



Slips, Trips and Falls: HSL Specialist Visits to PABIAC Sites

Summary of key points and suggested actions

There is lots of good practice to see in the mills that we have visited. It is noticeable that the good practice is not necessarily applied very widely, which may be a sign of reacting to past problems rather than risk assessing (or a sign of limited funds!).

Flooring:

There is a wide range of flooring finishes in use, which range from excellent slip resistance to extremely slippery when contaminated. Consistency is helpful, as changes from one level of slip resistance to another can catch people out.



Example of inconsistency in floor finish, part way along a walkway

Water and dust contamination behave similarly in causing slips, so increased roughness is effective for dealing with both.



Example of dust contamination

Care is needed when removing old plant or during alterations to ensure that trip hazards are not left in otherwise level floors.

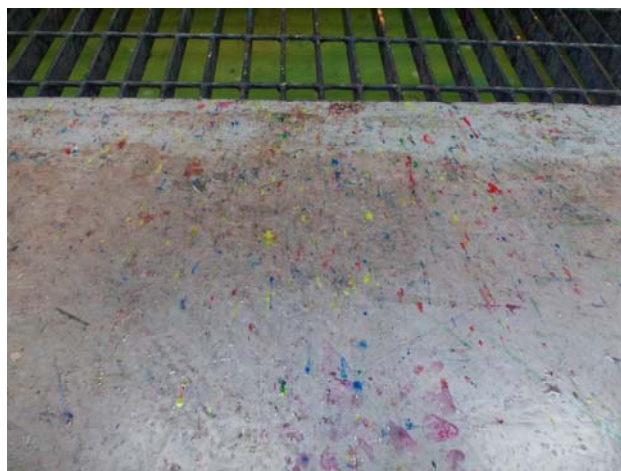


Bolts left in walkway after barrier has been moved

Where there are lots of changes in level, or uneven floors that can't be levelled, consider ankle protection footwear (more later). Where uneven routes are used as short-cuts, consider barriers (hand rails) to keep people to the walkways. It is suggested that companies identify a suitable flooring specification, set a company 'standard' approach & implement as continuous improvement.

Contamination

Indoor areas were generally not too slippery, as most wet areas had rough flooring. The notable exceptions were small sections adjacent to the rough areas and around drains, where the contamination splashed further than expected.



Smooth flooring next to drains getting splashed and made slippery

Composite drain covers with rough surfaces provide excellent slip resistance, but need to be installed right way up – consider painting the lower surface a different colour so it's obvious if it's not fitted correctly.



Composite drain covers need to be installed with the rough surface upwards

There was some water on smooth walkways due to leaking roofs, inevitable in older buildings, ultimately the answer is to fix the roof, but in the short term, people need to be stopped from walking on smooth wet floors, so either use slip resistant floors, slip resistant footwear, barrier off the area or adequately contain the water such that the floor is not wet.

Footwear

It is possible to measure the slip resistance of footwear, on specific surfaces and with specific contaminants. A lot of testing has been done previously on a smooth surface with water contamination, so it is possible to compare the performance of different shoes. Where footwear is supplied as PPE, there is a potential to reduce slip risk without any additional cost to the business through better selection. We did note at the tissue mill that the dry tissue paper tended to cling to our specialist anti-slip shoes more than to the more standard safety shoes of our guides. This does highlight the need to trial shoes before widespread introduction.



Dry contaminant on specialist anti slip footwear

The food-manufacturing sector provides boot-cleaning facilities, which can be as simple as upturned sweeping brushes or sophisticated proprietary machines. Provision of boot cleaning stations would help to reduce the spread of contamination into otherwise uncontaminated areas.



Example of a simple boot cleaning station in a food factory

As with flooring, companies could set a specification for the slip resistance of footwear and purchase against that specification – this overcomes the risk of buying particularly bad shoes that then lead to an accident despite other controls being reasonable. It should be noted that the existing standard for the slip resistance of footwear is not helpful in selecting appropriate boots, HSL have their own test and can test bespoke combinations of footwear, flooring and contaminant to help identify relevant footwear. Footwear can also be used to reduce the risk of ankle injuries from stumbling on uneven surfaces and when stepping down from plant or vehicles. The offshore sector has used laced boots that support the ankle, and many are available with zips so that they can be taken off easily but keep the support offered by a laced boot.



Laced & zipped boot for convenient ankle support

Walkways / yards

Around some of the machines, cables were either run across the floor (with mechanical protection) such that they would be a trip hazard or above head height, posing no hazard. As a continuous improvement activity, some re-routing would be helpful.



Wiring at ground level covered by chequer plate guard, note also overhead wiring, so could all cables be overhead?

Pulp disguises holes, so particularly in waste storage areas, operatives might step into a hole or twist an ankle on the uneven surface.



Uneven yard disguised by pulp

This can be partially addressed using ankle protection footwear, such as laced & zipped boots. Where maintenance of the whole yard is not realistic, mark walkways and maintain those.



Marked walkway in yard area, with even surface

This also lends itself to gritting in winter months. Where walkways are painted, using sand etc in the paint will provide some wet slip resistance, which is often overlooked when painting zebra crossings for example.

Steps & Stairs

Stairs should have even dimensions throughout the flight – changes in rise and going part way through a flight tend to lead to falls. Steeper flights are more hazardous. Generally a larger going is the best way to make a stair safer, even if the rise is still on the high side. People need space to place their feet, without overstepping off the front of the tread. This is particularly problematic on the plant access stairs, which are almost universally too steep, even though there is often space for safer stairs.



Steep plant access steps where space would allow larger going

The front edge of each tread is known as the nosing, and should be clearly visible, so the user can easily see the edge of each step as they descend.

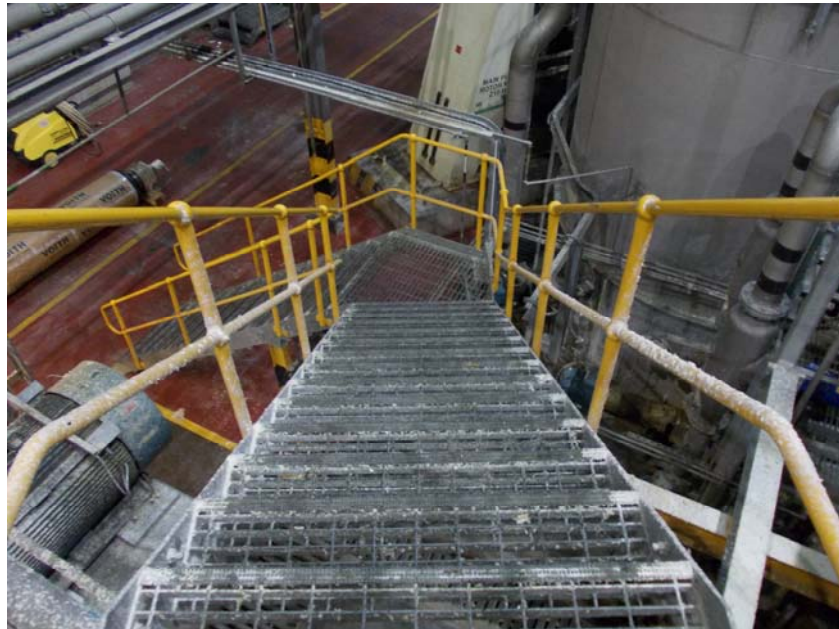


An example of good practice, anti slip treads with a clearly marked nosing



Nearby flight, no nosing highlight, small goings, worn grip pads

On open grid stairs, the visibility is compromised, but types with a thick bar at the nosing are a little easier to use. This could be retrofitted. Handrails need to be graspable, clean enough to be used, and visible in their surroundings.



Long open flight with bar-type nosing and contrasting handrails

Don't compromise access to handrails by storing reels and other materials too close to the stairs.



Handrail compromised by storage of crates

Vehicles

Profiled steps for cab access tend to rely on the squareness of the profile to provide slip resistance, and this rounds as it wears, becoming more slippery. Consider checks at maintenance inspections. On vehicles with symmetrical design, swap treads from side to side in order to have the best ones in most common use.



Severely worn step tread offering little slip resistance

Access to 5th wheel can be restricted and often with poor foot and hand holds. Be wary of steps cut into fuel tanks etc which tend to only give a toe hold and leave the driver to jump down.



Access to 5th wheel area of vehicle, thin bars rather than full treads makes access more difficult and may encourage drivers to jump down

Access to load area can also be problematic, with vertical climbs, large rises between treads / rungs and limited hand holds. Where the need to climb can't be eliminated, the ergonomics need to be considered and slip resistant footwear will help with a secure footing. Consider getting down as well as climbing up, or drivers will have to jump down.

Ask older drivers for feedback on access & egress, as they probably can't jump as they might have done in the past. Some peer-group sharing could help to deter younger drivers from jumping. Joint damage and reduced mobility result eventually, but as with all long latency health issues, it's hard to get this taken seriously.



SECTOR SPECIFIC NOTES:

Paper

- Management of outdoor spaces, designation & upkeep of walkways
- Wet end – need to use suitably rough floors
- Overuse of steep stairs to access machines

Corrugated

- Control of contamination around drains and proper use of slip resistant drain covers
- When making changes to plant, be aware of compromising stair dimensions / use of suitable steps, and leaving trip hazards where machines have been moved
- Make use of handling equipment to avoid unnecessary exertion

Recycling

- Vehicle access and egress, including maintenance of vehicle
- Consider ankle protection work in uneven yards
- Management of large spaces, designation & upkeep of walkways

Tissue

- Specification of flooring to ensure consistency of adjacent areas
- Spread good practice across steps & stairs
- Control of contamination, including through boot cleaning to reduce spread of fibre

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