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# Design in EUROPEAN HOSPITAL

**EUROPEAN HOSPITAL** supplement


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# THE ENVIRONMENT THAT HEALS

## *Transformation – from hospital to city parkland*

***By Paul de Ruiter MSc***

When I think about a hospital I always recall the film *The Kingdom*, directed by Denmark's Lars von Trier. Made as a five-hour TV series, it is set within the confines of a crumbling Copenhagen hospital (the kingdom), where a lurid, demented, baroque, apocalyptic plot unfolds, involving ghosts, mad doctors, secret societies, crime, corruption, and cover-ups. Neither an ode to the modern hospital nor an ode to an environment in which healing can take place.

But what is the most ideal environment in which to make people better? There's a simple answer. An environment like a home implanted in nature, where one is surrounded by lots of personal attention. However, that becomes quite difficult when it has to be realised on a large scale, as in a hospital. Another question is whether it is possible to realise this in terms of the conventional way of thinking about architecture and planning – particularly when you realise that new hospitals almost always evolve from restructuring olds ones. These are complicated and costly operations, with a lot of disruption and, by the time the hospitals are refurbished, the whole process must begin all over again; structure upon structure, each time weaving a more complex system.

A more radical way of planning and thinking about architecture might be a more effective way to approach the perfect healing environment. Maybe we can learn from the radical and merciless ways diseases choose their victims and take hold in the week spots of our bodies. Why do we not plan a hospital in a weak area of a city, build it completely new, and after twenty years break it down completely and turn the area into a park? In the meantime we could build a new one in another weak spot in the city. Thus the demolished hospitals would leave their green shadows in the city, and so hospital city planning would become a means of healing a city.

Through this concept, hospitals themselves would have the freedom to create structures to fit the needs of their period in time, instead of taking into account the limitations of an old hospital. The principal layout could then be more innovative. In the near future, I envision a state-of-the-art green hospital, with as much nature as possible incorporated into the building itself, beginning with the nature of the park that will be left when the hospital is demolished. Large green atria in the building and, when necessary, for more levels, like vertical parks, as well as introducing nature into the core of the building's envelope – a good start for a healing environment. This approach might even be more cost effective, because a lot of money would be saved by not building temporary structures and management to keep the old hospital running. That money could be used to give more attention to patients and the approach paves the way towards the possibility of flexible incorporation of new ideas for the healing environment of the future.

Then, perhaps, in the long run, we will no longer need hospitals. Maybe a quick healing scan will be enough to cure a body in a few seconds – all achieved using a computer. Then the greened areas of the city will remain only as a memory of the old concept hospital.

** Contact: Paul de Ruiter MSc, Architectenbureau Paul de Ruiter b.v., Amsterdam, The Netherlands*
***www.paulderuiter.com***

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# THE BLIZARD BUILDING

## *Wild, witty, wonderful – and it works!*

*By Brenda Marsh*

***His name is spoken alongside current architectural greats such as Frank Gehry, Daniel Liebskind, Richard Rogers, Sir Norman Foster, and certainly his concepts make an indelible mark on today's landscape. They will also hold a place in the history of buildings and affect future designs – for Will Alsop is among the most conceptually futuristic architects in the world today.***

This year it was no surprise that the surprising design for the Blizard building, at Queen Mary's University, London, won the *'Best use of technology within a large scheme'* category in the prestigious awards bestowed by the Leading European Architects Forum (LEAF), this September.

A research university, Queen Mary is one of the largest Colleges in the University of London, for it was created from its own integration with three other historic colleges: Westfield College, St Bartholomew's Hospital Medical College and the London Hospital Medical College. Its new, highly innovative and spectacular, £45 million Blizard building, in London's Whitechapel, was launched in May 2005.

Named after Sir William Blizard, a distinguished surgeon at The London Hospital and one of the College's founders, this building has drawn together seven research Centres (for Cutaneous Research; Diabetes and Metabolic Medicine; Gastroenterology; Haematology; Infectious Disease; Neurosciences and Surgery) to create the *Institute of Cell and Molecular Science* (ICMS).

In the planning period, paediatric gastroenterologist Professor Ian Sanderson, one of those playing a key role in determining the institute's future needs, said that almost all his medical colleagues hoped for a dynamic link between the disciplines of medicine, research and architecture – in all, a distinctly modern structure that would be and would provide far more transparency than usual, and be a design to aid the cross-fertilisation of ideas from the various medical disciplines.

The London-based architectural firm Alsop and Stormer, in association with laboratory specialists Amec Capital Projects, won the competition to take on their challenge.

Will Alsop, 54, is easily described as a 'child of the 60s' – the period in which he not only studied architecture but also came face to face with the free-thinking boldness and wit of 'pop' artists, sci-fi movies and the extraordinary concepts of cartoonists (themselves often influenced by the fluidity of lines, known as manga, that typify Japanese illustrated story telling). However, it would be wrong to describe Will Alsop's current 'modernist' creations as 'period' or 'dated'. Yes, they determinedly take a stand against their surroundings, presenting what may appear to be a scramble of provocative hues and shapes, yet their value and effect have been as carefully calculated as the building supports and other apparently abstract dramatic interior or exterior shapes used. Alsop and Stormer buildings are striking landmarks for today – and will see us well into tomorrow.

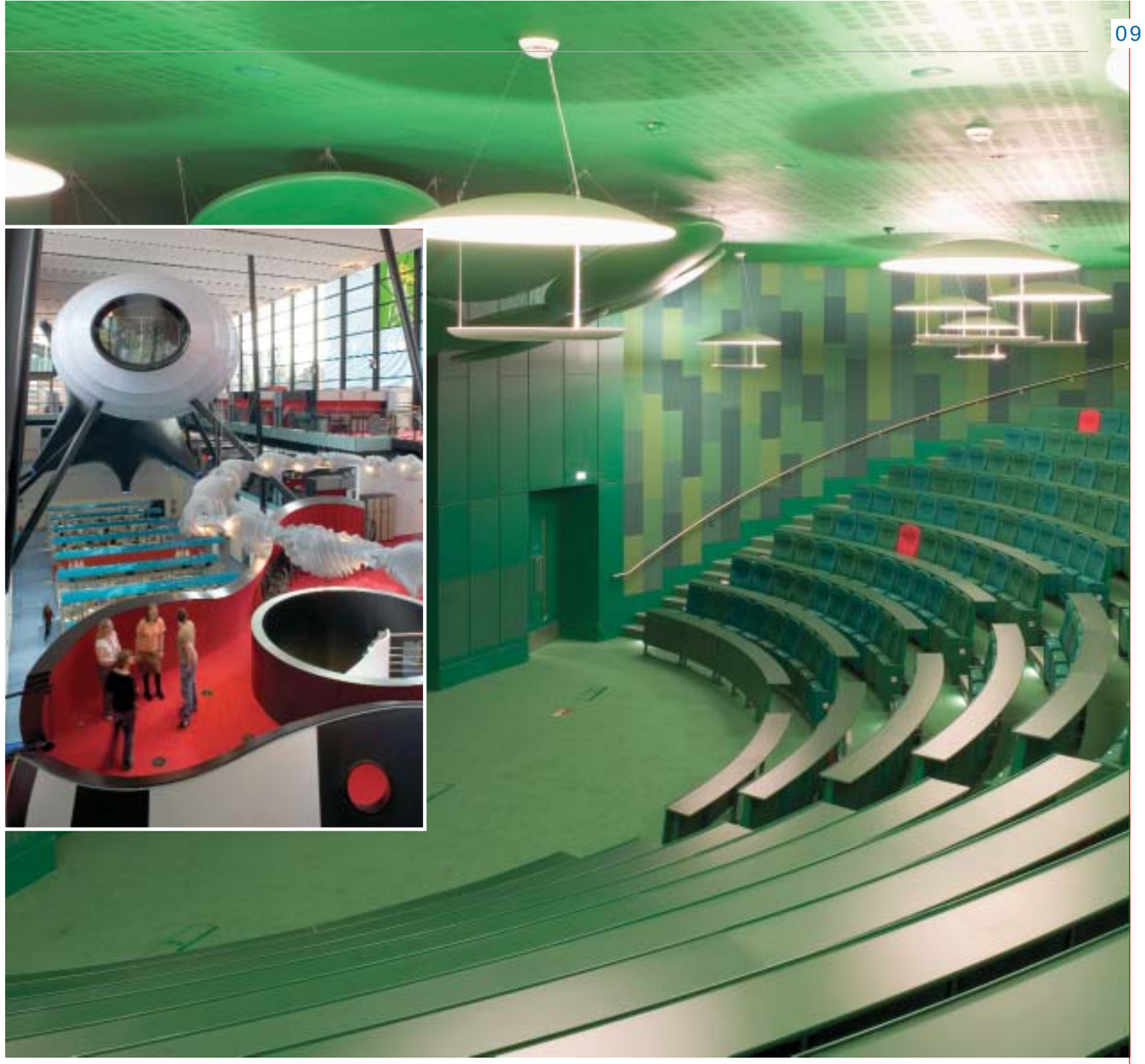
Today, moving through the twin Blizard buildings, researchers and staff seem caught in a surreal landscape. In the Blizard's three-storey, virtually all transparent, glass research pavilion, enormous human cell shapes appear to float down from a steel truss running through the top of the edifice. For meetings, they gather in enormous pods, the largest of which is a public display area named 'Centre of the Cell'.

In the secondary building, technical equipment serving the laboratories is housed. This also offers a roof garden and staff canteen for relaxations – and a 400-seat lecture theatre, which is egg-shaped – naturally!

Given advances in our concepts of medical facilities and health, many of the architectural and interior designs of today are shifting rapidly away from the chunks of blocks that populated the medical landscape. As the Alsop and Stormer project architect Christopher Egret said of the Blizard Building: 'We hope to play at least some part in trying to redefine the way that hospitals and medical schools see themselves and are perceived by the public.'

www.alsoparchitects.com

pictures by courtesy of Queen Mary, University of London





## ARCHITECTURAL PUNCH

Whether it's a cocktail bar or block of flats, nothing will be what it was, or what it will appear to be, when tackled by architect Will Alsop, who is increasingly responsible for changing the face of entire swathes of Great Britain as well as areas across the Channel. Commissions include a re-generation of the city of Bradford and revolutionary plans for Barnsley; an entire waterfront in Walsall and, in Continental Europe, a future residential district in Groningen and redevelopment of Rotterdam Centraal. He has also made architecturally artistic structures for art colleges in Ontario and London. So, why not a leather clad hotel? Shiny pink buildings that curl inward like sleeping caterpillars, or shimmering structures that resemble a few camouflaged teeth – why not? All will be purposeful, yet evoke curiosity, awe, interest and, most importantly, happy effects.

So it has been with the new medical building at Queen Mary, into which over 2,000 local people flocked during just one open weekend.

Much the same in France, over a million people a year make a trip to see Alsop's more-than-vivid-blue local government offices (Hotel Du Departement Des Bouches-Du-Rhone, in Marseilles).

Similar interest surrounds his bold-green-effect-with-lolling-tongue design for the £4.5 million Peckham Library and Media Centre, which won the architect the much-coveted Stirling Prize (2000).

And now it is prophesied that Alsop's metallic 'cloud' – a building named 'The Fourth Grace' that might have emanated from a sci-fi fantasy – will earn a place beside architectural wonders of the world such as the Sydney Opera House and Bilbao's Guggenheim Museum, and draw millions of people to its site on the Mersey river bank in Liverpool.

In a far humbler setting – London's Fawood Children's Centre – the head teacher significantly noted that the pupils seemed considerably *healthier* since using the building that Will Alsop designed.

pictures by courtesy of HWP Planungsgesellschaft mbH

# TENS OF MILLIONS FOR THE NEW DINZ

***Report by Denise Hennig***

Another milestone for the Carl Gustav Carus University Hospital in Dresden, Germany, will be cemented when its new Diagnostics, Internal Medicine and Neurology Centre (DINZ) opens in 2008.

The proposed design and technology to be used for the centre's five clinics and institute prompted the German Government and the Government of the Free State of Saxony to provide subsidies totalling tens of millions of euros for this project.

Designed by *HWP Planungsgesellschaft mbH* and budgeted at around € 77 million, the new 256 beds facility will pool departmental functions, saving costs and time by better utilisation of costly, high-tech equipment and shorter transfer times for patients.

Six wards in the neighbouring House 19 of the existing hospital are being renovated at a cost of around € 25 million and these will also become part of the DINZ. The building will contain examination and treatment departments as well as neurology wards and Medical Clinics I and III – urology, accident and emergency & reconstructive surgery – plus the Institute for Radiological Diagnostics.

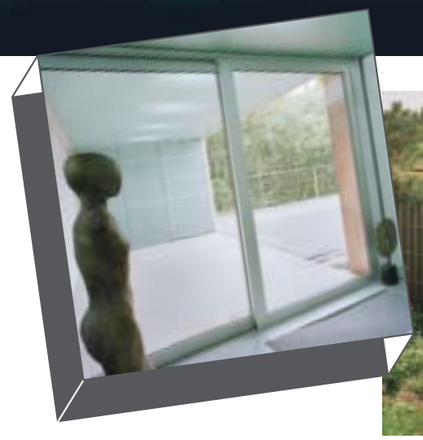
Because not all patients need 24-hour care, the DINZ will also integrate low-care wards offering hotel-like standards for short stays.

DINZ complements the focal point of the University Hospital and will blend with the hospital complex harmoniously and generously.

**www.uniklinikum-dresden.de**

# SENIORVILLA DEYS

## *A retirement home to see out their days*



pictures by courtesy of Paul de Ruiter MSc

The nature-loving Deys family, aged in their sixties, wanted a modern dwelling, fit to live in independently throughout the final stages of their lives – and they requested as much *domotica* as possible. The word – used in the Netherlands and Belgium to describe a house (Latin: domus) that is electronically controlled – is said to have evolved in the French language in the early 1990s along with the growth of telematics. In effect, the family wished to have not only communications, but temperature control, lighting, security, safety, and much else – in what today is referred to as a 'smart' house.

The dwelling also should be wheelchair accessible (for the future; there is no present need) but without giving the impression of the bungalow being an invalid's home.

The Deys family also wanted an indoor pool to maintain physical health by swimming a few laps daily. The exterior and interior of the villa needed to be made of high quality materials that would require minimum of maintenance. Furthermore, the architecture of the building would have to harmonise and complement vulnerable natural surroundings and the nearby, historic village of Rhenen, in the Netherlands.

The resulting building recently won a prestigious award for the architectural firm Architectenbureau Paul de Ruiter b.v. (See Opinion, page 3). The *contractworld.award* for innovative interior design concepts, presented by Deutsche Messe AG of Hannover, is now in its sixth year. This year, Professor Werner Sobek, chairman of the jury explained, the three traditional categories *Offices, Hotels* and *Shops* had been augmented by a fourth: Health & Care. This new section attracted 39 entries, over 50% from outside Germany, and the Seniorvilla Deys project was one of the three winners.

Paul de Ruiter had produced a totally barrier-free spatial and functional concept, the jury noted, and all areas of the house have full wheelchair access, as well as sliding doors, curtains, blinds and lighting systems are operated by remote control. 'This project', they wrote, 'is a timely contribution to the debate about how people should live as they get older, and it has the potential to initiate a paradigm shift towards a better quality of life'.

The bungalow is situated below Utrecht Heuvelrug, facing the river Rhine and the flood plain to the south. To make the dwelling merge with its surroundings de Ruiters designed it to be rather inconspicuous when seen from the hilltop. The roof and side elevations of the bungalow's two sections resemble raised strips of marshland lifted with a spade, a shape that ensures the long north and south facades have a wide view over the river landscape.

Set parallel with a dike and the river, the two raised strips of building are connected by a lower building, which contains the swimming pool. Here an abundance of daylight penetrates glass inserts in the roof above. To reduce heat build-up due to the long south façade, a timber and aluminium lamella sunscreen was designed. This has four-metre high modules that can be pulled up to form a storm-proof horizontal awning. In addition, when closed, the modules can be locked, which means the big sliding doors behind them can be left open safely on warm summer nights. All sunscreens, sliding doors and curtains are electronically controlled.

The technology used ensures that the Deys can be self-supporting and independent into very late years. All rooms are spaciously designed for wheelchair use, without differences in the height of thresholds. Even the pool's water level is level with the floor for easy access. The glass facades of the swimming pool have been sand-blasted, except for the lower 500 mm, so that a swimmer cannot be seen, but can enjoy the view of the flood plain whilst in the water.

# products

## LED BRIGHTENS TILED AREAS

The tiles of the Linea LED collection – which received a red dot award this year for the manufacturer Royal Mosa – have integrated LED lighting. The technology provides a very long life cycle and is suitable for spaces exposed to continuous moisture. The installation surface of a Mosa LED fitting is very small and, due to size and thickness, the LED tiles can be seamlessly combined with regular tiles. In addition, both versions have even-grounded edges. The tiles have an even shape and offer many combinations. The basic white, shining and matt wall tiles measuring 30 x 45cm and a special size of 15 x 45cm.

**www.mosa.nl**

## SHOWER SEATING

The contours of *Swift,* and materials used, make this self-supporting plastic shower stool dirt repellent, easy to clean, and obviously non-corrosive. The seat, back and arm supports are made of injection moulded polypropylene. The four, extending legs are adjustable. Surfaces in contact with the body are non-slip. In addition, all materials used can be recycled.

**www.etac.se**

## EASE IN THE LABORATORY

Smooth, flowing lines and transitions and a contrasting, hard horizontal line characterise the *pipetus* range. Designed by heitlinger form und technik, Schwäbisch Gmünd (Karl-Leo Heitlinger), this device has been functionally optimised and supplemented in its technical components and pipette functions. Priority was given to the visualisation of laboratory know-how, functional precision and ease of operation, and to anthropometrically correct cross sections, adjusting parameters and angles – because it is a manual device, and 90% of users are women, Hirschmann Laborgeräte GmbH & Co. KG, Eberstadt explains. ‘Once the pipette is inserted in the pipette hand, the pipette axis, the handle axis of the device and the distance between both axes form the ideal operating geometry.’ A wall bracket, with unlimited hinge function, also enables laboratory assistants to suspend the manual device in any position that is comfortable.

**www.hirschmann-laborgeraete.de**

## THE VERSATILE STAND

The ergonomically designed *Stylo* night stand range, for hospital and in-patient care of the elderly, is very stable, the manufacturer notes. On the Stylo C3 and Stylo S3, nurses can use the pullout mechanism with only one hand to fold it out and, if the tabletop is used over a bed, the locker tabletop moves up with the bed, avoiding blockage. Height adjustable, from 84 to 122 cm, the table swings aside. The top is also fitted with book guards to aid reading.

**www.wi-bo.de**



## TOUGH BUT GOOD TO TOUCH

Hoffmann+Krippner developed this attractive, waterproof PC keyboard for use in difficult workplaces. The surface, made of structured 150 µm thick Autotex V150 film from Autotype, has a polyester base and flexible, chemically bound, UV-cured coating, all of which provides high resistance to severe mechanical stress, dust, humidity, most chemical substances and cleaning agents. The firm reports that the surface structure of Autotex V150 is ideally suited for the touch-sensitive lens-shaped key tips, using GT technology – a patented process enabling the manufacture of raised and optically clear key tips that are also exceptionally robust.
The keyboard has received a *Red Dot* award from the North-Rhine Westphalia Design Centre (Design-Zentrum NRW) in Germany.

**www.autotype.com**

## MAESTRO

The Maestro chair is easy to stack and comes in colours that emit a lively atmosphere for events such as training, discussion groups or conferences. The manufacturer also reports that 45 of these chairs, placed on a dolly, could pass through a standard doorway.
This strength saves substantial cost as spaces may be reconfigured very quickly and efficiently. In addition, a high stack reduces floorspace required for storage. KI is a leader in the furnishing of training, meeting and conference rooms.

**www.ki.com**


## DESIGN AWARD FOR CADDY

The Dutch agency *WeLL design* has received the *iF design* award for the hands-free Caddy and CompactCaddy concept for Dräger Medical, used to transport the firm’s Oxylog 1000 or Oxylog 2000 ventilators.
The award, from the *Industrie Forum Design* (Hanover, Germany), received 1,900 entries from 31 countries in a competition to find the most innovative product design of the year.
Launched in 1953, the competition is for any product – from food packaging to mobile phone. The criteria for a successful design include workmanship, choice of materials, ergonomics, functionality, visual appeal, and safety. WeLL design worked closely with Dräger‘s project team at the Pre- and Post-Hospital Care Business Unit in Best, the Netherlands, to create a carrying device to incorporate the ventilator, accessories and, if needed, the cylinder, whilst leaving the user’s hands free to tend to a patient.

**www.draeger-medical.com**

## FLUID FORMS

Among the award-winning, varied, fluid shapes of Liquid Light, the drops appear to float weightlessly in the air, offering a warm ‘rain’ of light, whilst others can be run down a wall, or positioned to ‘flow’ out of a ceiling.
Next, the manufacturer, also produces Downlight, to illuminate floor areas directly or indirectly. The switch, with illuminated ring for location in the dark, is ergonomically positioned at the top of a tube for easy access.

**www.next.de**

ceiling supply units

# COLOUR WIPES OUT WHITE DISORIENTATION

***When customers requested help, Dräger Medical provided four carefully considered tones***

Several studies have demonstrated a direct relationship between the environment and patients' convalescence, resulting in an increased awareness in hospitals that colourful designs for individual units are important – particularly for patients in intensive care units (ICUs). With highly technical respirators on one side and innumerable hoses on the other – the only variation on the white walls and ceilings of a traditional ICU might be the fluorescent tubes and ventilation slots. This common scenario, researchers point out, can contribute to a mind-numbing existence for patients, as well as staff.

White is typically used in hospitals because it looks bright and hygienic, but it is also cold and remote. In her study of its effects, Monika Fendl [*The structural design of large medical devices and their influence on a therapeutic milieu,* Dresden 1999, p.67] found that white walls offer neither diversion nor help with orientation for patients in an ICU. The subconscious frequently attempts to make sense of perceived, external impressions with known objects. However, this ability to recognise is missed by these patients, which can result in uncertainty, anxiety and sometimes hallucinations. It has also been reported that spots on the ceiling can 'become' spiders and mice, whilst for other patients the ceiling appears to move [Wied, pp. 107-108].

In Sweden, Lothar Ullrich also found that people exposed to white and grey, for extended periods, reacted with nervousness and had higher heart rates and blood pressure [*The experience of a patient in the intensive care unit – a personal experience based on a directed interview.* Pub: Intensiv (1996), Issue 4, pp. 21-23].

Unconscious stress is expressed, for example, in complaints about the room being too cold, or through silence, withdrawal, irritability, mental confusion or sleep disorders, Monika Fendle reported. A patient who spent 44 days in an ICU recounted: 'The ventilation hoses over my bed appeared in my dreams at various times'. When asked why she would not open her eyes when spoken directly to, the patient replied: 'I had memorised my surroundings, I had counted the ribs of the ceiling lights a thousand times, and I knew every spot on the ceiling'. In effect, a white ceiling causes patients to withdraw. However, the researcher later found (1999) that if patients can look at pictures, forms or even only colours, their thoughts were distracted from pains and fears. Therefore coloured products could be a more than useful diversion.

The Ponta, Agila and Movita supply units produced by Dräger Medical utilise four colours:

- robust red, which the firm says 'harmoniously integrates in a traditional colour pallet with strong and clear colours symbolising energy and life'
- sunny yellow used to evoke nature's pallet of grass, flora, sky and earth.
- lavender for use for its 'Mediterranean' feel
- luminous pink – bright, friendly, and particularly nice for children.

Hospital personnel also benefit from a work environment successfully altered by changes in colour. In the Postoperative Cardiac Anaesthesiology Intensive Care Unit, at Vienna's Lainz Hospital 'Nurse Renate' recalled: 'I often felt drained when working on the unit for three or four days. Sometimes I would even become aggressive. The old design was exhausting'. After her department was redesigned – using Feng Shui (Chinese words meaning wind + water) – the nurse told a different story. 'Everything is more open now. It has also helped me to remain calm'.

**www.draeger-medical.com**

# SAFETY WITH NO LOSS OF AMBIENCE

pictures by courtesy of Moonlight GmbH

Never dark *stores light for emergency use*

*By Anja Behringer*

Emergency lighting in public buildings is subject to various laws, norms and regulations. Among other considerations, architects and interior designers want aesthetic lighting they can integrate with an area's ambience in a minimalist way, and users need sufficient brightness as well as clear orientation via illuminated signs. Finally, in the event of a power failure, at least some illumination must be maintained.

*Never dark* – a novel, awards winning concept produced by the German firm *Moonlight*, is now produced in a safety version. To achieve this, *Moonlight* worked with the chemical industry to develop a synthetic material that can store light. In the event of a power failure, it then releases this as fluorescent light for over an hour.

*Erco*, another German lighting specialist, makes effective anti-dazzle lighting for outdoor use. This, the firm reports, avoids uncontrolled, wasteful 'stray' light. The firm's 'Panorama' bollard illumination provides entirely glare-free light due to its 'dark sky technology'. The beams have a radius of up to six metres, so the bollards can be placed up to 12 metres apart. This concept won a design award at the recent *Light and Building* trade fair in Frankfurt.

*ETAP Beleuchtung* focuses on functional yet minimalist lights to integrate with architects' designs to illuminate escape routes. To ensure an approved strength and constancy of light, the firm's K9 module can be connected to its own safety manager – a centralised emergency lighting monitoring and control system that warns if an emergency sign is no longer sufficiently lit and needs replacement.



# SWAN NECKED COLD ILLUMINATION

With its 50 W/12 V cold light reflector lamp, the *halux 50* produces an intense light source (48,000 lux/0.5 m) for medical examinations. (As an option, this lamp can be fitted with a colour correction filter (4100 K) to reach the required colour temperature and make veins, blood vessels and skin features easier to detect).

To reduce heat generation to a minimum in the working field, as well as on the lamp's body, the lighting firm Derungslicht also gave the lamp dual-wall casing. In addition, it has an electronic safety transformer, with current and temperature protection 230/12 V, to provide long-term, error-free operation.

For ceiling or wall mounting, fixing on a rail or roller stand, or tabletop use, the lamp can be easily positioned due to its spring-balanced articulated arm (swan neck).

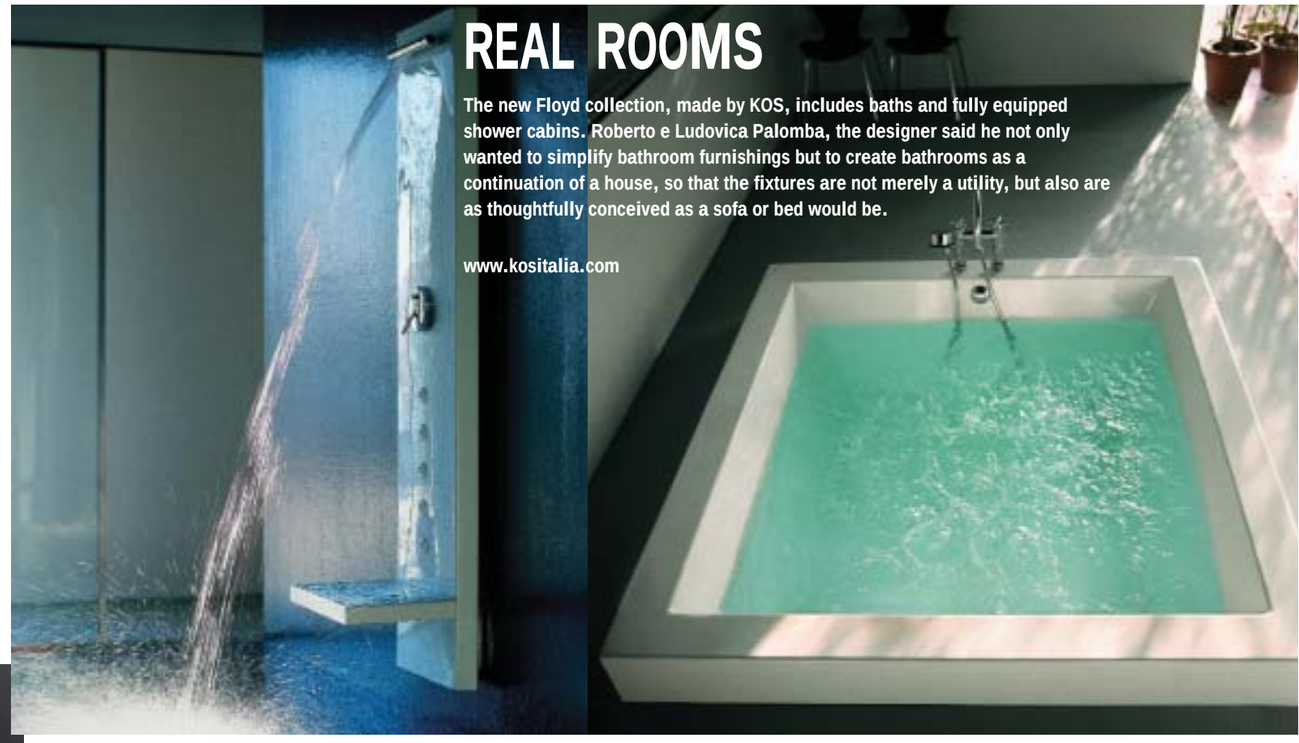
Enclosed cables also make cleaning trouble-free.

washrooms

# COLOURS COMBINED WITH STAINLESS STEEL

Despite its elegant outer appearance, *Evolution* equipment for rest rooms, showers and bathrooms is constructed with the necessary stability for public usage (DIN 18024, and 18025 in private surroundings). Colourful elements are combined with brushed stainless steel, and the powder-coated stainless steel tubes are easy to clean and hygienic.

**www.lehnen-edelstahl.de**



# REAL ROOMS

**The new Floyd collection, made by KOS, includes baths and fully equipped shower cabins. Roberto e Ludovica Palomba, the designer said he not only wanted to simplify bathroom furnishings but to create bathrooms as a continuation of a house, so that the fixtures are not merely a utility, but also are as thoughtfully conceived as a sofa or bed would be.**

**www.kositalia.com**

# SEEING HOT AND COLD

When Reinhard Zetsche and Bruno Sacco designed Hansa-canyon fittings they created a monolithic shape with smooth, defined contours, and an open watercourse system. 'What is presented is an experience: The watery element in its original spirit encounters a material, ingeniously begins to carve a path for itself, and unfolds its surprisingly multi-dimensional appeal', they explain.
Ingeniously, by using LEDs and an electronic control system, the atmospheric lighting of the water jet gradually changes colour according to the water temperature, so that hot and cold become visible. One can see whether the water is hot or cold. Water temperature is precisely adjustable using the sensor button, and illuminated strips give precise feedback for accurate operation.

**www.hansa.de**

# AN INTELLIGENT BATHTUB

Imagine you could phone your bath and tell it to be prepared for you to just slip in. You tell it the temperature, water level, light intensity, and bath salts or oils you'd like, as well as which massage programmes you'll want when in it. Now imagine your bath would notify you when ready, via your phone or, if you're nearer the tub, it will speak the magic words: Ready! Fiction? No.

Indio da Costa Design of Rio de Janeiro (Indio da Costa, Eduardo Azevedo, Felippe Bicudo, Augusto Seibel, Camila Fix) have created the Smarthydro bathtub in which many parameters are individually controlled and it can be remotely activated, via a mobile phone or landline, the internet or a pocket PC. Once the bath is prepared the user is notified by phone or the voice system of the tub.

The Smarthydro bathtub was conceived primarily to convey precisely this kind of modern technology: a clear, minimalist friendly shape as well as a harmonious combination of technology, finesse and premium-grade materials.

**www.indiodacosta.com**

# WATER AND BIRTH

The Active Birth Centre, founded by Janet Balaskas, is internationally recognised for it's innovative work with expectant and new parents, and as a leading resource centre for water birth.

Active Birth Pools, designed by Keith Brainin with Janet Balaskas, have pioneered this concept for labour and birth since 1987. Keith Brainin explained: 'Following the pioneering of the first water births, in Russia in the 1960's, Dr Michel Odent, the renowned water birth pioneer, introduced the use of water during labour at the state hospital in Pithiviers, France, in the 1970's. In 1986, Dr Odent moved to our locality and was a regular speaker at the Active Birth Centre. After delivering 100 babies in water he published an article in *The Lancet* and was visited by journalists and birth professionals from all over the world. 'This inspired us to begin work on designing the first portable water birth pool to enable women to use one in the environment of their choice'. When the first woman tried their pool, in her own home, the event exceeded the team's expectations. The equipment they had designed proved easy to assemble, very manageable, and it the new mother needed no medical pain relief.

What followed were various refinements to the pool, plus considerable birthing research. From her work with pregnant women, Janet developed a system of aquatic exercises and discovered how water allowed women to use positions natural to labour and birth in a completely new way. This led to the publication of her book 'Water Birth' in 1990 (revised: August 2004) and a 'Water and Birth' video in 1992. She became a leading international expert lecturer on this subject.

'We have worked closely with parents, midwives, obstetricians, microbiologists and technical experts in developing our versatile range of hospital and portable water birth pools', the team add, and today, following requests from maternity units, their range of birth pools are installed in hospitals around the world. These include pools to suit various requirements – e.g. *Elliptical, Corner* and the ergonomically designed *New Active Birth Pool*. In addition, high demand for the pools resulted in the Active Birth Centre's pool hire service. For this, the new portable pools *Oval, Circular* and *Hexagonal* were designed.

The New Active Birth Pool (pictured) gives a mother freedom of movement, while she is supported in natural labour and birth positions. She can float freely, using curves to relax in, the grab rails to assist squatting, and the seat for resting and welcoming her baby.

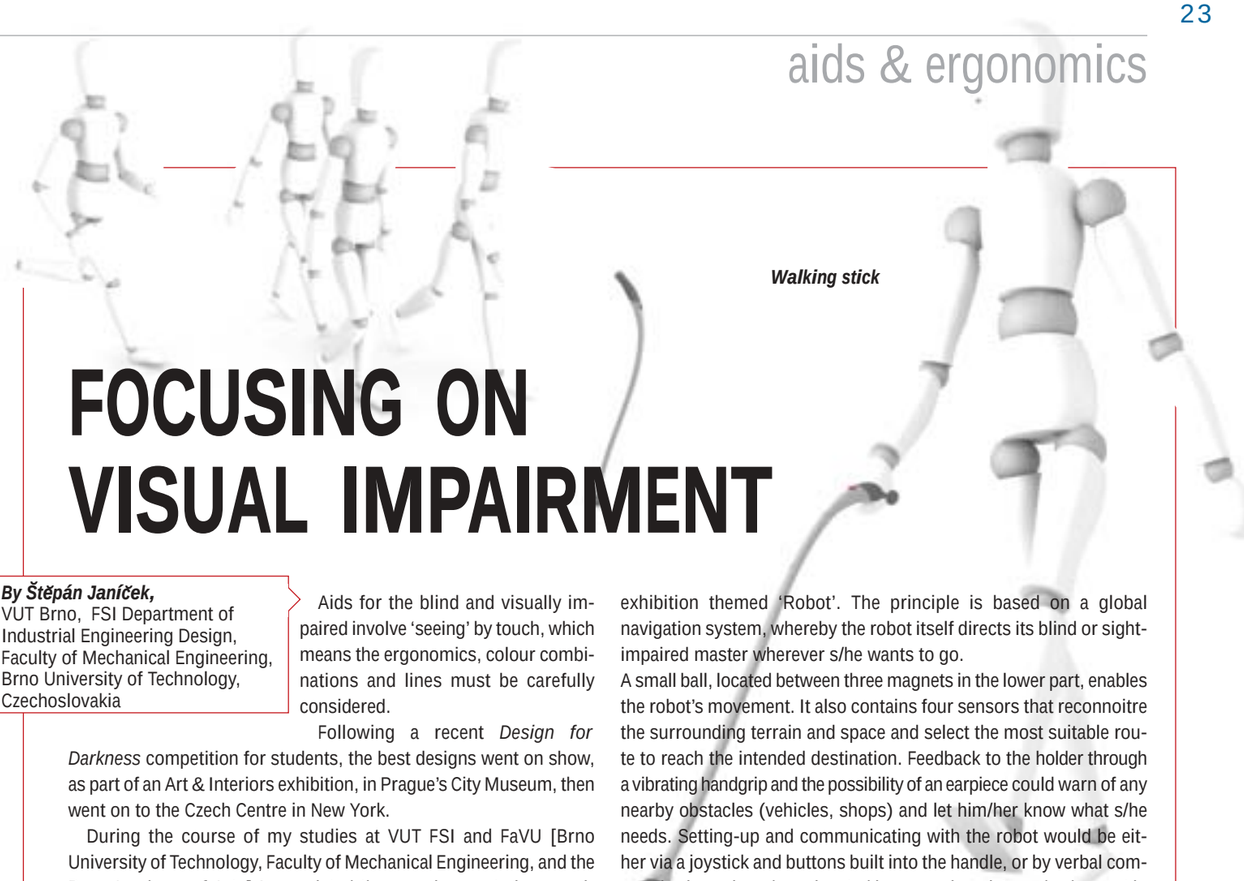
For midwives, to avoid lower back pain caused by leaning over the pool or sitting next to it with legs apart, the bath has been designed with a surround, so that the midwife's legs are under the rim and distance from the mother is reduced.

These pools have been used in 75% of maternity units in the United Kingdom and by hospitals and midwives internationally. So much research, and so many design considerations for the Active Birth Pool, inevitably also includes built-in safety factors.

Take a look:
**www.activebirthpools.com**

***New Active Birth Pool: an ergonomic design to provide comfort, support and safety***





***Walking stick***

# FOCUSING ON VISUAL IMPAIRMENT

***By Štěpán Janíček,***
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Aids for the blind and visually impaired involve 'seeing' by touch, which means the ergonomics, colour combinations and lines must be carefully considered.

Following a recent *Design for Darkness* competition for students, the best designs went on show, as part of an Art & Interiors exhibition, in Prague's City Museum, then went on to the Czech Centre in New York.

During the course of my studies at VUT FSI and FaVU [Brno University of Technology, Faculty of Mechanical Engineering, and the Brno Academy of Arts] I completed three assignments in consultation with staff of the Brno Typhlo Centre. Visuals of my *Camera Magnifying Glass* and *Walking Stick* were shown at the *Design in Darkness* exhibition. These are futuristic. My third design, the *Reading Table for the Visually Impaired*, is an acceptable proposition for any willing manufacturers right now. Nothing quite like it is marketed, yet such equipment would be a boon not only for the partially sighted, but for staff at centres for the blind, for it would simplify and speed up their work.

The Brno University of Technology project aimed to introduce a rotating, extendable, folding, reading table, into which sectional flexible strips and fixtures for light attachments might be incorporated. For, among other things, this entire unit could be used to test ocular sensitivity to various kinds of lights. Inbuilt lamp fixtures allow for seven bulbs, two strip lights. A module for one suitable bulb could be attached for domestic use. Lights beneath the table are operated by push buttons. One bulb, or fluorescent strip, may be turned on or off at a time. The table's adjustable joints may be released and locked simply, using push buttons located in the joints themselves. The entire reading unit could be rotated around a joint within a stable, base console to which the tabletop would be fixed. Height adjustment is achieved via extendable tubes between the table joints. Wiring to the lamps is concealed within all the sectional components, with just one slim cable connected to the console. Any testing lamps not in current use could be slotted into special compartments, thereby practically enabling the table to be used instead of an ordinary table lamp.

All components could be predominantly plastic, with metal or aluminium used only for the parts subject to greater wear.

*Walking stick* – This university project was developed for an exhibition themed 'Robot'. The principle is based on a global navigation system, whereby the robot itself directs its blind or sight-impaired master wherever s/he wants to go.

A small ball, located between three magnets in the lower part, enables the robot's movement. It also contains four sensors that reconnoitre the surrounding terrain and space and select the most suitable route to reach the intended destination. Feedback to the holder through a vibrating handgrip and the possibility of an earpiece could warn of any nearby obstacles (vehicles, shops) and let him/her know what s/he needs. Setting-up and communicating with the robot would be either via a joystick and buttons built into the handle, or by verbal commands via a microphone located in an earpiece (stowed, when not in use, in the rear of the handle).

This device is gyroscopically balanced on a magnetically controlled synthetic rubber-coated metal ball, to ensure the robot can move and orient itself spatially.

The device could be of great use to blind people, but could not replace a dog – still man's best friend.

*Camera magnifying glass* – Mobility and ease of manipulation were key factors in this design. The three most frequently used parts have contrasting frames, which facilitates user orientation. Thanks to wireless data and energy transmission, once fully deployed the set may be used to create at least three different variants:

*Home use* – A fixed arrangement uses the base unit with sliding panel incorporating a control console. The LCD unit is fitted on this console, using the articulated frame on the rear of the display. The camera reader unit is fixed beneath the LCD. Extra lighting for the reading area also can be fitted to the console.

*Tabletop* – Suitable for use in cafés and other leisure facilities (without the base unit with sliding panel), a stand is slotted in to the articulated frame behind the display, enabling the LCD to stand alone on a table. The cordless camera, with its own internal lighting and zoom lens, could be moved freely around the table.

*Mobile unit* – For outdoor use, travel etcetera, the display unit could be worn around the neck and the camera magnifying glass could be handheld, and have a wrist strap for safety.

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***Camera magnifying glass***

# VANTAGE


TOSHIBA MEDICAL SYSTEMS