

close to you

TECE, the magazine



The bathroom from the configurator: let customers plan themselves!

Individual luxury: The premium customers of the future //
Population explosion: Where to put all the urine? //
International bathroom construction processes:
Different countries, different construction times



1



3

Information

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2



4

1 The future of bathroom construction: Are the configurators coming?	Page 02
Inventory of existing buildings: BIM from the scanner	Page 08
Alternatives in the bathroom: It doesn't always have to be tiles	Page 10
2 Deluxe bathroom building: Lots of money in a small space	Page 14
How does the client define luxury?	Page 20
Reasons for a shower toilet: There's always space for comfort	Page 22
3 From church towers to apartments: Modern – right down to the detail	Page 26
Construction and population growth: The 10 billion problem	Page 30
Big Project Challenge: Fighting chaos on big building sites	Page 32
Urine as manure: Too much of a shame to flush away	Page 36
4 Building bathrooms in Europe: No bathroom is the same as the next	Page 40
International bathing: Washing rituals instead of washing systems	Page 44
The history of water-bearing craftsmanship	Page 46
Trade fair dates: TECE close to you	Page 49

A revolution in construction

A revolution in the bathroom



Hans-Joachim Sahlmann

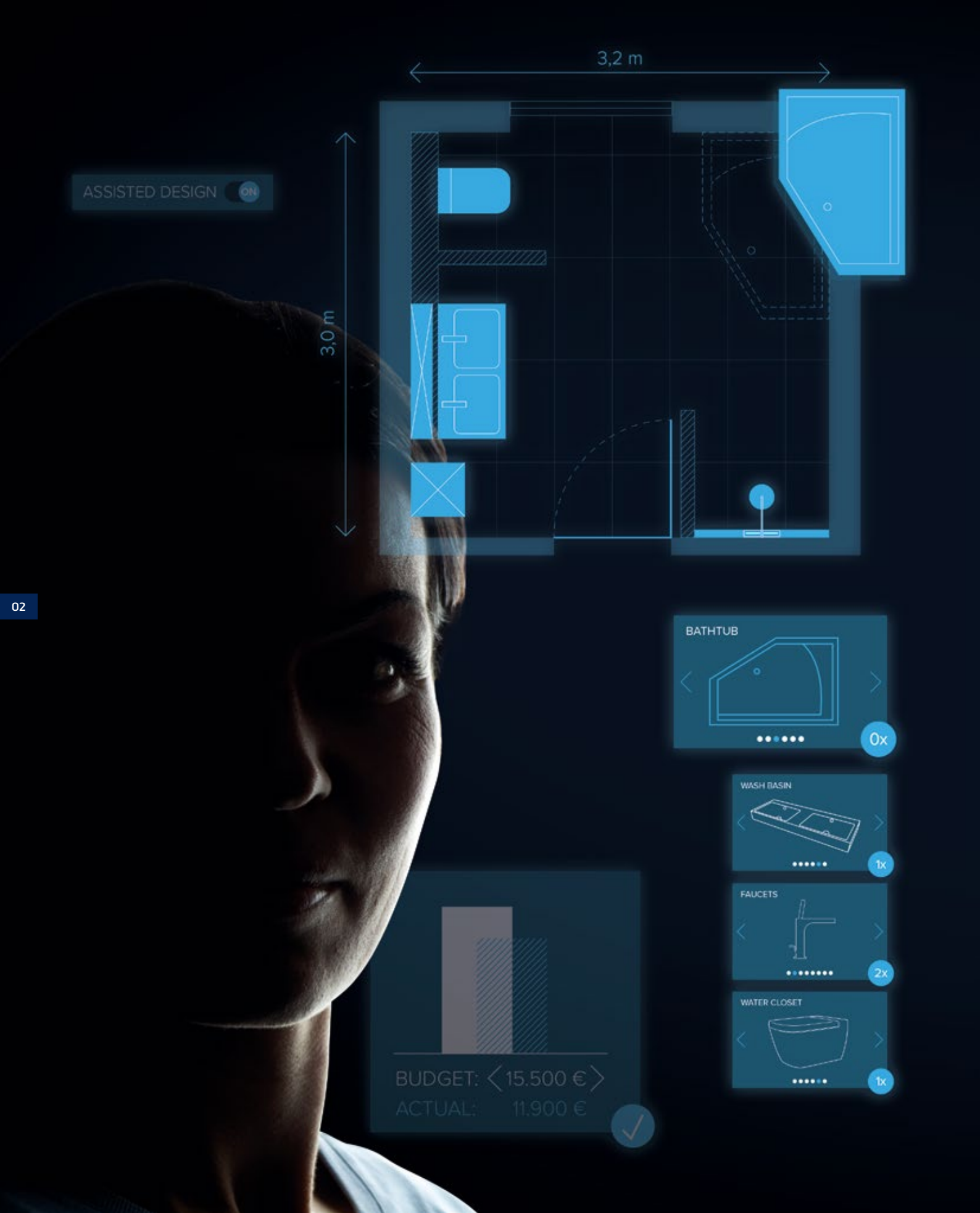
The world is changing – and those of us in the construction trade and related trades can't shut our eyes to it. Even if we're currently standing on an island of privilege: gigantic challenges are coming our way. There's a lack of living space, of specialists, there's a lack of digitalisation and improvement of processes. Measures to tackle climate change will radically change the building structure as well as energy and water usage. Even though we've talked ourselves into believing that water shortages are a problem for the more southern nations, two hot summers have made us realise that even large parts of Germany are suffering from water stress: grass lawns (also in terms of meadows) are becoming a luxury.

In this Close to You magazine, we invite you on a journey into the future of construction and the bathroom. We'll be grazing over lots of relevant topics: digitalised bathroom construction in existing buildings, the luxury bathroom, the bathroom as built by a painter. But we'll also be going into detail: which people buy our shower toilet? And why is the state of the art in sanitary facilities a benchmark for a culture?

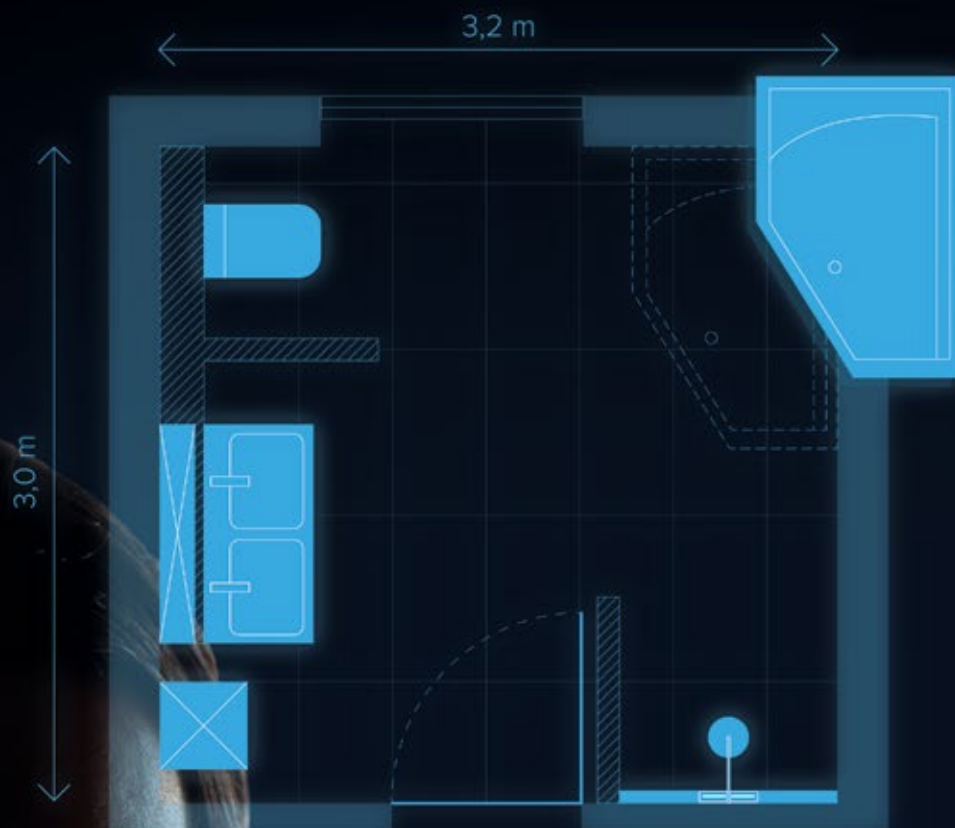
This magazine offers you a wealth of topics and points for reflection for the future. Even though today nobody knows exactly where things are heading: the more puzzle pieces we put together, the clearer the picture gets. Please feel free to take a look!

We hope you find this edition an interesting and stimulating read.





ASSISTED DESIGN ☒



BATHTUB

..... 0x

WASH BASIN

..... 1x

FAUCETS

..... 2x

WATER CLOSET

..... 1x

BUDGET: <15.500 €>
ACTUAL: 11.900 €

✓

Are the configurators coming?

No industry is safe from digitalisation, that much is certain – not even individual bathroom-building. There is still plenty of speculation about what could happen when the algorithms arrive. But we should allow ourselves to muse a little. If one assumes that the ‘last metre’ in the bathroom-building process – i.e. installation – will always be manual work, it seems most likely that digital business models will first of all take care of time-consuming sales and individual planning. A possible scenario for a future bathroom-building process. ▽

DIMENSIONS
BATH 3,2 m x 2,0 m
9,6 m

✎ Travel agencies, taxi drivers and branch banks have had the painful experience of seeing how unexpected competition can emerge from the Internet – and how a tornado with the primal power to shake up entire industries can develop out of the blue. And even in business models that have been fully established. Travel is booked via the Internet, transport services (with and without a driver) are arranged via a smartphone app – and withdrawing money at the supermarket checkout is now done on the fly – and, in a flash: the business model is gone. And why actually have cash at all in times of digitalisation?

Configurator: Products, plan and price all at once

It is only certain that the 'last metre' in the bathroom – applying pipe-holding pliers, the installation and the tiling – will remain in the hands of tradespeople if bathrooms continue to be built on the construction site and not in the factory. Nothing is definite. The process of building bathrooms, of building itself, is so complex and partly improvised, interlinked with so many trades and interwoven with suboptimal planning and

development processes that workflow experts talk about crafting; not building. For example, the Munich TU professor and Kanban expert Horst Wildemann, who helped to turn the automotive manufacturing process upside down by linking the online configurator and production. Looking at the status quo on the construction site, the professor was briefly lost for words – he diagnosed huge potential for optimisation.

Conclusion: There is a great deal of psychological stress on the part of the end customer with regard to new bathrooms – whether this concerns complexity, excess demand or costs. Psychological stress on the demand side is typically the trigger for disruptive developments. If one now analyses typical disruptive distortions in comparable markets, these almost always come from new players and extremely rarely from the depths of a distribution channel itself. There are good reasons for this as customer-supplier relationships in B-to-B processes are stable and persistent in the face of change. In addition, the construction industry is currently doing very well – from this perspective, the industry sees little need for action, apart from expanding its capacity, which is actually necessary but difficult.

Back to taxis, branch banks and travel agencies – what all three examples have in common is that it is more convenient and transparent for customers to use the Internet. The demand side – i.e. the customer – has long been on an Internet

If the new bathroom is created in the customer's mind by means of a configurator, this optimally paves the way for the sales transaction. The configurator and the customer first sort things out between themselves.



shopping spree. The initially healthy scepticism towards online shopping has disappeared: the legal framework, various reinsurance services and the improved online shopping experience have ensured that even large purchases are now also made online. The recipe for success for the digital business models also applies to the new bathroom: “Convenience is king”. Therefore, the focus in this scenario must be on where the Internet first optimally meets the convenience requirements of a bathroom customer and can, in passing, increase cost and benefit advantages for the supplier.

Can bathroom planning be carried out without a specialist?

The Internet is certainly a step ahead when it comes to fast price transparency (even if this transparency is only perceived). An online bathroom sale – like any purchase – requires a price. This is precisely where the industry has a natural weakness: a highly individual service such as a new bathroom is not easy to price in its entire depth of manufacture. A few weeks often go by when it comes to a serious offer for a bathroom renovation. The price is not possible without planning – and that taps into further scarce and qualified personnel resources from classic trade businesses. And that is before the first money is earned. The virtue of successful business models on the Internet lies in developing simplified models and

transferring them to the customer in the form of groundwork. But is that possible? Configuring a bathroom (everything in front of the wall) online seems possible and is probably not much more complex than assembling a 5 Series BMW. However, the expert system behind it must define the parameters for bathroom planning. We know this from car configurators: The basic navigation

system and leather package do not go together. With the bathroom configurator, that would mean: You can move the position of a toilet, but it would be very expensive ...

The argument that configuration without clean measurements and without including the on-site infrastructure (course of supply and drain pipes, floor projection height, etc.) ➤



A vision of the future that not everyone thinks is beautiful: Internet success models implemented within the bathroom-building process. A great deal of work is shifted to the customer, which makes the product cheaper.

is prone to errors, is justified – but can be pushed aside: The entire configuration would, of course, be subject to measurement, feasibility and planning. What would be important to our fictitious online provider of unknown origin would probably first be the signature under the contract at a price that covers all eventualities in front of the wall. For this, the supplier lets the customer select and move furniture, taps and toilets for a weekend – and then has enough information for a price point. And at a time when the master craftsman has not even been on site with his folding ruler. Instead, in the next few days, the online supplier's measuring service provider will come by and precisely measure the recorded data with his laser scanner. Actuarial mathematics for the pipes behind the wall is priced in because it goes without

saying that a caveat regarding the old infrastructure must be given when renovating a bathroom in a 1980s building. However, this is no different to a classic renovation before the wall is opened.

Customer does the planning himself – completion online

Let's take the fictional scenario further: The customer orders his bathroom – exactly the bathroom he designed himself with the online expert system. The customer has wrapped things up himself by signing the contract, without a single hour of work on the part of the supplier having flowed into the project. The sheer speed of the Internet provider (in reality, the

urge to play with the configurators) creates a remarkable unique selling point for this service. How does the building process work? Like a classic tradesperson with personnel bottlenecks, the online provider will rely on prefabricated modular construction methods, i.e. on standardised systems and less on individual craftsmanship. Instead of tiles, he will presumably use panel systems that can be installed quickly. His aim is to keep the time on the construction site as short as possible and make the preparations and planning as effective as possible. This is also pleasant for the customer and simultaneously reduces cost risks and complexity for the supplier. At the same time, the online provider uses the results of the configurator for aesthetic and functional market research, regardless of whether it has



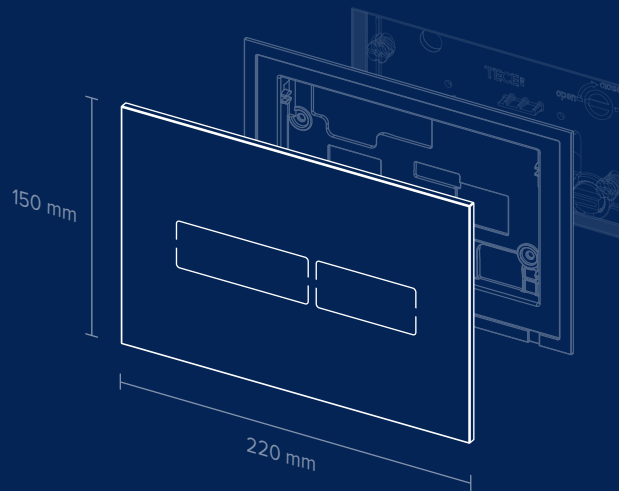
Laser scanners transform an as-built situation into a cloud of points that can be loaded into a CAD program as measurements. Measurement service providers save the bathroom builder from having to do this work. Image: www.faro.com

been used simply for playing around or for an actual subsequent sale. The system of online supply and demand should perfect itself – that's also what the configurator is there for.

The crucial point: Being the first to reach the customer

But doesn't the lack of qualified tradespeople currently represent a bottleneck in the bathroom-building system? Exactly! But the online provider opens up this bottleneck in a very clever way: at the beginning, in the pricing and planning phase, he delegates tradesman management work to artificial intelligence and the customer. He commissions the same subcontractors that are already driving around the country with laser scanners for kitchen construction market leader Ikea, for example, to carry out the measurements. Using modular and prefabricated bathroom-building methods, he finally reduces manual work to installation services. What is left to do, is the qualified pipe and connection work – i.e. the last metre ...

Ultimately, with this vision of the future, the configurator manages to conjure up a picture in the customer's mind in just a few hours and thus generate a competitive advantage. How will the digital aspect arrive – this way or another – and will the price-sensitive middle segment likely be the first to be affected by such a scenario? Let's be surprised. □



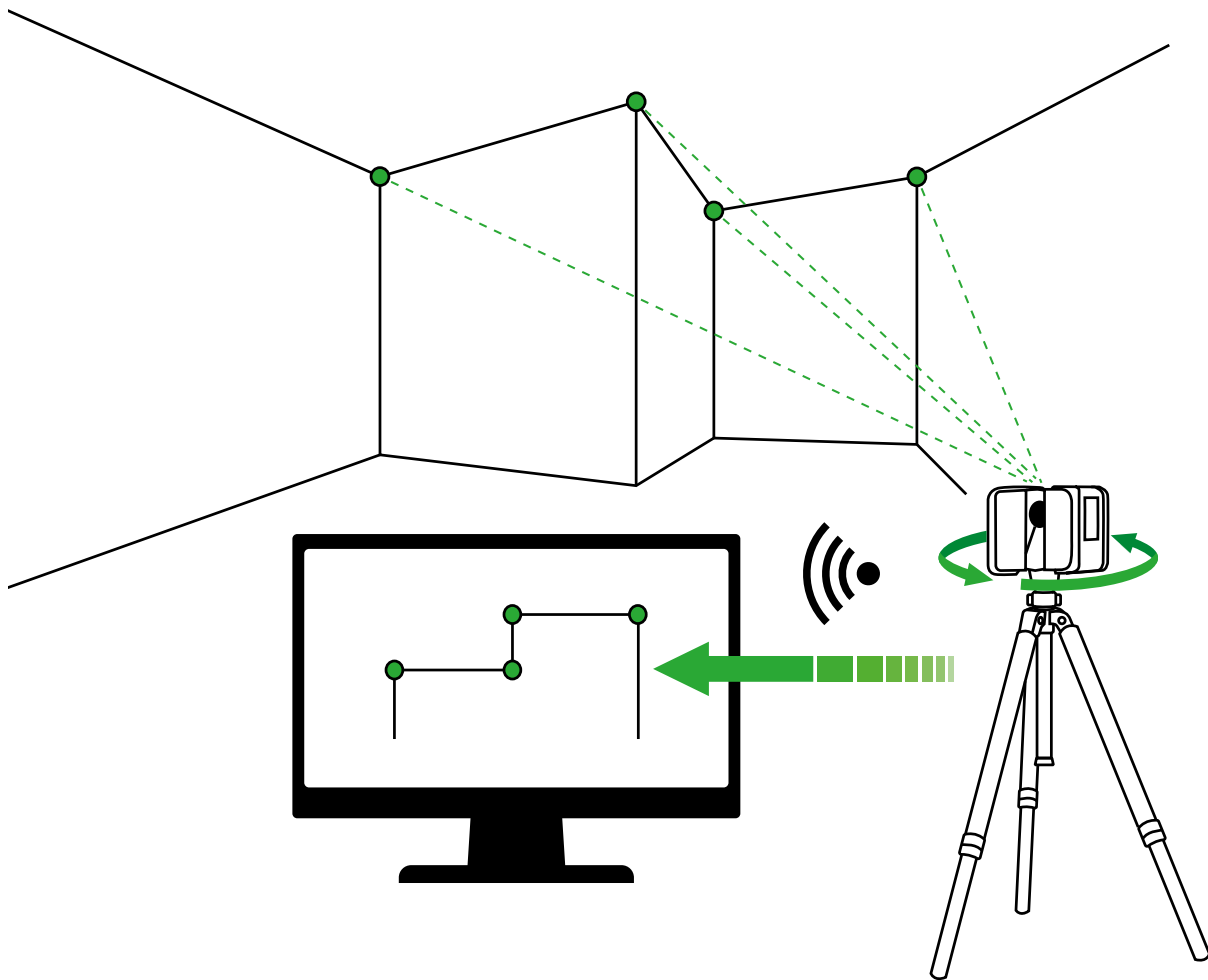
The configurator needs data

If you want to develop an online configurator for the bathroom across all products on the market, you need a data model that offers a uniform and standardised data structure.

Building Information Modelling (BIM), in particular, has what it takes to revolutionise the construction process, from cross-disciplinary planning to production and building use. BIM is a method of networked planning, implementation and management for real estate using software. It includes all of the relevant building data.

Graphic 3D data, numerous technical attributes such as available sizes, colours and options, and monetary information, for example, can be integrated into the BIM data models.

BIM is already established and mandatory in the USA, United Kingdom and Scandinavia. In Germany, Austria and Switzerland, however, the introduction of the integrated planning method is not yet so advanced. Rapid implementation of BIM will increase the productivity of planning processes and improve risk management in terms of costs, deadlines and quality.



Existing buildings gone digital: Scanned data protection

When it comes to renovating existing buildings, there's often no reliable planning foundation to hand, whether in terms of measurements or in terms of evaluating the building structure. New laser and infrared scanner systems generate data that will revolutionise the renovation of old buildings. This makes the evaluation of the structural state quick, simple and possible with zero expert knowledge – even from the interior perspective.

Digital remote rangefinder – when these linear measurement devices are expanded with spatial components, we refer to these as tachymetric systems. Measurement points, angles and distances all come together to form a digitally accurate image of the space. During measurement, a so-called 3D dimensional sketch is created that you can scan into the CAD program and immediately begin working on. Measurement systems like these save time and establish a reliable basis for planning.

However, what's missing is an evaluation of the building structure and the hidden wall mounting. Lumoview, a new system from Lumoview Building Analytics GmbH is the ideal addition to laser measurement. The measure-

ment technology from Lumoview was created as part of an innovation project by The German Air and Space Travel Centre (DLR). The Lumoview scanner consists of a combination of cameras: alongside a spherical panoramic photo camera, it also comes installed with a 360-degree infrared camera. The two all-round images are overlaid on top of one another and reveal the thermal properties of the space – e.g. the wall temperature and humidity can be calculated. This can even identify water lines. The great thing about both systems is that the spaces to be measured don't have to be emptied beforehand. A laser scanning system can even image freely formed objects or fine constructs: selective individual measurement points are not captured

here, instead a range of 3D object coordinates are captured in a point cloud.

The point cloud adds maximum reliability in planning

The combination of these two scanning systems catapults the old building into the digital age: the basis of the data is captured easily, reliably and independently of the collector's state on the day. □

It doesn't always have to be tiles

Bathroom designers know: the spirit of the day in bathroom design is trending towards cosiness. The individualisation of the wellbeing bathroom allows previously non-existent freedom in the selection of surfaces and materials. Frank Kudraß knows that forgoing tiles is enticing and doesn't even have to be expensive. The master painter prefers to design seamless bathrooms.

"Lots of bathroom constructors are stuck on tiles and use these in the bathroom out of habit", says the Emsdetten-based master painter, who is currently the second generation to lead his company. He is also a member of the "Farbrat" (English: Colour Council), a community of values formed by master painters and interior designers. "The customer often doesn't know about the alternatives. It's precisely these alternatives that score big with individual design, cosiness and low maintenance", and that has been the case for more than 20 years now. Frank Kudraß and his team have been specialising in seamless bathrooms since 1998:





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“This is also why I don't like to talk about a 'trend'. Trends are finite and usually don't last long. Well-designed, seamless bathrooms on the other hand work like a single unit. They delight us down the years and their thin layer thickness means they can be overhauled with no trouble in the event of renovations. You simply have to show the customer what the possibilities are.”

Narrow gaps or even seamlessness have always been a criterion for high-quality craftsmanship. Today, this

can definitely compete on price with high-quality tiles or natural stone. And not only that. Frank Kudraß creates individual ambiances tailored to the customer in his dream bathrooms, which range from the puristic to the opulent.

The master craftsman combines different smoothing and plastering techniques, wallpaper, glass and wood in his bathrooms. Tiles are by no means a taboo though, and are consciously used at the customer's request as a design element. ➤

- 1 As a master painter, Frank Kudraß has a wholly unique view of the bathroom beyond tiles, which he only uses – if at all – discreetly as a design element.
- 2 Vision instead of wet rooms: the grouted surfaces blend seamlessly into the smoothed screed. The wall and floor melt into one and give the bathroom a harmonious feeling of spaciousness. A glass dividing wall means nothing distracts from the view to the outside.

➤ Marble chalk plastering is extremely popular and perfectly suited for use in shower areas. The surface plastering, which resembles natural stone, is open to water vapour diffusion. Moisture is absorbed and released again. Chalk has antiseptic and fungicidal properties thanks to its high pH level. This makes it a natural enemy of mould. And all without chemicals.

Fine plastering and high-quality tiles are price neutral

Other plastering techniques such as tadelakt from Morocco, which is also mineral-based, impress with their unique shine. Once applied, the

plastering is compacted with stones and polished. This results in a fine, natural surface with no joints and gives the bathroom a dash of exclusivity. It's hard to imagine, but it's true: these kinds of surface treatments are cost neutral in direct comparison to high-quality tiles or natural stone.

Frank Kudraß collaborates with paint manufacturers in order to create an individual colour scheme. Wall paints from the DIY store consist of some 15 to 20 industrial pigments. By contrast, manufacturers produce paints using up to 300 rare and natural pigments that add a very natural effect to the space. "Colour is material. Unfortunately, the customer often lacks the courage and the imagination to actually use this.

Wallpapers can also be implemented seamlessly and, thanks to water-resistant glass fibre, can be increasingly found in bathrooms – and in the shower area. "Hardly any medium brings as much atmosphere to a space as wallpaper. Marble chalk impresses with its colour and surface, whereas the wallpaper scores points with its graphic effect." For individual design, wallpapers are printed digitally and the proportions of the pattern are adjusted to the wall and the space. Kudraß: "Modern bathroom wallpapers are as individual as a tailored suit. The tailored suit for your wall."

In addition to his expertise when it comes to surfaces, Frank Kudraß's competence lies in giving his customers some ideas: "The customer doesn't always come to me with a concrete idea. They simply don't know about the possibilities. My job is to show these to them and to inspire them." A model with a future: "The planning of private bathrooms will continue developing more and more in a personalised direction." But bathrooms such as the ones that Frank Kudraß's team designs aren't just for the eyes and wellbeing: seamless bathrooms are very easy to keep clean. That's because if there are no joints then they also don't require effort to be cleaned. □

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3 With the TECEdrainline shower channel installed flush to the wall, the floor covering can be consistently continued right up over the cover of the channel body.

“Lots of people don't know that there's another way to do bathrooms”

Gabriela Rücker knows that the customer needs to be told about the design possibilities first. The freelance interior designer based in Ganderkesee, a town situated near Bremen, works for private individuals, companies and also hotels. Above all, she sees the potential here of wallpapers in the bathroom.

Gabriela Rücker ensures that her customers have the maximum feeling of wellbeing in their home or work environment and can either live in total relaxation or focus completely on their work. “The planning starts with getting to know the customer personally on site. Here I see how they live and how they tick”, says Gabriela Rücker. As well as encountering customers who would prefer a classic bathroom design, the interior designer also often meets clientele open to experimentation who she



Suitable wallpapers unlock hidden possibilities for individual and seamless wall.

can impress with unusual concepts. Rücker: “Lots of people don't know that it's possible to use wallpaper in the bathroom, for instance in the shower area.”

The interior designer is happy to use the medium of wallpaper in the bathroom because it allows her to draw a creative red line through the living area right up to the shower in a simply and uncomplicated way. “There's hardly any surface that makes it so easy to achieve a pleasant atmosphere of wellbeing as with wallpaper”, says Gabriela Rücker. “If tastes change, the bathroom can be redesigned with relatively little effort, without having to knock tiles off the wall.” This aspect makes wallpaper especially interesting in a hotel. The character of the room can be changed quickly here, without resulting in lots of dirt and without putting off guests with the background noise.



Deluxe bathroom building

If bathrooms will be planned off-the-peg on the internet in future, then how will things look with premium bathrooms? Experts are of the opinion that classic bathroom construction has a future here – if the customer approach is right. A visit to a bathroom construction cathedral and an interdisciplinary sightseeing tour through psychology and the world of luxury wet rooms.

15

Stephan Krischer runs “Ultramarin” in Cologne's Old Gasworks, one of the finest bathroom studios in the country. The reporter asks: “Did you know that 'Frank Philipp' wrote in his Google rating about you that anyone without a budget of at least 50,000 euros shouldn't stop by for a look?” Krischer's response (emphatically neutral): “I know the rating you mean.” At the jewellers on Paris' Champs-Élysées, suited men stand out front with spiral cables behind their ears so not just anyone gets in. A Google commentary fulfils the same function at Ultramarin.

On the hunt for luxury. Coco Chanel is reported to have said that luxury was not the opposite of poverty. No, it was the opposite of the ordinary. This is why Krischer's Ultramarin more closely resembles a sacred space, like a church. Unusual in any case, most definitely not a plumbing retailer. Although Krischer is a trained craftsman and technician with a degree in engineering, there is no trace of technology: “I always loved the premium bathroom and its aesthetic, I found it fun as far as back my apprenticeship while my colleagues were afraid of it.” ↘

❏ Is afraid the right word? Perhaps it is. Luxury customers may be profitable, but they're certainly often stressful. They demand a lot and pay attention to details. The natural stone slabs are personally selected together with the bathroom designer at the quarry in Carrara. This is where decent work and artistic, meticulous craftsmanship part ways. You have to like it and you have to be able to deal with. That and a strong service focus are what have made Stephan Krischer into a luxury-compatible

bathroom designer over the last quarter of a century. He started out small "working out of a car boot".

A shift in values in terms of luxury is directly invested in the bathroom

Luxury bathroom studios have existed in many regions of Germany for

some years now. Germany, Austria and Switzerland are countries that are often considered to be understated – unlike Russia and China, for example. Strangely enough, the DACH countries are currently experiencing a social evolution and a shift in values when it comes to luxury that is then indirectly invested in the bathroom.

Today's style of living demands its tribute: in western-style affluent societies, the service requirements are continuous and putting people under

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“ The bathroom is a personal luxury. It is a place of retreat from the everyday in which people prepare themselves for the day and then free themselves from the residue of the everyday again.”

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pressure. Nothing is predictable any more, nothing is plannable any more: working space, reputation, family – everything can change in the blink of an eye. The stress of retaining the wellbeing acquired both now and in old age is growing at the same pace as the uncertainties. This fluctuating set of values is clearly reflected in the approach to luxury, as a study by Nuremburg-based consultancy “Brand Trust” demonstrates.

On the one hand we have the classic, material luxury as an addictive reward, a differentiating fetish and a symbol of ascension. On the other hand, the experience or non-experience of luxury is a counter-concept to the classic model of luxury – and is a luxury in itself. This “new luxury” comprises health, good nutrition, self-determination and the consumption of experiences. Both kinds of

luxury are inextricably linked: product-driven luxury is impossible without the experience and vice versa. These combine perfectly in the bathroom: Experience and reward, health, beauty and physical awareness can be masterfully celebrated in the luxurious environment - and without pomp and splendour. This is because luxury is a ride on the knife-edge: as soon as it is exhibited or inevitably has to be displayed, it can change.

It's very clear: a Lamborghini or a thick watch on a wrist are different kinds of luxury to a bathroom. The racer is a statement for the street, classifiable and observable to every passer-by. A wrist decorated with a luxury watch is a sight you have to get closer to in order to classify it; the buttoned cuff has to hitch up or be hitched up so you can identify the Rolex. The perfect dose decides

whether other people may read the signs of personal luxury – or even should. The bathroom goes a step forward when it comes to the opportunities for “dosing”: luxury in the bathroom is underpinned by absolute discretion. ↘

- 1 A real bathroom designed by the Ultramarin planning team: an expansive installation with connection to the master bedroom.
- 2 Luxury-compatible but totally uncomplicated himself: Stephan Krischer is certain that luxury should be sold authentically.



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3 A cathedral of bathroom design: Ultramarin is situated in an old gasworks in Cologne.

➤ The owner of the bathroom must consciously lead interested parties and admirers here – or they enjoy it only for themselves and their family. The luxury of a bathroom is much more coded into the details than a Rolex, which everyone knows is expensive. “Anyone who comes to us is generally aesthetically inclined,” says Stephan Krischer. By this he means that the customers can read the interior designer's code – and have

learned to do so. They can identify an LC 4 chaise from Le Corbusier as an original (and tell it apart from the copy). Stylishness, fine materials, precision work: in summary, says Krischer: “everyone knows the kind of value such a bathroom represents”.

5-star Hotel – Bringing comfort home

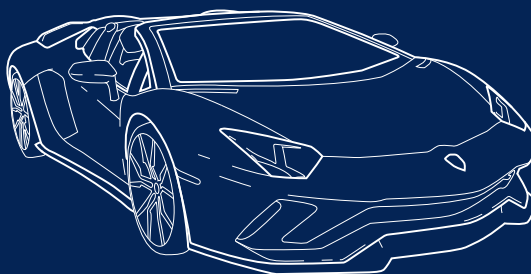
“The bathroom is a personal luxury”, says Stephan Krischer. It is a place of retreat from the everyday, a dream day dream gate to be passed through at least once, twice a day in which people prepare themselves for the day and then free themselves from the residue of the everyday again. Contemplation, a leisure area in their own four walls, a space to transition to the next mind-set. The feeling of only doing what makes you feel good here leads affluent people to spend money. The motives behind it: searching for relaxation, using time for yourself, caring for the body as a vehicle of experience.

A major contribution to this image upgrade has come from the resorts, luxury hotels and wellness complexes

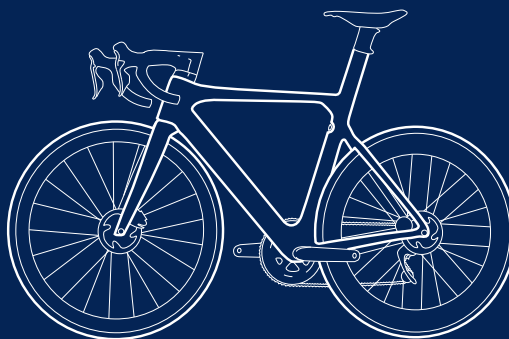
located in the most beautiful places in the world. The bathroom is a vehicle for bringing this holiday comfort home. In realising dreams like these, it's usually about far more than just the bathroom: for example, integrating it into a Japanese garden or installing an open cubicle. This space for physical hygiene thus becomes the focus of a larger conversion project, structural restoration or new build. The bathroom constructor must hereby function as a specialist for incorporating the bathroom into the interior design. You won't get far with standard products here. A lot of material that characterises these bathroom concepts comes from the carpenter, glazer or stonemason – made to measure. Naturally, all of the functions are also embedded in the building control technology. Stephan Krischer: “In addition to unleashing that playful instinct and a certain unique selling point, digitalisation brings an enormous increase in comfort: Lighting moods, invisible music and remote controllability of functions are important to the premium customer and worth paying for.” □

Luxury in transition – An attempt at a definition

Luxury used to mean pure abundance – the Latin root of the word stands for lavish fertility. It was about the conscious consumption of rare resources, often to the detriment of ecology and sustainability. Valuable materials were used, even if these weren't functionally necessary. The aim was (and occasionally still is) to use luxury consumption to emphasise social status.



Today, luxury is less defined by the opulent use of raw materials. The interpretation of luxury typical in the German-speaking countries is conceptional and emphasises good taste or an advancement in knowledge. It's about superiority through knowledge and skill (craftsmanship), but also about future-thinking technical solutions. So a handmade bike instead of a Lamborghini? On its own, the subject of sustainability and environmental protection doesn't always have highest priority even with “personal luxury”. Luxury can't get away so easily from its wasteful origins today either.



The aura of the valuable

What generally applicable laws does luxury work by? Why is one thing valuable and not another? And which stories ensure that people dig deeper into their pockets for an item or service? Luxury is usually justified by a combination of different factors.

80 strategies for luxuries

With his book “Die Aura des Wertvollen”, Mario Pricken has compiled a standard reference on which strategies can be used to market luxury and premium products. In the volume (Publicis, Erlangen, 2014) with 242 pages, the expert for strategy development introduces 80 strategies for marketing premium items.

www.mariopricken.de

Leadership through technology

A new combination of technology enables access to basic technologies. **TECEone** taps warm water directly from the line – the hydraulic shower toilet with no tank.

A significant rule-breaker

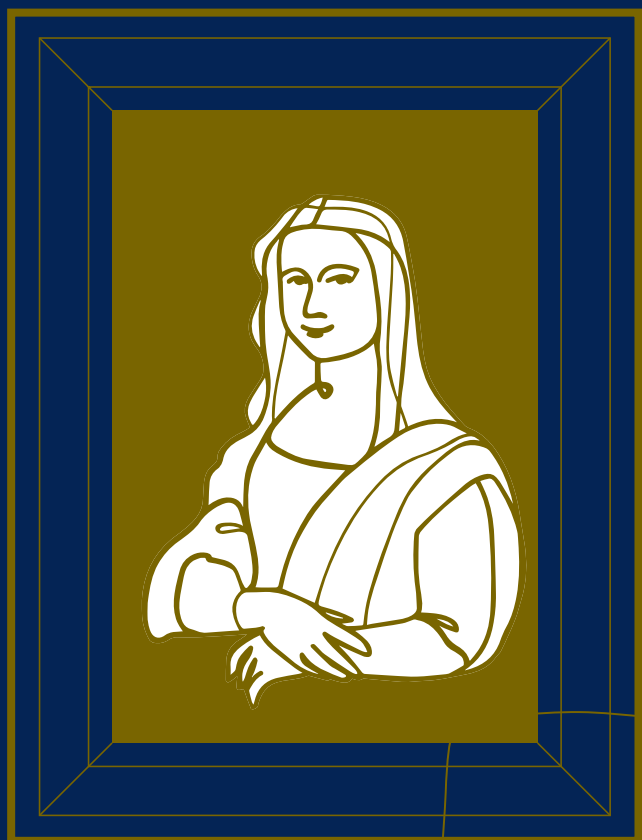
Shower toilets need power – nobody questioned this for 50 years. Now with **TECEone** there is one that also works without power.

Price

This toilet with shower function is one of the most expensive design toilets. **TECEone** on the other hand is low-cost for a shower toilet.

Hidden shine

TECEone – luxury when you take a closer look. The “shower toilet” additional function is discreet and reduced to two buttons. Intuitive operation – discreet and with zero bling.



Under beauty's spell

The **Mona Lisa** has lost none of its power of attraction over the centuries. Timelessly beautiful – this is true mastery.

Priceless

Although the **Mona Lisa** consists solely of a frame, oil paint and canvas, art is often priceless and unreachable. And this is what gives it its appeal.

Tradition

In 1860, Giovanni **Panerai** opens his watchmaker's workshop for the finest timepieces in Florence.

Creation myths

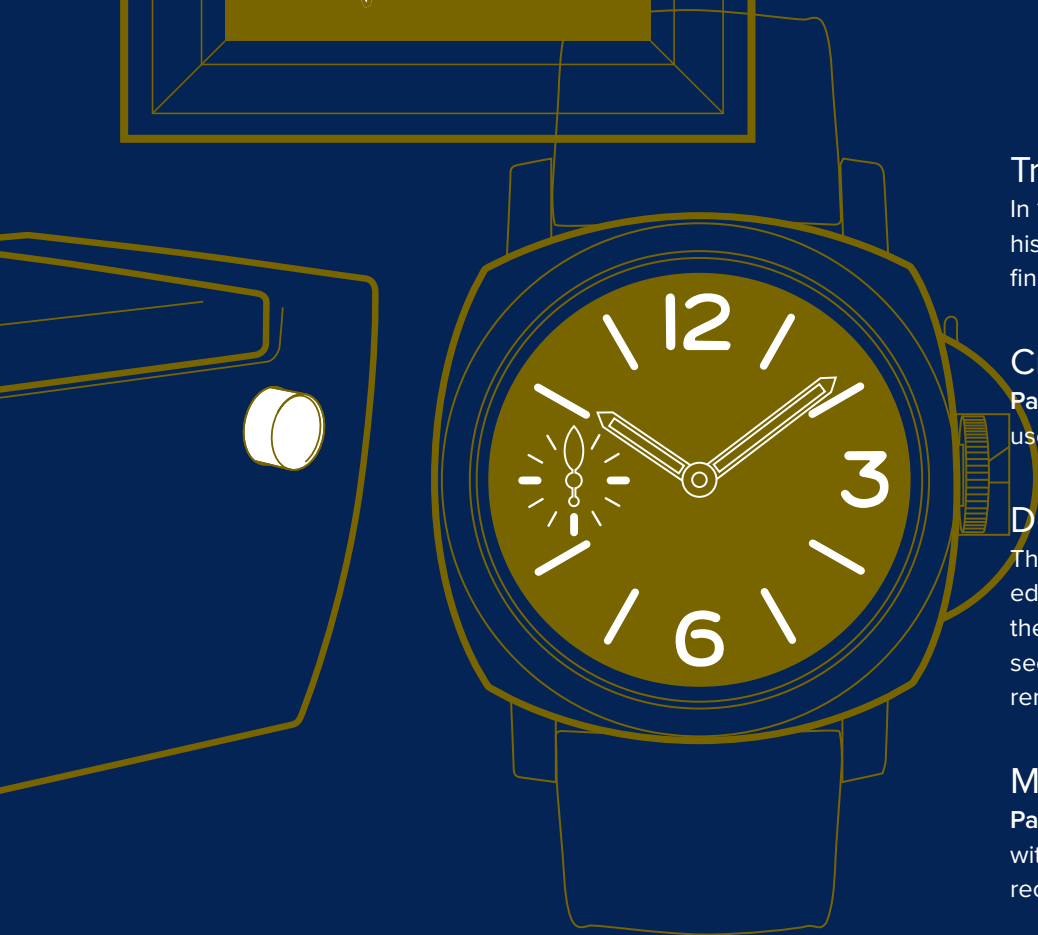
Panerai is the famous diver's watch used by the Italian navy...

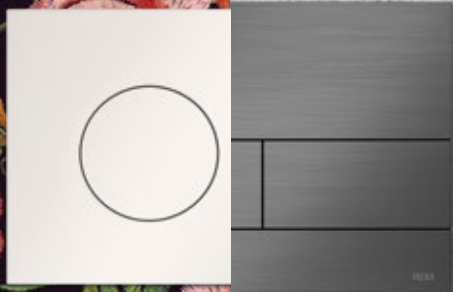
Design makes sense

The crown of this **Panerai** is protected by a bar. A unique construction is the integrated tension lever, which secures and seals the crown against removal.

Modern insignias

Panerai equips presenters and stars with watches that are so big you can recognise them on the wrist.





Comfort for generations

What drives someone to invest 1,000 euros in a toilet? Clearly, when it comes to a shower toilet you could say that the main motive lies purely in the core benefit of such a product: perfect intimate hygiene with water. But that's not entirely true. What do the first TECEone users say? The conscious avoidance of technology and minimalist design are interpreted differently across the generations. There's agreement about the comfort – across the generations.

23

“One controller on the left, one on the right, that's it”

Dr Susanne Vogel is the head doctor in the department for palliative medicine in the Neumarkt District Clinic in Upper Palatinate and is a private TECEone user. Last winter, she and her

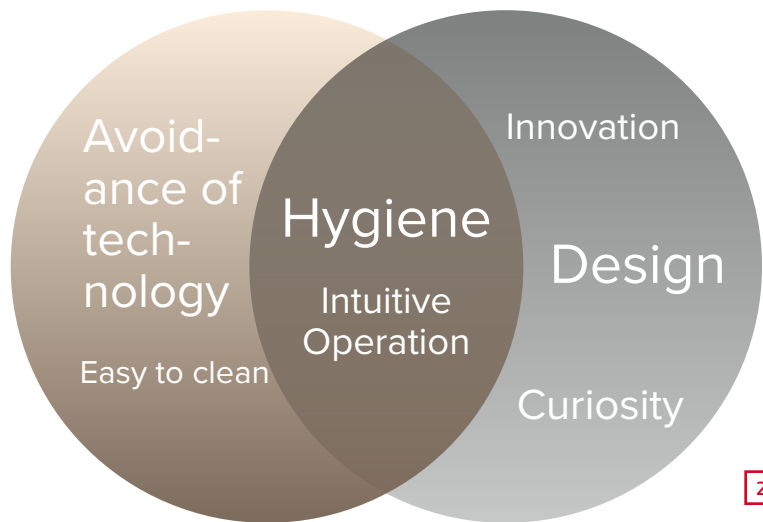
husband were tackling a bathroom renovation. The pair first settled on a shower toilet – they were inspired by their closest family: “My sister has a shower toilet too. But it's an electronic one and it's much too technical for me”, says Dr Vogel, “when there are too many buttons, I get scared that I'm going to do something wrong.” That's why her gaze fell on the pow-

erless TECEone: “The transparent and practical technology convinced me right away. One controller on the left, one on the right, that's it.”

Due to her professional experience, Dr Vogel is naturally especially sensitive when it comes to the subject of hygiene. Alongside the improved hygiene through cleaning with water, 



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she's also impressed by the rimless ceramics:

"I think it's brilliant. The toilet is so much more pleasant to clean." When asked about her assessment of whether TECEone would also be suitable for hospitals, she responds carefully: "As a palliative doctor, I know what care in a hospital means. Naturally, a toilet shower wouldn't be impractical with serious illnesses and physical restrictions."

Of course, Susanne Vogel and her husband also thought about their future when planning their new bathroom, so they combined the new shower toilet with the height-adjustable TECElux toilet terminal. "Time

doesn't stand still and my husband and I would naturally like to live in our house as long as possible. I'm not convinced by toilet add-ons. I find the option of later adjusting the seat height more elegant."

“Shower toilets were totally new for me”

Nadine Kemke also uses TECEone. The young woman works in the marketing department of a well-known company. She recently moved with her partner into their first condo. The suggestions for bathroom furnishings from the builder didn't convince the design-loving young couple, so they went off looking for their own inspiration and visited various bathroom exhibitions – and that's where they first came into contact with shower toilets: “Of course I didn't consider bathroom products more deeply before buying the house, so shower toilets were totally new for me.”

The exhibition adviser definitely did their homework and advised that fresh water is generally preferred over toilet paper in most regions of the world and that shower toilets have established themselves in some Asian markets. The young woman is impressed: “I'm not generally averse to innovations. And I'm not against progressive thinking like in other countries either.”

But why did she choose TECEone specifically? “The decisive point was very clearly the look. It looks like a normal toilet and that was important to me. Other shower toilets came with too much plastic and I don't like that.”

Along with the innovation and the look, it was also the functionality which emphasises minimalism that turned here into a TECEone pioneer: “The operation is obvious at first

glance. With the other, I dare say, 'technically overloaded solutions', that definitely wasn't the case.”

As an additional highlight she went with the TECElux, but not for the height-adjustable “full version” with air filter and more, but for TECElux Mini with touch-free electronic actuation. The proud owner laughs: “Being totally honest, the glowing button fields were reason enough to buy it.” □

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*Name changed by editorial staff.

- 1 Intuitive operation and future-proofing led Dr Susanne Vogel to a combination of TECEone and TECElux
- 2 Two generations' reasons for buying reveal some difference – one intersecting factor remains
- 3 Nadine Kemke* and her TECEone: The reduced functional design and a healthy interest in new things led the young lady to make her purchase.



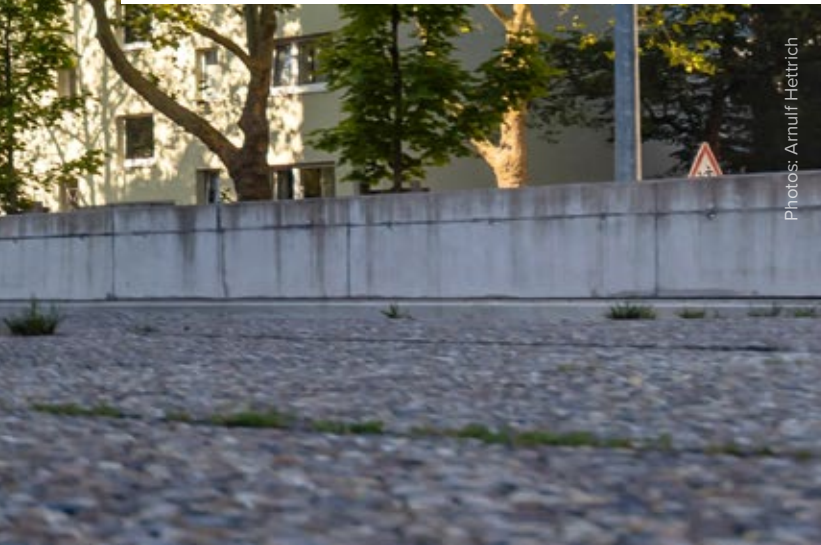
Consistent down to the detail

Architecture in the rough: Concrete, uncompromising and honest – this is Brutalism. In 1962, master church architect Rainer Disse, a student of the 60s star of architecture Egon Eiermann, built the St. Elisabeth Church and accompanying bell tower in Freiburg. The building has since been secularised. Yet how can a massive representative of Brutalism be reinterpreted and retained today? By sparing and reviving the valuable building structure thanks to architectural awareness.

27

Brutalism stands for honesty and responsibility in handling materials and construction. The bell tower of the St. Elisabeth Church in Freiburg is a reminder of that today. The nave of the church was deconsecrated in 2006 and converted into a residential building with 43 apartments.

The tower has become a silent admonisher since then – always ➤



Photos: Arnulf Hettrich



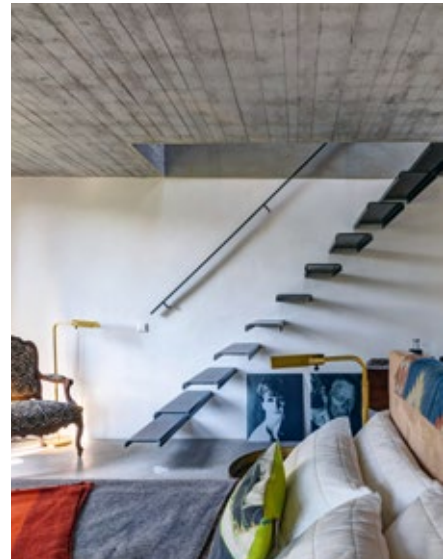
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linked to the uncertainty of losing its permission to exist without the nave and being torn down. In 2014, the interior designer Ingrid Maria Buron de Preser discovered the windowless concrete tower: “It was love at first sight. For me the tower immediately possessed something magical”, remembers designer Buron de Preser.

In collaboration with the State Memorial Office, the designer came up with

a redesign concept, purchased the tower and thoroughly renovated it. Her idea: to completely retain and re-interpret the building structure made of concrete with the help of architecture integration – and so to breathe new life into the abandoned bell tower with a new concept for use.

The tower, which has stood empty for many years, was in a pitiful state, destroyed by vandalism and totally covered in dirt on the inside. “Although



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it's usually cheaper these days to knock something down and build something new, I absolutely wanted to keep the Brutalist architecture and renovate the tower in such a way that it can be retained as a cultural monument”, she explains.

Technical and functional clarity

In order to make the tower liveable, supply and disposal lines had to be brought in. “Pre-wall systems helped make it possible to work on the building structure in a gentle way and achieve a result that still looks good”. Her wish was to let the architecture take effect and relax the senses, “That's why I searched for timeless and honest materials for the furnishings that take back form and colour for the sake of architecture. For me, TECE products stand for technical and functional clarity and integrate inconspicuously into the surrounding

architecture thanks to their timeless design.” Buron de Preser laughs: “Aside from that, I’m also a big fan of well-designed products that anyone can afford”.

No wonder, then, that the TECEone shower toilet was able to find a space in the top loft: maximum reduction of form and the highest concentration on functionality – without the frills. With changing apartment guests, the project development felt that the intuitive, self-explanatory operability and the classic design of the shower toilet were especially important. Additionally, she thought a step ahead here and combined the shower toilet with the height-adjustable TECElux toilet terminal.

Using every niche in the optimum way – thoroughly in the spirit of Eiermann

The designer went with the recessed installation of TECEdrainprofile in the three shower areas. The shower profile convinces with its honest, sustainable material, its form is reduced to bare essentials and it integrates

perfectly into the room architecture. Here it is combined with large format, bright tiles on the wall and floor.

The effort was worth it: the once dilapidated bell tower has now been turned into four floors of multiple, stylish lofts and apartments with bed-

rooms, kitchen, bathtub and floor-level shower. The five metre-high ground floor can be hired as a gallery, showroom, concept store or for cooking sessions. The crowning glory consists of the over eight metre-high “Heaven’s Gate” loft – with a spectacular view out over Freiburg. □



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- 1 The architectural designer has “sliced up” the concrete walls with room-height windows to allow light in.
- 2 The five floors of the former bell tower have been split in floor spaces of 40 m² each, with individually designed spaces that can be temporarily rented as apartments.
- 3 Classic design and simple operability are especially important for changing guests: The TECEone in the bathroom of the top loft.
- 4 The three shower recesses in which TECEdrainprofile shower profiles were used gleam brightly and friendly.

The 10 billion problem

Population growth is getting out of hand: The United Nations project that by 2030, some 60% of the 8.5 billion estimated global population will be living in urban regions. The planet is expected to have a human population of ten billion people by 2050. This has grave consequences for city construction, architecture, sanitary systems – and the environment.

Since 2008, for the first time in human history more people have been living in cities than in the countryside – and more people around the world are flocking to these urban areas. The challenges for construction are tremendous. Since there isn't an unlimited amount of building space and resources, above all urbanisation means renovation, compression and redensification of the existing space. This means more and better used buildings need to be built in the same space, which poses high requirements for construction planning, building logistics and building implementation. A number of infrastructural, ecological and social problems must also be resolved. In the face of the constantly growing urban population, the future of our planet will be decided by the abilities and intelligence of the building structure of megacities and cities with over a million inhabitants.

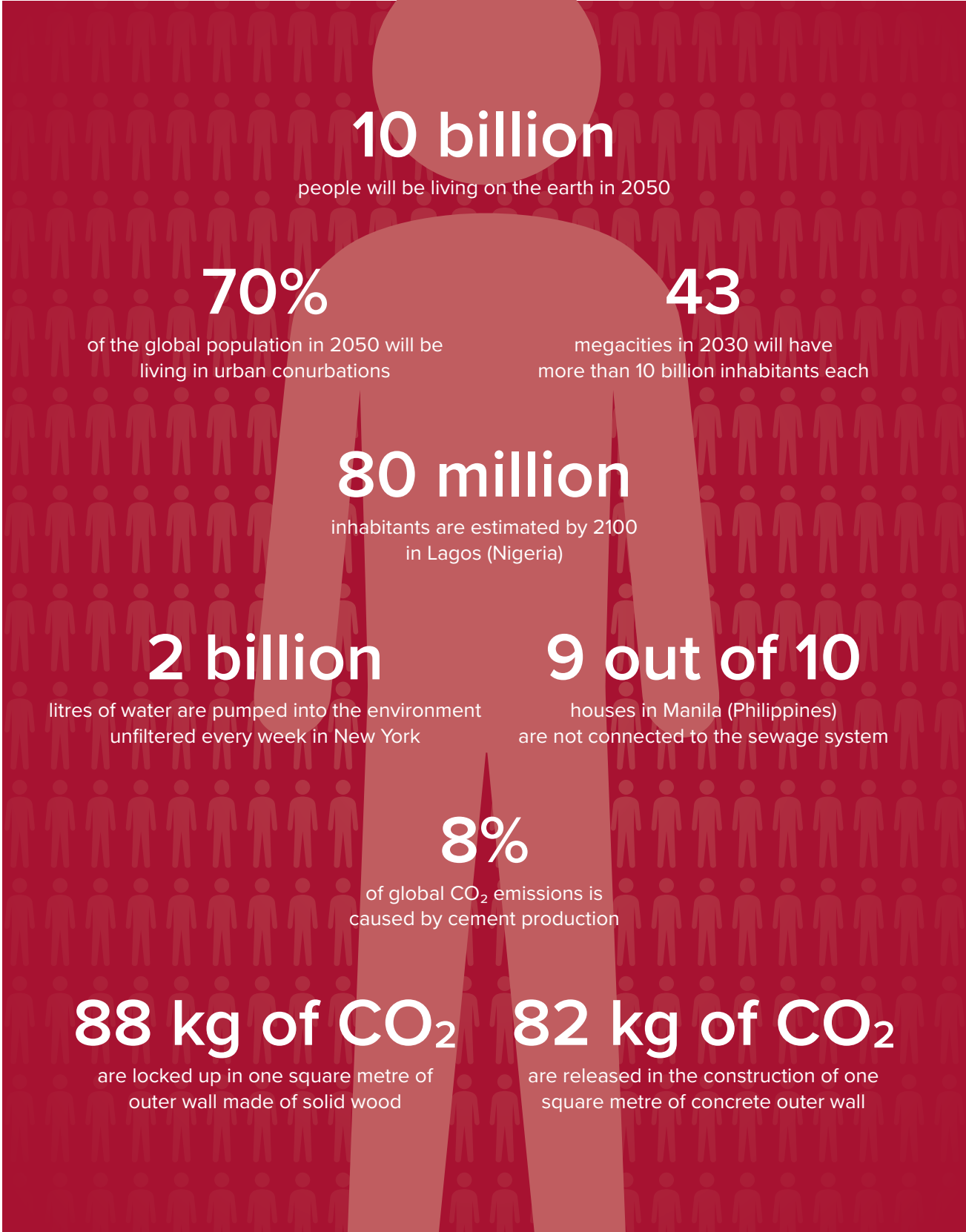
The microcosm of the bathroom also takes a central place in the macrocosm of the city – as an interface to

the water and drainage systems and as a place of health: access to clean and payable potable water and a sanitary infrastructure are crucial for the inhabitants' quality of life – there's a good reason why archaeologists measure the state of a culture largely by the state of their achievements in sanitation. Furthermore, the bathroom of these megacities lead to massive flows of materials whose potential as a raw material has not been exploited until now. On the contrary, unused, the sheer volume of waste water overwhelms drainage systems and leads to extreme environmental impacts. Planning and management in circulations will become indispensable in the bathrooms of the future.

Intelligent infrastructure thinks in cycles

While urbanisation plods slowly on in the nations of the west – 75% of the Germany population was already

living in cities by 2012, for example – the cities in emerging and third world countries are swelling at breakneck speed to become megacities with populations in the tens of millions. At the end of the century, cities such as Lagos in Nigeria or Kinshasa in the Congo may possibly even hit the 100 million line. In the western cities, the challenge therefore primarily lies in the optimisation of the existing structures, whereas in the booming megacities in Asia, Africa and Latin America the creation of minimum infrastructural, ecological and economic standards is one of the most important global tasks for the future. If we manage to harmonise the retention of rural livelihoods, political and economic participation and regional characteristics, the living space city will signify a big chance for the future of the earth and humanity. □

An infographic featuring a large, semi-transparent red silhouette of a human figure standing against a dark red background. The background is filled with a repeating pattern of smaller, lighter red human silhouettes. Various statistics are placed within the silhouette's body and around its head. The statistics are presented in white text, with large numbers in bold and smaller descriptive text below them. The statistics include: 10 billion people on earth in 2050; 70% of the global population in 2050 in urban areas; 43 megacities in 2030 with over 10 billion inhabitants each; 80 million inhabitants in Lagos (Nigeria) by 2100; 2 billion litres of water pumped into the environment unfiltered every week in New York; 9 out of 10 houses in Manila (Philippines) not connected to the sewage system; 8% of global CO2 emissions caused by cement production; 88 kg of CO2 locked in one square metre of solid wood wall; and 82 kg of CO2 released in the construction of one square metre of concrete wall.

10 billion

people will be living on the earth in 2050

70%

of the global population in 2050 will be
living in urban conurbations

43

megacities in 2030 will have
more than 10 billion inhabitants each

80 million

inhabitants are estimated by 2100
in Lagos (Nigeria)

2 billion

litres of water are pumped into the environment
unfiltered every week in New York

9 out of 10

houses in Manila (Philippines)
are not connected to the sewage system

8%

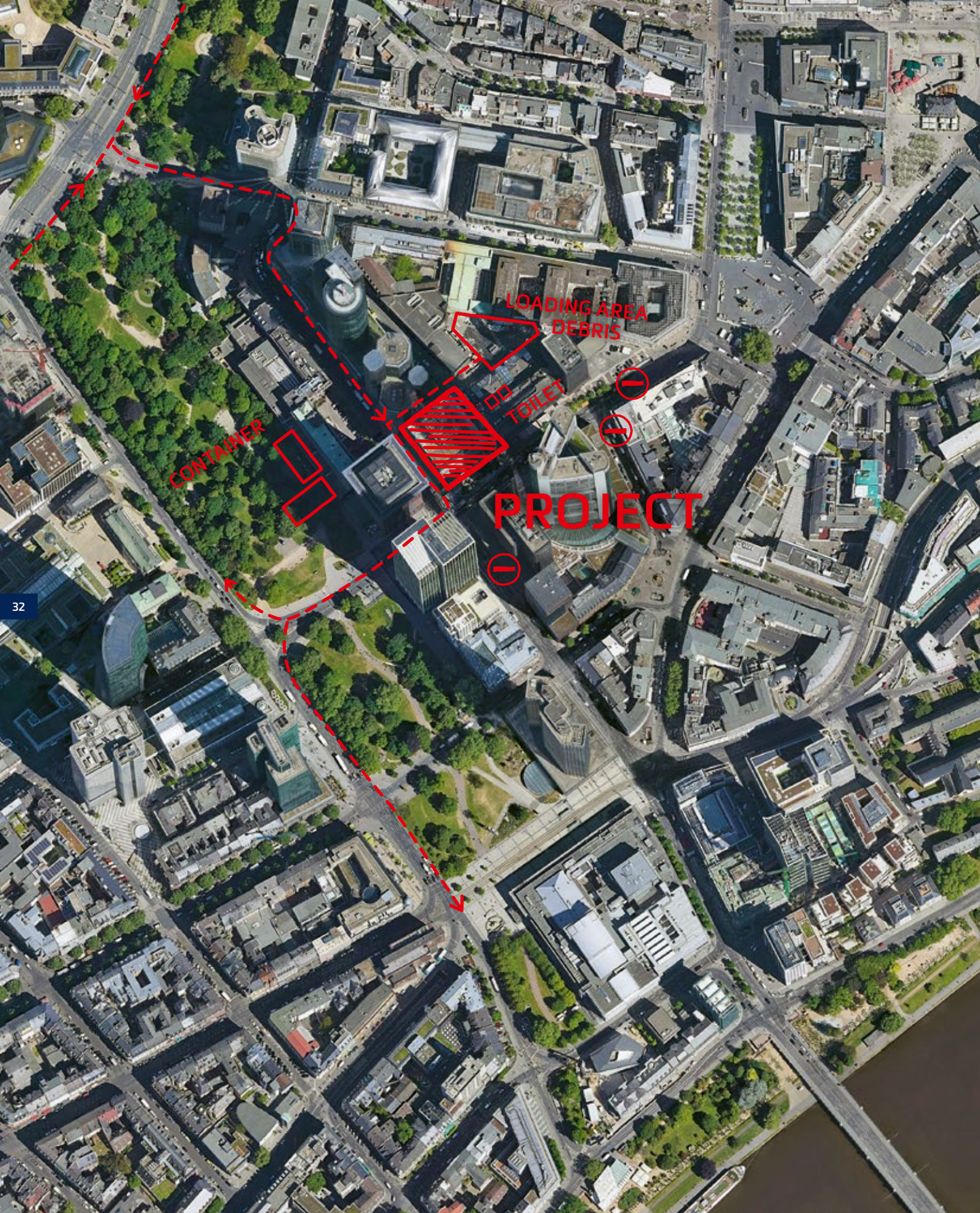
of global CO₂ emissions is
caused by cement production

88 kg of CO₂

are locked up in one square metre of
outer wall made of solid wood

82 kg of CO₂

are released in the construction of one
square metre of concrete outer wall



CONTAINER

LOADING AREA
DEBRIS

TOILET

PROJECT

An aerial photograph showing a city street with various buildings, including a large industrial or commercial structure. A river is visible in the lower left corner, and a road with trees runs along the bottom edge. The text 'Image: Google Earth' is written vertically on the left side of the river.

A cure for the chaos on big building sites

Productivity losses due to a lack of organisation are typical of big building sites. In recent years, the new trade of building logistics has developed in order to remedy this. It promises orderly supply and disposal on the construction site, seamless entry controls and structured workflows. This is an ideal addition to modern building logistics and the industrialisation of building technology because pre-fabricated assemblies significantly reduce the complexity of the processes involved.

The urbanisation of living and working is a megatrend all across the world. With the densification of urban construction and transport also comes an increase in the challenges faced in logistics for big building sites. The type of procurement has further worsened the problem: where large projects were awarded in their

entirety to general contractors in the past, today more and more are being awarded as packages where the organisational whole of the entire project is missing. The idea of building logistics developed in these kinds of situations as an independent trade that wants to further evolve the industrialisation of construction sites. ↘



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✎ The vision: to establish working conditions as found in the well organised production processes of stationary industry.

Building logistics is oriented towards the commercial definition of structural and procedural organisation: codes of conduct and a logistics handbook are becoming contractual elements for all companies on the building site. High up among the duties of the building logistics manager as a neutral instance for all participating companies is access control. Each person involved in the construction receives an ID with a chip and is recorded entering and exiting the site. This also allows the prevention of undocumented work and all data is ready to hand during routine inspections by customs. An app issues time slots for each delivery and disposal

so that suppliers don't interfere with one another. Disposals from the building site are also tightly monitored via a centrally organised waste point. The costs are billed directly to the companies so they profit from the savings brought by good waste separation. Naturally, this only functions with a good degree of monitoring, hence this forms part of the building logistics manager's duties.

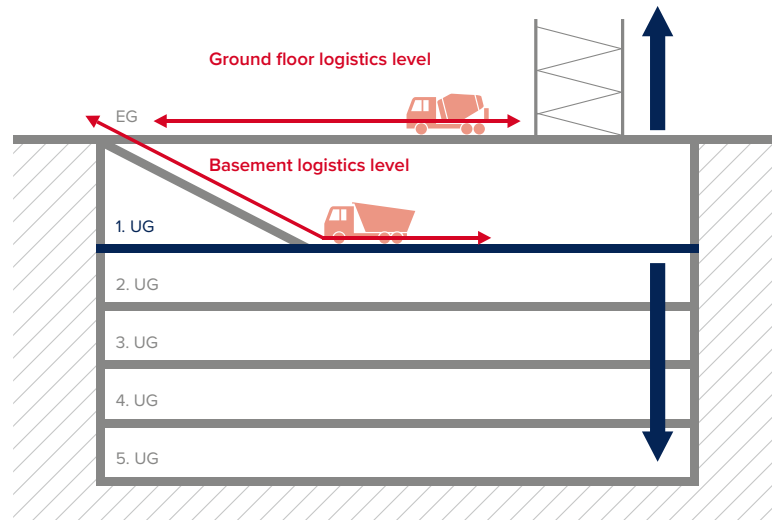
Organising up to 200 trucks a day

Instances like this on the construction site are not a fiction these days. The industrial and organisational researcher Andreas Goetz – a lateral entrant when it comes to construction and a pioneer in building logistics – has been tackling the development

of this new trade for some 20 years. His ideas resulted in web-based organisational tools for the control of material flows. Or in a disposal system with lockable rolling containers. Today, he works primarily as a consultant for constructors and supports large building sites. The importance of bringing in the logistics specialist as early as possible is demonstrated for example with the PalaisQuartier project in the city of Frankfurt. Based purely on logistical reasons (here: a lack of space on the premises), two ceilings for the basements in SLW 30 were expanded to make them passable for HGVs. All deliveries and disposal transports were handled in these spaces – up to 200 trucks a day during development. The costs of organisational deficiencies are hard to quantify. Goetz estimated the savings in a thesis that ran into

significant double figures. “The logistics specialists only accounts for around three percent of the construction costs, depending on the scope of their service package. This still leaves a significant net benefit.” Other advantages include lower environmental and noise impacts as well as a reduced number of construction delays.

What can the construction industry do to optimise building logistics and take advantage of it? For Goetz it's the industrial prefabrication of components such as sanitary walls, installation shafts but also entire room systems that reduce the complexity of construction site workflows, avoid errors and provide additional efficiency: “There is still lots more potential to be exploited here. It comes down to close cooperation between the architect, planner and manufacturer”. □



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When does the logistics provider start paying off?

According to experience values, integrating building logistics as an additional trade pays off after a construction volume of approx. 30 million euros; the ideas should flow into every building development, however. In order to make a decision, the responsible parties should pose the questions of whether and how they want to overcome the following problems with consideration to the construction site environment as early as possible:

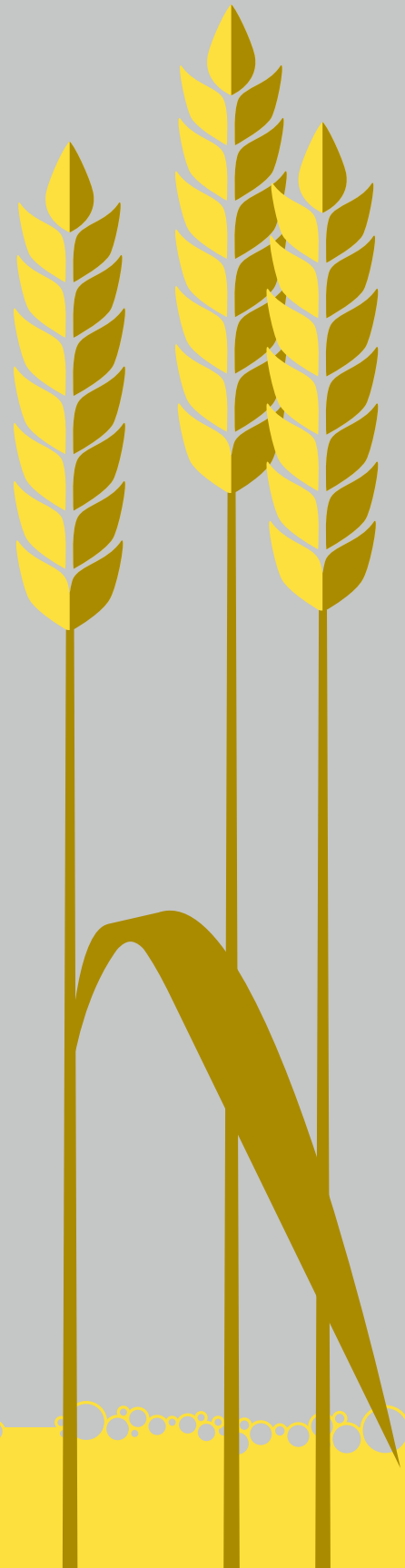
- Prevention of illegal employment via access controls
- Monitoring and prevention of thefts
- Transparency of all logistical processes
- Lay-out planning for the building site in all construction phases
- Control of material flows and storage
- Distribution of infrastructure such as unloading areas, cranes and machines
- Waste disposal with the cleanest possible separation
- Cleanliness and monitoring of work safety
- Billing of the central logistics services employed

- 1 Building logistics utilises layered construction in the Flower Hotel in Essen: TECE system construction elements are brought into each bathroom by crane.
- 2 Top-down construction can be motivated by building logistics: In Frankfurt's PalaisQuartier, two heavy load floors were developed due to the tight conditions. Early lay-out planning of the internal transport routes saved more than two months of construction time. (Source: Andreas Goetz)
- 3 A pioneer of building logistics: Andreas Goetz from Frankfurt am Main organises large building sites.

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Too much of a shame to wash away

The United Nations estimates that the global population will reach around ten billion people by the year 2050. In order to satiate the hunger of this global population, food production must be drastically increased without impacting the environment. While industrial fertilisation with nitrogen is reaching its limits, there's more than enough nitrogen available from urine. If we didn't dilute it with potable water, mix it with waste water and then over-fertilise the rivers and seas with it. A plea for the underestimated yellow liquid.



A majority of the nitrogen from artificial fertilisers is lost and not absorbed by plants. Having soaked into the rain water, it then pollutes streams, rivers, seas and coastal areas or accumulates in the terrestrial biosphere. At the start of 2019, the United Nations Environmental Programme (UNEP) named the excessive emission of nitrogen into the environment as one of the five largest, underestimated to humanity. The UN has called for a global approach to nitrogen management for an environmentally friendly recycling economy.

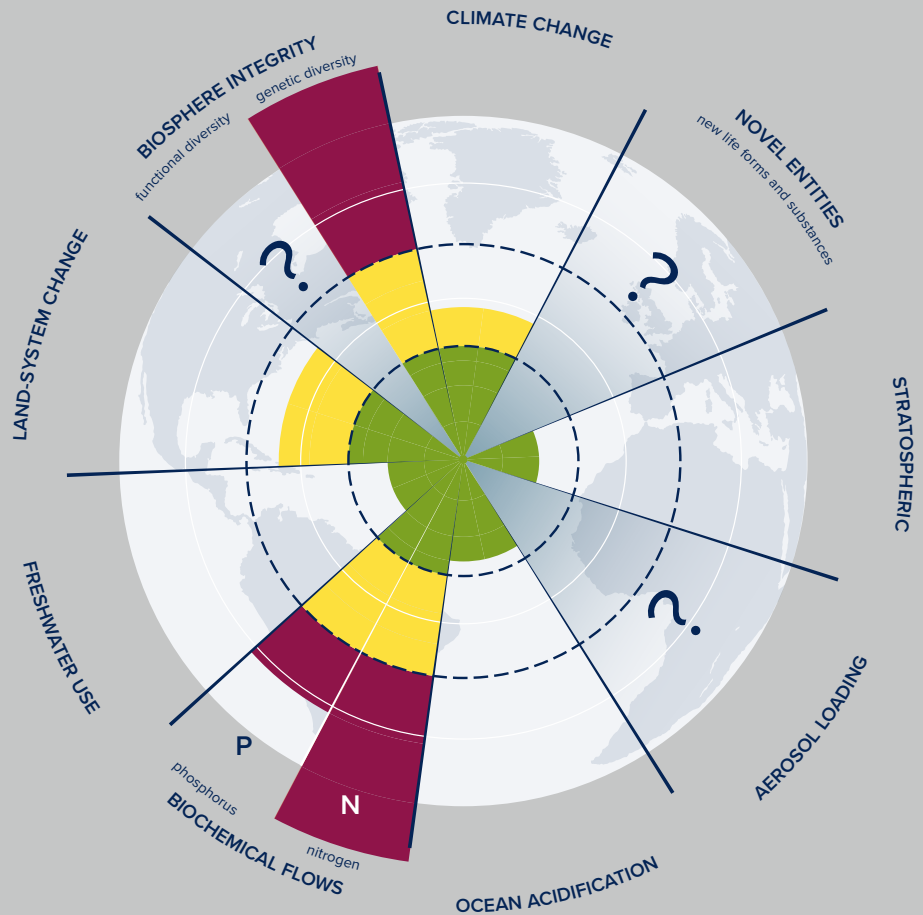
Nitrogen: The ecological time bomb is ticking

Nitrogen compounds for fertilisers are usually produced from atmospheric nitrogen using the so-called Haber-Bosch process: ammonia is synthesised here, which can then be used to produce the fertilisers urea, ammonium nitrate, ammonium sulphate as well as ammonium phosphate.

The energy required for this is tremendous: up to two percent of energy worldwide is consumed in the Haber-Bosch process – the CO₂ emissions generated in the process contribute approximately three to five percent of global emissions.

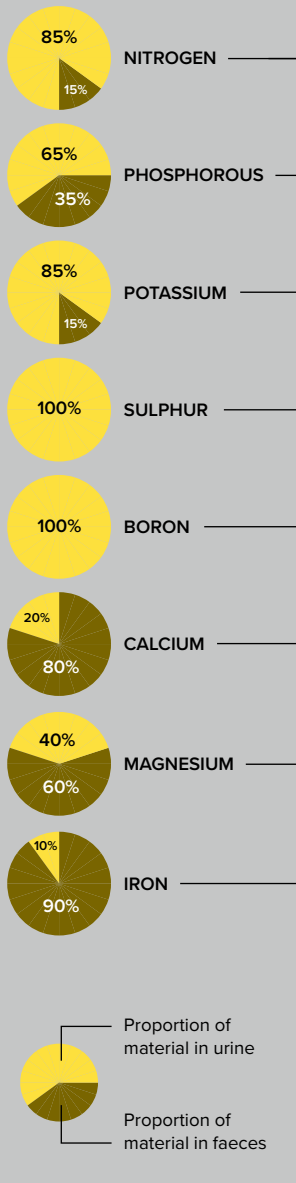
Once the urea produced in this way is released into the environment, it joins the nitrogen cycle. This means it is converted into ammonia by special bacteria in a two-stage process and is oxidised from its interim state of nitrite into nitrate. Through intensive agriculture and emissions into the atmosphere, this nitrate then contaminates surface water and ground water – with dire consequences for humans and

eco systems. In Germany, the nitrate values in the ground water exceed the limit value for potable water (50 mg/l) at more than half of the official measurement stations. ➤



Planetary limits

define the earth's ecological limits on a scientific basis; exceeding these limits endangers the stability of the ecosystem and human livelihoods. Of the currently nine planetary limits that determine the safe room for humanity to manoeuvre, we have already exceeded two, including the nitrogen cycle, which is being influenced by a large number of manmade processes. Source: J. Lokrantz/Azote based on Steffen et al. 2015.



➤ The growing dead zones in the world's seas are caused by the addition of nitrogen because when nitrate enters the rivers and seas in larger amounts, this over-fertilisation leads to the growth of algae and phytoplankton. When these die, they are broken down by bacteria that consume the oxygen in the water so that fish, crabs and mussels suffocate or have to leave the area. More than 530 such maritime dead zones have been identified around the world, with 60 of these alone on European coasts – the largest number of dead zones is located in the Baltic Sea, the Adriatic and the Black Sea.

Overburdened treatment plants capitulating

Another source where urea is present in vast quantities is the urine from humans and animals. Every day the human body produces between 13 and 33 grams of urea, the majority is found in the 1 to 1.5 litres excreted

by the human body each day. The problem starts to add up particularly in the urban areas where lots of people live in the densest space.

A metropolis with eight million inhabitants such as New York, for example, requires enormous effort to treat the resulting waste water: Around 10,000 kilometres of drain lines, 135,000 waste water tanks, 93 drainage pumping stations and 14 treatment plants attempt to maintain control over the waste water. Despite all of these efforts, each week around two billion litres of polluted waste water leaks into nearby waterways because New York's sewers and treatment plants no longer have sufficient reserves. Thus one of the world's largest dead zones has established itself in the Long Island Sound.

In 2050, around 70 percent of the world's population will live in cities, corresponding to a growth of around 2.7 billion people. In particular, megacities such as Delhi (28.5 million inhabitants), Shanghai (25.6 million inhabitants), São Paulo and Mexico City (each with 21.6 million inhabitants), Cairo (20.1 million inhabitants), Mumbai (20 million inhabitants), Beijing or Dhaka (each with 19.6 million inhabitants) will continue to grow. It's conceivable that the sewage systems and treatment plants – where these even exist – will not be able to keep up with the volume of waste water being produced as time goes on. In Manila, the capital of the Philippines, for example, nine out of ten homes housing around 1.8

Urine has a lot to offer

"Yellow" and "black" conceal valuable raw materials. The body delivers them separately, but they are mixed with potable water and mixed with all kinds of waste water in the sewage system.

million inhabitants aren't connected to the waste water system. The Pasig river, which flows into the Manila bay, now carries approximately 70% of the untreated waste water with it. In China, too, around 90% of the city's waste water isn't treated and half of the city's population worldwide has no waste water treatment.

But even when the necessary infrastructure is present, the mixed delivery of waste water is a headache for waste water management because most sewage systems don't separate the water from street run-off, toilets, showers and kitchens. Once the waste water is mixed, however, it can only be separated again and recycled at great cost and using tremendous amounts of energy. It would make much more sense to prevent the material flows from being mixed in the first place because they can be recycled more easily and efficiently on an individual basis.

Urine separation has massive potential

Since the body already delivers urine (so-called yellow water) and faeces (so-called black water) neatly separated, it is appropriate to avoid mixing these when using the toilet as well, and instead to drain them separately in order to enable the improved and more energy-efficient recapture of resources in semi-central recycling stations. In addition to a functioning separator toilet, the building installation only needs one

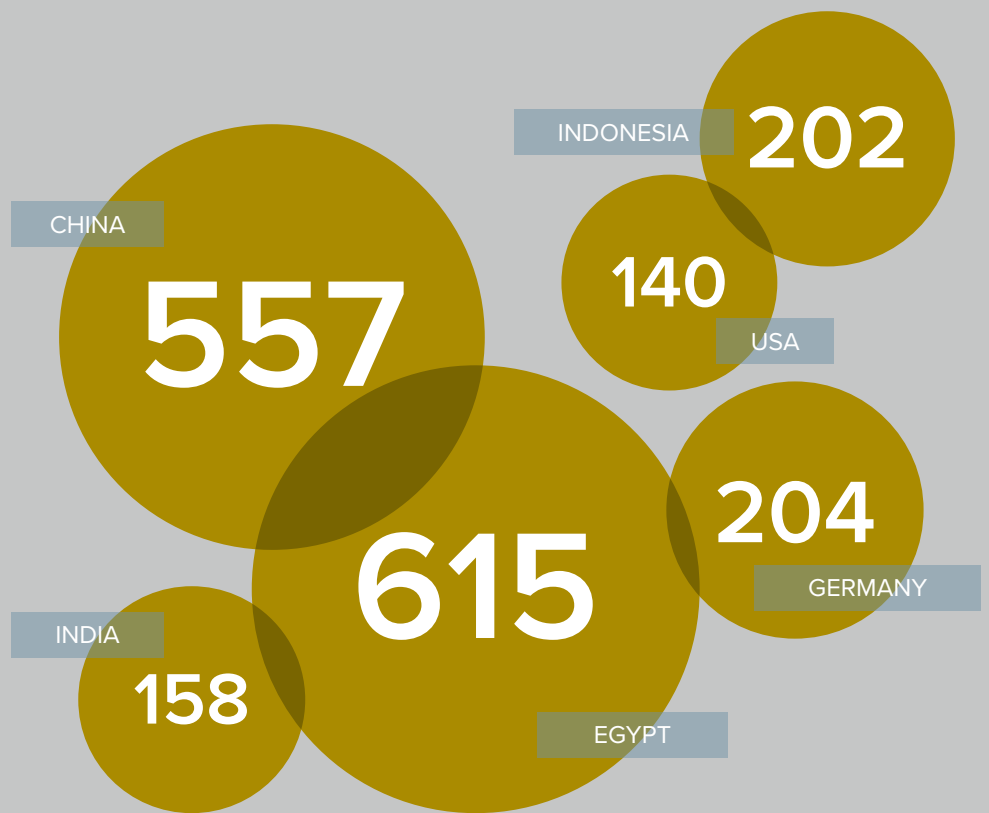
additional pipeline to drain the valuable second flow of material.

Urine in particular possesses especially huge potential for further use. Experiments are being conducted with methods for energy production, however processes that convert the urine into fertiliser are much more promising. The metabolic product primarily contains lots of nitrogen (in the form of urea), phosphate, potassium, sulphur and boron, as well as lower quantities of calcium, magnesium and iron.

There are now various processes for preparing urine so that it can be used as a fertiliser for food products. If this can be done on a large scale, a recycling loop could be created with agriculture, which then would

no longer have to rely on the artificial fertilisers made of valuable raw materials for the production of food products. Additionally, urban sewage systems would be relieved of nitrogen-heavy waste water, which in turn significantly simplifies the recycling of the residual material flows.

The UNEP is certain: if we manage to establish an efficient nitrogen cycle, this would be major step on the road to a pollution-free planet. ▢



Intensive agriculture with artificial fertilisers: an ecological time bomb

Fertiliser consumption in kilograms per hectare of farm land. Updated 2013.

Source: Group Atlas 2017 / World Bank

No bathroom is the same as the next

A bathroom is a bathroom is a bathroom is a bathroom... Thanks to international mega trends, bathrooms around the world are becoming more and more similar. The route to the finished bathroom, however, differs by culture, building structure and the status of standards from country to country, sometimes significantly. This poses high requirements for an internationally active housing technology manufacturer such as TECE. From highly individualised bathroom construction, bathrooms off the peg, extra narrow and packaged cisterns – a look at country-specific peculiarities in bathroom installation using Italy, Norway, Russia and the Netherlands as examples.

RUSSIA: Highly individualised bathroom construction

Anyone who buys an apartment in Russia usually receives it in its raw state – and the same of course goes for the bathroom. The market for turnkey apartments may be gradually growing, however normally the buyer has to ensure themselves

that the screed is laid, walls are erected, and internal doors or even windows are fitted. How the heating and water pipes that branch off from the risers in the stairwell or lift shaft are cladded in the apartment is also left to the homeowner. This means

the living spaces are very individual, designed to the homeowner's taste and generally cheaper than turnkey apartments. In an apartment building, however, this not only leads to a range of trades but also a variety of companies in one trade working in the building for months at a time. A solution like TECEprofil is very popular here because the flexible system makes it possible to complete a whole range of tasks in interior construction and thereby adhere to the applicable safety provisions, regulations and standards. Even with turnkey apartment it isn't unusual to upgrade the sanitary furnishings and pipelines with higher quality products such as TECEdrainline or TECEflex.



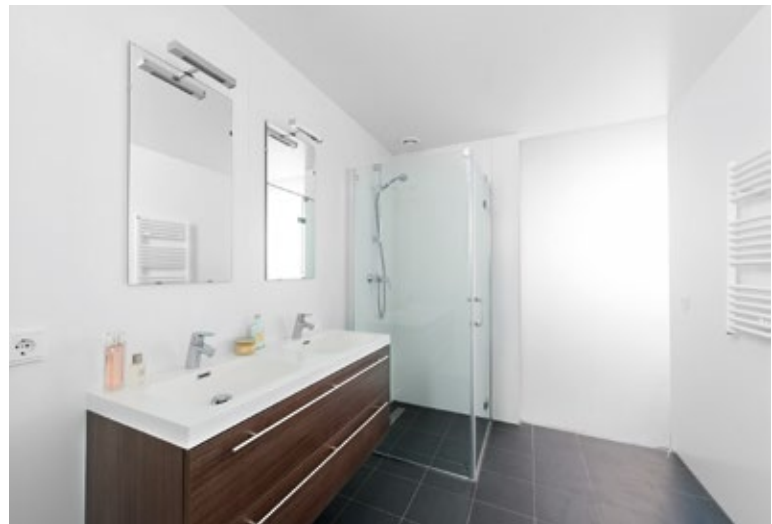
In Russia, not only the bathroom but the entire apartment generally has to be completely developed by the owner – perfect conditions for TECEprofil.



Prefabricated bathrooms like those here in the company De Mors are conquering the professional home market in the Netherlands. Tailored, industrial prefabrication is obligatory. Photos: De Mors / Henk van der Stouw

NETHERLANDS: The bathroom off the peg

Prefabricated bathroom units represent a continuously growing market segment in the Netherlands. They are delivered to the construction site ready for connection with all of the electrical and sanitary interfaces in order to reduce the time required for installation as well as the number of trades required on site. The advantages of prefabricated assembly units range from ensuring consistently higher industrial, standard-compliant quality through to the efficient use of resources. This makes these solutions of great interest primarily for large residential complexes as well as for public and semi-public buildings like hotels, hospitals or student residences.



This kind of bathroom unit is produced, for example, by the Dutch firm De Mors within five working days and the net work time required for assembly comes to around 24 hours. This is only possible because it is manufactured on the basis of 3D information which is fed into the production machines of suppliers like TECE. The “open” TECE system

technology offers immense advantages here because the trades of sanitation, heating, dry-wall construction, ventilation and conduits are amalgamated through the industrial prefabrication and the preassembled components are supplied custom-fit for final assembly. Here they simply need to be put together in a plug & play process. ▽

ITALY: Extra-narrow cistern for brick walls

Over two-thirds of the housing in Italy is more than 30 years old, the construction of new homes has fallen from 368,000 units in 2007 to 105,000 units in 2017. The internal walls in most existing buildings are traditionally made out of eight centimetre-wide bricks. This poses special requirements for the cistern as well as the sanitary installations when it comes to installation depth, load bearing and sound insulation. So TECE has come up with a special version of its cistern for Italy. The

TECEbox Octa is just eight centimetres deep and its design and components ensure a high level of sound insulation and thoroughly simple maintenance. As a rule, the cistern is incorporated into a brick wall and used together with a floor-standing toilet.

With wall-hanging toilets and bidets, which now make up almost 50% of sales in Italy, an installation module must provide hold and stability and withstand loads of up to 400 kg.

If the wall allows for hidden assembly of the TECEbox Octa module, the frame and covers can be concealed in the wall and the installation can be easily grouted or tiled. New provisions for earthquake safety, new construction methods (1 in 14 new homes is built out of wood) and changing demands on the overall look of the bathroom (wall-hanging instead of floor-standing) have led to a significantly increased demand in the last five years for dry-wall modules with a stable metal frame such as TECEconstruct 8 cm.

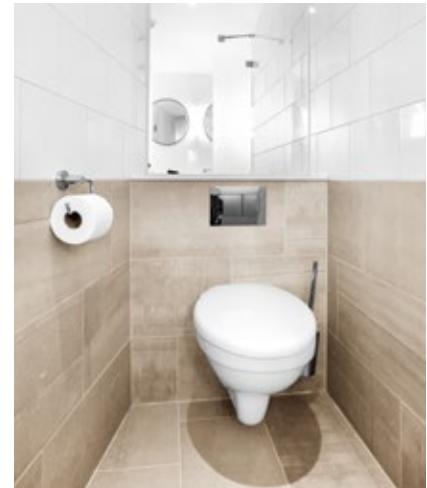


Internal walls in Italy are usually only 8 cm thick. This requires a special cistern with a low installation depth and high level of sound insulation.





The wooden construction method usually employed in Scandinavian countries requires a high level of protection and moisture damage. A watertight bag provides security at the cistern. Photo below: First Hotel Travels



SCANDINAVIA: Cistern with “rubber” in wooden construction

Wood is a material that is widely used in Scandinavia's building construction. Since this natural material reacts more sensitively to humidity and leaks than e.g. stone and concrete, several Nordic countries have strict provisions in order to avoid water damage. In Norway, for example, a watertight barrier must be installed behind the cistern that is intended to prevent leaks from penetrating into the wall and damaging the building

structure. Sweden also has strict provisions, which is why wall-hanging toilets here only account for a market share of 20%.

TECE has designed a TECEprofil toilet module with a so-called safety bag especially for these markets. The safety bag is a watertight bag made of strong, anti-ageing PVC that encloses the cistern and flush pipe elbow. The module is easy to install

– all that's required is a watertight barrier in front of the cistern, the intensive process of installing a watertight barrier behind the module is removed from the process. This saves time and money during installation. If the cistern ever leaks, the safety bag catches the water and carries it between the tiles and bottom of the toilet into the sealed bathroom. Leaks within the wall that could lead to significant water damage are thus avoided. □

Washing rituals instead of washing systems

If the ancient Greek philosopher Herodotus is to be believed, the bathroom developed in various cultures at roughly the same time. While some cultures began bathing in pools and streams, others constructed steam rooms with hot and dry air.

The modern bathroom follows the tradition of immersive bathing, only the pools and streams have been brought into our own four walls today in the form of bathtubs, showers, washstands and pipes. A total of 41.2 million German households have at least one bathroom that has an average size of 9.1 square metres. An individual washing ritual is practiced here that consists of a sequence of conscious and unconscious actions

that primarily serve bodily hygiene and care, but occasionally also relaxation. This takes up on average 36 minutes each day. All private cleaning rituals are linked by one element of modern bathing culture, however: we enter the bathroom unwashed and leave it again clean, and only share it with the closest family members at the most. A look at cultures that have retained the use of a steam room shows us how it can be different.

In these nations, public, ritualised bathing is firmly anchored in bathing culture, whether in the form of a sweat bath as with the Finnish sauna, the Russian banya or the Turkish hamam – or as a thermal bath as in the Japanese onsen. The difference: the bathroom is entered clean and alongside the promotion of health and relaxation, it primarily serves as a place for social exchange as well as spiritual cleansing. □



The Finnish sauna

Meaning of the word: hole in the earth or snow
Finnish saying: "Build your sauna first, your house second"
Quantity: approx. 2 million saunas for 5.4 million inhabitants
Focus: centre of life, place for communication, health
Building: wooden hut, often made of polar pine
Clothing: naked, no bath slippers
Heat source: traditional wood oven, today often electric ovens
Temperature: 80–100 °C
Humidity: between 5–10%, higher with infusions
Applications: infusions with a few drops of tar or birch sap, scouring the body with tassels/bundles of birch branches (Finn. "Vasta" or "Vihta")
Fun fact: The hot oven or the fire in the sauna is often used for grilling sausages

The Russian banja

Meaning of the word: from Latin balneum/Greek balaneion, meaning bath

Russian saying: "The banja makes you healthy, it inspires conversation"

Focus: social meeting point, also business meetings, health, cleansing of the soul

Building: wooden hut, traditionally constructed as a washroom, sweat room and relaxation space

Clothing: naked or with towel, felt hat against the heat

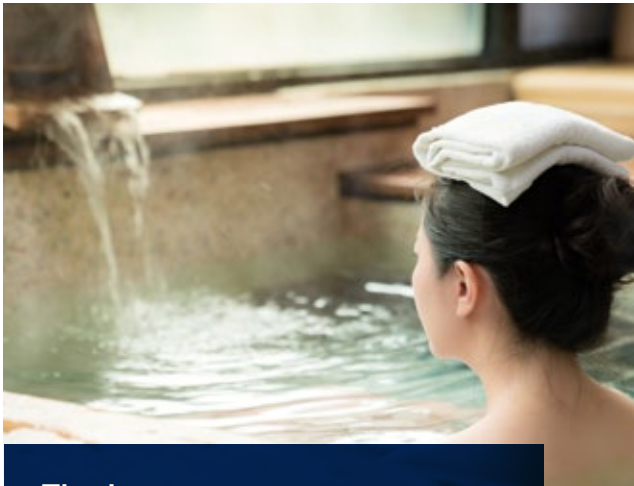
Heat source: wooden oven with or without smoke extraction, today often also electric ovens

Temperature: 80–120 °C

Humidity: between 10–20%, higher with infusions

Applications: Infusions with a decoction of birch leaves, scourging the body with tassels/bundles of birch branches (Russ. Venik)

Fun fact: Beer or water enriched with vodka are also used for infusions



The Japanese onsen

Meaning of the word: hot water

Japanese saying: "A bath reconciles the body and soul"

Focus: relaxation, health; represents a melting pot of Japanese society since the ritualised, hierarchical forms of interaction fall away here

Building: the onsen traditionally have their pools in the open, today's onsen usually have both an inside and outside pool

Clothing: naked, barefoot, small towel (Jap. Tenugui) to cover the genital area

Heat source: natural, heat sources with a volcanic origin

Temperature: bathing water at least 25 °C, usually 42 to 45 °C

Fun fact: tattoos are unwelcome in many onsen or must be covered as these are associated with the criminal Yakuza in Japan

The Turkish hamam

Meaning of the word: from Arabic hamma = to heat up
Turkish saying: "The soul bathes in the steam of the hamam"

Focus: originally a religious ritual before Friday prayers or weddings; today it is an important component in oriental bathing and body culture and a social meeting point

Building: three room complexes – Cemeke (changing and refreshment room), Hararet (steam room/sweat bath) with Göbek Tas (heated marble) and Sogukluk (cold bath)

Clothing: naked, hand towel or light swimwear

Heat source: underfloor heating, heated pedestal made of marble

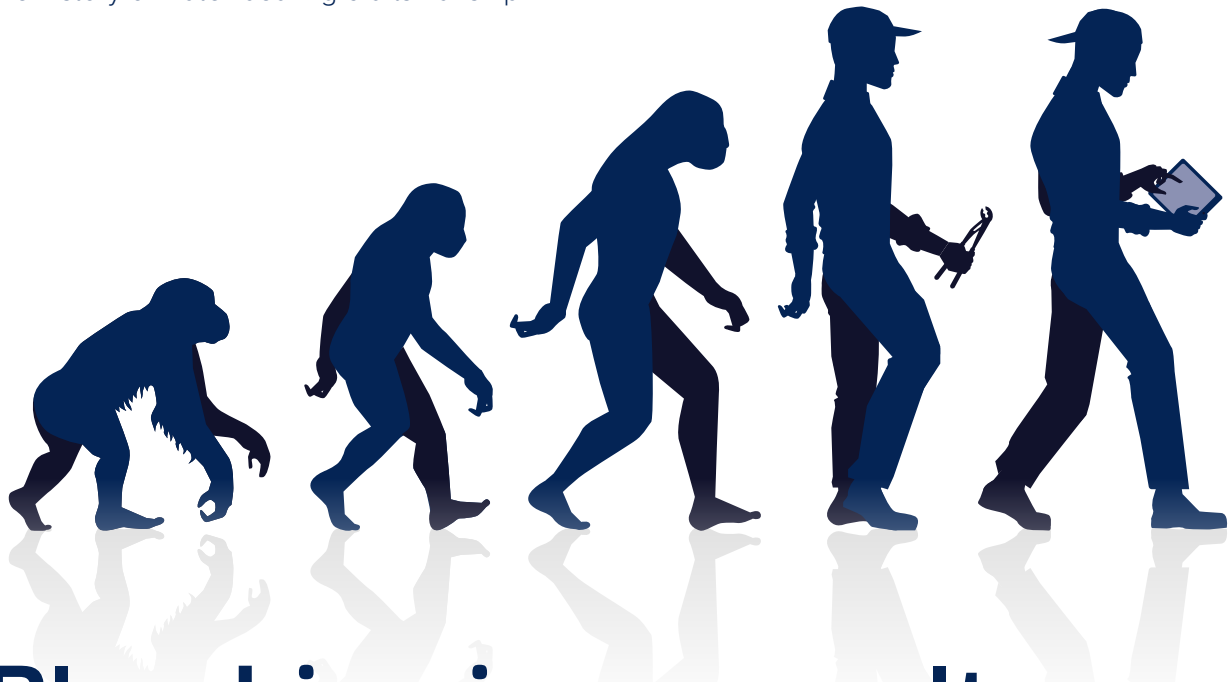
Temperature: Pedestal: 45–50 °C; steam room 25–50 °C

Humidity: 65–100%

Applications: soaping up, scrubbing, depilation and massage by the bath master (Turk. tellak)

Due to their original religious significance, hamams used to be built directly connected to mosques





Plumbing is pure culture

The fitter – hardly any other job description has been so influenced over the centuries by the technical and cultural changes that have taken place. Hardly any other profession that so characterises people's hygienic life situation. Hardly any other job that is more deprived of social recognition as the craftsmanship around gas, water – and other media. A chronicle of sanitary culture.

The beginnings of plumbing lie in the roots of civilisation, in the land of two rivers, Mesopotamia. This is where tiles and the utilisation of water were employed for the first time. The fields needed to be watered, the water was then later transported. The Romans covered the topography of the landscape with aqueducts and made

dry regions agriculturally useful. It's a big step from the macrocosm of the rivers and seas to the microcosm of home installation. Especially when the Middle Age stands in the way, because a lot of knowledge that had been cultivated by the Romans was lost. It was the monks who preserved the knowledge of the ancients in

their records. Hardly anybody knows this better than Klaus Kramer – the plumber's chronologist.

Klaus Kramer is neither a historian nor a fitter. He is a photographer and author with colourful language who has worked his way into the topic. And he has found sponsor

in Klaus Grohe, his former boss at the company Hansgrohe. Kramer purchased showers and bathtubs on his research trips – and used them to furnish the company patriarch's corporate museum: “It was also always important for us to give this branch of technology a sense of purpose and composure. For centuries, sanitary technology was nothing less than the benchmark of a culture.”

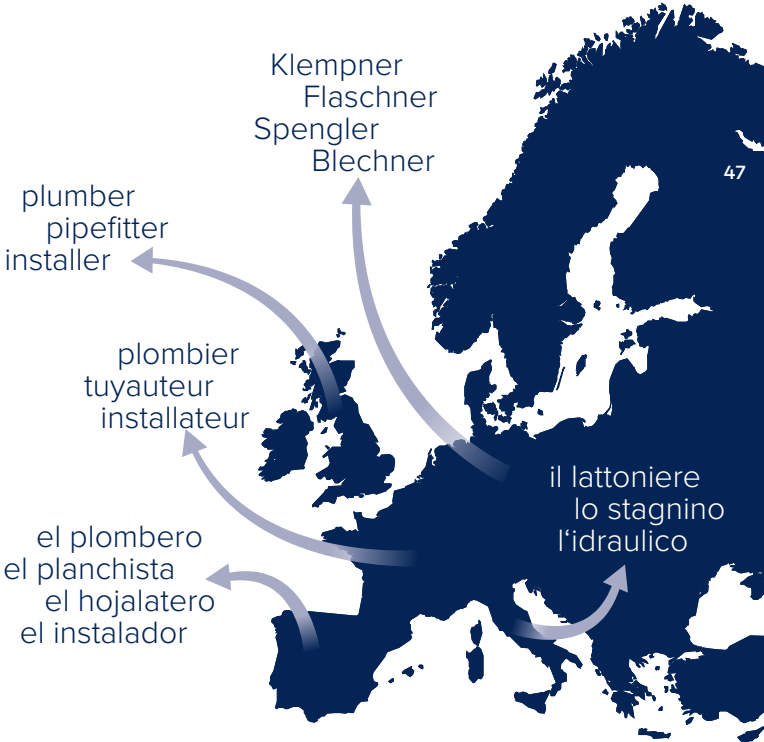
The furrows of early history became the Romans' channels and pipes and then the piping systems of the modern age – up to the Potable Water Ordinance which is law in Germany. In all eras, there were technical specialists who made water plannable and useful. Engineers –

and craftsmen who looked after the implementation of the plans: they're called tinmen, tinsmiths, plumbers and panel beaters. The appearance of gas and water supply in the 19th century required the separation of the tinsmith's craft into the plumbers and so-called “health technicians”. For the latter group, the stylishly French neologism “Installateur” (fitter) was coined in 1880s.

Potable water from the pipe isn't a given

The fitter brought the bathroom into the communal home and established a firm career. People got clean in the bathtub and under the shower, the weekly bath became everyday hygiene. Klaus Kramer scratches his beard: “We take all of this for granted. But potable water still isn't a 

2



1 Darwin in plumbing matters: The fitter or “Homo Hygienicus” had a decisive influence on people's cultural lives.
2 Proud past: The predecessors of today's fitter manufactured everything you can beat out of tin. The diverse array of names for the profession throughout Europe thus all come from this. (Source: Wikipedia, map: TECE)

The history of water-bearing craftsmanship

➤ given in many places around the world even today. Just like the toilet or a shower, especially with warm water.”

Knowledge about water supply and disposal continues to fascinate him. As well as the fact that a small shift in technology can cause serious changes in everyday behaviour: “Everyone thinks of the smartphone here. But the old Hans Grohe put the people on their feet while taking a shower with the adjustable shower rail – perhaps even invented showering as we know it today.”

3



4



3 Moral portrait: Heinrich Zille created this advertising sketch for a bathtub manufacturer in Erfurt. It shows the household baths in Berlin between the wars.

4 Smart idea, big effect: “Old Hans Grohe put the people on their feet while taking a shower with the adjustable shower rail.” (Source: Hansgrohe archive)



Klaus Kramer – why is it important to know the past behind your own profession?

Kramer: It's a question of self-definition. The sanitary planner or fitter represents an industry that has remained a benchmark of a society's culture right up to the present day.

This is a huge, worthy task – far different to when I describe my field of work as gas, water, shi....

And what does that mean for the future?

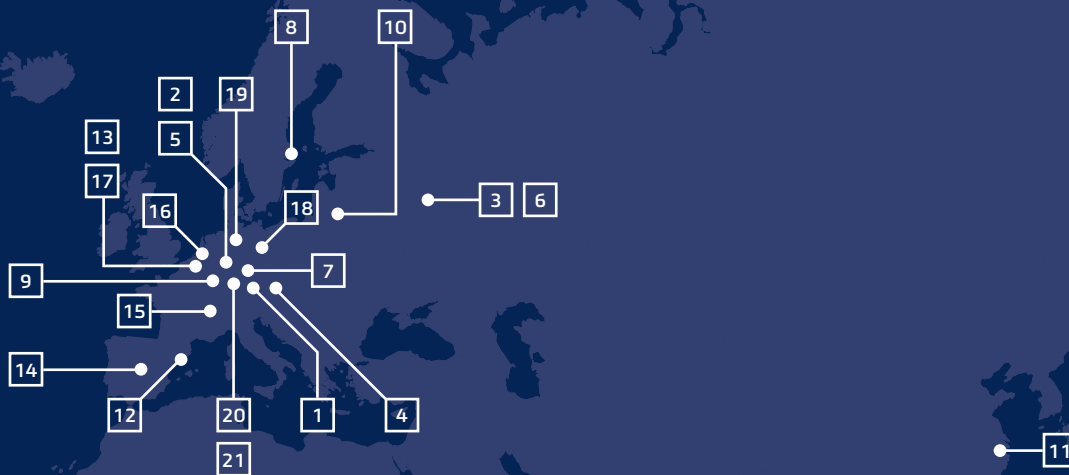
Kramer: Potable water and hygiene in the bathroom and toilet are gaining central importance for a global population that is heading towards ten billion strong. Big challenges are coming our way there – with urban water and waste water networks from the 50s and 60s. Of course, the huge masse of pipes in homes is somewhat younger.

Will the fitter still exist as a craftsman in future?

Kramer: A lot was anticipated with the term "Installateur", this neologism from the French language. "Installateur" is a distinguished name for processors and stands for a shift from the manual base production using raw materials to the constructor of industrial finished parts. The profession also continues to change today – further away from the original craftsman's term. Maybe it needs another new name...

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