

TECE
close to you

TECEsystem Sanitary Walls and Shafts

**SYSTEM
CONSTRUCTION,
TECE BRAND**





“Money can only be earned in construction with smoothly handled projects.”



20 YEARS OF TECE SYSTEM CONSTRUCTION

Systems must be used more heavily in future to increase productivity in construction. TECE can draw on 20 years of experience with prefabricated sanitary walls and shafts. System construction from the TECE brand is far more than an installation-ready register, however. In addition to the product itself there is also a proprietary quality process, comprehensive service, commitment to norms, research & development as well as reliable guarantees.



Photo: Nordport Plaza



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SYSTEM CONSTRUCTION, TECE BRAND

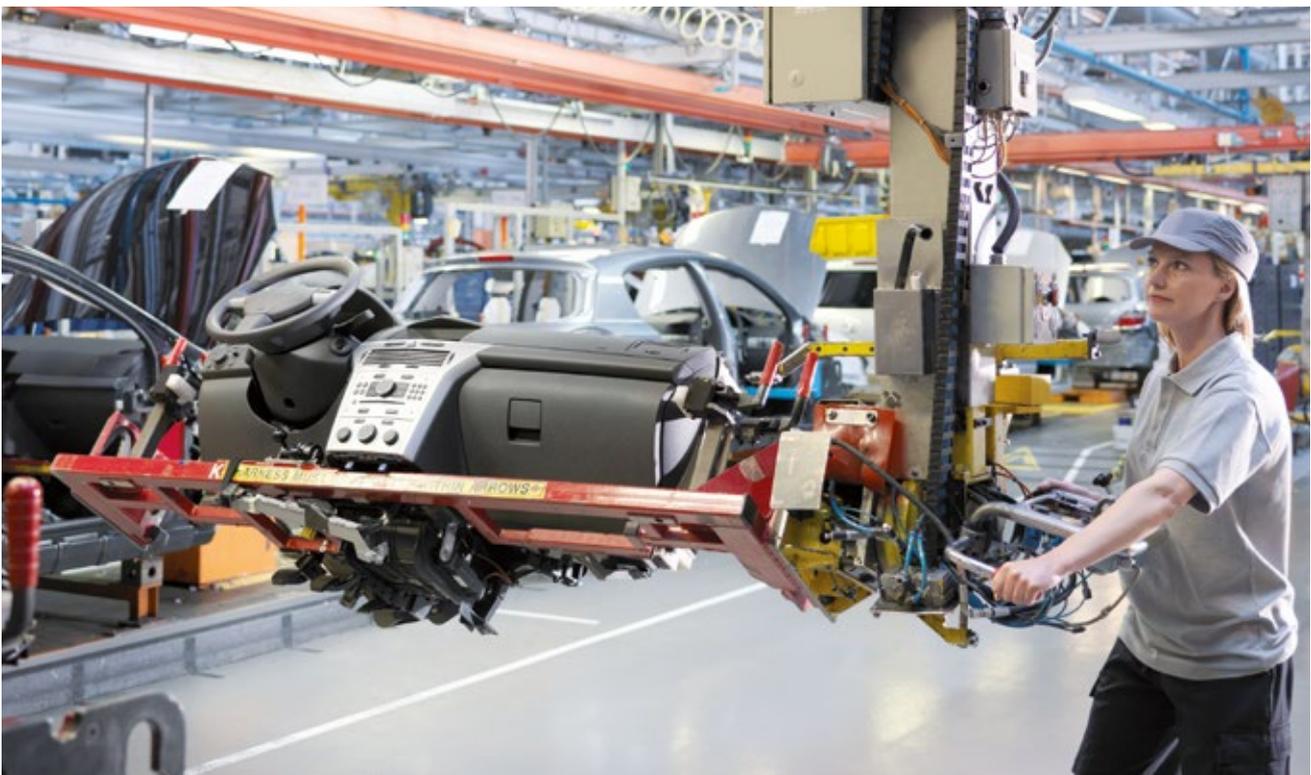
A PLUS TO PRODUCTIVITY

Well planned, efficient and smooth.

Learning from the automotive industry. With prefabricated assemblies.

High-efficiency production processes only work if everything runs perfectly smoothly and at the right time. The automotive industry is a sound role model here for many other sectors. This is because the production of vehicles is no longer just about “time is money”. It’s far more a case of “in time is money”. The advantage of high productivity is sold with the disadvantage of higher vulnerability to failures. But this can be avoided with excellent production planning.

What works in the automotive industry that can't be implemented in the construction sector? Indeed, the construction industry can't be compared with the mass production of an automotive factory; after all, each building is one of a kind. And yet everything in construction connects to everything else and makes processes vulnerable to failures. That's why the solution for certain areas in construction puts us in mind of the automotive industry: excellent planning and prefabrication of assemblies!



... AND EVERYTHING EVOLVES DIFFERENTLY

Picture a car manufacturer, where every dashboard on the conveyor belt is compiled from individual parts: how often would the belt stop, how consistently high would the quality be, how often would one of the components be missing? Unthinkable. Yet that is exactly how construction works.



“Despite the dramatic lack of specialists, we have extremely low productivity on the project!”

“Show me the construction project where the stakeholders generate the profits they calculated at the very start.”



Missing coordination in the construction process

Investors and architects, designers and fitters: They can all tell you a thing or two about how many construction sites are in a sorry state. New build and renovation projects are repeatedly subject to shortcomings, there is a lack of readiness to cooperate from factories and specialists, insufficient preparation, coordination and documentation. As a result: construction delays. With all of the consequences that comes with.

Avoid delays with TECE system construction

With its prefabricated products, services and quality process, TECE ensure that the MEP installation doesn't result in a delay to construction. So no more time is required than originally planned. Everything is delivered just-in-time. Delays due to correcting faults are as good as non-existent with the solutions from TECE. After all, the complete delivery and simple assembly of the prefabricated sanitary walls avoid additional coordination efforts.



AN ALL-INCLUSIVE PACKAGE THAT SOLVES PROBLEMS.

We know that you would love to avoid construction delays, bad profits, material defects and angry customers. TECEsystem helps you with this. Because it's more than a good product concept and offers more than strong service.

Products and service in one package on your construction site. Added value for you.

The technology in the package

- Pipe networks
 - Potable water
 - Heating
 - Ventilation
 - Waste water
 - Fresh water stations
- Sanitary technology
 - Toilet modules
 - Washstand modules
 - Shower drains
- Supporting framework
- Stop valves and water meters
- Fan boxes
- Underfloor heating
- Fire protection
- Sound insulation



TECEsystem – more than simply the sum of its parts

With the sanitary walls and shafts from TECE you can finally avoid nasty surprises during construction. Industrial prefabrication with TECEsystem gives you the greatest possible planning security: Deadlines are fixed in from the start, fewer trades conflict with one another than normal and the risk of construction delays is minimised. A proprietary quality process guides you from the planning and logistics through construction support to the after-sales

service. The quick and easy installation of systems reduces assembly costs. Staffing bottlenecks due to a lack of specialists are non-existent. Since we prefabricate everything in our own factory, we guarantee a quality standard that exceeds that of standard construction site assembly. Everything is optimally coordinated. Naturally, this meets sound insulation and fire protection standards.



The service in the package

- Conception
- Planning
- Logistics
- Training
- Construction support
- Auditing
- After-sales service

The added value in the package

- Costing reliability for materials and time
- Cost transparency
- High time saving
- Legal and standards security
- Reduced potential for errors
- Consistent high quality
- Simple procurement and logistics
- Just-in-time delivery
- No coordination of trades
- A contact partner

OUR PACKAGE – ADDED VALUE FOR YOU

SANITARY INSTALLATIONS – SO SIMPLE IN PRACTICE.

Position, attach, connect: done! Everything considered, installed quickly and standard-compliance, safely on schedule and on budget. It can be so easy.



“Finally, a sanitary installation where you don't have to spend lots of time looking for individual parts.”



Controlled prefabrication

In principle, the entire pipework for all media, as well as shut-off devices, water meters, fan boxes, sound-proofing elements and formwork for the ceiling penetration sealing system are all integrated into the finished TECESystem walls. With this controlled industrial prefabrication we also significantly reduce the risk of making mistakes at the building site.



Sanitary wall as a pre-wall in front of a solid or dry wall

Whether as a half-height sanitary wall with toilet and washstand module or with a shaft, as a room-height pre-wall or in a T-shape for room division: TECESystem offers lots of possibilities. The degree of prefabrication ranges from unpiped supporting framework with sanitary modules to fully equipped system wall with all pipes, insulation, fresh water station or underfloor heating manifold.

Sanitary wall as room dividers in dry-wall construction

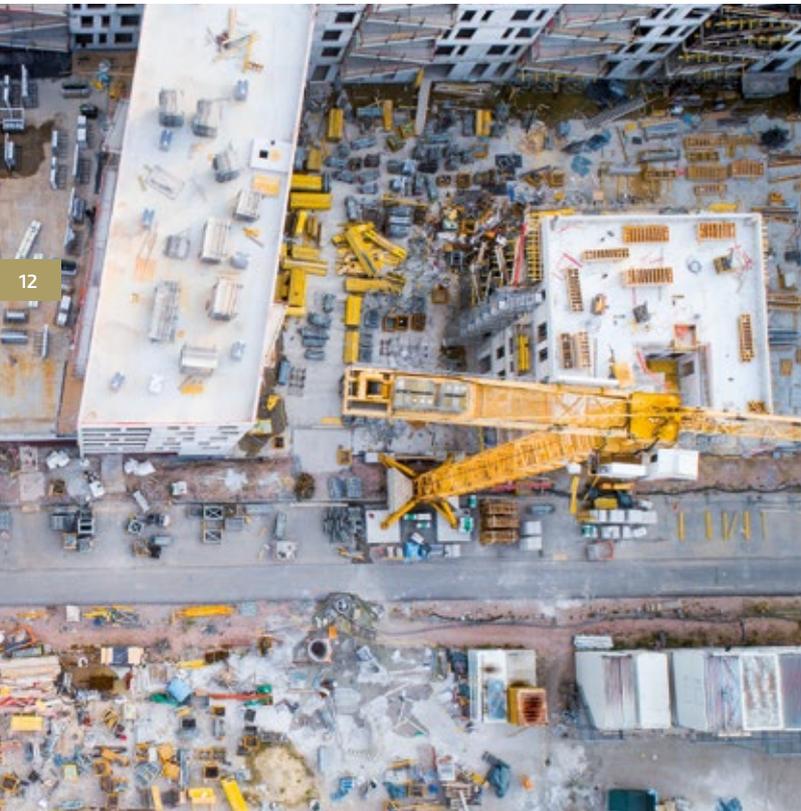
Space gain: sanitary walls as room dividers are generally installed between two bathrooms. The sanitary technology for both bathrooms as well as the rising pipes are installed in this partition wall. The big advantage: you can save between 10 and 15 cm of construction space per bathroom. Depending on the number of bathrooms, you can even end up with an additional bedroom in a hotel. Room dividing walls must naturally fulfil sound insulation and fire protection requirements. In order to be able to assume responsibility with tested components here, we offer this version of the sanitary wall solely as a factory-piped version in combination with blown-in insulation.



SYSTEMATICALLY CIRCUMVENT ECONOMIC RISKS.

Risk: construction faults

An example from real life: A material container has had a box of 100 sound insulation pipe clips sitting in it for weeks. The walls in the bathrooms have long since been panelled. It appears the pipes were only attached with standard clips. This has created hundreds of acoustic bridges! The disputes and costs this could result in are foreseeable. Construction faults like this and similar are an everyday occurrence. With the industrial prefabrication of TECESystem you can avoid these types of construction faults. We check all assemblies in the factory before delivery and thus ensure consistently high quality.



Risk: Delays

You avoid the risk of delays with TECESystem due to the high degree of prefabrication. This results in significantly less work on site. Costs can be planned better and estimated more accurately. This also does away with the constant management and procurement of lots of individual parts on the construction site. These kinds of supply delays and the resulting downtimes don't happen with TECESystem.

Risk: Added costs

Better adherence to scheduling and fewer construction faults automatically reduce the risk of added costs. Possible downtimes, additions due to obstacles, reworking, delay penalties or even legal disputes are rarities in system construction. Additionally, TECESystem offers you high transparency in terms of material and salary costs, and thus lays the foundation for reliable costing. Customers who have been with us for years know: you can earn money stress-free with prefabricated sanitary walls because it runs so smoothly!

Risk: specialist shortage

According to a labour market study by the DIHK on the biggest business risks, in 2018 a shortage of specialists was identified as the greatest risk by quite a margin. A shortage of specialists has long been the limiting factor particularly in the construction industry and in craftsmanship. You avoid this risk when you use prefabricated assemblies and ensure greater value creation in a shorter space of time.

AND WHAT DOES IT COST?

“Customers naturally always want for the cheapest solution in the tendering phase. In using industrially prefabricated sanitary walls, our customers are not primarily interested in finding the cheapest bid, however. What really counts: offering the most genuinely economical solution after fabrication. Reliable costing. By minimising and excluding risks. And here is where TECESystem is normally significantly ahead of solutions in standard construction. On time, fault-free and within the planned cost framework.

About the costs:

The industrial prefabrication of TECESystem can be marginally more expensive in the tendering phase, but it can also be cheaper. This depends on many factors:

- The larger the construction project and the more similar the sanitary walls, the more advantageous industrial manufacturing is.
- The more extensive the fitting level of the sanitary walls, the more technology is built in, the more advantageous TECESystem is.
- The more expansive the construction site is, the more advantageous TECESystem is, because e.g. a lot of time is saved on time transporting components from bathroom to bathroom.

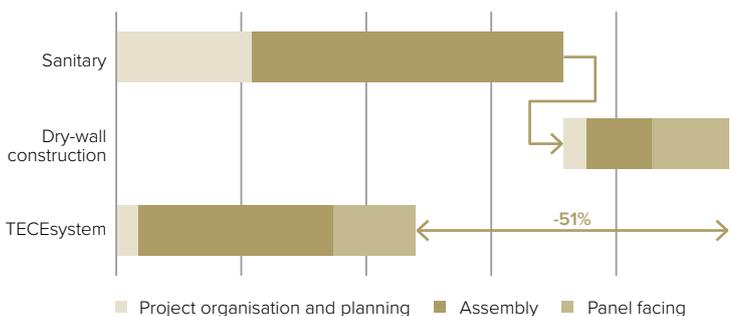
This is why in the tendering phase TECESystem can be either marginally more expensive or even significantly cheaper. Interior construction with industrially prefabricated sanitary walls is significantly faster in any case. Our regular customers mostly calculate 30% less time lost. And that is without the typical construction risks, reliable and stress-free.”



Stefan Schaefer, Project Sales Manager

Comparison between industrially prefabrication sanitary walls from TECESystem and standard construction method for a small renovation project.

System comparison



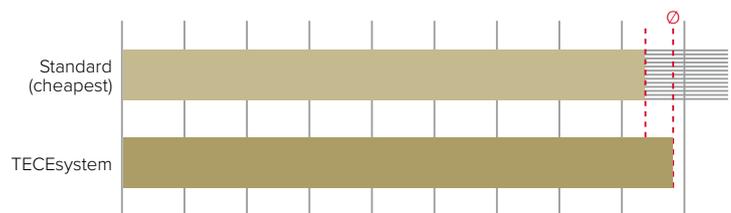
Sanitary time saving:

-84% planning and project organisation, -38% assembly, total: -52%

Dry-wall construction time saving:

-42% assembly

Construction period total time saving: -51%



Cost comparison with this example:

- TECESystem at the sum of the respective cheapest bids (sanitary+dry-wall construction) approx. + 6.5%.
- Approximately equal in price to the average Ø of all bids.

Project scope:

- 48 housing units, 3 apartment blocks, each with 2 risers, 4 floors, each with 4 apartments
- half-height pre-wall with shaft, panelled with plasterboard ready for tiling
- 2 half-height versions toilet and washstand (left/right)
- 4 shaft versions with rising pipes for heating and potable water, waste water, ventilation and fire protection

SYSTEM CONSTRUCTION, TECE BRAND

TECE QUALITY PROCESS

Your project: systematic and step by step

“Hassle-free quality takes more than just a good product: it takes a sustainable concept and comprehensive services.”



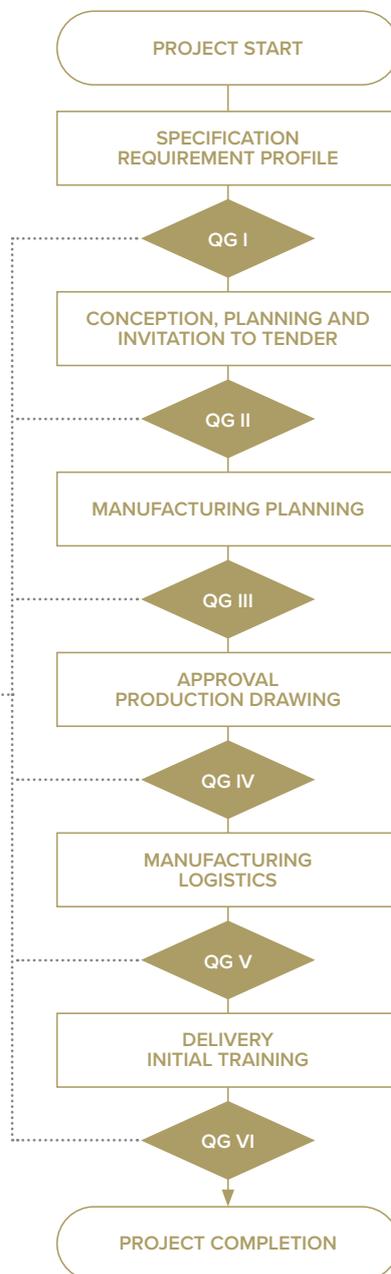
Anyone wanting to guarantee their customers high quality and smooth processes has to act systematically. From the first explorations through to assembly on site. Thus TECE has created a comprehensive service package that gives you the security of obtaining reliable system solutions.

Together with our customer, we determine individual requirements for the respective project and then let the TECE Property Management team implement this. This team oversees the project throughout the entire planning and building phases, participates in construction meetings and plans the building process, including scheduling just-in-time delivery of the wall sections.

As a building client, you can always be sure that specialists are available to you when they are needed.

Quality gates

Each project phase ends with a so-called “quality gate”. This is a list of requirements which we use to ensure that every process step has been carried out correctly. This means we can largely eliminate faults and cost increases in the course of the project. This increases accuracy in costing, in the schedule and in the quality of the work.



ONE HOUR IN THE PLANNING SAVES TEN HOURS ON THE BUILDING SITE.

1: Creation of a requirement profile

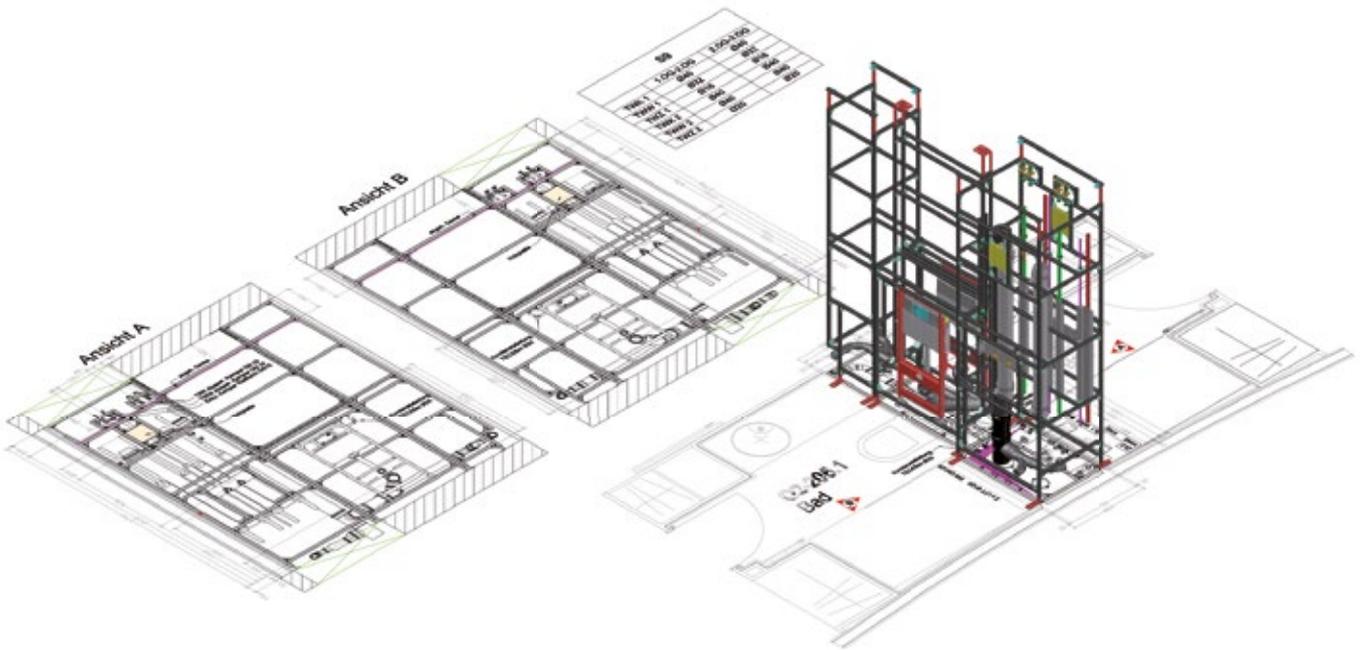
The project begins! The TECE Project Management holds an initial consultation with the client to establish all relevant requirements for the construction project using an extensive checklist. TECE application engineers, planners, general contractors and/or architects all take a seat at the table. The goal: to describe all requirements in detail in order to minimise as much as possible the need for changes later on in the project. This means we stay on budget and on schedule until the project ends.

QG I

CHECKLIST Q GATE I

- Sound insulation requirements
 - DIN 4109
 - VDI 4900
- Fire protection requirements
- Barrier-free DIN 18040
- Pipe network
 - Material and insulation
 - Potable water
 - Heating
 - Cold
 - Ventilation
 - Waste water
 - Rain water
- Shut-off devices
- Counter
- Fan boxes
- Panel facing
- Other mounting parts
- Fitting level of the bathrooms





2: Conception, Planning, Invitation to tender

QG II

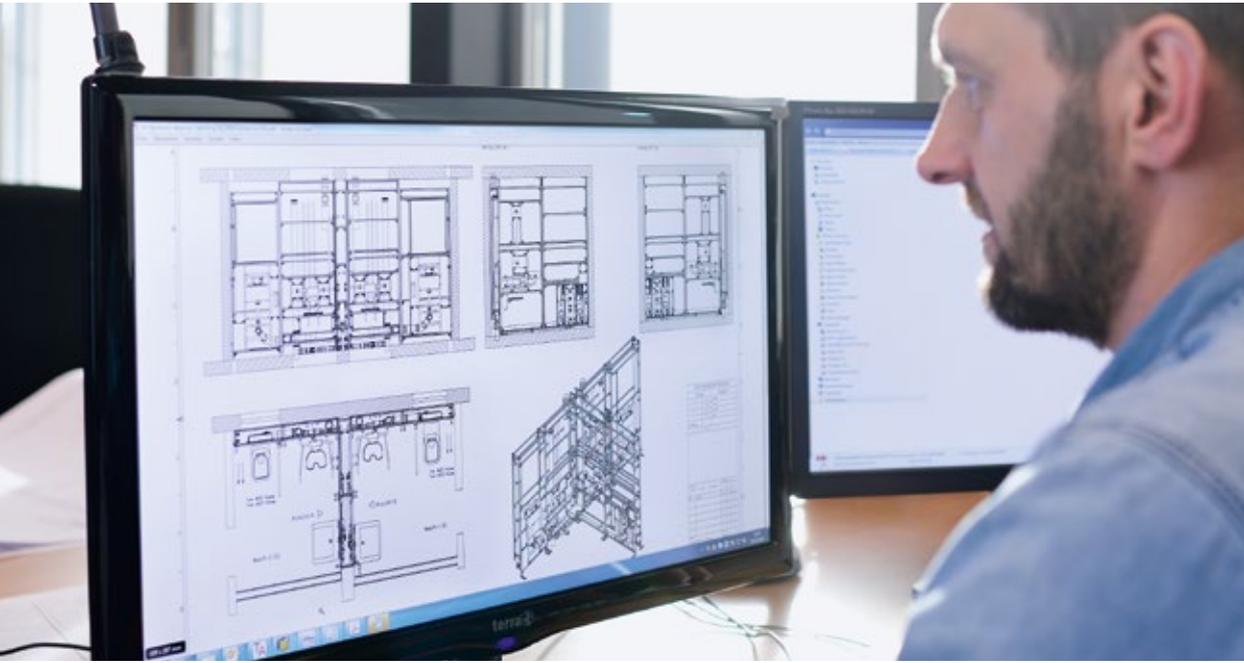
Based on the requirement profile of the different sanitary walls and shafts, we develop an individual concept for each construction project in close cooperation with the decision-makers. In special cases, we develop a prototype in this phase which can be used to discuss the final planning details.

CHECKLIST Q GATE II

- Architectural construction documentation
- Building section views
- Bathroom detail planning
- MEP specialist plan
- MEP piping schemes
- Bathroom furnishing information
- Planning documents for special parts
- Other information

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3: Manufacturing planning

QG III

When the executing artisan firm has placed their order for manufacture of the sanitary walls with TECE, we create the production drawings. Prior to final construction, our TECE application engineers check the most important installation dimensions on site once again: including the actual size and position of the shafts as well as the widths, heights and access routes to the installation sites. Additionally, a visual inspection is conducted of the delivery and unloading facilities. We then draw up the detailed and tailored production drawing for each individual assembly with all fixtures and additions.





5: Manufacturing und Logistics

Using the coordinated delivery plans as a basis, the industrial prefabrication of the sanitary walls starts in the TECE production factory. Next, the supporting frameworks required for retrieval are constructed and labelled with a barcode for further identification all the way to the construction site.

The sanitary modules and other mounting parts such as meters, shut-off devices and fresh water stations are then inserted into the supporting framework.





The piping for all media is then installed, sound-insulated and insulated according to requirements. The lost boarding for the ceiling filling compound is then adjusted and enclosed.



Before shipment, all assemblies are subjected to quality inspection and the multi-stage final inspection. In addition to the completeness of all fixtures, the pipe connections and insulation, we also check the respective accompanying by-pack for assembly and connection of the sanitary walls for completeness.



The scope of the entire cargo is then checked before the truck leaves the factory for the construction site.

6: Delivery and construction support

We deliver the assemblies at the agreed time. We clarify the journey, parking location and time window in advance. To ensure smooth assembly of the sanitary walls, the TECE application engineer discusses the unloading and assembly scenario ahead of time. The engineer assists the fitters on site and briefs them on the task. With twenty years of experience in system construction, our engineer is happy to give one or two tips.





But that wasn't the last appointment a TECE employee had at the construction site. We are also regularly on site over the course of the construction in order to coordinate further delivery plans and the picking sequence of deliveries with the site management. We can thus respond as fast as possible and support a smooth and fault-free construction process. Closeness makes all the difference!

The entire process finally ends with the handover of the technical documentation. And satisfied customers.



SYSTEM CONSTRUCTION, TECE BRAND

BUILDING LEGISLATION COMPLIANCE

Meeting standards for potable water,
fire protection and sound insulation.

The moment of truth

Faultless acceptance or improvement required? Building acceptance is a deciding moment for all stakeholders. And not just from an economic perspective. Here investors are interested in whether the planned opening date can be kept. The executing companies want to know whether they can submit their invoices without deductions or retentions.

The most important thing, however, is everything that affects life and limb. This includes potable water hygiene as well as the sound insulation and fire protection.

With TECsystem you can relax and wait for the building acceptance to come. All requirements have been successfully established as well as transferred to implementation concepts that meet practice and standards. Unpleasant surprises? Ruled out.



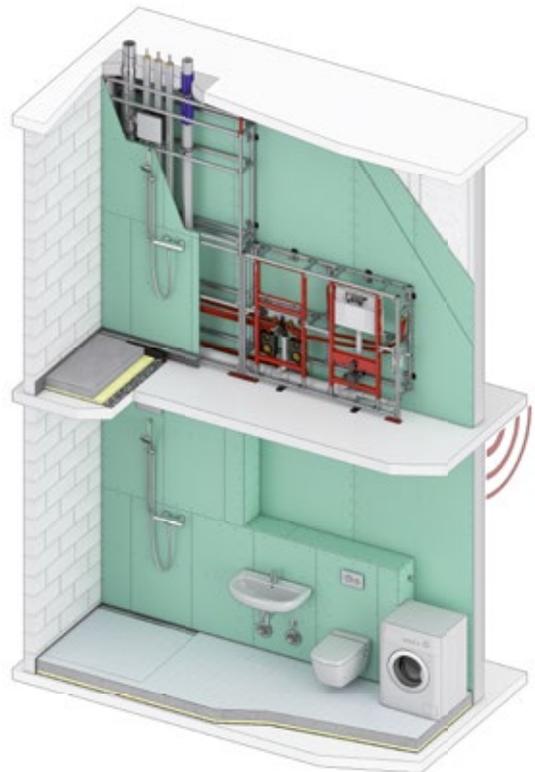
“Contractual services must be provided. In construction as with everywhere else in life. Shortages emerge by building acceptance at the latest.”

TRUST IS GOOD, MEETING STANDARDS IS BETTER: TECE BRAND FIRE PROTECTION AND SOUND INSULATION.

With TECEsystem you receive an open platform within certain limits for realising your individual projects. Our core competence here lies in the project-related development and realisation of standardised, prefabricated bathroom units for project and residential construction in the field of new builds and renovations.

TECE should be included early in the approval and implementation planning so that the project can be realised successfully and economically, and so that you can exploit all of the system advantages. A competent TECE project team is available to you for this and will be happy to support you from the pre-planning through to building acceptance.

At TECE, the focus is always on: standard-compliant planning and professional implementation taking into account the construction law requirements for fire protection and sound insulation.



Compliant with the requirements of building regulations

We work exclusively with renowned, external testing centres and institutes when it comes to inspecting the conformity and certification of our system solutions in the topic areas of potable water hygiene, structure or sound insulation and fire protection.

All TECEsystem sanitary walls and shafts are comprehensively documented at building acceptance, which simplifies the acceptance process.





Fire protection

TECESystem only uses fire protection products that are compatible with each other. This allows us to meet the current construction law requirement for building fire protection and offer our market partners exclusively acceptance-ready and economic fire protection system solutions. Depending on the construction type required and the special requirements for this, our TECE project team can draw up the most economical fire protection solution for you. Where required, we support you together with our system and collaboration partners in clarifying complex legal questions relating to fire protection and assist you with the implementation.



Sound insulation

With TECE you'll be compliant with the construction law requirements for sound insulation as per DIN 4109 and of private law as per VDI 4100. Sound insulation for us is a bundle of multiple individual measures that only take full effect in conjunction with one another. We therefore examine each project-specific construction situation in its entirety, combined with careful planning and professional implementation. TECE supports the respective specialist engineers with a range of inspection reports. These reports are generated by the Fraunhofer Institut für Bauphysik using practice-focused construction situations. In order to be able to better judge deviating construction situations, the TECE project team implements local installation models.

Potable water hygiene

The high hygiene standard of potable water based on the Potable Water Ordinance means high requirements need to be met in the planning, installation and operation of potable water systems. Using high-quality and coordinated TECESystem components, TECE meets the applicable standards and provisions for potable water quality. The TECE project team helps here to select the system and offers technical planning support.



Blown-in insulation technology

Spanning across trades and interfaces, the TECE system solution with machined blown-in insulation technology combines the requirements of fire protection, sound insulation and potable water hygiene into a factory prefabricated function component. We can thereby significantly reduce the risk of construction faults, simplify construction law acceptances and optimise the entire construction process for your project.

In the best case scenario, we can design room dividing walls thinner than normal using blown-in insulation and thus save construction space. In a hotel with 20 rooms per floor this can result in space for a whole new room!

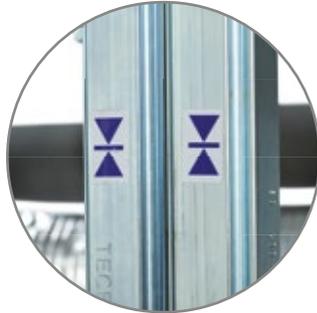


YOU CAN TELL IF A SYSTEM IS WELL-THOUGHT OUT BY WHETHER THE DETAILS MATCH UP.

TECE has been active in system construction for over 20 years. Our experts visit construction sites every day, speaking to fitters, architects and planners. Our customers tell us about their experiences with system walls and always have good ideas for improvements to the details. We implement these needs in our product development. After all, satisfied customers who like working with TECEsystem are the basis of our success.

Metre tear

TECEsystem sanitary walls are produced to a metre tear. This means segments can be easily arranged and adjusted at the assembly site.



Register feet

The prefabricated sanitary wall can be assembled by one person. The practical telescopic feet help here with a height adjustment of up to 25 cm. The feet also provide sufficient assembly freedom for the waste water piping.





Lost boarding

The lost boarding guarantees reliable filling of the ceiling penetrations. This complies with the provisions for sound insulation and fire protection. The telescopic ceiling connection offers 15 cm of assembly clearance.



Sound insulation

All components are sound-insulated. Screwed components can still be adjusted on site.

SYSTEM CONSTRUCTION, TECE BRAND

REFERENCES

Convincing in theory.

Proven in projects of all types and sizes.



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One thing is more important than anything else for our customers: that TECESystem not only impresses in theory, but is proven in practice first and foremost. Countless projects in the last few decades show how system construction from TECE functions anywhere. From luxury hotels to living containers, from small quantities to the largest volumes. From easy to challenging: TECESystem.

You can find lots more references on our website. Just scan the QR code.



1 Residential district in Berlin
New build with 440 TECESystem sanitary walls

SANITARY WALLS AS CONSTRUCTION CATALYSTS

Industrially prefabricated sanitary walls that are also room dividers between two hotel rooms: This is how we sped up the interior construction of Hamburg's Nordport Plaza Hotel. Particular challenging here were the integration of the ventilation technology and the implementation of the requirements for sound insulation and fire protection. TECE was able to achieve both by using blown-in insulation.

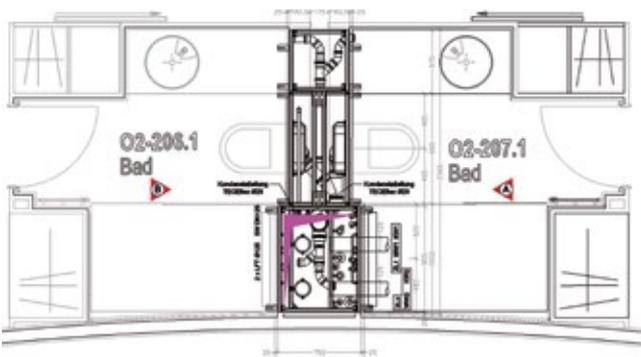


Photo: Nordport Plaza



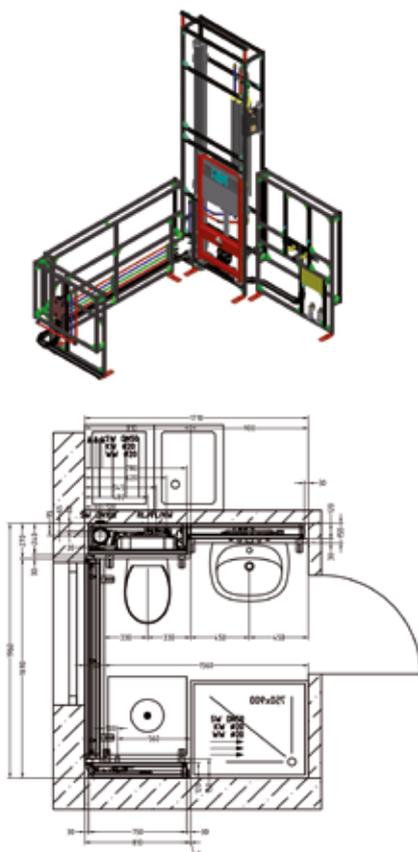
Four-star comfort with tailored system walls

The planned construction time of 24 months was pretty tight for a hotel of this size. So the aim was to optimise the construction process. That's why the investor decided on 180 industrially prefabricated sanitary walls from TECE. This led to corresponding fire protection requirements from F90 and VDI 4100 SSt II for sound insulation. Among other things, these were realised via the machined filling of a cavity wall insulation made of mineral wool.



FROM CONVENTIONAL RENOVATION TO SYSTEM SOLUTION

Hundreds of baths had made it through the years in a Duisburg housing estate from the 60s. A renovation was planned that affected all of the tenants. This was because the renovation works had to be carried out with the residents in situ. The building work began in the conventional way in 2015.



Switching to TECESystem – an advantage for everyone

It soon became clear that the standard building method was an enormous burden on the tenants and would simultaneously leave all scheduling in tatters. That's why the building client made a good decision in switching the renovation works to install prefabricated TECESystem system walls. An ideal project with which to demonstrate and experience the advantages of TECESystem. The entire building activity increased massively in tempo while time-intensive installation works in the apartments were completely done away with. Despite breaks in the winter months, the entire complex was fully renovated by 2018. To the joy of the tenants and building client.

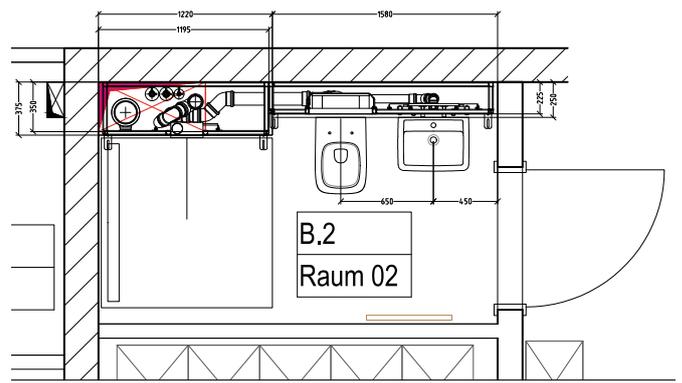
STILL BUILDING OR ALREADY LETTING?



A new build was completed in Berlin-Hohenschönhausen in 2016 with 172 residential units. To ensure a speedy construction workflow, individually designed and industrially prefabricated registers and wall modules were implemented in the bathrooms in every apartment. The installation times of the sanitary, heating and ventilation pipes were thus drastically reduced; the property was able to be let on time.

Just-in-time and exemplary

The registers were individually designed for the four different bathroom floor plans, manufactured in the TECE factory and delivered to the construction site in 14 just-in-time part deliveries ready for connection. The service package for TECESystem also contained a model register for the different bathroom types. These models were assembled as a test to ensure that everything fits. The big advantage for the plumbers on site: By installing the models, the assembly time and the working capacity required for the rest of the construction process can be planned precisely.



RENOVATION IN AN INHABITED BUILDING – HOUSING COMPLEX IN MUNICH



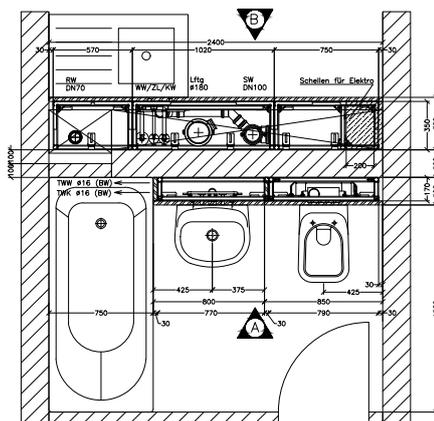
How do you renovate three nine-floored apartment blocks with a total of 13 industrial units and 440 apartments – while inhabited? With prefabricated sanitary walls so as not to test the patience of the residents and to speed up the conversion time.

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Planning reliability, cost transparency, tempo

Renovations were carried out on the sanitary and electronic installations as well as the bathrooms in the rented units. The tenants' furniture stood in the centre of the room, covered to protect it against dust and dirt. In order to stick to the tightly synchronised timetable, the building client decided to go with industrially prefabricated TECEsystem pre-wall registers. All sanitary walls were planned individually at TECE for this project, produced to size in the factory, and delivered directly to the construction site on the day of installation. The prefabrication gave all stakeholders planning reliability and cost transparency. The pre-wall registers also sped up the construction process: instead of lots of individual projects, only one unit was installed on site per bathroom.



GET TO KNOW US BETTER.

TECE provides expertise in further areas of competence. Visit www.tece.com where you can find detailed information about the company, products and services.



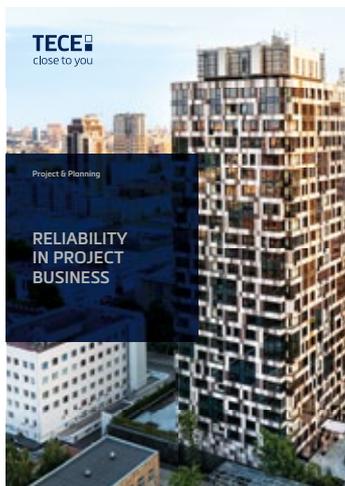
Installation & Assembly

Straight-forward, stress-free work. In this brochure, professional tradesmen can find out more about well-thought-out products, quality, services and the TECE Academy.



Design & Creation

Freedom in design. The themes of Space & Architecture, Individuality & Design and Function & Technology are aimed primarily at architects and bathroom planners.



Project & Planning

Safety in terms of time, legal aspects and cost-efficiency. This brochure is intended for planners, architects and investors.

