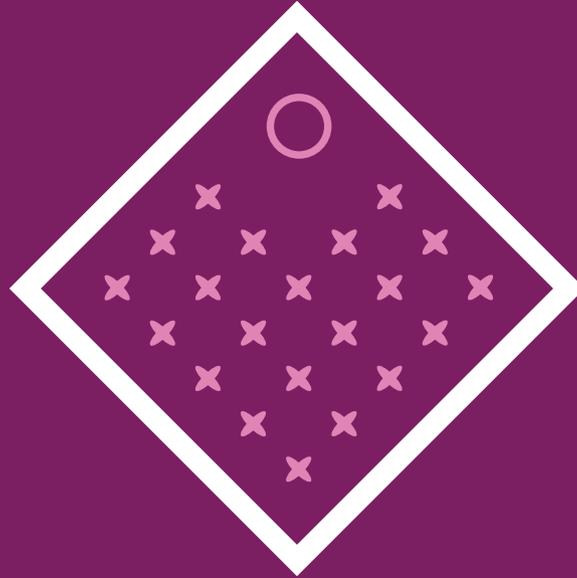


PRECISION ENGINEERED



SENSTEC

ANTI SLIP SHOWER TRAY

senstecshowertray.com

A hand holding a pen over a document, overlaid with a purple gradient.

" Felt quite
safe and
not slippery
underfoot ""*

*University of Ulster User Experience Report.

The Brief

Our task was to use the most relevant international standards on slip resistance to design and manufacture an innovative Anti-Slip shower tray for use with barefoot, wet and soapy conditions. The Anti-Slip shower tray should be easily cleaned, offer a verifiable positive user experience and have no limitations on use throughout its lifetime.

“We left the meeting wondering just what we had actually agreed to do! The bar had been set high but we kept in mind that Classic Marble (Showers) Ltd has been at the

forefront of design and innovation since 1983 and that we had won numerous product innovation awards for bathroom waterproofing products within our Classi® range.”

" The surface
was very
comfortable
and quite
sensual –
a bit like
reflexology ""*

The Challenges

Manufacturers of shower trays sold within the EU must have their shower trays CE marked in accordance with the EU Construction Products Regulations including EN 14527.

The first challenge that we came across was the realisation that whilst EN 14527 draws attention to the potential for slipping to increase when the surface of shower trays are wet, it does not detail particular tests or technical parameters for shower trays in relation to slip resistance.

As soon as we discovered this to be the case, our managing director joined the UK Slip Resistance Group, UKSRG, in order to raise awareness

of this fact and to keep himself and the Classic Marble team fully up to date with changing legislation.

As a result we found ourselves fulfilling an educational role, as well as developing a new product.

Our next challenge was the actual design, so we turned to the aerospace tooling industry for help. This indicates the high level of precision engineering and expertise that the SENSTEC design required.

A photograph of two people in a meeting, one pointing at a laptop screen, with a purple overlay.

" I was
impressed
how it
provided
grip as well
as comfort ""*

*University of Ulster User Experience Report.

Methodology

Our initial research led us to two methods of measuring slip resistance - the Pendulum Test and the Ramp Test, BS 7976-2:2002 and DIN 51097 respectively. We decided to test our product using both standards.

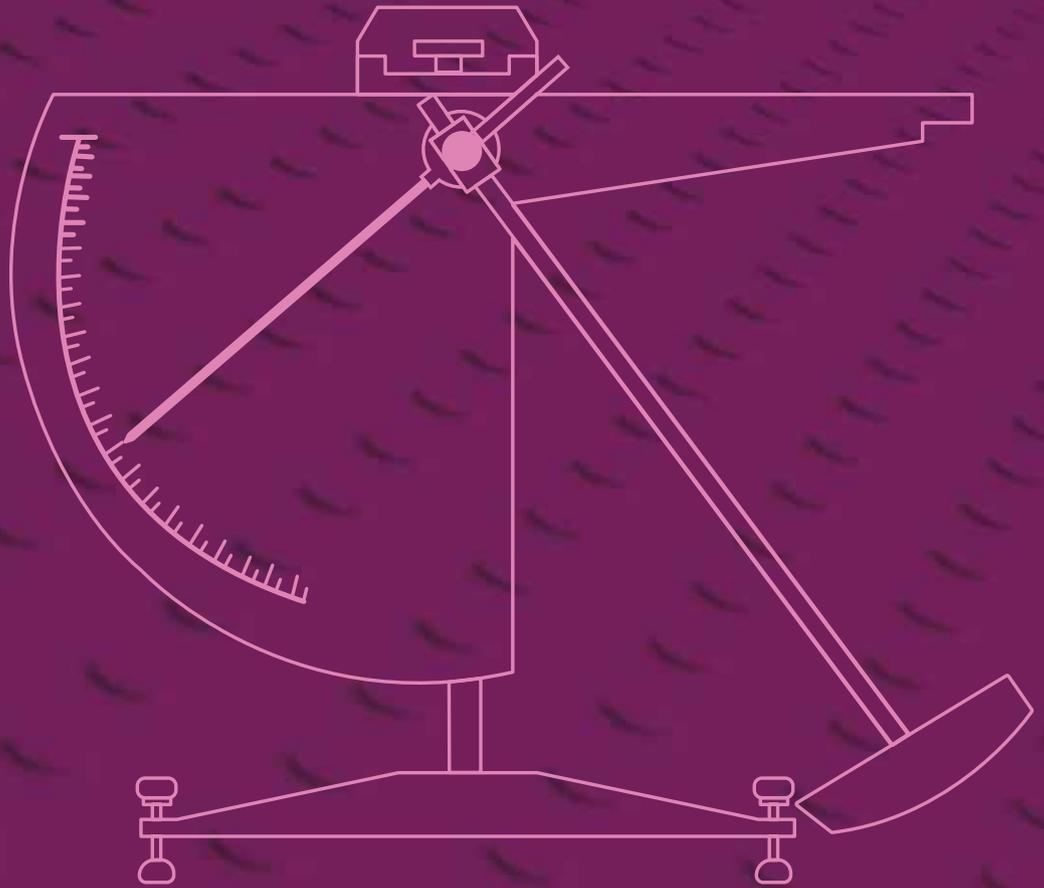
From the outset, we agreed that we should adopt an engineered solution and make the Anti-Slip design an integral part of the mould. This would ensure that Anti-Slip properties would be built in to all of our shower trays. In addition, we decided that the Anti-Slip profile should be made from the same material as the rest of the shower tray surface. This would mean that there would be no limitations of use.

More than two years of continuous Research and Development ensued and it soon became clear why no-one had yet successfully completed a project such as this. Prototype tool #1, tray manufacture, test, feedback results... Prototype tool #2, tray manufacture, test, feedback results... the trials went on and on.

Then finally we cracked it after Prototype tool #42!

Or had we? Only rigorous testing would provide the answer.

" Dimples
felt like
they
added
grip ""*



Testing

Pendulum Testing

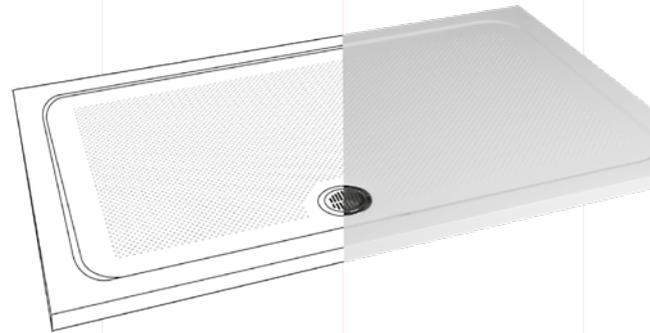
BS 7976-2:2002

In simple terms the Pendulum is a swinging arm. The bottom of the pendulum is fitted with a rubber foot. When the pendulum is released from its starting position the rubber foot strikes the surface with the Anti-Slip properties. The distance travelled by the pendulum after striking the sample determines the Pendulum Test Value (PTV). This swinging motion is carried out multiple times before a PTV value can be calculated.

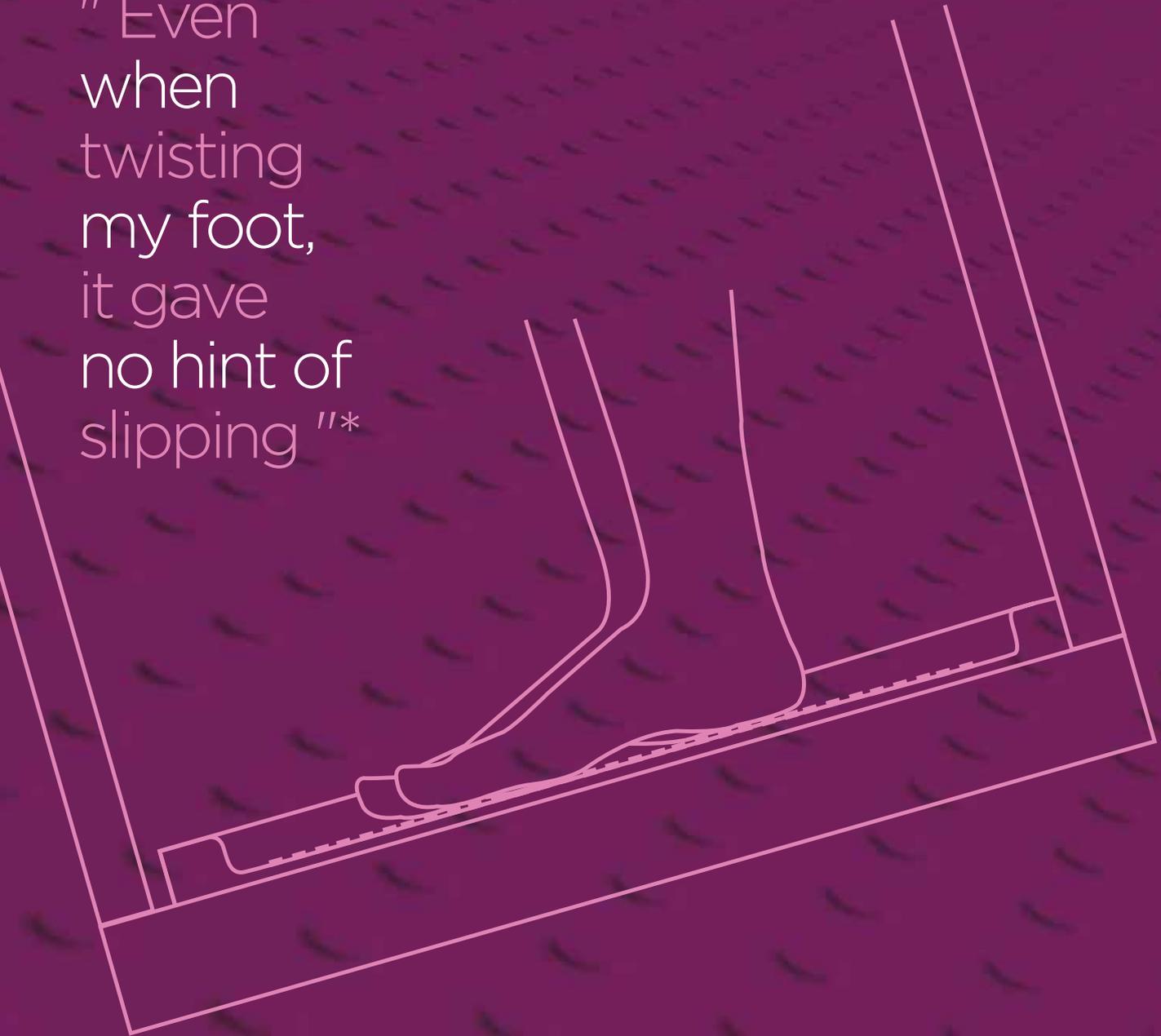
The Pendulum Tester is universally recognised as an effective floor slip resistance measuring device. It is the subject of many international standards and is the preferred test method of the UK Slip Resistance Group (UKSRG) and the Health & Safety Executive (HSE). Owing to its size and portability, it can be used both on site and for laboratory testing.

Our UKAS accredited laboratory results report an average PTV value of 37 for the Senstec Anti-Slip design, placing the product in the Low Slip Potential, the best classification possible.

This outstanding result was achieved with the addition of a soaping agent to replicate a true showering environment, even though this was over and above the standard requirements.



" Even
when
twisting
my foot,
it gave
no hint of
slipping "*"



Testing

Ramp Testing

DIN 51097

The Ramp Test involves a person walking forwards and backwards on a test sample at a predefined tempo, as determined by a metronome. A water and contaminant solution is pumped over the sample, at the same time as the apparatus is continuously tilted. The person is securely harnessed from above and although he/she is aware that the angle of inclination is constantly increasing, they are not aware of the actual angle. Throughout the test the person continuously walks forward and backward. The test ends when the person slips. The process is repeated multiple times with multiple people, with all measurements pooled to give a final result.

Due to the size and operation of the equipment this method is for laboratory testing only.

Our UKAS-accredited laboratory testing reported an average result of 30°, placing it in category C, the best classification possible.

This meant that after extensive testing with the ramp and pendulum our design could be placed in the best classifications available.

But what about the all-important user experience?



" I have older children and teenagers and I would feel safer that they would not slip or fall and could be left to shower by themselves independently "*





User Experience Testing

A key requirement of the design brief was that our shower tray should deliver a verifiable positive user experience. Classic Marble (Showers) Ltd engaged the Podiatry Department at Ulster University to investigate and report on user perceptions of the SENSTEC Anti-Slip Shower Tray.

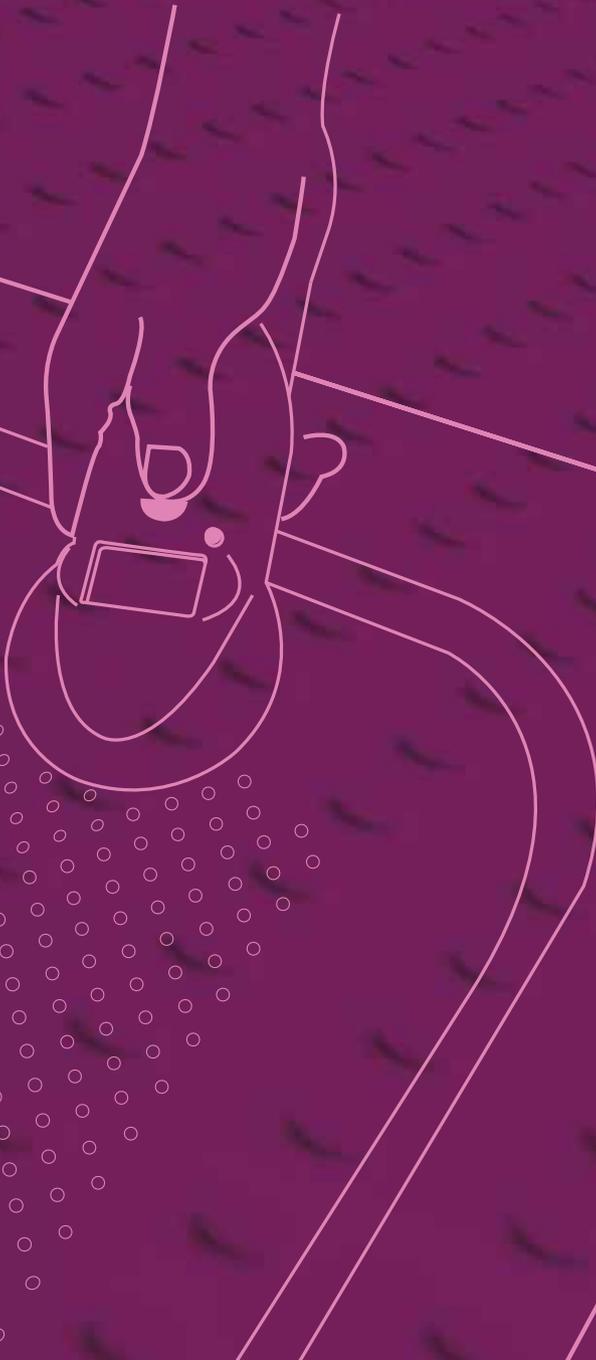
The entire report can be found at senstecshowertray.com

Individual subject comments were very positive in terms of product design (94%) and some subjects found the experience of standing and moving in the tray therapeutic for their feet. 88% of subjects reported a high degree of comfort when standing and moving in the SENSTEC Anti-Slip Shower Tray. Various Post-test comments are shared throughout this brochure.

It is important to note that the study protocol was followed diligently and that tests were conducted in line with the German DIN 51097 standard in relation to contaminant concentration and flow rates.

Success! As a result of the University of Ulster Study the SENSTEC Design was turned from Prototype to Tooling.

" Surface
provides a
good sturdy
grip and I felt
very securely
grounded "*



*University of Ulster User Experience Report.

Unrivalled, World-Class Quality

Classic Marble (Showers) Ltd has been designing and manufacturing shower trays since 1983 and we operate our manufacturing and supply operations to both BS EN ISO 9001 Quality Management System and BS EN ISO 14001 Environmental Standards. We maintain strong relationships with our suppliers and they keep us well informed about improvements in materials. This means that we always use the highest quality raw materials available.

The SENSTEC manufacturing process requires each Anti-Slip shower tray to go through 12 sign-off quality control gateways. In addition, every SENSTEC Shower Tray has an inbuilt microchip which provides complete traceability of all raw materials and details of the manufacturing process, should such information ever be needed.

Classic Marble has an enviable reputation for innovation, quality

products and customer service, all of which are driven by our desire for continuous improvement in everything we do. In 2008 Classic Marble became the Founding Sponsor of what is now the British Institute of Kitchen, Bedroom and Bathroom Installers, whose primary purpose is to raise installation standards. We remain its sponsors to this day and we are also members of the Bathroom Manufacturers Association.



" Wasn't
slippy,
I took steps
confidently ""*

*University of Ulster User Experience Report.

Cleaning

It is important to note that the build-up of grime and dirt will have an impact on the slip resistance of any surface. As part of its document *'Assessing the slip resistance of flooring'*, the HSE has created a slip potential model which clearly links cleaning to the slip potential of a surface.

Cleanability was an important part of the brief for the SENSTEC Anti-Slip Shower Tray and a considerable amount of design work went into ensuring the correct shape of the Anti-Slip profile. We had to consider how water would flow around the profile, as well as how the profile could be cleaned.

A clear indication of our success in meeting this element of the design brief is the fact that the cleaning instruction for SENSTEC Anti-Slip shower trays are the same as those for our standard shower trays, which we have manufactured since 1983.

"Ensure that the tray is washed with soap and water and dried with a soft cloth after each use."



SENSTEC

"Surface was extremely stable which gave me a feeling of confidence moving about it"*

*University of Ulster User Experience Report.

The SENSTEC Range

Shower trays in the SENSTEC range are 36mm tall and are completely solid, as our design does not require a hollow void underneath.

Each tray is composed of a gel-coated surface, backed with a poly-concrete composite. Our unique process allows for the shower trays to be manufactured in any colour.

The number of sizes for SENSTEC shower trays is continually evolving, so please check our website, senstecshowertray.com for the most current information and for key dimensions and waste positions.

Shower Trap

SENSTEC shower trays have been designed exclusively for use with

McAlpine ST90CPB-S-HP2 or ST90CPB-S-70, with flow rates of 42 and 34 litres per minute respectively when tested in accordance with EN274-2:2002. mcalpineplumbing.com

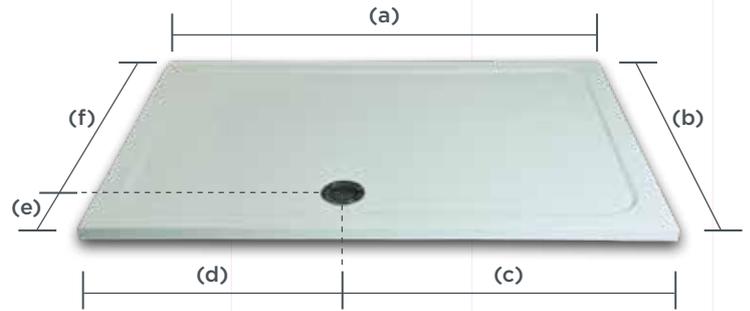
In order to ensure a watertight installation, we recommend that all SENSTEC Anti-Slip Shower Trays are used in conjunction with the Classi® Bathroom waterproofing range of products.

For further information, go to waterproofyourbathroom.com

SENSTEC RANGE

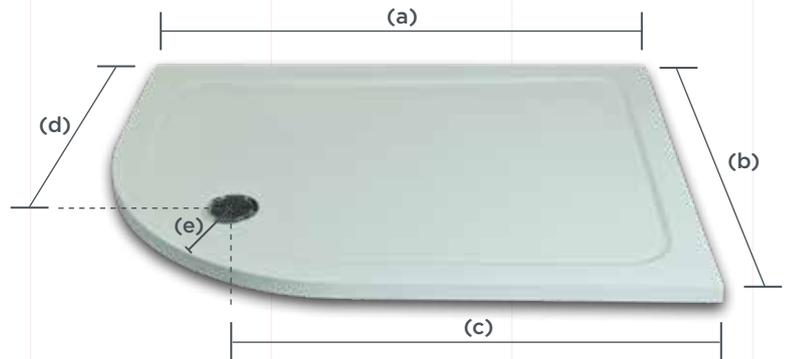
RECTANGLE *(Tray depth 36mm)*

(a) mm	(b) mm	(c) mm	(d) mm	(e) mm	(f) mm
1400	900	790	610	180	720
1200	1000	690	510	180	820
1200	900	690	510	180	720
1200	800	690	510	180	620
1100	800	640	460	180	620
1000	900	590	410	180	720



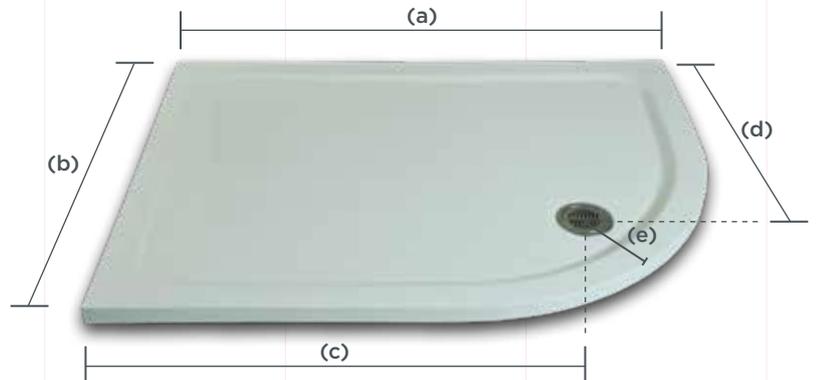
OFFSET QUADRANT LEFT *(Tray depth 36mm, Radius 550mm)*

(a) mm	(b) mm	(c) mm	(d) mm	(e) mm
1200	900	912	612	180



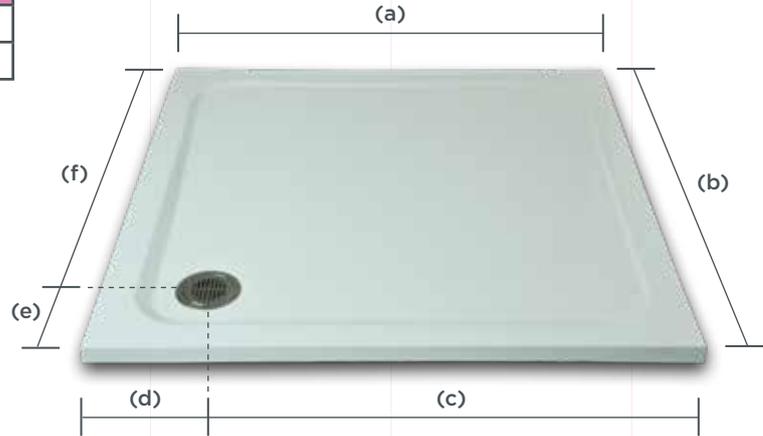
OFFSET QUADRANT RIGHT *(Tray depth 36mm, Radius 550mm)*

(a) mm	(b) mm	(c) mm	(d) mm	(e) mm
1200	900	912	612	180



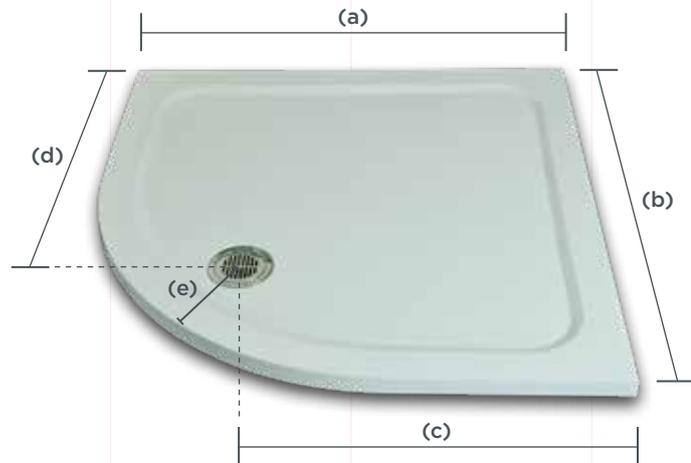
SQUARE *(Tray depth 36mm)*

(a) mm	(b) mm	(c) mm	(d) mm	(e) mm	(f) mm
1000	1000	820	180	180	820
900	900	720	180	180	720



QUADRANT *(Tray depth 36mm, Radius 550mm)*

(a) mm	(b) mm	(c) mm	(d) mm	(e) mm
900	900	626	626	180
800	800	526	526	180



An aerial view of a city skyline, likely London, with a prominent purple overlay. The image shows various buildings, including a large, modern skyscraper on the right and several older, classical-style buildings in the center. The sky is a deep purple, and the overall scene is bathed in a monochromatic purple light.

" Even
when
moving
around on
the surface
I felt very
stable and
secure ""*

*University of Ulster User Experience Report.

Architects/ Specifiers

SENSTEC Anti-Slip Shower Trays are BIM Level 2 ready. Models in .rvt format are available from senstecshowertray.com or from the National BIM Library.

We recognise that architects are among the most important members of any design team, so we have prepared a RIBA-accredited CPD Module - 'SENSTEC Anti-Slip Shower Tray' - which RIBA has added to its core curriculum. The module focuses on Anti-Slip shower trays and gives a clear insight to current legislation, an explanation of what is currently on the market, the two most widely used methods of testing and the advantages and disadvantages associated with each.

The CPD module will help architects to make informed choices when specifying Anti-Slip shower trays with the following learning outcomes:

- An understanding of the two main methods of Slip Measurement.
- An understanding of whether the Anti-Slip properties are part of the shower tray design, or an applied coating after manufacture.
- An understanding of any limitations the Anti-Slip properties may have on the shower tray guarantee.
- An understanding of whether the slip resistance values consider likely contaminants found in the shower tray, such as soap suds.

Please contact Classic Marble (Showers) Ltd to register your interest in taking part in this RIBA CPD.

" Even in the
soapy water
as I moved
about I was
extremely
confident
after the initial
moves that I
wouldn't slip ""*

Review

Did we meet The Brief?

We believe so! Here's why:

1. UKAS Laboratory tested to BS 7976-2:2002, showing best category of Slip resistance possible, considering wet and soapy conditions.
2. UKAS Laboratory tested to DIN 51097, showing best category of Slip resistance possible, considering wet and soapy conditions.
3. The Anti-Slip properties are an integral part of the tray manufacture, made from the same materials as the rest of the tray surface, therefore no limitations on use.
4. Ulster University Study - 100% of subjects confident that they would not slip in a SENSTEC Anti-Slip Shower Tray, as well as 88% reporting a high degree of comfort when standing and moving in the SENSTEC Anti-Slip Shower Tray.
5. Easily cleaned - no change required to our cleaning instructions, first introduced in 1983 for our normal shower trays.

A note of thanks

As well as our dedicated team at Classic Marble, thanks are reserved for some special partners, all of whom helped to ensure that the Design Brief became a reality.

In no particular order, Alan Wallace of FR Kelly for our IP guidance, Gary Kerr of Invest NI, Simon Hall of Lucideon for our external testing, Michael Maguire and his team at Datum Design for their endless patience with tool design and re-design and re-design and..., Mr Raymond Robinson of the Podiatry Department at Ulster University for facilitating the user experience testing, and finally Andy Rice of ARC for his creative touch.

The Classic Marble Team



SENSTEC
ANTI SLIP SHOWER TRAY

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