



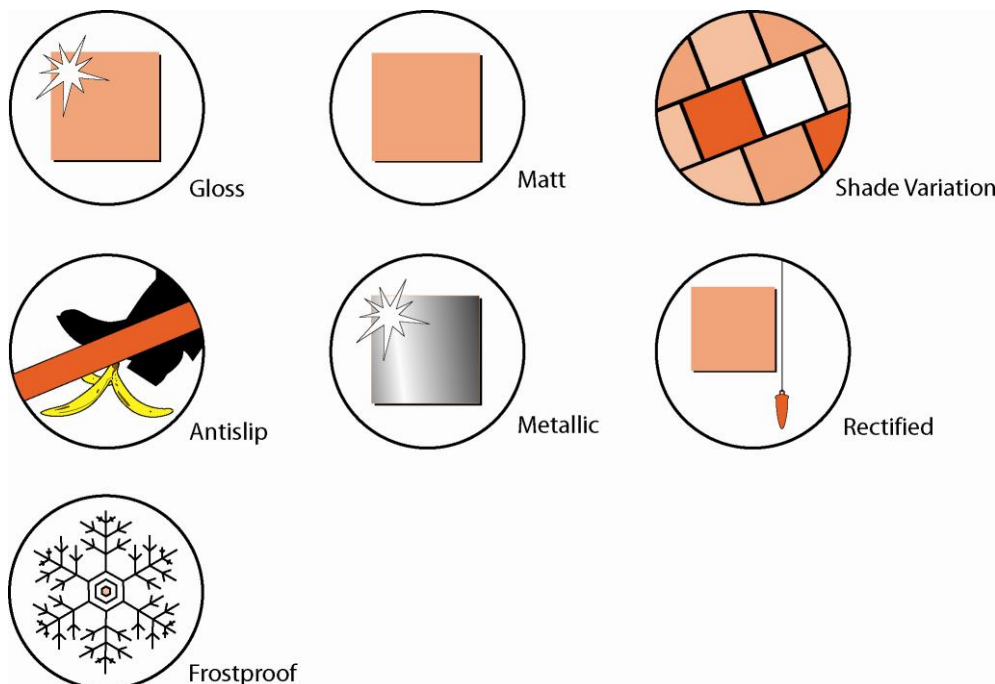
A World Of Possibilities

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**This document is intended as a guide to the slip resistance and PEI ratings assigned to our floor tiles.**

**We have also indicated the properties of the tiles with the icons depicted below:**



## **Slip Resistance Requirements:**

The law requires floor coverings to be safe in use. This imposes specific requirements for areas where risk of slipping may be increased due to the type of traffic or risk of contamination on the floor, such as industrial, food preparation or barefoot use.

German social insurance body ('Berufsgenossenschaft') for occupational accidents have drawn up standards detailing specific requirements for these areas where risk of slipping is to be assumed.

The institute identified areas where there is an increased risk of slipping and assigned a slip resistant requirement for each area using criteria or results from DIN 51097 - Barefoot Ramp Test, DIN 51130 -Shoe Shod Ramp Test and Displacement Volume (V) value. The slip resistant floor coverings considered consist of glazed or unglazed vitreous tiles with a slightly rough, rough or profiled surface.

These requirements are not included in any standard or legislation regarding slip resistance. We have simply included them into our technical library to provide independent reference information to specifiers and designers.

	Work Areas	R Value	V Value
0	General working rooms and areas		
0.1	Entrance areas, indoors	R9	
0.2	Entrance areas, outdoors	R11 or R10	V4
0.3	Stairs, indoors	R9	
0.4	Stairs, outdoors	R11 or R10	V4
0.5	Sanitary (e. g. toilets, changing or washrooms), Break rooms (e.g. day rooms, canteens), Medical rooms	R9	
1	Manufacture of margarine, edible fats and oils		
1.1	Fat melting	R13	V6
1.2	Edible-oil refinery	R13	V4
1.3	Manufacture and packing of margarine	R12	
1.4	Manufacture and packing of edible fat, bottling of edible oil	R12	
2	Milk treatment and processing, cheese production		
2.1	Processing of fresh milk, including buttery	R12	
2.2	Cheese production, storage and packing	R11	
2.3	Ice cream manufacture	R12	
3	Manufacture of chocolates and confectionery		
3.1	Sugar boiling plant	R12	
3.2	Cocoa production	R12	
3.3	Preparation of raw mass	R11	
3.4	Production of slabs, hollow moulded forms and chocolates	R11	
4	Manufacture of breads and pastries (bakeries, cake and biscuit manufacturers)		
4.1	Preparation of dough	R11	
4.2	Areas where fats and liquid mixtures are processed	R12	
4.3	Washing-up rooms	R12	V4
5	Slaughtering, meat handling, meat processing		
5.1	Abattoir		
5.2	Gut cleaning areas	R13	V10
5.3	Meat jointing	R13	V10
5.4	Sausage and cold meats kitchen	R13	V8
5.5	Boiled sausage area	R13	V8
5.6	Preserved sausage area	R13	V6
5.7	Sausage drying room	R12	
5.8	Gut storage	R12	
5.9	Curing, smoking room	R12	
5.1	Poultry processing	R12	V6
5.11	Slicing and packing area	R12	
5.12	Butchery with shop	R12	V8
6	Handling and processing of fish, manufacture of delicatessen products		
6.1	Handling and processing of fish	R13	V10
6.2	Manufacture of delicatessen products	R13	V6
6.3	Manufacture of mayonnaise	R13	V4
7	Preparation and processing of vegetables		
7.1	Manufacture of sauerkraut	R13	V6
7.2	Manufacture of canned vegetables	R13	V6
7.3	Sterilisation areas	R11	
7.4	Rooms in which vegetables are prepared for processing	R12	V4
8	Wet areas in food and drink manufacture		
8.1	Storage and fermenting cellar	R10	
8.2	Bottling, fruit juice manufacture	R11	
9	Kitchens, dining rooms		
9.1	Gastronomic kitchens (restaurant and hotel kitchens)		
9.1.1	up to 100 covers per day	R11	V4
9.1.2	more than 100 covers per day	R12	V4
9.2	Commercial kitchens in homes, schools, day nurseries, sanatoriums	R11	
9.3	Commercial kitchens in hospitals and clinics	R12	
9.4	Large-scale commercial kitchens in canteens, district kitchens	R12	V4
9.5	Fast food and snack bar kitchens	R12	V4
9.6	Defrosting and re-heating kitchens	R10	
9.7	Tea and coffee kitchens, B+B kitchens, ward kitchens	R10	
9.8	Washing-up areas		
9.8.1	Washing-up areas for 9.1, 9.4, 9.5	R12	V4
9.8.2	Washing-up areas for 9.2	R11	
9.8.3	Washing-up areas for 9.3	R12	
9.9	Dining rooms, guest rooms, canteens including serving areas	R9	

	Work Areas	R Value	V Value
10	Cold storage rooms, deep freeze rooms and depots		
10.1	For non-packaged goods	R12	
10.2	For packaged goods	R11	
11	Sales areas and shops		
11.1	Receiving room for meats		
11.1.1	For non-packaged goods	R11	
11.1.2	For packaged goods	R10	
11.2	Receiving room for fish	R11	
11.3	Serving area for meats and cold cuts		
11.3.1	For non-packaged goods	R11	
11.3.2	For packaged goods	R10	
11.4	Serving area for breads and pastries, non-packaged goods	R10	
11.5	Serving area for dairy and delicatessen, products, non-packaged goods	R10	
11.6	Serving area for fish	R10	
11.6.1	For non-packaged goods	R12	
11.6.2	For packaged goods	R11	
11.7	Serving areas other than 11.3 – 11.6	R9	
11.8	Meat preparation room		
11.8.1	For meat preparation other than covered in 5	R12	
11.8.2	For meat processing other than covered in 5	R11	
11.9	Flower arranging rooms and areas	R11	
11.1	Sales areas with fixed ovens		
11.10.1	For the production of breads and pastries	R11	
11.10.2	For the baking of prepared breads and pastries	R10	
11.11	Sales areas with fixed deep-fat fryers or grills	R12	V4
11.12	Sales areas, customer-frequented areas	R9	
11.13	Preparation areas for food for self-service sale	R10	
11.14	Cash till, packing areas	R9	
11.15	Sales areas outdoors	R11 or R10	V4
12	Public health service rooms		
12.1	Disinfection areas (wet)	R11	
12.2	Sterilisation areas	R10	
12.3	Excrement areas, sink rooms, unclean nursing rooms	R10	
12.4	Pathology rooms	R10	
12.5	Rooms for medicinal baths, hydrotherapy, fango preparation	R11	
12.6	Washrooms for operating theatres, plaster casting rooms	R10	
12.7	Sanitary rooms, ward bathrooms	R10	
12.8	Rooms for medical diagnosis and therapy, massaging rooms	R9	
12.9	Operating theatres	R9	
12.1	Wards with hospital rooms and corridors	R9	
12.11	Medical practices, day clinics	R9	
12.12	Dispensing chemist's	R9	
12.13	Laboratories	R9	
12.14	Hairdresser's	R9	
13	Laundries		
13.1	Rooms with continuous-run washing machines or centrifugal washing machines	R9	
13.2	Rooms in which the laundry is removed from the machine dripping wet	R11	
13.3	Rooms for ironing and pressing	R9	
14	Feed concentrate production		
14.1	Dry feed production	R11	
14.2	Feed concentrate production using fat and water	R11	V4
15	Manufacture of leather goods, textiles		
15.1	Water workshops in tanneries	R13	
15.2	Areas with fleshing machines	R13	V10
15.3	Areas where glued leather occurs	R13	V10
15.4	Grease room for the manufacture of seals	R12	
15.5	Dye works for textiles	R11	
16	Paint-shops		
16.1	Wet rubbing down areas	R12	V10
17	Ceramics industry		
17.1	Wet-grinding (for ceramic material)	R11	
17.2	Mixers, working with materials such as tar, pitch, graphite, synthetic resins	R11	V6
17.3	Presses (Forming), working with materials such as tar, pitch, graphite, synthetic resin	R11	V6
17.4	Casting areas	R12	
17.5	Glazing areas	R12	

	Work Areas	R Value	V Value
18	Treatment and processing of glass and stone		
18.1	Stone cutting, stone grinding areas	R11	
18.2	Glass moulding of hollow glass, container glass, structural glass	R11	
18.3	Grinding areas for hollow glass, sheet glass	R11	
18.4	Processing of insulating glass working with desiccants	R11	V6
18.5	Packaging, dispatch of sheet glass Working with anti-blocking agents	R11	V6
18.6	Etching and acid polishing units for glass	R11	
19	Cement works		
19.1	Cement washing area	R11	
20	Storage rooms		
20.1	Storage rooms for oils and fats	R12	V6
20.2	Storage rooms for packaged foods	R10	
20.3	Storage rooms outdoors	R11 or R10	V4
21	Chemical and thermal treatment of iron, metal and glass		
21.1	Pickling shops	R12	
21.2	Hardening shops	R12	
21.3	Laboratories	R11	
22	Metal workshops		
22.1	Electroplating rooms	R12	
22.2	Grey iron processing	R11	V4
22.3	Mechanical processing areas (e.g. lathe shop, milling shop), punching department, pressroom, drawing mill (pipes, wires) and areas with increased use of oil and lubricating materials	R11	V4
22.4	Part cleaning areas, steaming areas	R12	
23	Vehicle maintenance workshop		
23.1	Repair and maintenance shop	R11	
23.2	Repair and inspection pit	R12	V4
23.3	Car wash, washing areas	R11	V4
24	Aircraft maintenance workshops		
24.1	Hangars	R11	
24.2	Repair hangars	R12	
24.3	Washing areas	R11	V4
25	Sewage works		
25.1	Pumping rooms	R12	
25.2	Rooms for sludge de-watering facilities	R12	
25.3	Rooms for raking facilities	R12	
25.4	Standing areas of workplaces, working and maintenance platforms	R12	
26	Fire stations		
26.1	Vehicle standing areas	R12	
26.2	Rooms for hose servicing equipment	R12	
27	Banks		
27.1	Reception areas	R9	
28	Parking areas		
28.1	Garages, multi-storey and underground car parks not subject to the effects of the weather	R10	
28.2	Garages, multi-storey and underground car parks subject to the effects of the weather	R11 or R10	V4
28.3	Parking areas outdoors	R11 or R10	V4
29	Schools and kindergardens		
29.1	Entrance areas, corridors, recreation halls	R9	
29.2	Classrooms, group rooms	R9	
29.3	Stairs	R9	
29.4	Toilets, washrooms	R10	
29.5	Cookery rooms in schools	R10	
29.6	Kitchens in kindergardens	R10	
29.7	Machine rooms for woodwork	R10	
29.8	Special rooms for woodwork etc.	R10	
29.9	Playgrounds	R11	V4
30	Outside traffic routes		
30.1	Paths	R11 or R10	V4
30.2	Loading ramps		
30.2.1	covered	R11 or R10	V4
30.2.2	not covered	R12	V4
30.3	Sloping ramps (e.g. for wheelchairs, loading bridges)	R12	
30.4.1	Refuelling areas	R12	
30.4.2	Refuelling areas, covered	R11	

# Porcelain Enamel Institute (PEI) Rating

PEI rating refers to surface abrasion test of glazed tiles. The test, resistance to surface abrasion of glazed tiles intended for use on floors, is conducted according to EN 10545-7 which is a requirement of EN11441, Ceramic tiles – Definitions, classification, characteristics and marking.

PEI rating is only given to glazed tiles, full body or through body porcelain without glazing are not given this rating. Unglazed, full body floor tiles are tested for resistance to deep abrasion of unglazed tiles: the test value is removed volume, in cubic millimetres and the test method is EN10545-6.

PEI rating indicates the wear resistance of the glazed tile surface and this value can be used to determine suitability of the floor tile for specific uses. The recommendations for suitability of the tile using the PEI Ratings are as follows:

**Class 0 - No Foot Traffic:**

Wall tile only and should not be used on floors.

**Class 1 - Very light traffic:**

Very low foot traffic, bare foot only. (Master Ensuite, spa bathroom).

**Class 2 - Light Traffic:**

Slipper or soft-soled shoes. Second level main bathroom areas, bedrooms.

**Class 3 - Light to Moderate Traffic:**

Any residential area with the possible exception of some entries and kitchens if extremely heavy or abrasive traffic is anticipated.

**Class 4 - Moderate to Heavy Traffic:**

High foot traffic, areas where abrasive or outside dirt could be tracked. Residential entry, kitchen, balcony, and countertop.

**Class 5 - Heavy Traffic:**

Ceramic tile suggested for residential, commercial and institutional floor subjected to heavy traffic.