

# Falls Prevention Training

5<sup>th</sup> March 2013



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# What the statistics say!



- 38% of major injuries
  - 90% fractures – 10,000 broken bones
- 24% of over 3 day injuries (27,000)
- 50% of accidents to members of public
- Fatal – seldom but.....

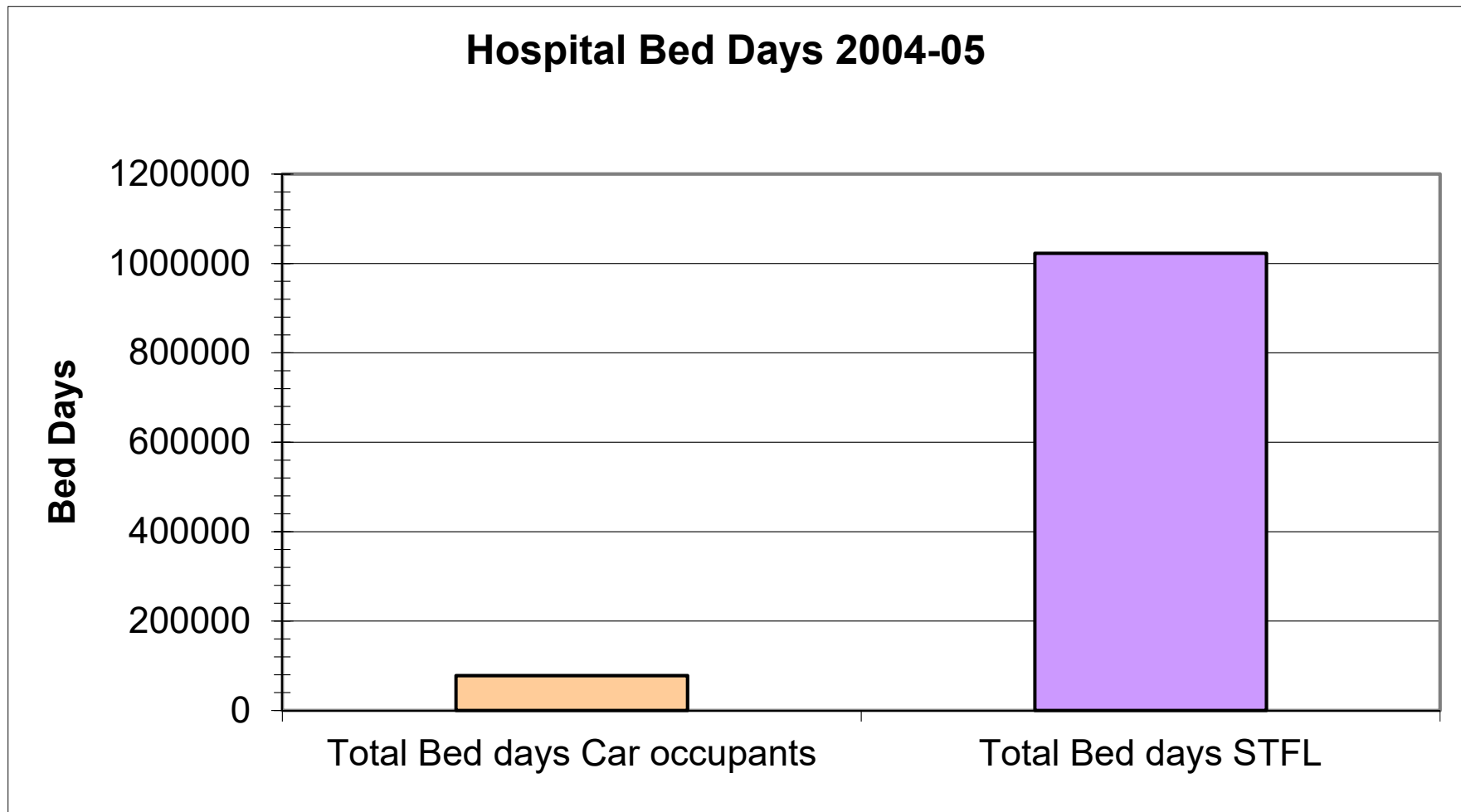


# Sector Statistics



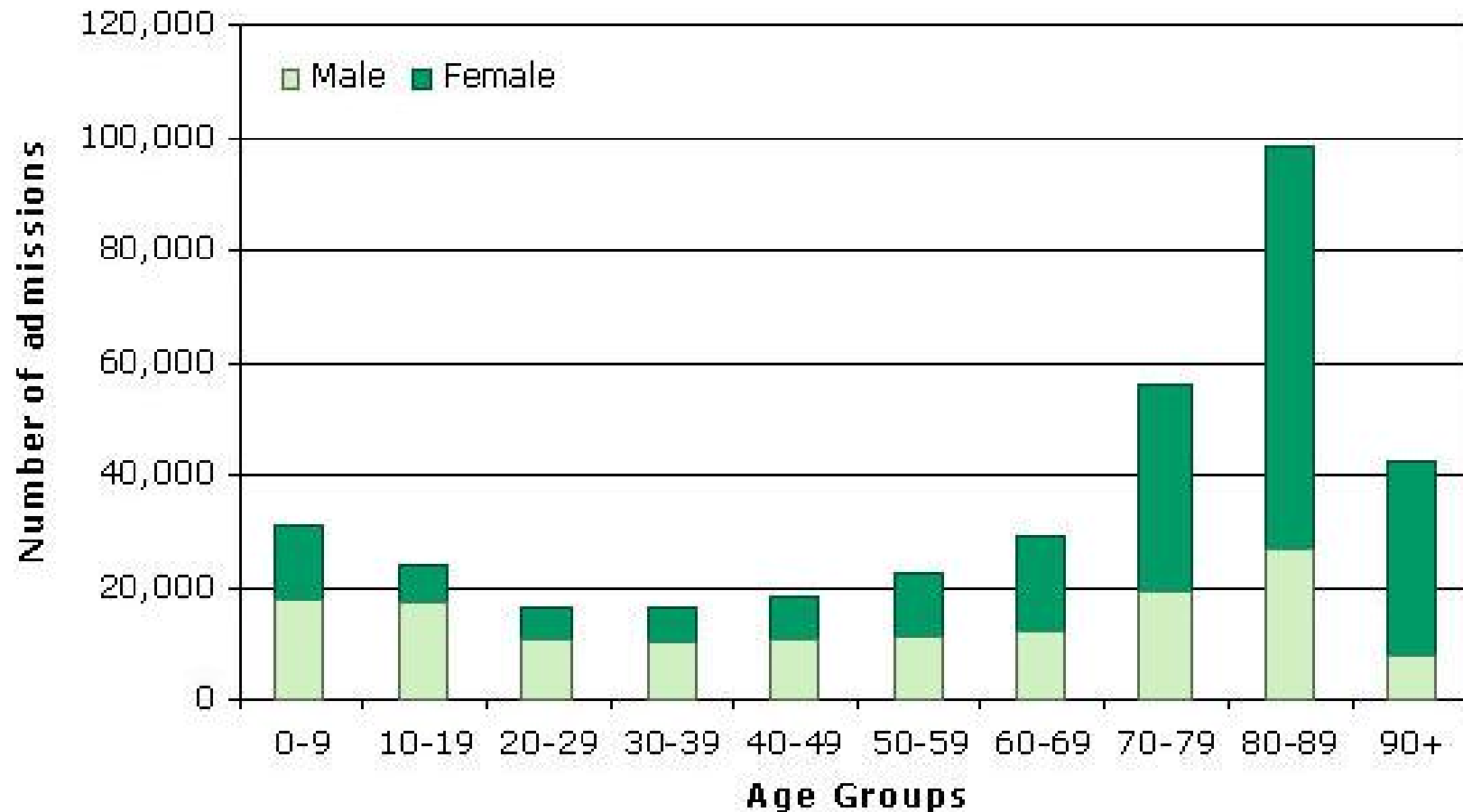
- We reckon maybe 30%, and that's a lot!

# Hospital admissions



# Hospital admissions

Graph to show the number of admissions to hospital for falls in 2006-07



# Slips



# Slips in Food Premises



# Abattoir Accident

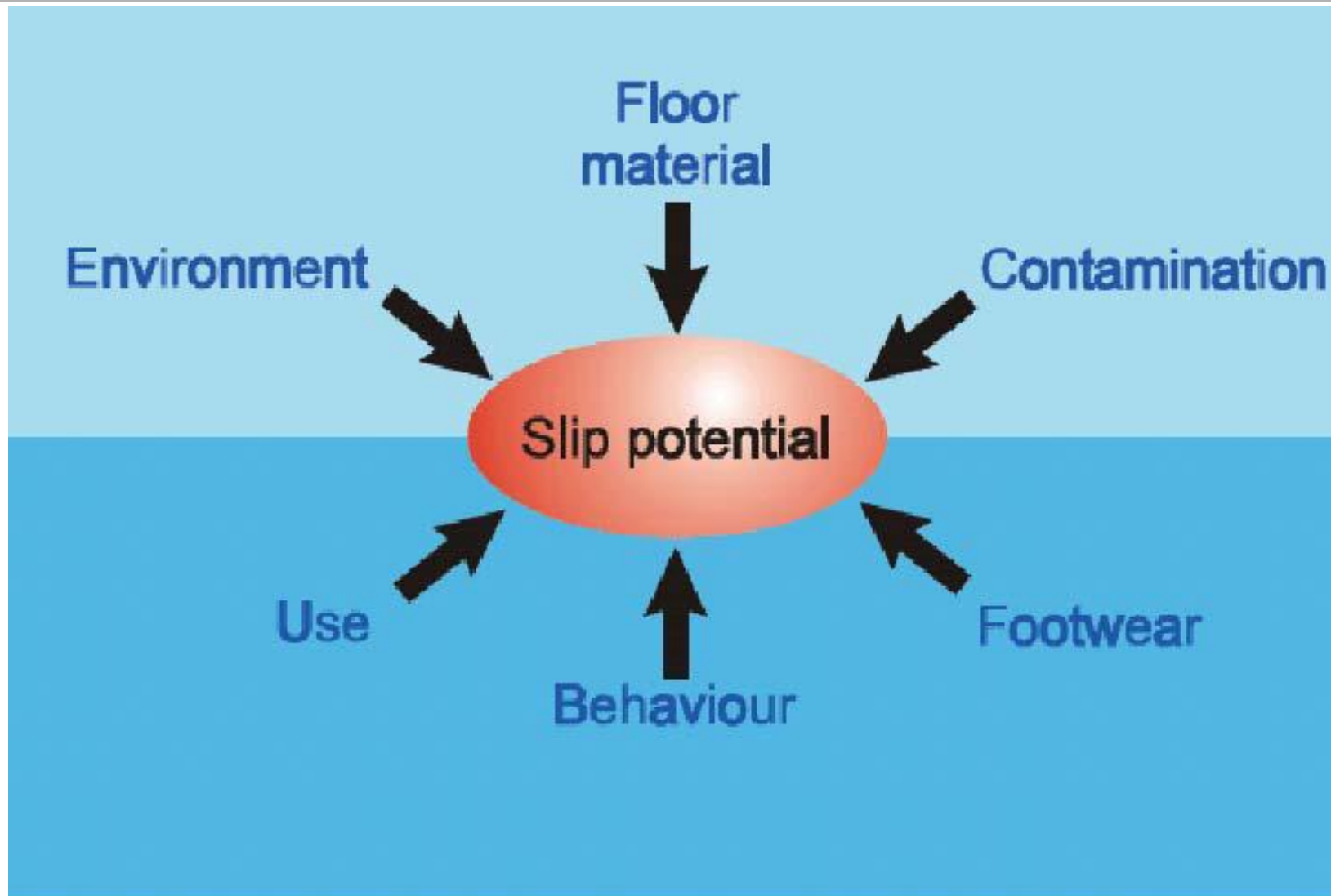


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# Slip Potential



# The Accident





# The Accident



- Slipped and fell onto de-hiding tool, severe lacerations to upper arm
- Slippery floor & platforms
- Improvement Notice Issued
- Floor cleaned / Platforms replaced
- Informed choice of footwear

# Slip Potential



# How slippery is your floor?





# Friction Requirements



Risk 1 in:	CoF	Slip Potential
1 000 000	0.36	Low
100 000	0.34	Medium
10 000	0.29	Medium
200	0.27	Medium
20	0.24	High

# Portable Friction Tests



# Sled Tests

- Well established
- Not relevant!

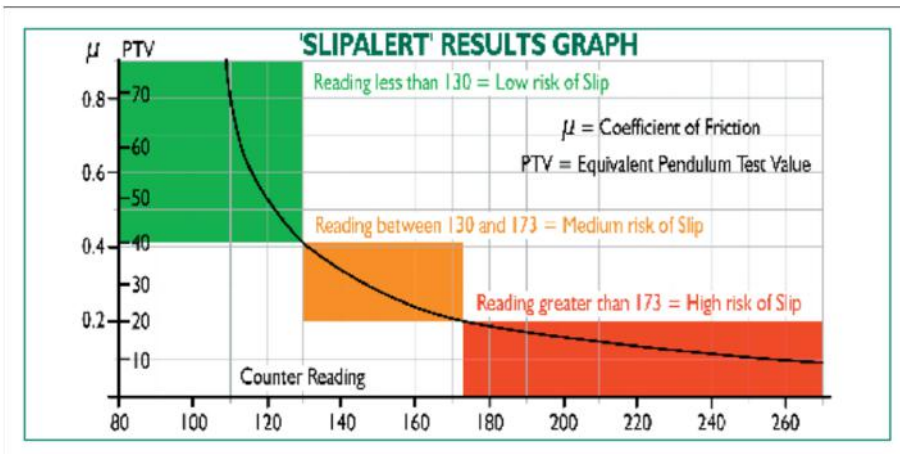
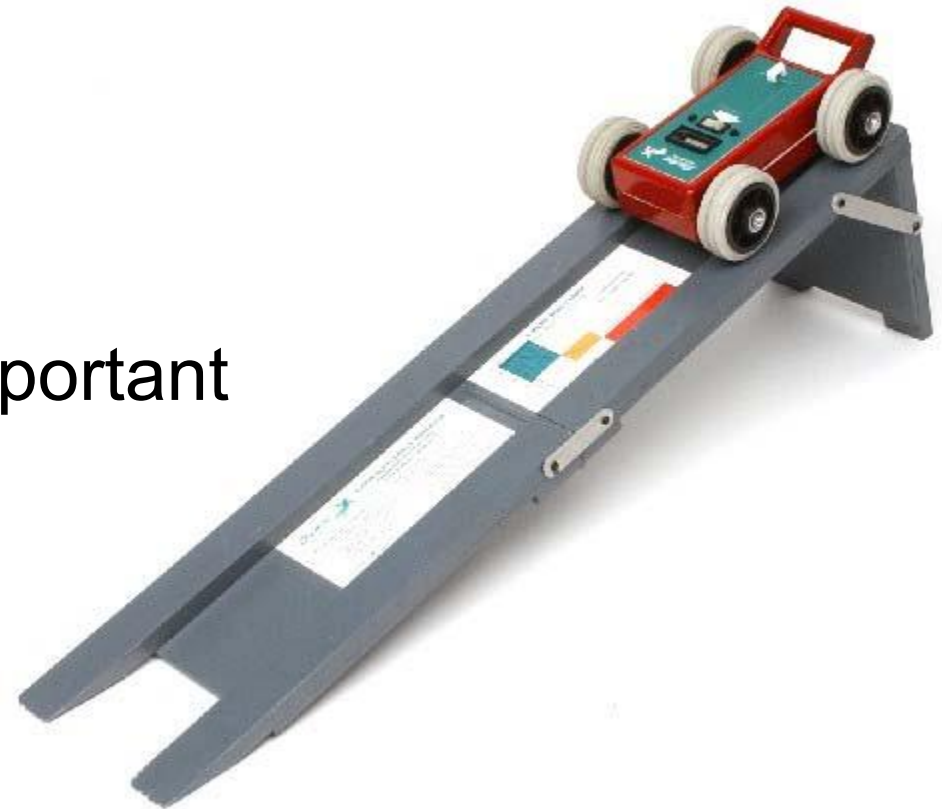




# The Pendulum



- Roller coaster type test
- Can give valid wet data
- Has some limitations
- A good indicator
- Method of operation is important



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# Surface Microroughness

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# Surface Microroughness



Mitutoyo SJ-20



Surtronic Duo



Surtronic 3+



# Surface Microroughness



- Useful complementary measure
- Monitor changes
- Stairs
- Profiles
- Measurement used by SAT



# Slip Assessment Tool



- Free download from HSE website:  
[www.hsesat.info](http://www.hsesat.info)
- Uses roughness data
- Environmental factors
- Gives “slip risk factor”
- Useful for risk assessment, site survey, etc...

# The Ramp Test



# The Ramp





# Ramp Tests

- DIN 51130
  - Shod test on motor oil
  - Reported as R9, R10, R11, R12, R13
- DIN 51097
  - Barefoot test on soapy water
  - Reported as A, B, C
- HSL / UKSRG Ramp Method
  - Clean Water
  - Reported as CoF

# Specifying a Floor







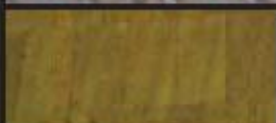




# What Questions to Ask




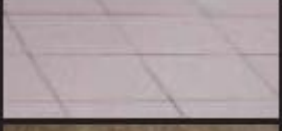



- Has the slip resistance of the floor been measured?
- How has the data been generated?
- What condition was the floor tested in?







# Poor Surfaces

Image	Material	Finish	Risk Level	Notes	Control Measures
	Vinyl or lino	Matt finish	<b>High</b>	Many buffing and polishing products will increase slip risk	<p>Even very small amounts of water (eg from condensation or a drying floor) and food debris will make your floor slippery</p> <p>Cleaning alone will not be enough to stop slips</p>
	Ceramic tile	Smooth or shiny finish		Glass-based tiles can be etched to improve roughness	
	Terrazzo	Smooth or shiny finish		Many buffing and polishing products will increase slip risk	
	Metal profile	All patterns			
	Wood	Varnished or shiny finish		Many buffing and polishing products will increase slip risk	
	Vinyl or lino	Smooth or shiny finish		Many buffing and polishing products will increase slip risk	
	Vinyl or rubber	Textured or studded			

# Moderate Surfaces

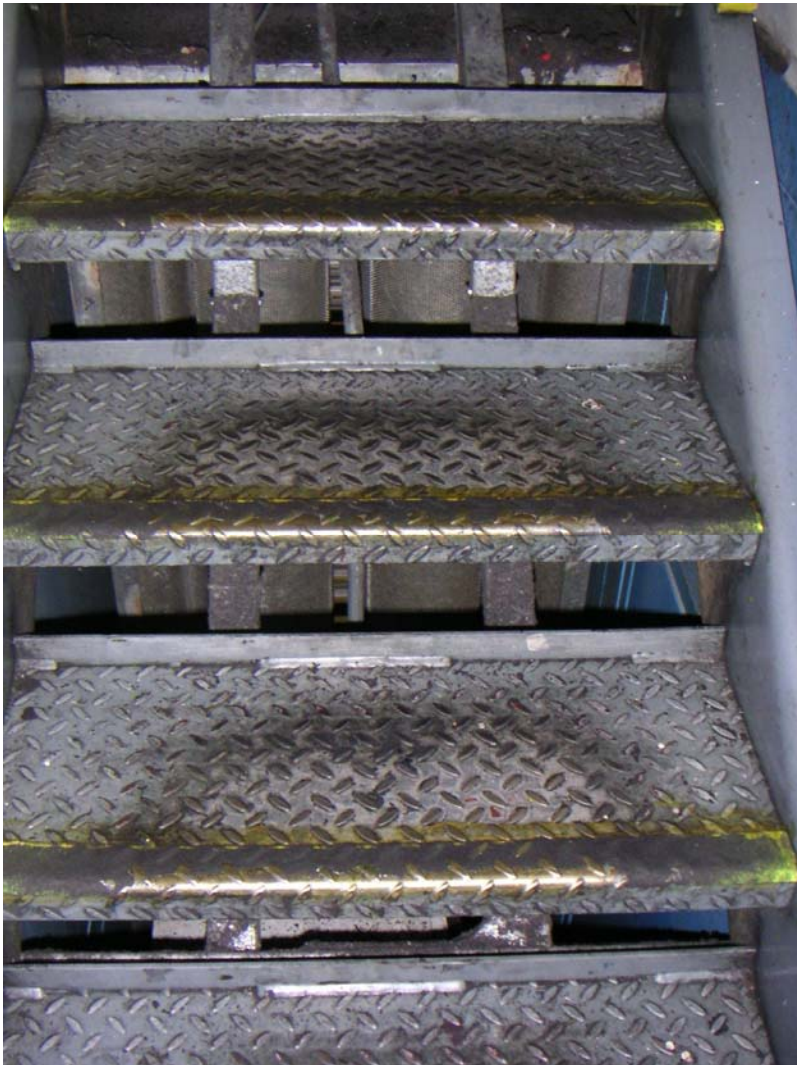
	Quarry tile		<i>Possible</i>	Can crack if used under heavy machinery. May wear smooth	Slips will happen unless you stop food debris and grease getting onto your floor and have good cleaning systems in place
	Safety vinyl	Low levels of gritty particles		Slip resistance may improve with wear	
	Profiled ceramic tile	Matt finish		Can crack if under heavy machinery	
	Ceramic tile	Matt finish		Glass-based tiles can be etched to improve roughness	
				Many buffing and polishing	

# Good Surfaces

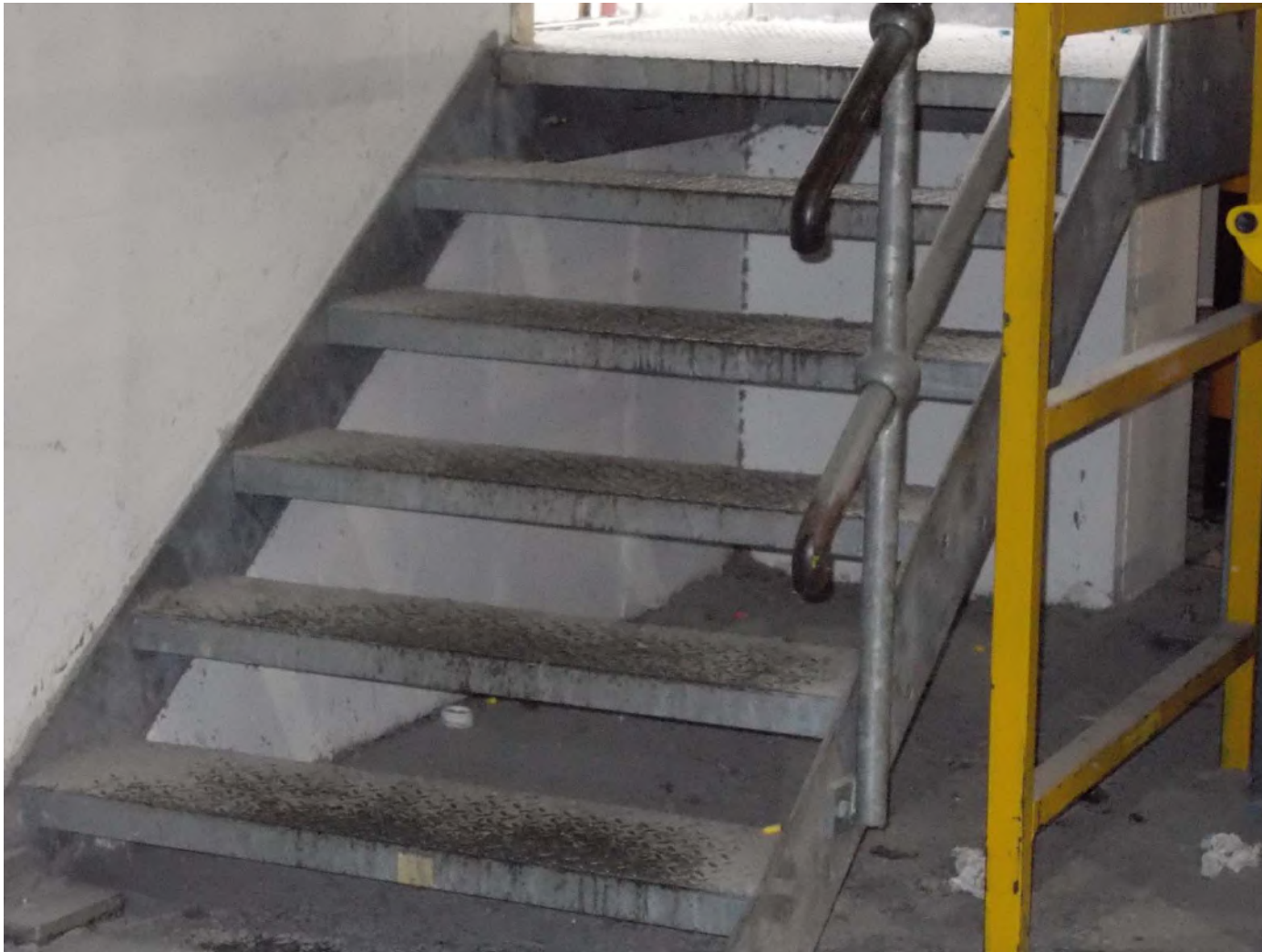
Floor type			Slip risk	Issues	
Column 1	2	3	4	5	6
	Safety vinyl	High levels of gritty particles	<b>Low</b>	Slip resistance may improve with wear	Your floor will lose its anti-slip properties if it is not properly cleaned  Your floor is rough enough to be slip-resistant when wet  The cleaning technique will be different to the cleaning technique for smooth floors
	Safety quarry tile	High levels of gritty particles		Can crack if used under heavy machinery	
	Safety ceramic tile	High levels of gritty particles		Can crack if used under heavy machinery	
	Resin	High levels of gritty particles		Resin may lift if floor is not properly prepared	
	Safety paint	High levels of gritty particles		Floor paints can wear away quickly	
					Slips will happen

# Profiled Surfaces

- Not as slip resistant as expected
- Perception is confusing
- Difficult to keep clean
- Not just this pattern

















- Acid etch – HF
  - Often misrepresented, COSHH difficulties
  - Is effective if done well, durability questionable
- Sand blasting
  - Good if you can cope with the dust
- Anti-slip paints and coatings
  - Can be effective, need good preparation



# Summary



- Beware of test data
- Floors will change over time
- Control contamination



# Coffee Break!



# Footwear





# How to control footwear



- Sensible footwear policy
- Provision of footwear as PPE

# Sensible footwear

- Flat shoes
- Good grip
- Kept clean
- Fit well
- Avoid certain footwear
  - open-toed shoes, sandals, flip-flops, heels





# Why provide footwear as PPE?



- Greater level of control over footwear
- May be the only control available
- May have other safety requirements



# What gives footwear Slip Resistance?



- No simple answer... it depends on:
- The soling material
- The tread pattern
- The flooring
- The contaminant



# How can you tell if footwear is slip resistant?

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- You may not be able to!
- Beware of standards
- Good tests do exist

# DIN Ramp







## Magnum Patrol

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## JCB Fast Track



## Slip Grips



## Dunlop Purofort Higrip



## Shoes For Crews



# Buckler



Tredsafe

# Dickies Thames





# Results



Shoe Brand	Steel / Water CoF
Shoes For Crews	0.53
Slip Grips	0.41
Tredsafe	0.38
Dunlop Purofort	0.38
Magnum Patrol	0.18
Dickies Thames	0.15
Buckler	0.15
JCB Fast Track	0.15

# Case Study

- Six month trial
- Eliminated slip accidents
- £12,000 saved
- No slips for last 6 years
- Further savings?



# Interaction of Shoe with Profile

## Interlock A



Interlock A  
Best Case

## Interlock B



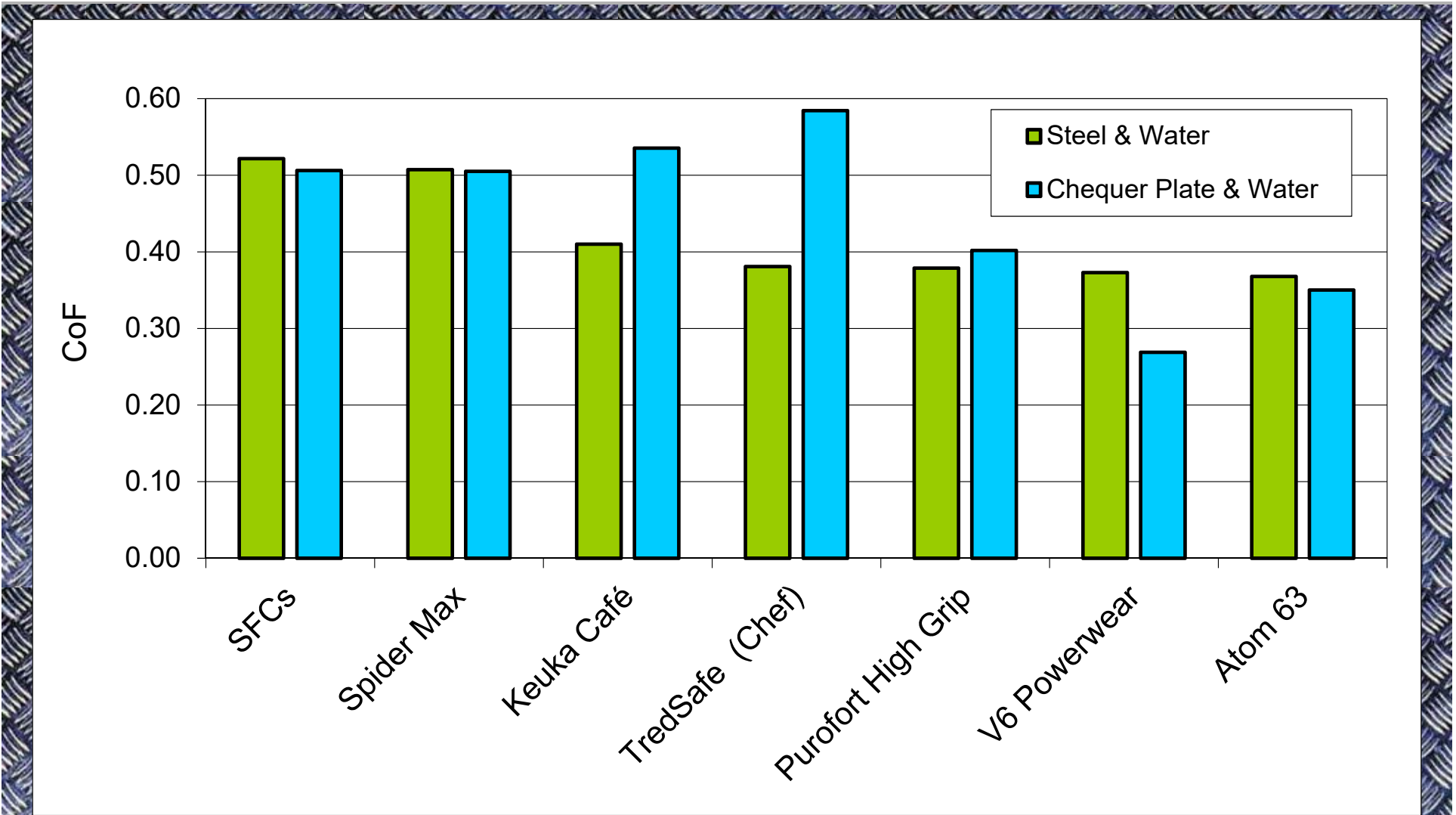
Interlock B  
Worst Case

## Interlock C



Interlock C  
Best Case with  
Severe Wear

# Steel vs Chequer Plate Water









# BP Case Study



- BP modified their footwear spec to a laced ankle boot
- Staff concerns over slips increased
- HSL tested the slip resistance of the new footwear range in relevant conditions
- Differences were seen in slip resistance
- The list of standard footwear was revised to eliminate some footwear and include some new alternatives
- Slip risk was reduced



# Controls...

- Footwear:
- To minimise injury





# Adopting PPE footwear



- Trial First
- Visitors, EHO, Maintenance, Deliveries
- New Starters
- Storage
- Going home in the shoes?
- Cleaning
- Overshoes



# Points to consider when trialling footwear

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- Maintenance
- Comfort and fit
- Durability
- Cost
- Involve staff in the process







# Why cleaning?



- Cleaning should remove contamination
- Cleaning may introduce other slip and trip hazards
- Kitchen floors can be compromised by grease, leading to accidents when floor becomes wet...

# Human Cost - Alison Hockaday

- Two Slip accidents due to cleaning
- Thirty Five operations
- £600,000 compensation



- Carbon dust on the floor (painted concrete)
- Problem highlighted during HSE visit
- Several solutions implemented





# Paper cleaning examples





# Detergent

- Essential for removing oil or grease
- Concentration very important
- Appropriate contact time required
- Solution must be removed
- Make up fresh as required



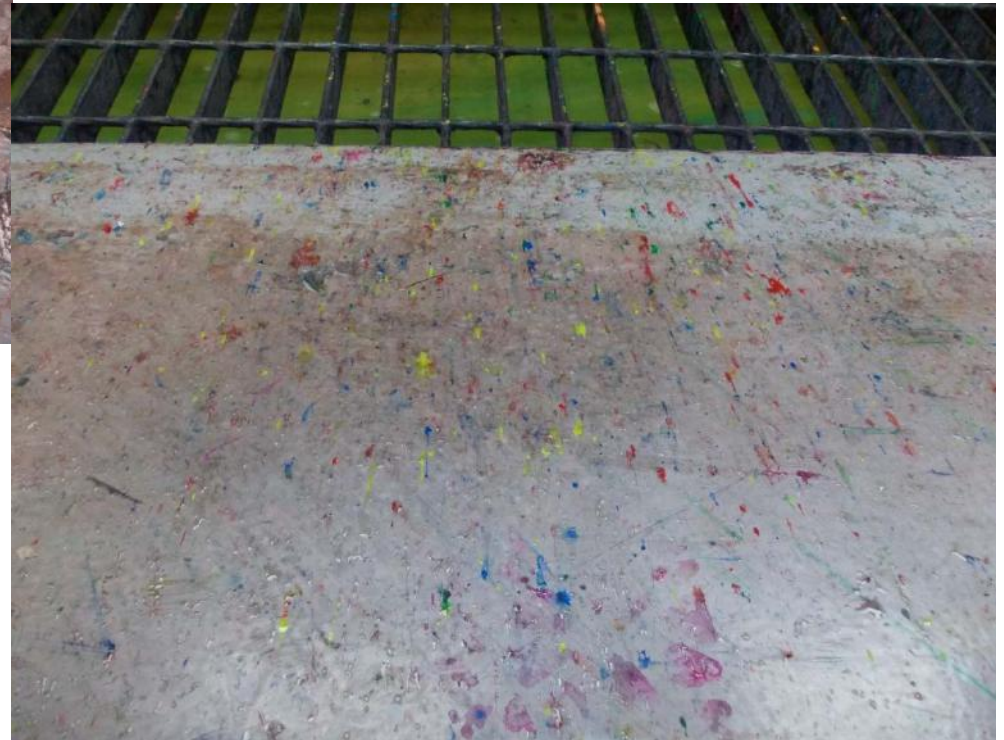
# Mop

- 2 Stage mopping is key to removing grease
- Mop needs to be clean
- How often do you need to mop?
- Dry mops will reduce drying time
  - Reduces exposure



# Spot cleaning

- Even a small spill can be a slip risk
- Clean up spills immediately
- Avoid wet mopping
- Use absorbent material
- For greasy spills, use a cleaning solution
- Dry the floor well
- Remove warning signs as soon as the spill is gone



# Other Techniques

- Scrubber Dryer
- Wet vac
- Dry vac
- Scouring pad / brush
- Squeegee



# Appropriate time for cleaning?

- Early morning
- After busy periods
- Frequency related to level of contamination
- End of day



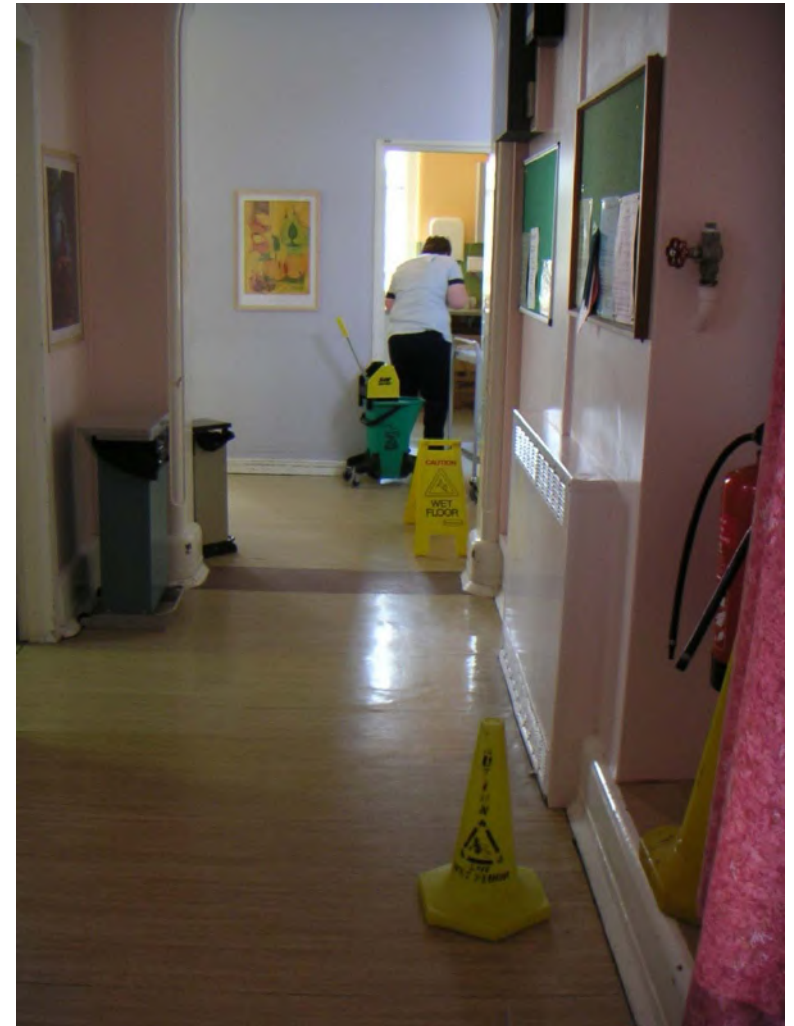








# A sign is not a barrier







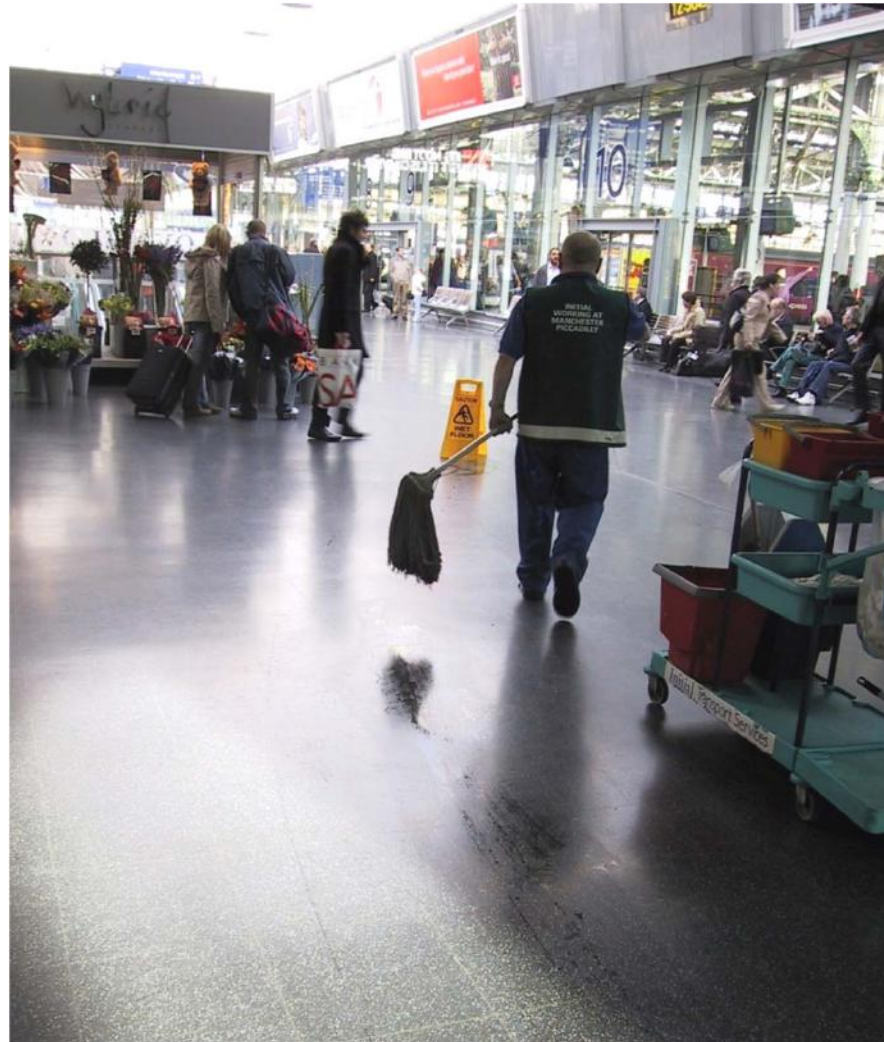
# Examples of barriers















# Success!



- Slipping accidents in kitchen/restaurant
- Old system:
  - Mop – warning sign – leave it to dry
- New system:
  - Formalised spill procedure
  - 2 Stage mop and warning sign
  - Followed by clean, dry mop
- Trained workers and managers
- Slips down 58% in 7 months

# Maintenance of Equipment





# Key Messages



- Ensure effective removal of contamination
- Appropriate cleaning for floor type
- Cleaning needs managing
- Cleaning can help or hinder!

Slips & trips: The importance of floor cleaning

[www.hse.gov.uk/pubns/web/slips02.pdf](http://www.hse.gov.uk/pubns/web/slips02.pdf)

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# Lunch!

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Back at 13:15



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# Steps and Stairs







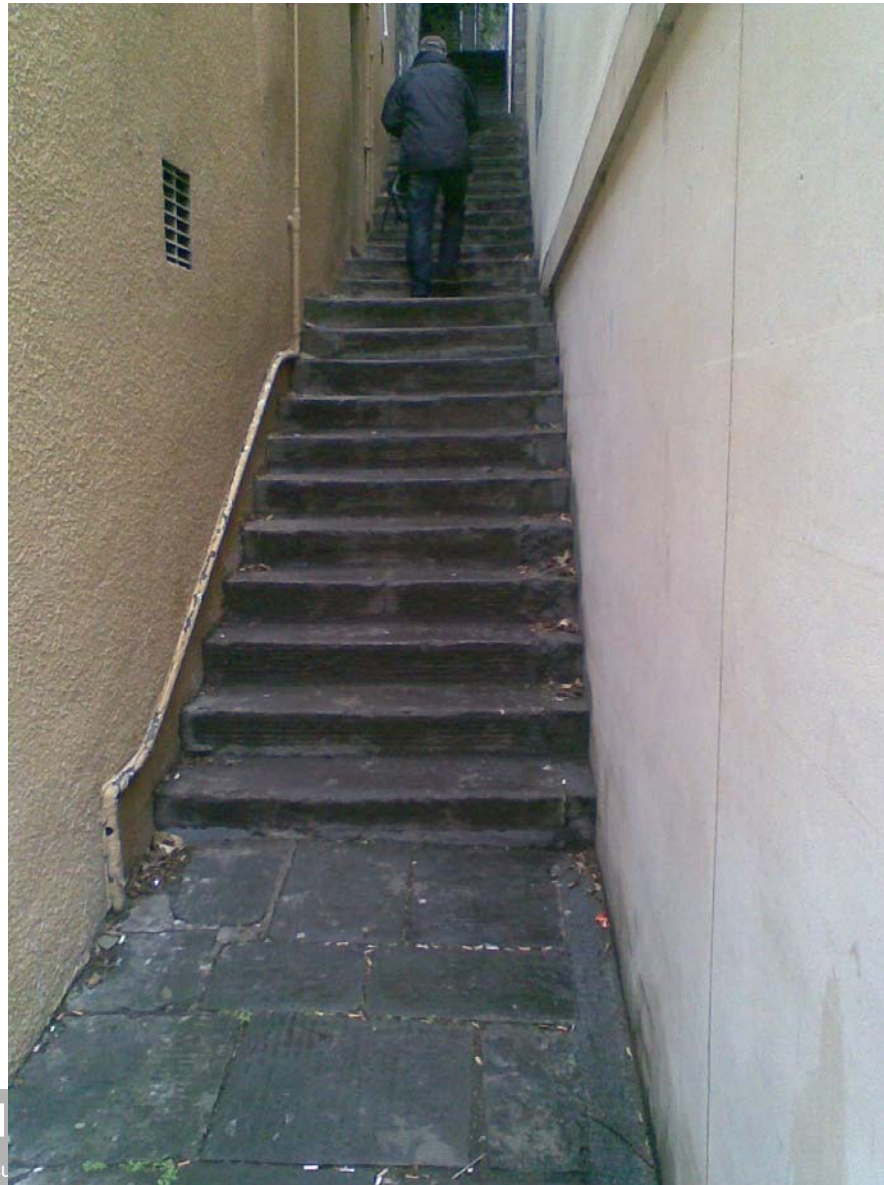


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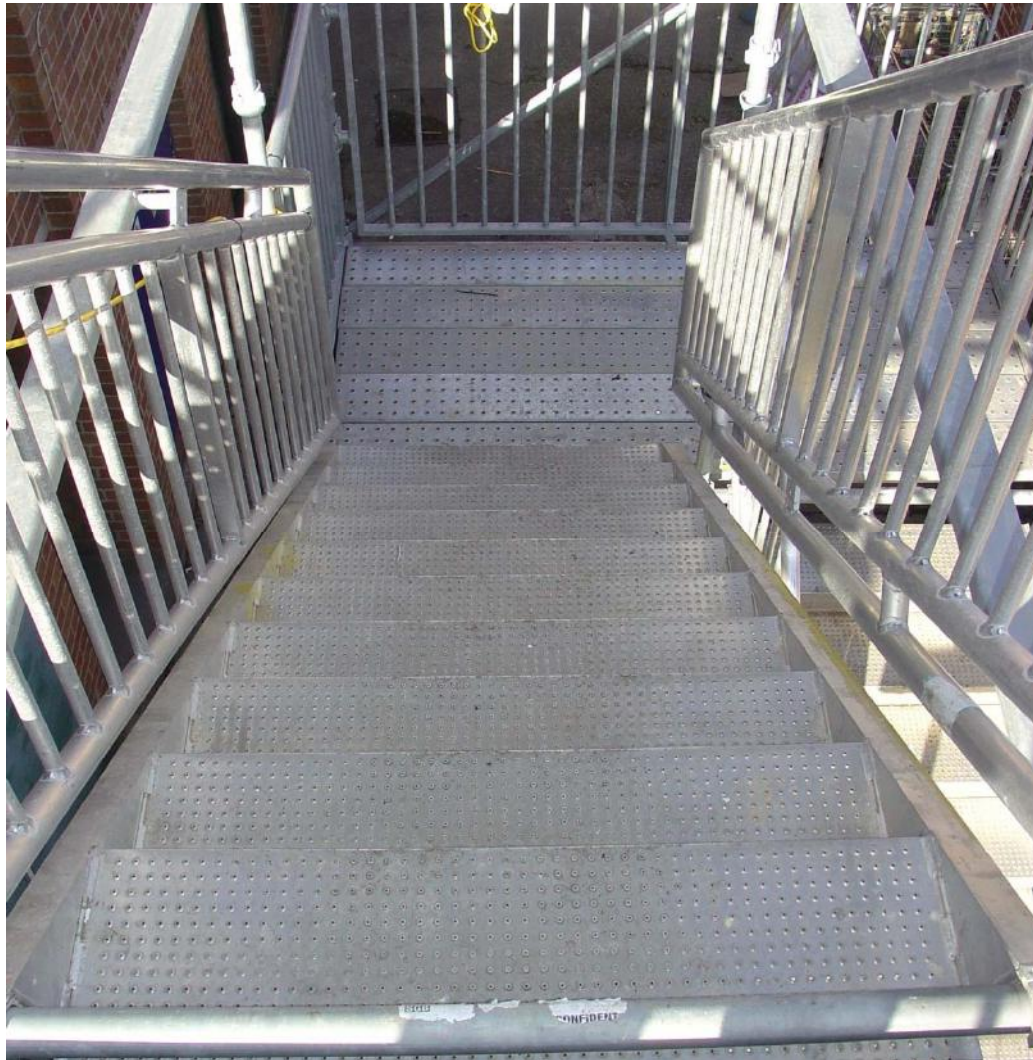












# Near Misses



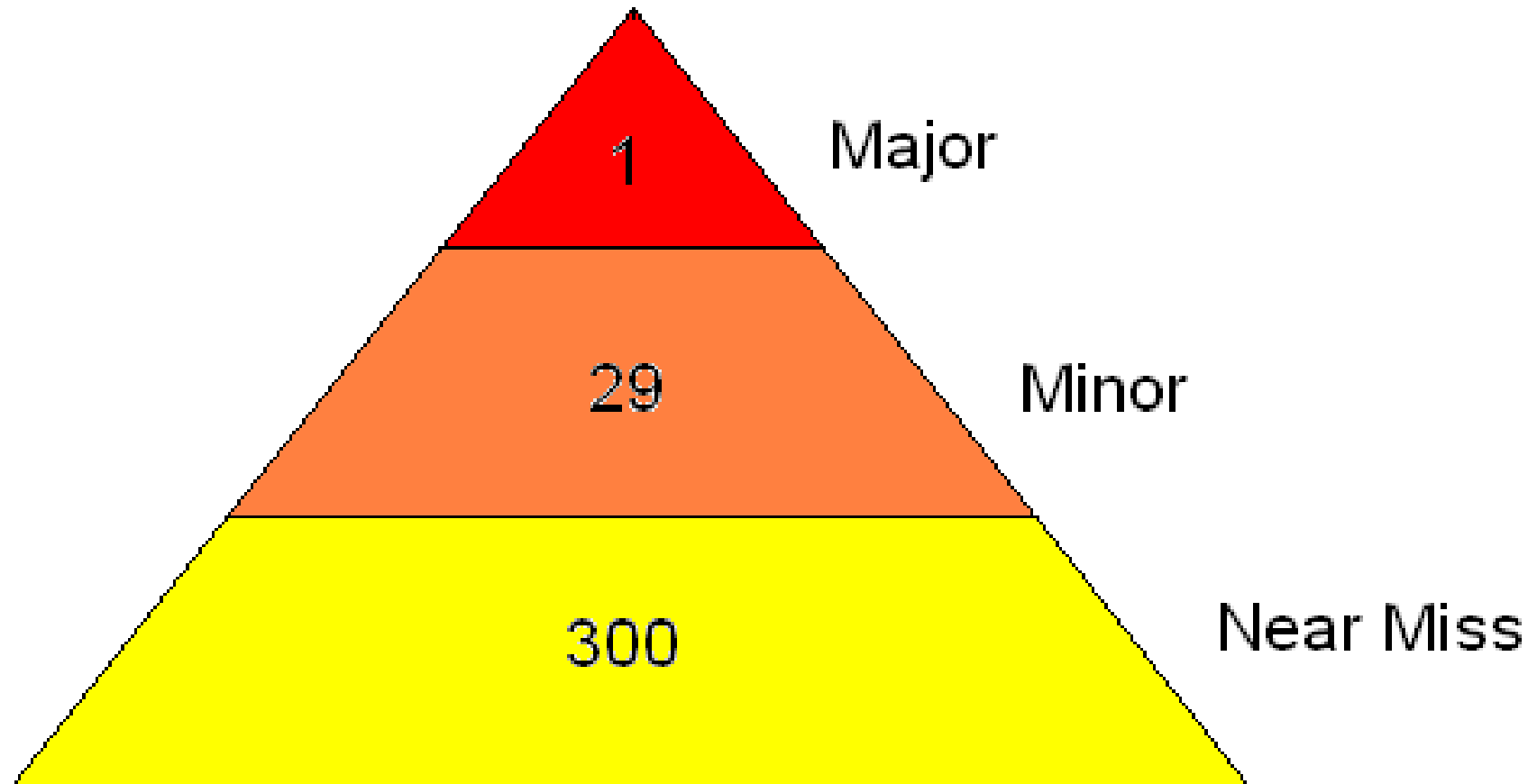


# HSE Guidance



- It is good practice to record non-reportable 'near-miss' incidents, workplace accidents and occurrences where no-one has actually been hurt or become ill, but where the consequences could have been serious for workers.
- In this way, it is possible to learn from such incidents so that workers are protected from harm.

# The Pyramid





# What is a near miss?

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# Intervention on Stairs

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**BL Video 2**

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# What does this tell us

- Before:
- 76 mis-step out of 7072 journeys
- Results in around 50 accidents / yr
- 1 accident for 125 near misses
  
- After:
- 21 mis-step out of 6579 journeys
  
- Tape seems to reduce rate from  
1 in 93 to 1 in 321

# What now?

- Time to get the builders in?





# Handrail

- Make hand rail more prominent:



# Handrail



# Nosing Contrast





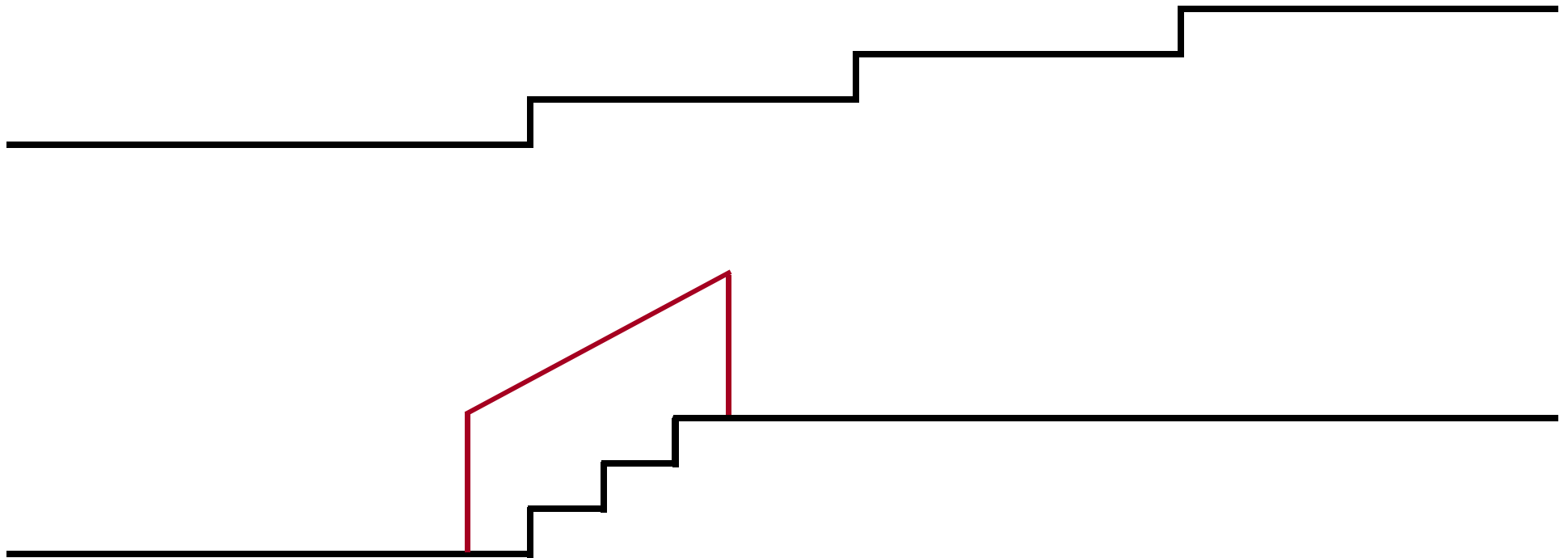
# Resurface



- Resurface the approach to entrance from the piazza, choosing materials to allow a strong contrast at edges of steps.



# Move steps

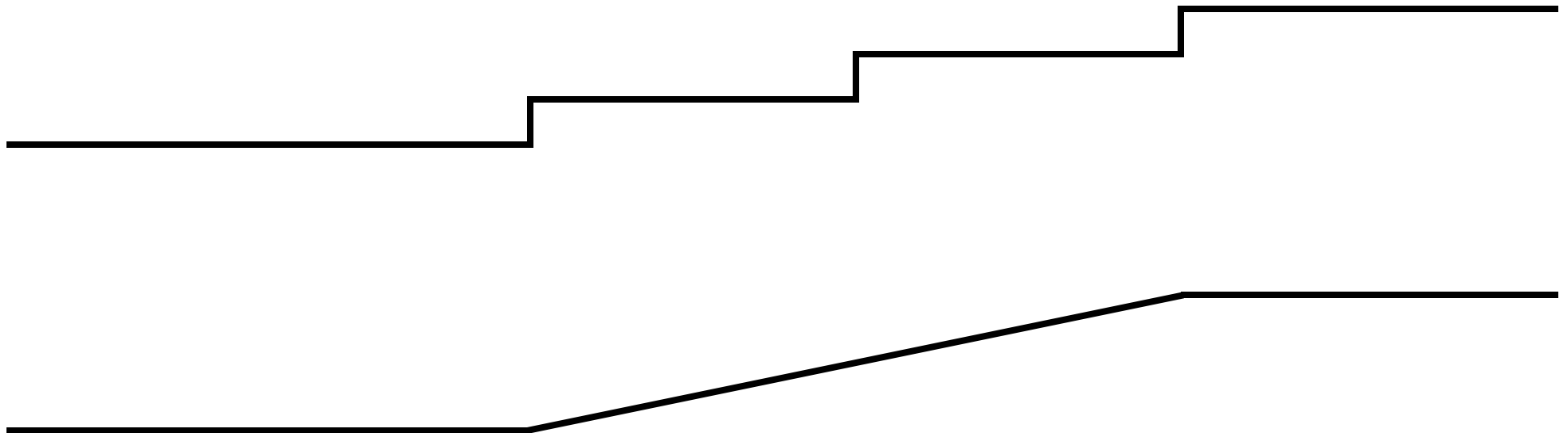


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# Remove steps



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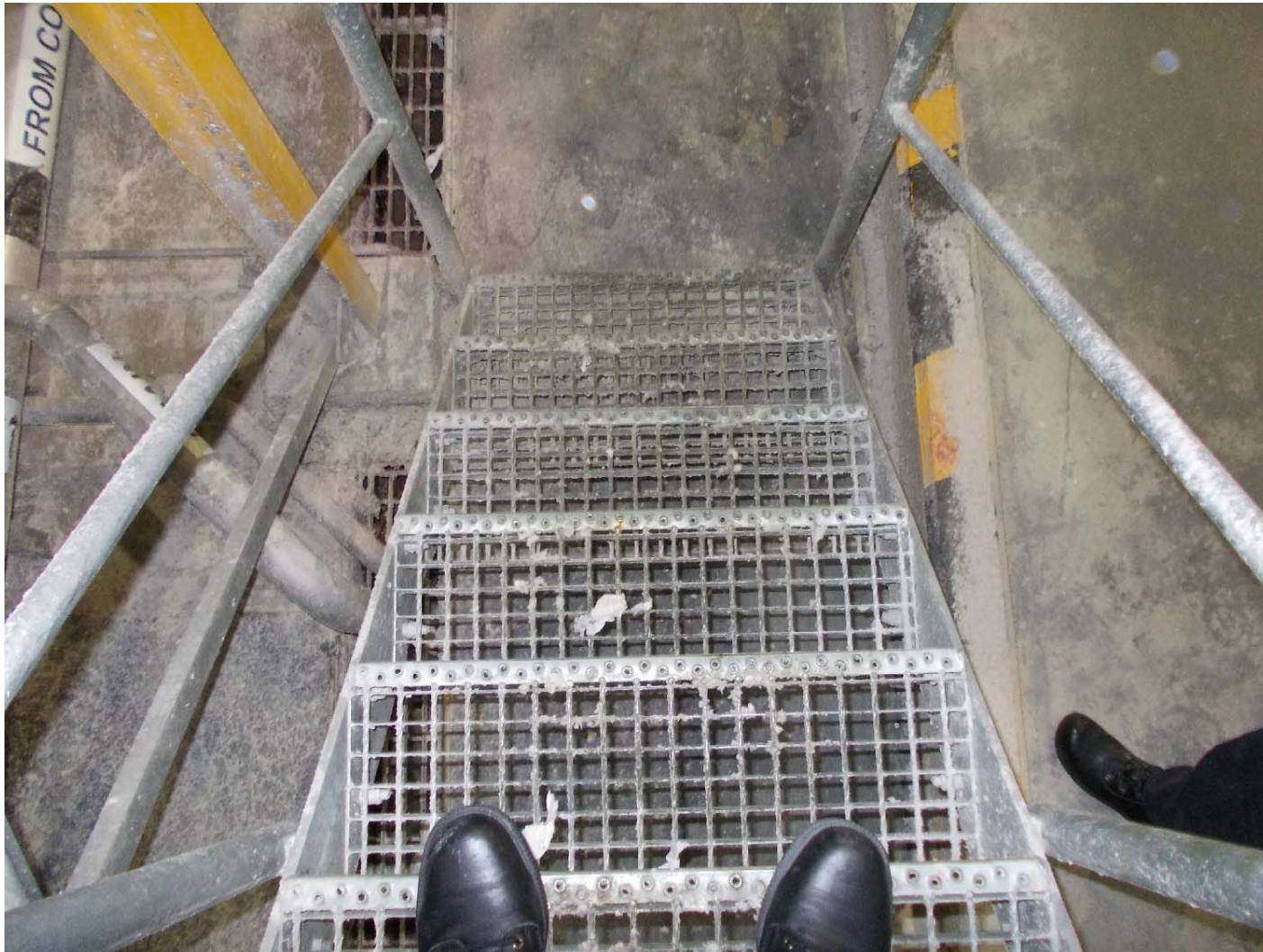
# Site Examples

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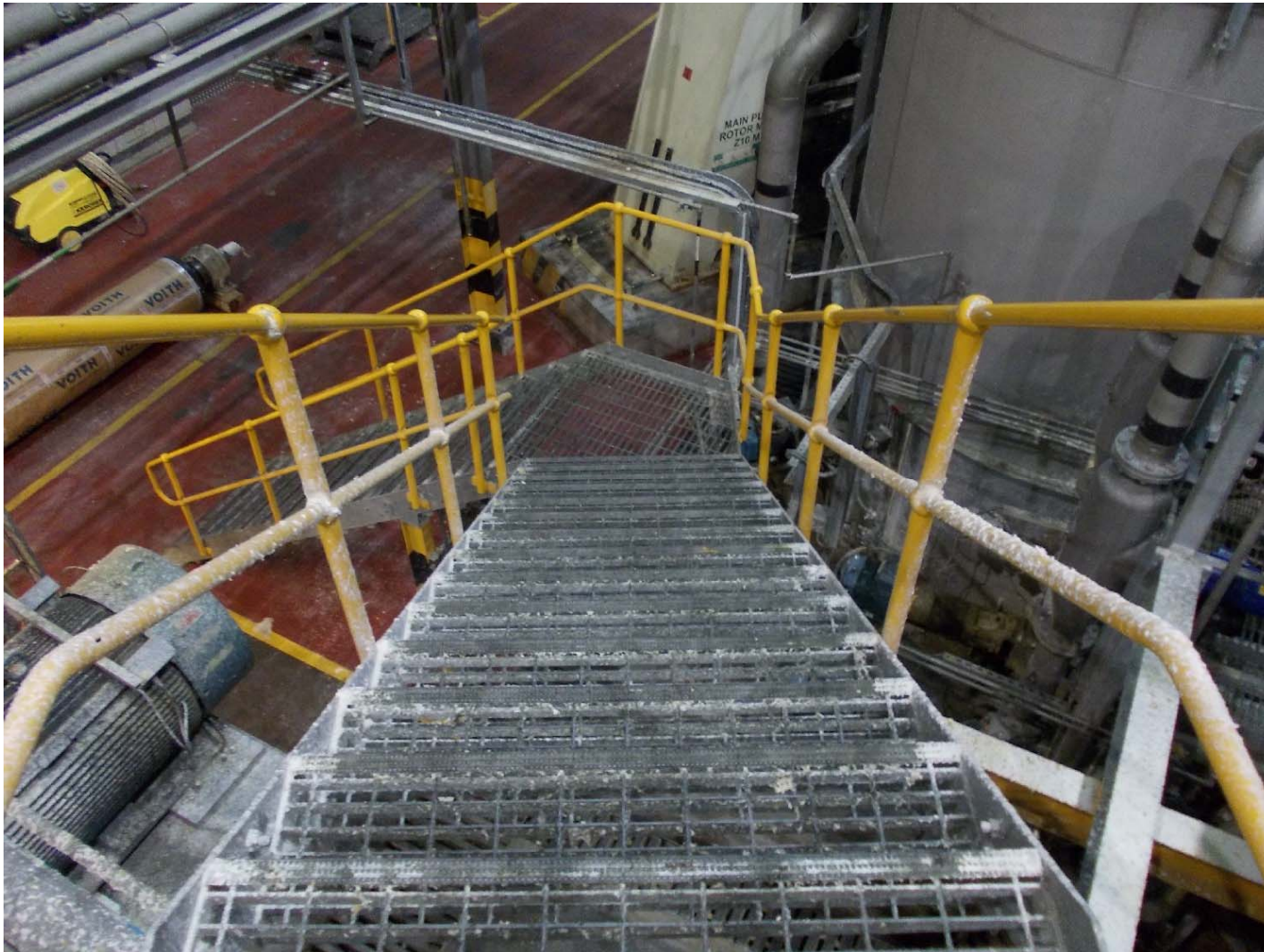


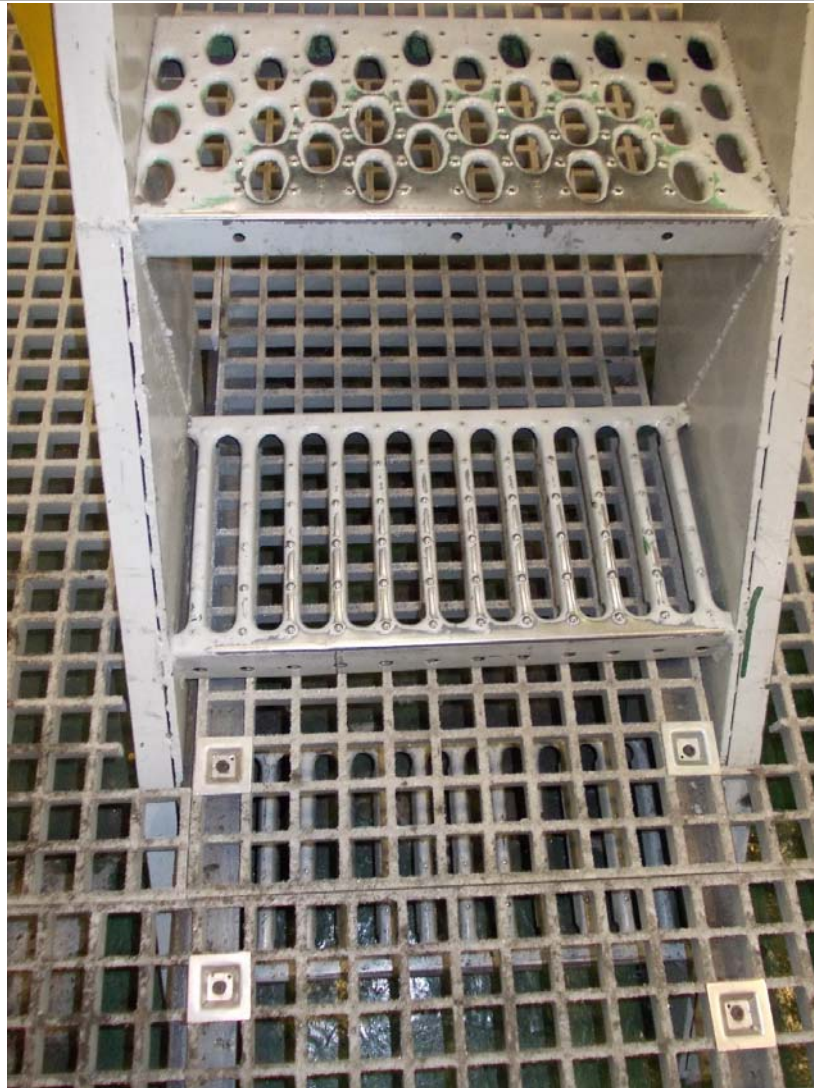












# Pool Cars



# Laboratory Sessions:

Load Security, Nina Day  
Lifting Operations, Paul McCann  
Falls Prevention, Kevin & Rob



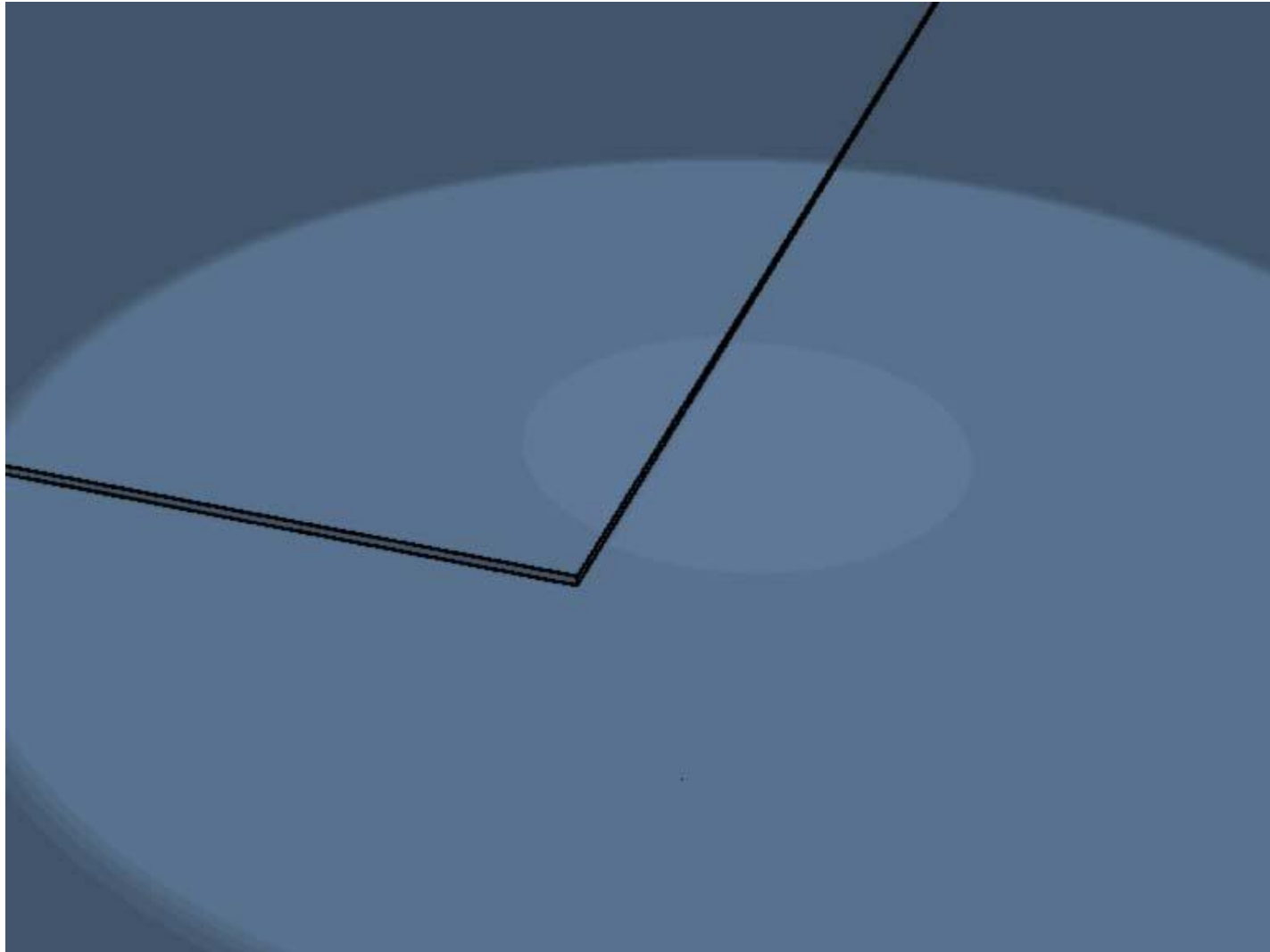
# Coffee Break!





# Trips



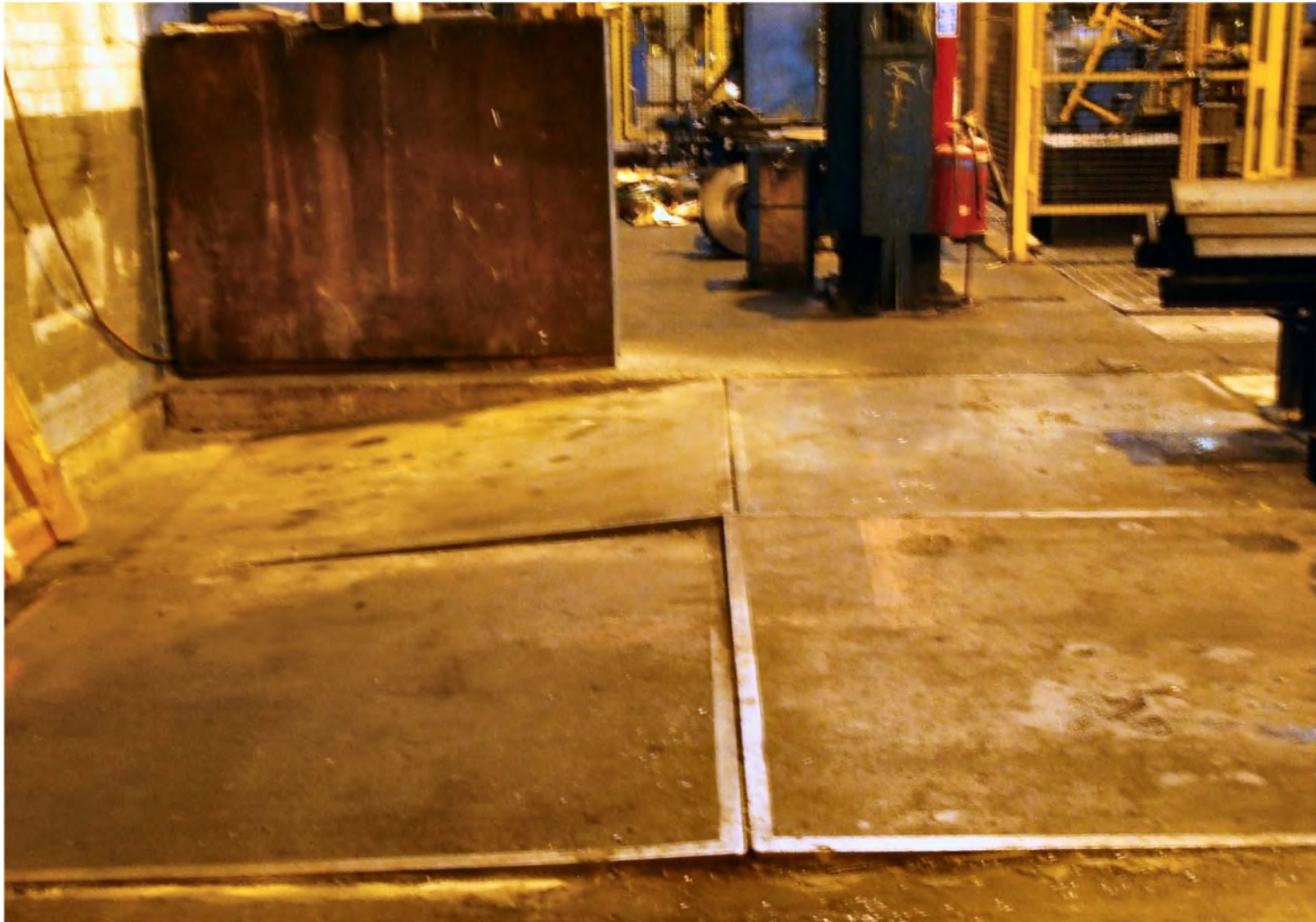






















# What is the issue here?





# Maintain floors especially walkways



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# It doesn't take much to cause a trip



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# Trip Hazards



- Waste packaging
- Shrink wrapping
- Banded strapping loops
- Holes, cracks, uneven surfaces
- Pallets
- Changes in level
- Cables in walkways
- Fork truck forks
- Electrical and phone socket outlets

# Trips Solutions


- Establish a positive culture
- Eliminate holes and uneven surfaces in floors
- Plan workflows
- Designate walkways and clearly mark their boundaries
- Provide enough storage, even for busy periods
- Plan waste disposal
- Provide good lighting
- Ensure that suitable footwear is worn





# STEP




Watch Your STEP
Slips & Trips  
eLearning Package

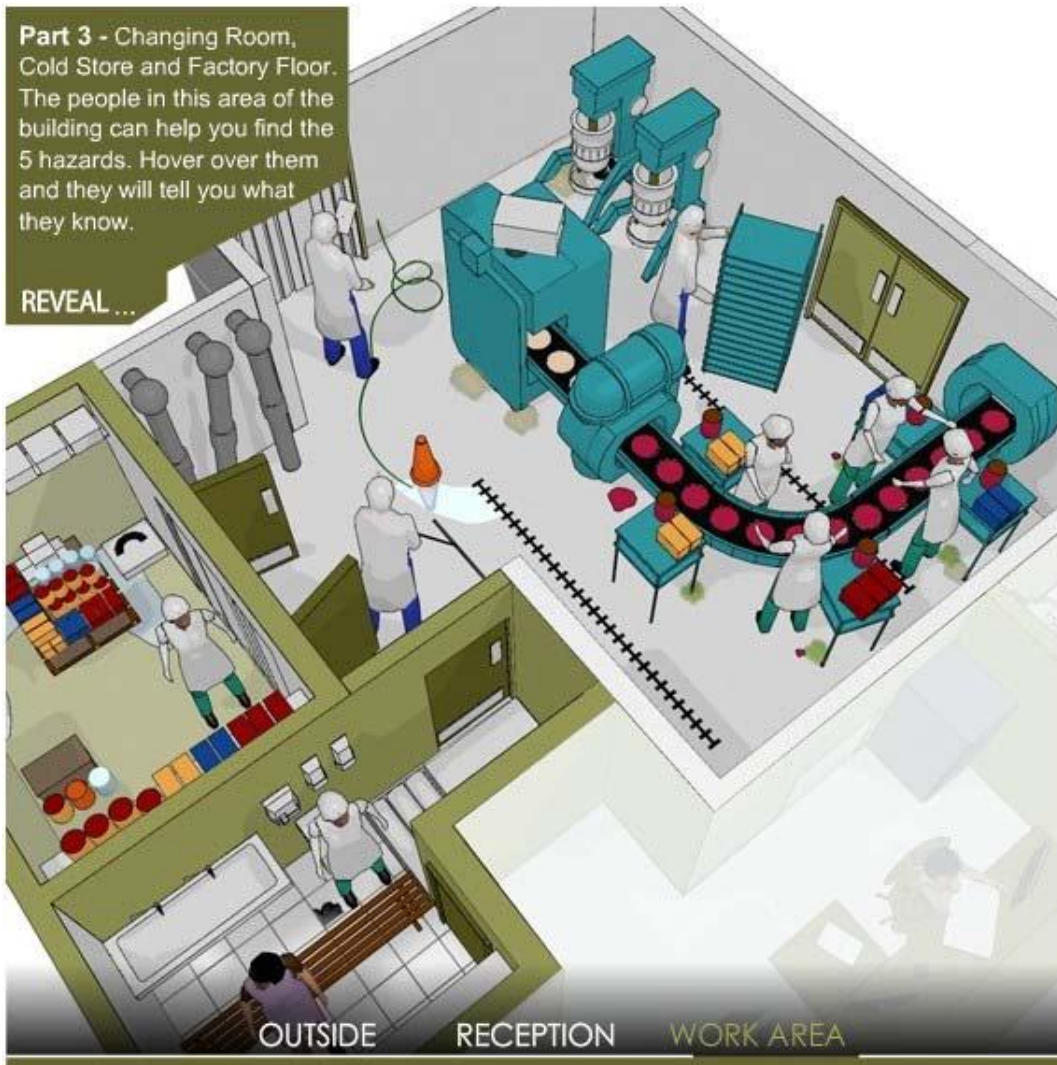
General sector

**Choose right the course for you**

You have chosen the **General** sector. Now choose the level of course you would like to view from the options below on the right. You can also choose a new sector from the options below on the left.

<b>General</b>	<b>Introductory</b>
<b>Food Manufacturing</b>	<u>Intermediate</u>
<b>Catering and Hospitality</b>	<b>Advanced</b>
<b>Education</b>	<p>An intermediate course, contains several short lessons on key topics including footwear, flooring &amp; assessing risk. More detailed and challenging than the introductory level, but keeps technical wording to a minimum. Would suit supervisors, business owners, managers, union and employee health &amp; safety reps.</p>
<b>Healthcare</b>	

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# Summary

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# Summary



- Flooring
- Footwear
- Cleaning
- Stairs
- Trips



# Discussion & Actions

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- What will you do differently?



**[kevin.hallas@hsl.gsi.gov.uk](mailto:kevin.hallas@hsl.gsi.gov.uk)**  
**[robert.shaw@hsl.gsi.gov.uk](mailto:robert.shaw@hsl.gsi.gov.uk)**

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