



YOUR SPECIALIST FOR SYSTEMATIC SOLUTIONS

nora® rubber flooring in the healthcare sector

nora®
by **Interface**®

Robust by origin – Rubber



Inspired by nature, perfected by technology

Nature often provides the best ideas. This also applies to nora floor coverings, which are made of high-quality natural and industrial rubber. In addition, minerals from natural deposits and other components such as environmentally friendly colour pigments are added, forming the basis for an extremely robust yet permanently resilient classic "Made in Germany".

The special feature of rubber is its inherent elasticity, so nora floor coverings do not require softening substances. Vulcanisation makes them permanently elastic, helping their unique functionality and aesthetics last for decades to come. The nora complete system

is no less unique. With a comprehensive range of accessories and unparalleled service, it delivers both consistent and cross-functional design across all surfaces, stairs and levels.





For architecture promoting recovery in the healthcare sector

When it comes to architecture for the healthcare sector, the focus is on patient safety as well as comfort and wellbeing.

The prerequisites for successful healing are medicine and care combined with an environment designed to assist recovery. The ideal basis: Design concepts with healthy and eco-friendly materials combining safety and comfort with perfect hygienic properties. The flooring is particularly important here, and has to satisfy a multitude of requirements reliably for decades to

come: In addition to medical and cleaning technology criteria, it must also assist people's wellbeing and ensure pleasant room acoustics as well as an ergonomic working environment. This increases the walking and standing comfort for doctors and caregivers, for example.

For decades nora rubber floor coverings have proven themselves with well thought-out system solutions in healthcare facilities. You can find out more about our solutions and their advantages on the following pages.



A system in a class of its own

Architects, builders, users and processors worldwide rely on nora solutions when it comes to creating healthy and aesthetically pleasing interior design. As the market leader of unique rubber flooring, nora systems GmbH develops and produces premium quality "Made in Germany".

We consistently follow the vision of creating products with outstanding and sustainable benefits for our customers. That's why we put all our innovation spirit into our product development. For us, innovation means constant learning – from our customers, the markets and ecological development.

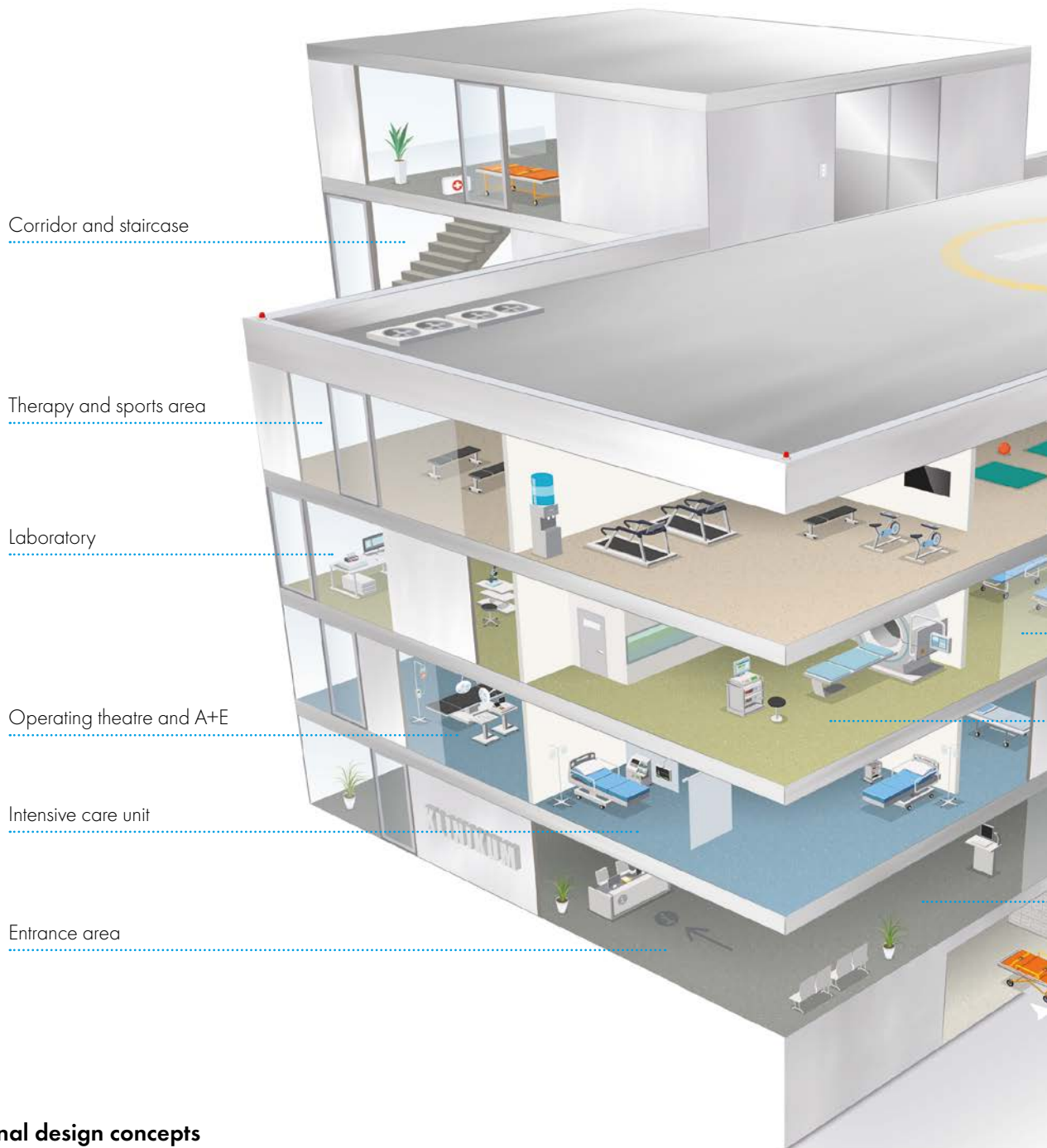
We consider it our responsibility to think and act holistically and in a future-oriented way – for this we have enjoyed the trust of our customers since 1950.

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For all architectural needs

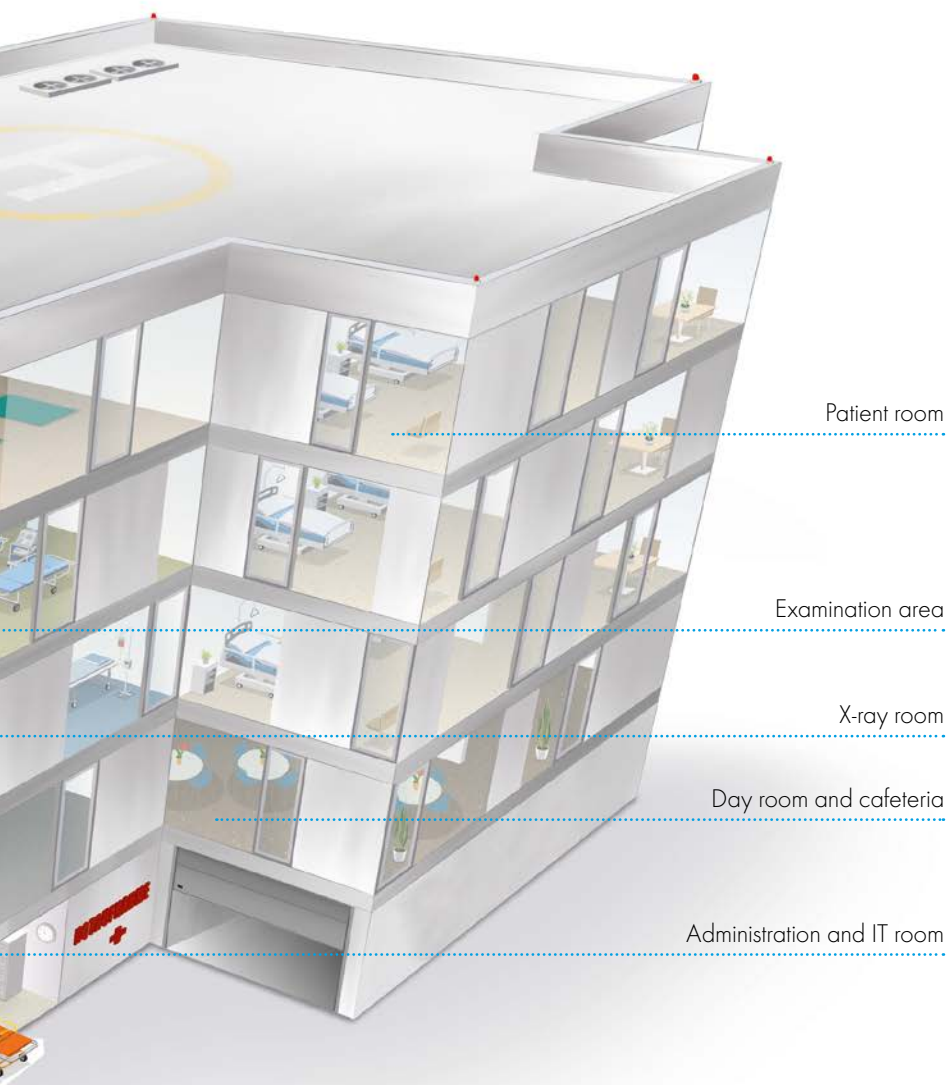
Good floors are just the beginning. nora offers planners and builders a well-designed complete system that is unique in this form and quality. With decades of experience and extensive expertise in healthcare we focus on combining functional, hygienic and aesthetic requirements in flooring.



For cross-functional design concepts

| | |
|----------------------|--------------------------|
| Antistatic: | 2 mm to 4 mm thickness |
| Dissipative (ed): | 2 mm to 3.5 mm thickness |
| Non-slip: | R9, R10 or R11 |
| Footfall absorption: | 5 to 20 dB |

With the nora complete system, cross-functional designs are possible, meaning the high standards of a contemporary and future-oriented architecture can be satisfied at the same time. In doing so, we apply the highest quality standards to meet all the issues and concerns of highly sensitive healthcare facilities with the specific properties of our flooring.



Highest level of safety

When it comes to treatment safety and success, hospital laboratories and pharmacies contribute significantly. This is because good laboratory work round the clock forms the basis for reliable, quick diagnosis, and the hospital pharmacy ensures effective treatments with the provision of medication prepared individually for patients. This may also include cytostatics, which are produced under the most stringent safety standards and cleanroom conditions according to GMP guidelines.

Electrostatic dissipative noraplan® signa ed and sentica ed as well as norament® 928 grano ed flooring were tested by the Fraunhofer Institute IPA, which certified their eligibility for GMP A. The floors are largely resistant to chemicals and the surface disinfectants from the list of the Disinfectants Commission of the Association for Applied Hygiene (VAH) and the German Robert Koch Institute (RKI). More detailed information about the chemical resistance is available upon request.



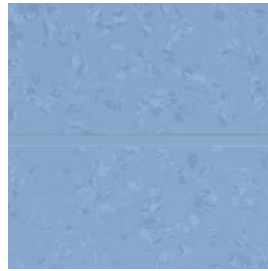
Southmead Hospital, Bristol, United Kingdom | © Tom de Gay & Nick Kane

Perfect hygiene made easy

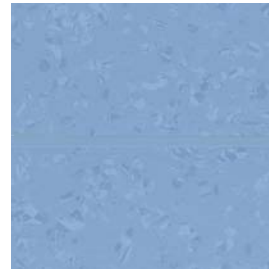
Safe solutions are needed for infection control: nora rubber floor coverings can be fully disinfected, making them perfectly suitable for use in high-risk areas.



noraplan®: jointless installation



noraplan®: joint-sealed installation
with nora® hot welding rod



noraplan®: joint-sealed installation
with nora® joint sealing compound

“As a hygienist, I would evaluate the edge-to-edge installation as very positive, as this installation variant also offers a high standard of hygiene over a long period of time.”

Prof. Dr. Reinier Mutters, Head of Hospital Hygiene at the Institute of Medical Microbiology and Hospital Hygiene at the University Hospital Giessen and Marburg

Comprehensive reports from accredited hygienists confirm the particular suitability of nora floor coverings, both joint sealed and jointless, even for risk areas in hospitals. Benefit from jointless installation, which is possible for most nora floor coverings.

Flawless advantages:

- simple and economical cleaning
- hygienically clean surfaces and joints
- usable surfaces round the clock
- no costly and time-consuming recoating and post-jointing
- good indoor air quality due to reduced cleaning chemicals
- resistant against the surface disinfectants from the list of the Disinfectants Commission of the Association for Applied Hygiene (VAH) and the German Robert Koch Institute (RKI)
- comprehensive accessory collection with skirtings for areas with high hygiene requirements



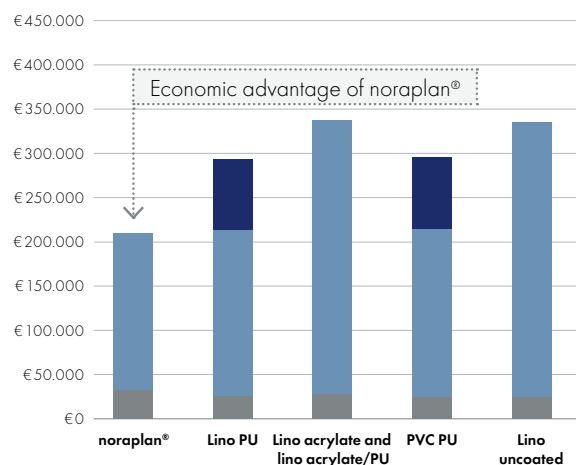
Budget with benefits

When selecting floor coverings, the emphasis is being placed on life-cycle costs (LCC). A closer examination of the overall costs reveals that the majority of costs are incurred when the flooring is in use. This is consequently where the largest potential savings are. Criteria such as cleaning and maintenance effort as well as sensitivity to renovation are also significant. Particularly in long-term buildings such as hospitals that require thorough cleaning, the low maintenance costs and durability of nora floor coverings have a positive effect on the LCC analysis.

“In recent years, we have saved a lot of money with rubber flooring.”

Frank Müller, Managing Director of Bogdol Verwaltungs- und Immobilien GmbH, the University Medical Center Hamburg-Eppendorf (UKE)

Life Cycle Cost (LCC) comparison: noraplan®



Investment Operating and maintenance costs Surface refurbishment costs

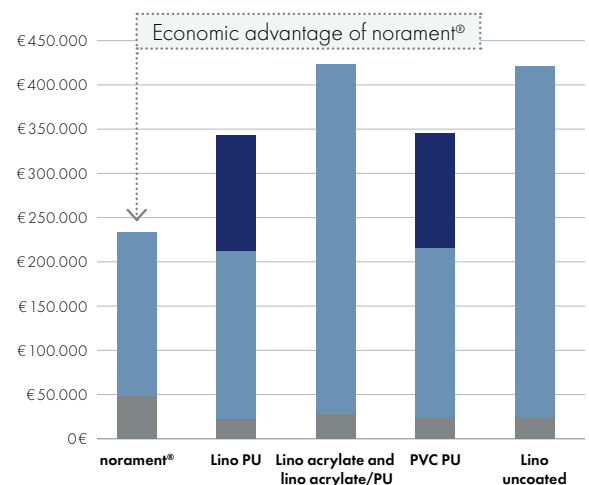
Presumed cleaning scenario for 1,000 sqm surface and 15 years.

noraplan®: typical scenario for areas with average stress, such as a kindergarten.

norament®: typical scenario for areas with heavy dirt influx and high mechanical stress, such as a school foyer.

Details and source: nora systems GmbH

Life Cycle Cost (LCC) comparison: norament®



With foresight and forward planning, a lot of money can be saved in the maintenance. We will be happy to create your individual Life Cycle Cost analysis and show you potential savings specific to your building premises.



The University Medical Center Hamburg-Eppendorf (UKE), new west building, Hamburg, Germany | © Oliver Heinemann



Interdisciplinary tumour centre (ITZ) - University Hospital Freiburg, Germany | © Werner Huthmacher

Gentle on the patient and the climate

The quality of indoor air is especially important in the healthcare sector. Indoor air quality is a key factor for wellbeing. Also contributing to the recovery of patients and a positive working environment for doctors and nursing staff. Low-emission nora floor coverings are especially well suited here as they are free from phthalate plasticisers.

Numerous national and international eco-labels and awards, which we have received for the health and environmental safety of our products, are your guarantee that we take our responsibility for the environment and society very seriously.



Carbon neutral floor coverings over the entire product life cycle

Our floor coverings not only ensure a good indoor climate. Health and environmental sustainability are particularly important for future generations: nora rubber floor coverings are carbon neutral – over the entire product life cycle. We are continuously working to prevent emissions: For example, the electricity demand from renewable energies is met and work processes are optimised in order to further reduce emissions. We compensate for the unavoidable carbon emissions by purchasing emission reduction certificates that finance climate protection projects.

Eco-Labels



www.blauer-engel.de/uz120

norament® 926 and
noraplan® standard floor
coverings



nora standard flooring,
dissipative and acoustic
floorings



norament 926 and
noraplan standard floor
coverings



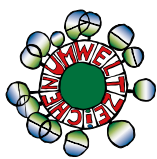
norament and noraplan
floor coverings



norament 926 and
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Memberships and other certifications

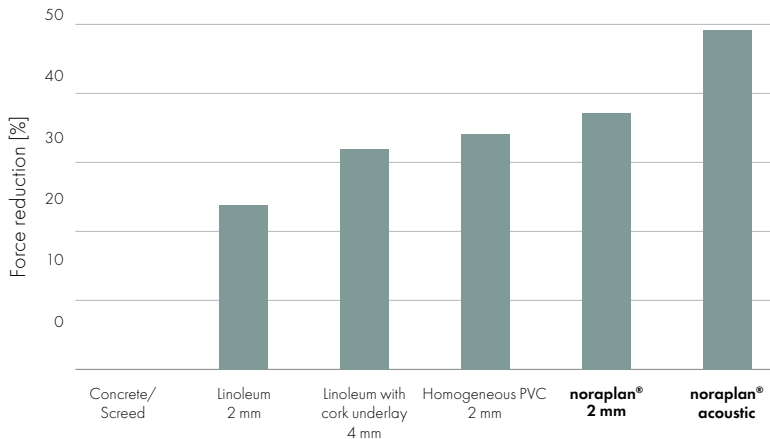


Certified: DIN EN ISO 14001,
DIN EN ISO 50001

Recovery with every movement

For physical and exercise therapy, rubber is extremely well suited due to its high elasticity. Warm underfoot and pleasant to walk on, it is ideal for therapeutic environments. noraplan acoustic offers specific protection with its shock-absorbing foam strip. It absorbs every step and relieves the joints. The impact forces during a potential fall can be absorbed better, meaning the risk of injury is reduced.

Force reduction of various floor coverings



Drop test to simulate impact forces acting on the hip (mass: 10 kg, drop height: 50 cm)

Source: Freudenberg Technology Innovation SE & Co. KG, Prof. Dr. Beck



Children and youth rehabilitation centre, Bad Erlach, Austria | © Bruno Klomfar

Comfort under your feet

Safety while walking

When streams of patients and visitors are moving through a building, step safety and slip resistance should be guaranteed – especially considering that people have different walking abilities. Unsteadiness in walking can easily lead to a feeling of physical panic and consequently accidents.

The nora range includes various floor overlays ranging from the assessment groups for slip resistance R9 and R10 to the particularly high requirements R11 in accordance with DIN 51130.



Aichach Hospital, Germany | © Werner Huthmacher

“Ergonomic comfort and good acoustic properties of rubber floors were very important for us.”

Hans Morgenroth, Head of Building and Technology,
Centre for Mental Health, Weinsberg

Relief when standing

Healthcare staff especially cover many kilometres every day or stand up for several hours in the operating theatre, and value the ergonomic comfort of permanently elastic nora rubber floor coverings. This material offers high walking and standing comfort, because – contrary to the non-permanently elastic, hard floors – it relieves strain on the back and joints and counteracts fatigue on the body even when standing for long periods. A study in cooperation with Pittsburgh University proves that the tested nora rubber floor coverings contribute positively to the ergonomics. Stresses on the human body can clearly be compensated.

Good rolling traffic capability

In addition to comfortable and non-slip accessibility, there is of course good rolling traffic capability, since transporting beds, moving in wheelchairs or walking with a rollator is easily possible.

Peaceful recovery

Noise is a stress factor and often the cause of complaint among patients and hospital staff. Consistently high noise levels can have an adverse effect on mental and physical wellbeing. Noise can also cause sleep disturbances and thus hinder the recovery process of the patients. Concentration and performance of doctors and nursing staff also suffer. In many areas of healthcare, noises are often unavoidable, for example when transporting beds, food trolleys, etc. The acoustics can be clearly improved by selecting the appropriate materials and surfaces during the planning stage. The floor covering can also make a contribution:

Footfall sound absorption

nora rubber floor coverings achieve improvements in footfall sound absorption of 5 to 20 dB.

Noise generation

The permanently elastic floor coverings contribute to lower noise generation when walking or rolling compared to harder materials.

"The reduction in noise significantly lowers stress for patients."

Dr. med. Martin Voss, Specialist in Psychiatry and Psychotherapy, Charité Psychiatric University Hospital at the St. Hedwig Hospital in Berlin, Germany

Pilot project: Intensive care unit

Research project "Parametrische (T)Raumgestaltung" [parametric interior design] with noraplan sentica ed as part of a stress-reducing design of the intensive care unit at Charité in Berlin: As part of this project funded by the German Federal Ministry of Economics, two new pilot intensive care rooms, each with two beds, were completed at the end of 2013 at Charité Campus Virchow-Klinikum after three years of research and development work.





Reliable without restrictions ...

Furnishing highly sensitive areas, such as operating rooms or intensive care units, requires many years of experience and specific expertise. The safety aspect is essential here. In light of this, reliable material properties of floors in terms of the high requirements in hygiene and cleanability have top priority.

Furthermore, the ergonomic walking and standing comfort is crucial. It counteracts early fatigue as well as joint and back pain and also increases the concentration and performance of the surgical team.



... even in the operating theatre.

Electrostatic dissipative floors ensure that sensitive life-saving equipment is optimally protected. They also protect from explosions caused by flammable gas/air mixtures and safeguard high frequency surgical work through its minimum insulation resistance.

And last but not least, mechanical load-bearing resilience is required when heavy equipment such as portable c-arm x-ray machines are moved. A thicker floor covering transmits these concentrated loads to the subfloor, evenly distributed across a larger surface, and can thus prevent damage to the subfloor.



10
years
warranty on the electrostatic
properties as
stated in
our warranty
conditions*.
*to be requested at warranty@nora.com

Extra environmental safety

In retirement and nursing homes many people are restricted with reduced mobility and are unable to use escape routes in the event of emergency. For this reason, special emphasis is placed on fire safety when selecting the building materials for the healthcare sector. nora rubber floor coverings are free from PVC and halogens. By using chlorine-free materials, in the event of fire no hydrochloric gas is emitted, which forms hydrochloric acid in combination with fire-fighting water. Another nora safety factor is the fire-toxicological safety in accordance with DIN 53436.

“Selecting floor coverings for psychiatric facilities is always a balancing act between function and cosiness, comfort and safety. Rubber floors have proven themselves here.”

Dr. Jochen Tenter, Chief Physician of Geriatric Psychiatry, Centre for Mental Health, Weissenau



Children and youth rehabilitation centre, Bad Erlach, Austria | © Bruno Klomfar



noraplan sentica is regularly tested by the institute for evidence-based architecture in the healthcare sector of universalRAUM GmbH (www.eph-psychiatrie.de) and has received the highest rating of “very good”.



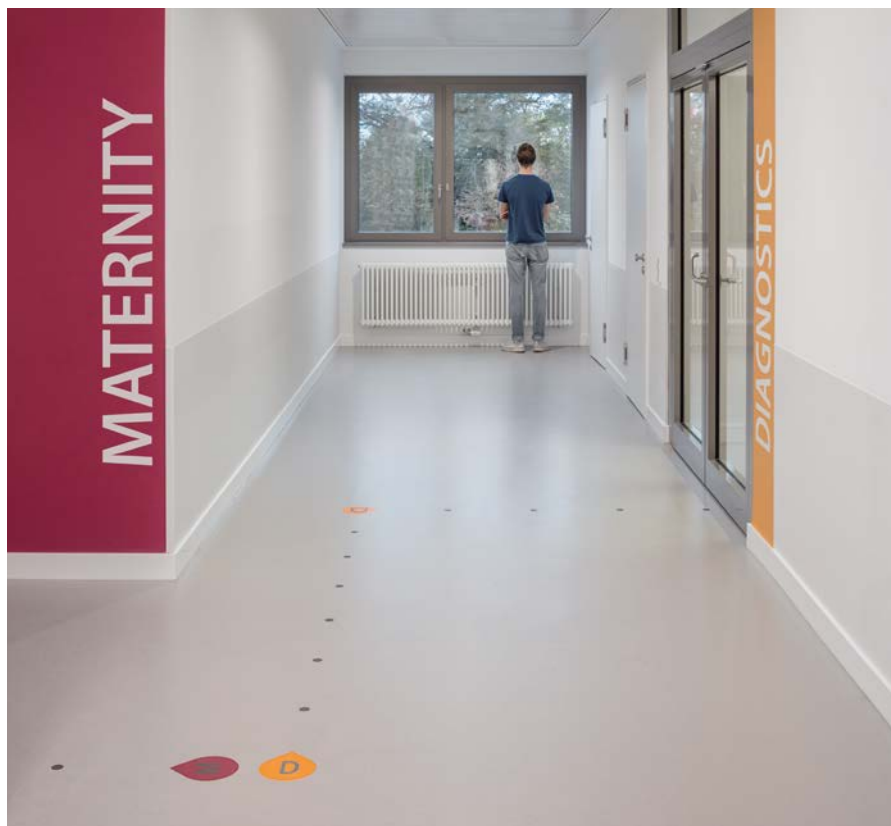
Soteria in the Charité Psychiatric University Hospital at the St. Hedwig Hospital in Berlin, Germany | © Werner Huthmacher

Leading in service too

Service included. Take advantage of the expertise of our competence team on site. Our technical consultants, market segment managers as recognised healthcare specialists, experienced application engineers – they are all here to find the right solution for your requirements. Rely on the advice of our experts over the entire planning and implementation time and service life. We are happy to support you directly on site, give briefings and offer seminars for installation and cleaning.

Design with inlays

Playful design elements, helpful orientation and guidance systems, symbols or logos can be easily produced with inlays according to your ideas and wishes. A successful signage concept with inlays firmly integrated in the flooring provides security through a clear orientation system, and can also support the accessibility of buildings.



Signage concept Aichach Hospital, Germany | © Werner Huthmacher

Wide range of colours and designs

With more than 300 shades in different designs, we have a large standard range. If you are looking for a different shade, we will be happy to develop an individual colour for your project. We can customise and implement almost any colour using patterns or colour codes (NCS, RAL, Pantone) according to your wishes.



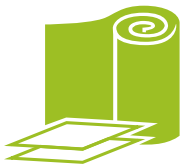
nora systems speaks NCS – the international language of colour communication. To meet the highest professional demands, all standard colours are determined in accordance with NCS.

Future-proof installation

Quality work with a system – nora® offers you two product solutions that have one thing in common: you don't have to worry about anything. nora one is a certified complete system that supplies you with everything from a competent source. nora® nTx, a rapid installation system that makes floors immediately usable, is even simpler – to name just one of the many advantages.

noraONE - the safe complete solution

nora one® consistently pursues the sustainable system concept: The combination of low-emission nora® floors with suitable floor installation products and flooring installers specially trained by nora® form a certified complete system that is unique in the field of floor coverings.



nora rubber floor coverings



nora floor installation products



floor installers qualified by nora



The advantages: maximum safety for users and planners as well as an extended warranty period of 8 years for the entire system. The individual components are awarded Greenguard Gold and Emicode EC1^{PLUS}. In addition, this low-emission complete system is certified in line with Indoor Air Comfort GOLD. This is also unique in the area of floor coverings.

nora nTx – the revolutionary rapid installation system

The adhesive strength of nora® nTx is already factory fitted. In just a few steps, the floor is laid cleanly and safely and can be used immediately - and this can be done on the usual concrete or cement screed subfloors as well as on existing other floor coverings. Even increased residual moisture in the concrete or screed is no problem.



Reliable installation result



Immediate usability



High efficiency



For all types of subfloors



Use with residual moisture



Covering-over-covering installation

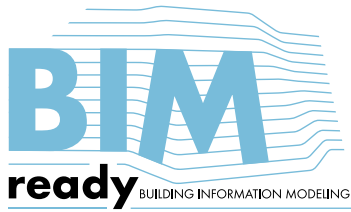


Photo page 2/3: © Markus Bachmann

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