IP fell 3 m to ground when the ladder he was descending slipped. It had been footed on the way up but not on the way down.</p>	<ul style="list-style-type: none"> <li>▪Where a ladder cannot be tied make sure people are available to foot the ladder and that help is requested.</li> </ul>
<p>IP used a ladder as opposed to using the available tower scaffold. IP fell when the ladder slipped; it was neither tied nor footed.</p>	<ul style="list-style-type: none"> <li>▪Maintain a high level of supervision to ensure the above is followed.</li> <li>▪To reinforce training discuss ladder safety as part of toolbox talks.</li> <li>▪Ladder users should be trained in the safe use of ladders.</li> <li>▪Ladders should be in good condition. They should be identified and subject to pre use checks and recorded inspections. For example metal ladders that do not have anti slip feet (bare metal) at the ends of the stiles (top and bottom contact points) are patently defective.</li> </ul>

SLIP/TRIP	
Accident	Preventative measures
IP working inside hull of vessel, whilst walking along the spray rail he slipped down smooth surface of the mould to bottom of boat	<ul style="list-style-type: none"> <li>▪ Provide alternative working platform e.g. suspended scaffold platform fitted with guard rails; or</li> <li>▪ Provide suitable fall restraint</li> </ul>
IP stepped down approximately 800 mm from vessel onto staging below, whilst carrying toolbox. He did not see planks left on the staging and fell landing on top of his toolbox.	<ul style="list-style-type: none"> <li>▪ Maintain a high standard of housekeeping on staging.</li> <li>▪ Ensure employees access/egress vessels by correct route.</li> </ul>
IP leaving deck of ship slipped on wet rungs and fell 3m from inset vertical dockside ladders. Hoops around the ladder restricted ship access to dock and had been removed.	<ul style="list-style-type: none"> <li>▪ Where possible provide alternative safer means of access/egress.</li> <li>▪ Paint ladder with anti-slip paint.</li> <li>▪</li> </ul>

GENERAL POOR CONTROL OF PHYSICAL STANDARDS	
Accident	Preventative measures
IP stepped off vessel via an unfixed bathing platform. The platform overbalanced and tipped, sending the IP through a gap between the vessel and adjacent staging. Generic risk assessments failed to record exact details of how falls may occur.	<ul style="list-style-type: none"> <li>▪ Provide supports cantilevered off the staging to support the platform.</li> <li>▪ Fit hinged flaps to the staging to fill in the gaps between the staging and the vessel.</li> <li>▪ Do a risk assessment specific to the vessel and the task, which identifies all risks of falling.</li> </ul>
IP walking down stairs onboard, failed to notice the floor had been taken up and the bottom step was missing. IP fell onto the floor joists.	<ul style="list-style-type: none"> <li>▪ When flooring has to be removed provide a notice to forewarn people before they reach the area involved.</li> <li>▪ Restrict access to only essential personnel.</li> <li>▪ Make sure the area is well lit.</li> </ul>
IP suffered low fall when purpose designed steps provided for access from rear deck to vessel's hull for purpose of fitting out, slipped away. Steps not secured.	<ul style="list-style-type: none"> <li>▪ Make sure all access steps regardless of height, are securely fastened.</li> <li>▪ Regularly monitor the steps to ensure they remain securely anchored.</li> </ul>
IP fell 3 m when a plank he was using to access a vessel broke. One end of the plank placed on the quay wall, the other on top of the vessel's wheelhouse.	<ul style="list-style-type: none"> <li>▪ Ensure a safe means of access is always available.</li> <li>▪ Make sure all employees are sufficiently trained and instructed on the dangers of falls from a height and are aware of their legal obligation not to put their own safety at risk.</li> </ul>

NO FALL ARREST OR GUARDRAILS	
Accident	Preventative measures
DP fell 11m from open altar edge step of a dry dock while disconnecting a seawater hose. Access to seawater hydrant was via a 610 mm wide altar step with no edge protection, running line or other safety harness anchor point.	<ul style="list-style-type: none"> <li>▪ Use a safety harness attached to a running line along the inside of the altar step; or</li> <li>▪ Provide alternative suitable means of anchorage.</li> <li>▪</li> </ul>
Crewmember fell 14m to his death from a lifeboat whilst preparing to take it ashore for maintenance. Not clear exactly from where or why he fell. Practice of climbing along steel work to access the lifeboat instead of using a ladder. Boat was 1	<ul style="list-style-type: none"> <li>▪ Provide access ladders capable of being held in position.</li> <li>▪ Wear a harness with suitable anchorage e.g. a span wire running from one davit to the other. The most suitable anchorage will vary from boat</li> </ul>

<p>m deep but high points (thwarts) were only 300 mm deep. Harnesses not worn.</p>	<p>The most suitable anchorage will vary from boat to boat. Whoever decides should be competent to do so. Consider the number of people likely to be working in the boat at any one time. Where there is more than one person in the boat steps will be needed to try and prevent the lanyards from entwining. The fall arrest equipment provided must be able to arrest the fall within the available fall height. For example any fall height of 6 metres or less the suitability of equipment should be questioned, especially if a horizontal life line (running line) is being used. (Procedures for rescuing any person suspended from fall arrest equipment will need to be established.) The lanyard should be inspected according to INDG367 - Inspecting fall arrest equipment made from webbing or rope.</p>
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FRAGILE ROOFING MATERIALS	
Accident	Preventative measures
<p>Painter sustained multiple injuries in 7.2 m fall through fragile roof skylight. IP fell off cat ladder positioned over skylight, only 1 hr into job.</p>	<ul style="list-style-type: none"> <li>▪Where possible arrange the work to avoid passing over the skylight. Barrier off approach to fragile roof light, single rail if 2 metres away or greater - do not accept bunting or painted lines. If closer than 2 metres provide edge protection with guardrails or a secured cover that is strong enough.</li> <li>▪Where the above is not possible provide safety netting to the underside of the roof or use birdcage scaffolds. Where safety nets are used this should be in accordance with Appendix 2 of HSG33 Health and safety in roof work.</li> <li>▪Allow access to the roof only under controlled conditions e.g. by using a permit-to-work. Basing the requirements of the permit on a risk assessment considering both the work to be done and its location.</li> </ul>

**APPENDIX 2 – NOTIFIERS INITIAL COMMENTS FROM F2508S  
REPORTING FALLS FROM A HEIGHT 04/01 – 01/03**

**Ladders**

1. IP was about to descend a ladder from one deck to another on the boat and slipped and fell approximately 2.75 m to the bottom.
2. IP slipped off top rung and fell to the deck catching the base of his spine.
3. IP descending a ladder stood on some welding cables causing him to slip.
4. IP slipped off a rung and fell 2 feet onto a protruding bracket.
5. IP descending ladder slipped off a rung and fell backwards to the ground.
6. IP slipped on the bottom rungs of a ladder, landing flat-footed on the deck.
7. IP was descending the vessel's ladder when he slipped and caught his ring finger on his right hand. Possible causes include: lapse of concentration, may not have been holding handrail and descending forwards not backwards.

8. IP was descending a vertical fixed ladder inside the crew cabin when he slipped off. It was raining and his feet were wet. Investigating design of ladder rungs, timber treads are likely to be better than round stainless steel rungs.
9. IP was descending the ships ladder when his heel slipped off the step and he fell to the bottom of the ladder a distance of approximately 6.5ft.
10. IP slipped off a rung and fell to the bottom of the ladder while carrying a piece of angle iron. It is company procedure not to carry items down ladders.
11. IP was descending a ladder when either he dropped a grinder that he was carrying and he fell or he caught his foot in the wire of the grinder.
12. IP was descending ladder carrying a piece of venting when he lost his footing and fell, striking his leg on the ladder as he fell.
13. IP climbing the ladder using his left hand to grasp the rungs whilst holding a bucket in his right hand. He was near the top of the ladder when he tried to grasp a rung and missed falling backwards down to the ground. Instead of carrying the bucket up the ladder the IP should have used a hoist line.
14. Ladder moved as IP was descending.
15. Ladder slipped causing IP to land awkwardly. Temporary access ladder now secured top and bottom to prevent sideways movement.
16. IP slipped off the ladder when it moved. The ladder was untied and sat upon a stiffener. It is now seated on a platform and secured top and bottom.
17. IP over stretched whilst on top of a ladder causing it to slip away.
18. IP was descending a ladder when it overbalanced towards him causing him to fall backwards striking his head. The ladder was the incorrect size and was not secured. Risk assessment to be carried out and refresher training given to the crew on the correct use of ladders.
19. IP ascending ships ladder when he went to grab the handrail but instead grabbed onto an electrical services cable running adjacent to the handrail causing him to fall backwards. Electrical cable has now been run clear from the rungs of the ladder.
20. IP descending a ladder when he caught a foot on some cables and fell.
21. IP caught a foot on the coaming surrounding an access hatch and stumbled down the length of the ladder. IP briefed regarding the proper way to descend ladders.
22. IP descending ladder when he lost his grip and fell back onto hatch opening, banging neck.
23. IP was running cable through deck head when he fell off ladder and landed on some trunking adjacent to ladder and injured right arm.
24. IP working from a ladder when it broke causing him to fall to the ground.
25. IP fell from ladder whilst descending it.
26. IP was standing on a ladder tightening a tie rack when it snapped causing IP to fall off the ladder.

### **Step ladders**

27. IP was hanging a workstation notice board working off a 2 m stepladder. When descending the ladder he fell and injured his leg.
28. IP was welding onboard working from an aluminium stepladder. Allegedly he was on the very top rung when he lost his balance and fell.
29. IP was cleaning the ceiling above a light fitting when he caught hold of the light fitting. The light fitting gave way causing the IP to fall off the stepladder.

30. IP was working off a 3-rung stepladder fixing a panel to a beam when he slipped off the ladder and landed heavily on his ankle.
31. IP was working from a set of aluminium stepladders when they gave way causing the IP to slip and fall. To prevent recurrence all the ladders have been removed from the ship and replaced with more suitable ones.
32. IP was working from a stepladder when he leaned too far to one side causing the ladder to fall over.
33. IP was riveting deck head panels when he leaned to one side causing the stepladder he was standing on to move from underneath him. IP would have been safer if a small hop up staging had been used.
34. IP was descending a stepladder when he overbalanced and fell. Working from ladders is a last resort, advice was given that if they are used they must be held and supported by a second person.
35. IP was working on a small stepladder (2-3 steps high) when he fell off and hit his back on a toolbox.
36. IP was ascending a stepladder when the rubber stops on the underside of the stiles slipped on the dock's wet surface.

### **Steps/stairs**

37. IP fell approximately 5 m from deck 2 starboard stairwell ring unit.
38. IP was working from a fixed platform when he then moved one foot onto a set of adjacent steps. As he did so the steps slipped away causing him to fall between the steps and platform. The steps now been secured in position.
39. Fell approx 2/3 stairs in tower 6.
40. IP slipped or stepped back at top of stairs and fell down the stairs.

### **Miscellaneous**

41. IP was climbing a 14-rung ladder up onto the tank top level of a ring unit. Whilst pulling himself up on to the top of the tank the handrail came away causing the IP to fall backwards approximately 3 m.
42. IP was working on top of a stool when he stepped backwards and onto a temp light fitting. This caused the IP to lose his balance and fall backwards.
43. IP was reversing a yard utility vehicle (a converted milk float) when the steering front wheel 'snatched' due to a pothole or crane rail in the road. This caused the vehicle to move/stop suddenly throwing the IP out of the cab.
44. IP finished the job and was stepping off a stool onto the bunk when the stool fell away causing the IP to fall backwards striking his head.
45. IP stepped out of the way to let a colleague in with tiles as he did so he fell from the working platform landing on a dock block.
46. IP fell off the road trailer onto the ship whilst checking a delivery of paint.
47. IP climbed onto a beam to reach the slung beam that he was guiding, he lost his grip and fell backwards. The use of tag lines to guide the lifts into position should eradicate the need to reach up and guide the lifts by hand.
48. A temporary employee was levelling a skip when he slipped on a pallet and fell to the bottom of skip. It is not normal practice for people to enter skips to carry out this task. All sites have been made aware of the accident.
49. IP came through a hatch in a bulkhead and placed a foot on a temporary ledge below the hatch opening, with his other foot on a longitudinal section. He then stepped onto what he thought was the deck but was in fact a penetration component. As a result his foot slipped and he fell forwards.

50. IP was working in the engine room of the vessel standing on a piece of timber placed across the floor bearers. As he moved his feet he stood on the over hang and fell about 12 inches.

51. IP was standing on a board across the engine room and engine beds. He stepped sideways and misplaced his footing and slipped down into the gap between the engine beds hitting his ribs on the saloon floor.

### **Open voids**

52. IP fell through an open scuttle cover, which has since been closed.

53. As the IP stepped forwards he fell through the engine room hatch, which had been opened.

54. IP was climbing over a pipe when he slipped and fell approximately five foot down into the bilge.

55. IP was walking along the funnel area looking upwards when he stepped on to the opening for the next level.

56. IP stepped backwards into a hole in a metal deck caused by the removal of an access section of walkway. Barriers were available in the bay but were not used.

### **Surface gave way**

57. The movement of a ship's unit to facilitate the fitting of components may have caused plywood sheeting on a "grillage" (a levelling structure) to become dislodged. As IP stood on the sheeting it moved further and gave way.

58. For means of access the area around Unit 1 was boarded out using sheets of hardboard. IP stepped onto what he assumed to be a section of 'grillage' frame. It turned out to be a piece of loose channel in which a bracket section was welded on the opposite end forming a small 'T' shape. The loose channel gave way under IP's weight causing him to fall.

59. IP stood on a grating on board a vessel, which gave way.

60. Area around a module was boarded and was originally secured. However some boards were loosened to allow the module to lift freely. Whilst the lift was under way the IP stepped on an end of one of the loose boards, which tipped as a result.

### **Staging/scaffolding**

61. IP was accessing the vessel from the staging when his foot slipped on the staging and he fell onto the lower platform. New access steps and a wider platform with a handrail are to be provided.

62. As the IP stepped from the bridging board to get into boat the board moved away from the boat side and he slipped between the staging and the boat. The staging contractor was recalled to tie down bridging boards.

63. IP was welding deck head stiffeners to underside of deck when he lost his bearings and stepped off the hop up staging and fell approx 3ft.

64. IP was climbing down from youngman staging when he slipped on the tower scaffold and fell backwards.

### **Fall / edge protection either inadequate or missing**

65. IP was walking around the side deck of a motor yacht focusing on taking some measurements when he failed to see / remember there was a step in

the deck. He lost his footing and fell backwards. Additional timber stantions and safety ropes have now been installed to prevent a similar incident

66. IP was cleaning the back of a boat when he took his harness off and turned round. As he did so he tripped over the anchor storage. He knew he was falling but decided to jump instead.

67. DP fell to the dock bottom whilst using a rope to pull a ladder out of the dry dock. The dry dock edge protection was badly corroded.

### **Trestles/platforms**

68. IP was moving an item of equipment, which supported on trestles. He stood on top of the item to hook on the chains, as it was lifted the chain hook caught on the corner causing the item to tip over and throw IP on the floor.

69. IP was working on a trestle when it slipped on a ledge causing him to fall onto the deck.

70. IP was torquing down bolts through a bottom plinth when he slipped off the plinth and onto the dock bottom.