

# Ceramic Tiles

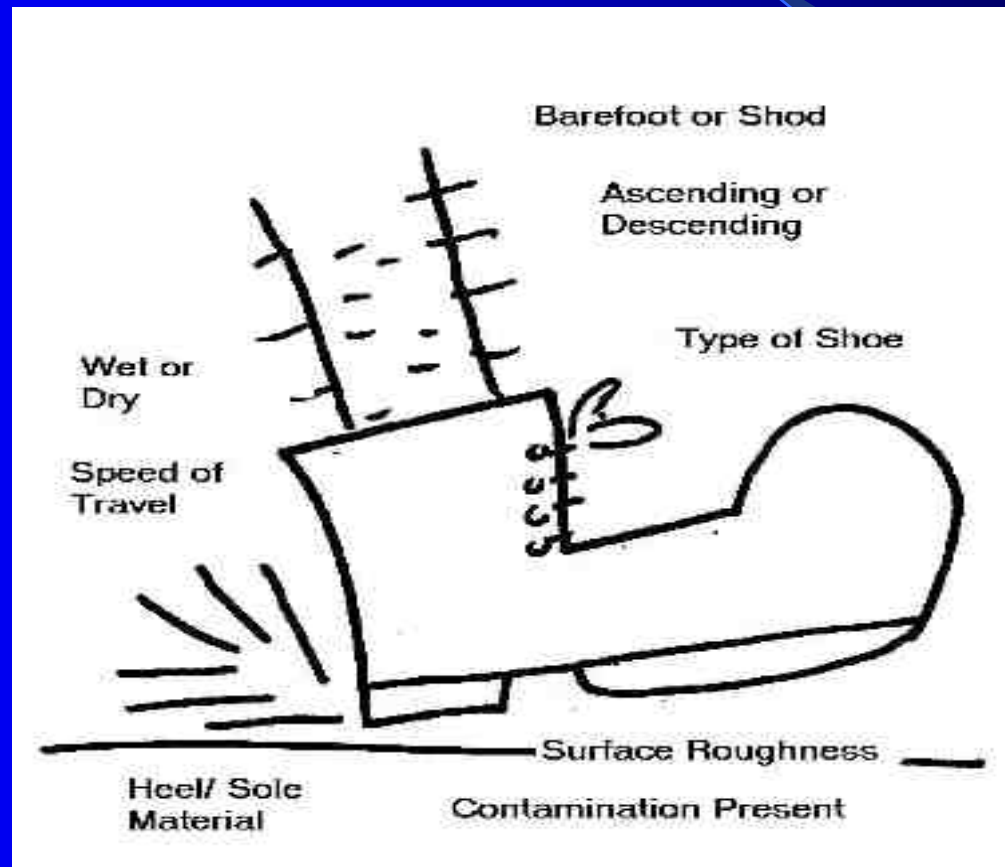
## Slip, Slip Resistance, Its Specification And Maintenance

Approved CPD Network Presentation

# The problem with slipping !

- ? It is the resultant of a complex and constantly changing set of variables
- ? It is a highly subjective phenomena
- ? There is no single suitable test method
- ? There are no ISO, Pan European or British Standards for testing or specification of slip resistance

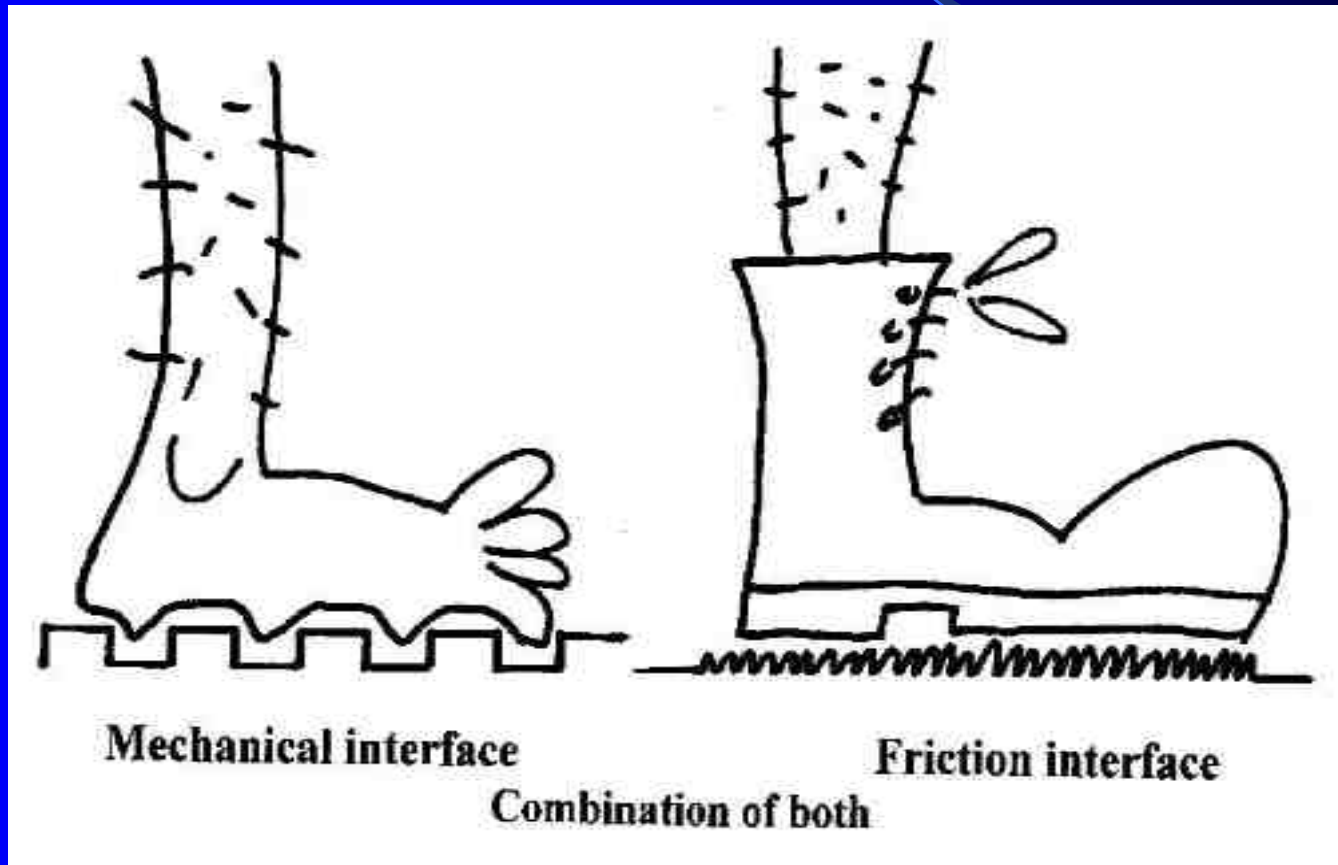
# The factors that influence slip



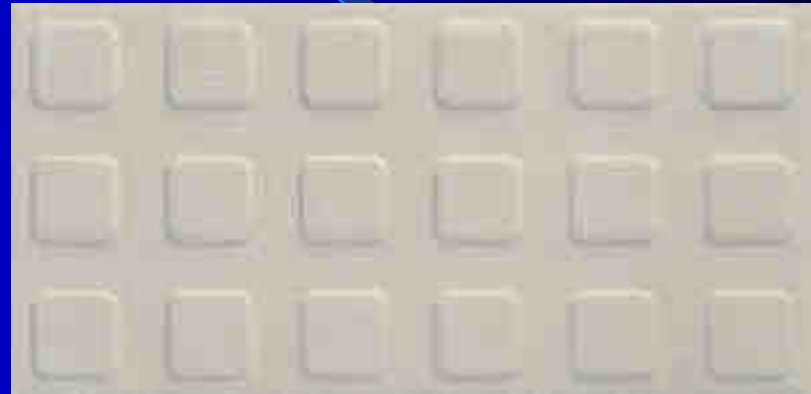
# Brief summary of the main factors likely to affect slip resistance

<u>Application</u>	<u>Flooring</u>	<u>User</u>
Wet/ dry/ ice	Surface roughness	Age of user
Clean/ dirty	Surface design (riven/ profiled)	Infirmity/ disability
If dirty, type	Change of surface	Distracted
Shod/ bare foot	Contamination	Expectation
Speed of travel	Cleaning/ maintenance	Type of shoe
Stops & starts		Type of heel/soling material used
Steps/ slopes		Walking/ pushing/ carrying objects
Type of traffic		
Likely activities		

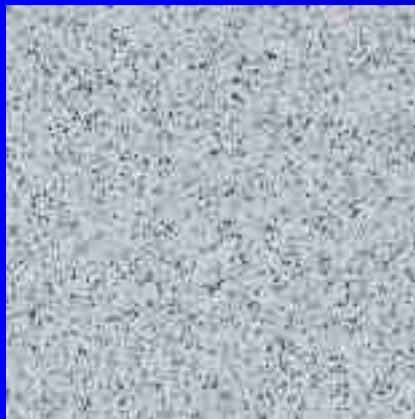
# How does slip resistance work ?



# Examples of Profiled Tiles



# Examples of Enhanced Friction Tiles



# Hospital Application



Dry internal application

- ✓ Low speed of travel
- ✓ Low activity level
- ✓ Cleanability critical
- ? Risk if liquid spillage
- ? Effective cleaning regime required



# Shopping Mall



## Internal application

- ✓ Moderate speed of travel
- ✓ Straight line of travel (?)
- ✓ Flat, level surfaces
- ? Users distracted
- ? Users carrying bags, etc.
- ? Sudden changes in direction
- ? Wet entrance areas

# Commercial Kitchen



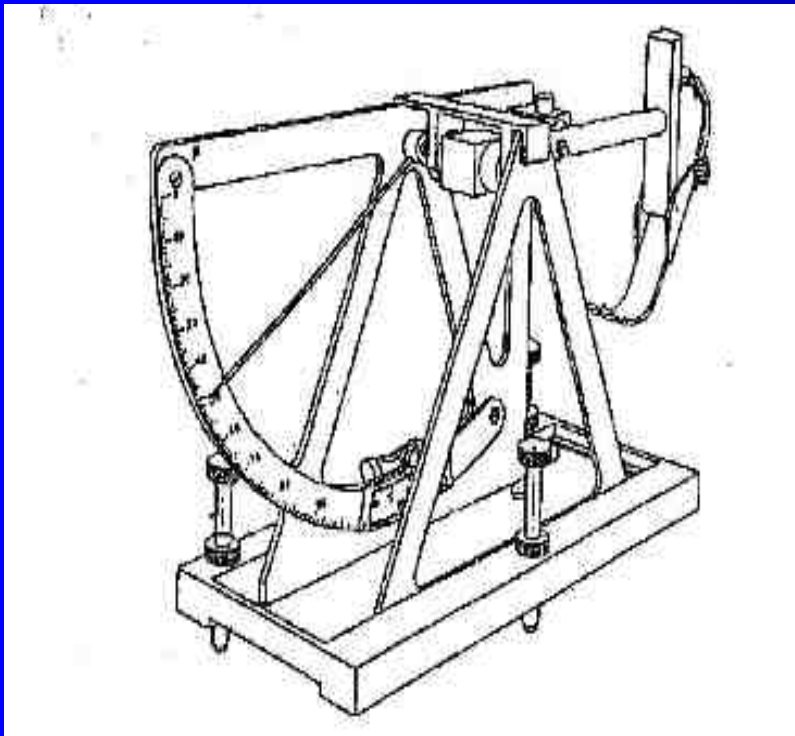
- ? Wet processes
- ? Spillage liquids, fats, etc.
- ? Physical work activities
- ? High risk environment
- ? Shod foot area
- ? Must be readily cleanable
- ✓ Consider tiles with tiles with small but well spaced studs

# Motor Vehicle Workshop



- ? Oil spillage
- ? Wet working areas
- ? Vehicular/ pedestrian slip resistance
- ? Cleanability
- ? Moderate risk work activities
- ✓ Consider tiles with a grit inclusion

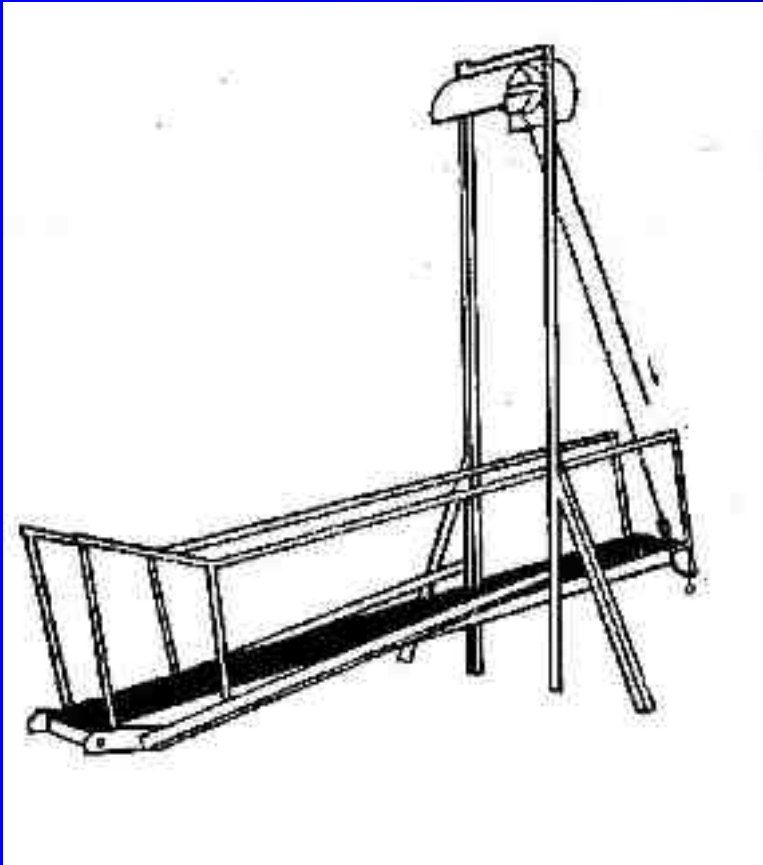
# UK test method for measuring slip resistance



## Pendulum Tester

- ✓ Portable
- ✓ Lab & insitu applications
- ✓ Heel strike slips
- ✗ Results vary with rubber compound used
- ✗ Not good on profiled tiles
- ✗ Poor differentiation at mid range

# DIN test method for measuring slip resistance



## DIN Ramp Test

- ✓ Established national standard test method
- ✓ Suitable all floor surfaces
- ✓ Test bare foot and specific shoe/ contamination/ surface combinations
- ✗ Laboratory use only
- ✗ Results of an empirical nature

# DIN Slip Resistance Classification

DIN Slip Resistance Class	Ramp Inclination	Typical Applications	
<b>R9</b>	< 9°	Low risk	Reception areas
<b>R10</b>	10 to 19°		Self serve cafeterias
<b>R11</b>	20 to 27°		Dish washing areas
<b>R12</b>	28 to 35°		Commercial kitchens
<b>R13</b>	> 35°	High risk	Slopes, liquid spillage

# Specification of surface drainage to assist slip resistance

Slip Resistance Class	V4	V6	V8	V10
Drainage capacity	4 Cm <sup>3</sup> /dm <sup>2</sup>	6 Cm <sup>3</sup> /dm <sup>2</sup>	8 Cm <sup>3</sup> /dm <sup>2</sup>	10 Cm <sup>3</sup> /dm <sup>2</sup>
Least	Drainage Capacity			Most

# DIN Specification for Slip Resistance

DIN Specification	Typical Applications
<b>R9V.</b> <b>R10V.</b>	General internal applications (dry conditions, low risk activities)
<b>R11V.</b> <b>R11V4</b>	Moderate risk applications (e.g. some spillage, commercial kitchens)
<b>R12V4</b> <b>R12V8</b>	Wet & high risk applications (e.g. frequently wet, industrial, speed)
<b>R13V10</b>	Very high risk applications (e.g. Fish processing, abattoirs)



# The effect of Surface Drainage on Slip Resistance



# Summary: To select the correct anti slip tile for the job

- How will the floor be used
- Is slip resistance a key consideration
- Specify the reasons/ user requirements
- Any applicable guidelines available
- Tile manufacturer verify suitability

# Maintaining slip resistance in service

- It is important that ceramic floor tiles are cleaned effectively to maintain their slip resistant properties.
- The frequency & cleaning materials needed will be determined by the application and the type of contamination the floor is exposed to.
- In addition to daily cleaning, regular “deep” cleaning is recommended to remove the build up of cleaning material residue.