

BRAND NEW SMILE

The KU64 dental clinic, Berlin offers a radical new morphology in medical settings

ALSO:

**International Academy Award 2011 launches
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Contributors

Dr Julio Frenk

A new health paradigm based on attention to health prerequisites and health promotion is emerging and a key component of this is healthy environments



Dr Emanuel Mikho

Iraq is a blank canvass waiting for painters, and will be the focus of the next wave of capital investment in health and urban infrastructure in the Middle East



Adrian Marriott

Healthcare facilities in the Middle East need to be affordable, culturally sensitive and reflect the transition to high acuity medical care



Andy Brand

A new and innovative research project in the UK explores the impact of the environment on the wellbeing of adults living with autism in residential housing



Mohsen Mostafavi

A diversity of approaches to, and solutions for, urban planning are described Mohsen Mostafavi's celebrated new book, 'Ecological Urbanism',



Cover Image

The KU64 dental clinic in Berlin, designed by GRAFT (see pp 16-17)



Perceiving the world and the lives of others

Recognition of the importance of ambiguity and the creative possibilities that result from a deeper understanding of the multiple dimensions of the world we and others live in is poignantly described by Dr John Zeisel (p57) in his appraisal of Andy Brand's study, *Living in the Community: Housing Design for Adults living with Autism* (pp 58-65). For designers or health professionals, understanding the 'lives of others' and how they perceive their environments, their relationships and the world around them, should inspire their work. It is arguably this awareness that is the essence of creative design, as exemplified in Eileen Trimbach's case study of the Cincinnati Children's Hospital for young people suffering from neurological disorders (pp 44-47). There can perhaps be no harder task than designing healthcare facilities in the Middle East and showing understanding of the local, cultural context is critical for international architects and designers, as Kathleen Armstrong reports in our special report on the region (pp 34-41). Meanwhile in Europe (pp 25-33) and north America, as government 'austerity' cuts begin to bite, now is the time for a new health paradigm that pays attentions, as Dr Julio Frenk explains, to health prerequisites and health promotion, including income, housing, food, social interaction and healthy environments, and not simply the provision of healthcare (pp 22-23).

Marc Sansom
Editorial director



Contents

Editorial Director
Marc Sansom MBA
T: +44 (0) 1277 634 176
E: marc@designandhealth.com

Director General
Alan Dilani PhD
T: +46 70 453 90 70
E: dilani@designandhealth.com

Marketing Director
Jim Benham CIM
T: +44 (0) 1277 634176
E: jim@designandhealth.com

Advertising sales
North/South America: Ian Slade
ian@designandhealth.com
Europe Middle East & Asia: Mike Mikunda
mikemikunda@designandhealth.com
Europe, Middle East & Asia: Mike Kirk
mikekirk@designandhealth.com

Editorial Advisory Board:
Chairman: Dr John Zeisel PhD, US
Prof Clare Cooper Marcus, US
Prof Jacqueline Vischer, PhD Canada
Prof Young Sook Lee, PhD Korea
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Prof Noemi Bitterman, Israel
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Prof Paul Barach MD, MPH, Australia
Jain Malkin AIA, US
Diana Anderson, MD, MArch, US
John Wells-Thorpe, UK
Mikael Paatela, Finland
Dr Linda Jones, PhD New Zealand

Contributing writer
Kathleen Armstrong

Subscriptions and advertising
T: +44 (0) 1277 634 176
E: WHD@designandhealth.com

Published by:
The International Academy for Design and Health
PO Box 7196, 103 88 Stockholm, Sweden
T: +46 70 453 90 70
F: +46 8 745 00 02
E: academy@designandhealth.com
www.designandhealth.com

International Academy for Design and Health UK
8 Weir Wynd, Billericay
Essex CM12 9QG UK
T: +44 (0) 1277 634 176
F: +44 (0) 1277 634 041
E: WHD@designandhealth.com

Design and production:
Graphic Evidence Ltd
www.graphic-evidence.co.uk

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Malaysia targets 'world class' health infrastructure

A 'salutogenic approach' to health infrastructure development was the focus of an international symposium in Kuala Lumpur

More than 250 Malaysian architects, designers, planners, engineers, health managers, clinicians and project managers attending as invitees of the Malaysian Ministry of Health and Public Works Departments, participated in an international symposium and workshop in Kuala Lumpur in September.

The event, which was developed in partnership with the International Academy for Design & Health, saw world experts in healthcare design interact over three days in an effort to identify the key challenges facing Malaysia in the creation of a world class healthcare infrastructure as it attempts to meet its vision of becoming a developed nation by 2020.

Speakers included Dr Ray Pentecost, American Institute of Architects Academy of Architecture for Health (USA), Mike Nightingale, Nightingale Associates (UK), Mikael Paatela, Sweco Paatela (Finland), Tye Farrow, Farrow Partnership (Canada), Mungo Smith, MAAP Architects (UK), Prof Alan Dilani, IADH (Sweden), Nick Boulter, ARUP (Singapore) and Cliff Harvey, Ontario Ministry of Health (Canada). Each of the speakers explored different global perspectives on the planning, procurement, finance, design, construction and operation of health facilities in Malaysia, meeting objectives to:

- Evaluate international approaches to design, and the latest health theories and perspectives
- Report on case studies of healthcare buildings that are delivering real and measurable benefits globally and its impact for the region
- Recommend actions and initiatives to improve the design quality and operational management of the health infrastructure in the region
- Explore how to create a sustainable infrastructure that supports human health, wellbeing and quality of life and meets the regions social, environmental and economic goals



Dr Ray Pentecost, president, American Institute of Architects, Academy of Architecture for Health, USA



Dr Abd Rahim Mohamad, Planning and Development Division, Ministry of Health, Malaysia



Mikael Paatela, director, SWECO Paatela Architects, Finland



Mike Nightingale, founder, Nightingale Associates, UK

• A full report will be published in the January 2011 issue of WHD.

UK: Arts award

The Royal Society for Public Health (RSPH) has awarded Willis Newson its 2010 award for 'outstanding contributions to arts and health practice and research', recognising its work on the Reach initiative, which encouraged arts organisations and public health providers to work in partnership to tackle health inequalities in local communities.

USA: Tradewell Fellowship at WHR

WHR Architects has begun accepting applications from graduates of accredited architectural schools for the Tradewell Fellowship, due on or before January 24, 2011. The year-long Fellowship begins and ends in July, and includes employment at WHR Architects.

UK: Hospital is PM's favourite

Already a Design & Health International Academy award winner in 2010, the innovative New Stobhill Hospital in Glasgow, designed by Reiach and Hall Architects, has won this year's Prime Minister's Better Public Building Award.

UK: Hospital food 'unhealthy'

Hospitalised children are being fed unhealthy foods that would be banned in schools, research has claimed. Campaigners have urged the government to remove a child nutrition loophole and ensure NHS standards are the same as in schools.

GCC: Paperless progress

Hospitals throughout the Gulf Cooperation Council could soon be assessed according to the Electronic Medical Record Adoption Model on a scale of stages between zero and seven, seven being the ultimate stage, offering them an opportunity to evaluate their progress towards a paper-free environment, says John Hoyt of HIMSS.

US/UK: Spatial recognition

Tim Stonor, architect and managing director of strategic consultancy Space Syntax, has been awarded the prestigious Loeb Fellowship at Harvard University's Graduate School of Design. The Loeb Fellowship is given annually to nine or ten outstanding mid-career practitioners in fields related to the built and natural environment.

Canada: Making a move

Nadia Tobia has joined Farrow Partnership from Perkins Eastman International, bringing more than 25 years of experience of working internationally across master planning, urban design, architecture, interior design, and project management.

Sweden: Dementia costs rise

The global cost of dementia this year will be £388 billion – more than 1% of GDP, according to scientists at the Karolinska University. The study, which was published in the *World Alzheimer Report* last month looked at the costs of social care, unpaid care by relatives and the medical bills for treating dementia.

UK: A musical prescription

Patients could be prescribed music tailored to their needs as a result of new research. Scientists at Glasgow Caledonian University are using a mixture of psychology and audio engineering to see how music can prompt certain responses. Those behind the study say it could be used to help those suffering physical pain or conditions like depression.

IBI buys Nightingale

In a move designed to allow both firms to compete more effectively in global markets, the multidisciplinary Canadian firm, IBI Group has completed the acquisition of UK architects, Nightingale Associates.

Established in 1974, IBI offers integrated services in four international areas of practice: urban land, facilities, transportation and systems. Nightingale is a practice leader in social infrastructure in the UK and internationally. Phil Beinhaker, chairman, director and CEO of the IBI Group, commented that the acquisition would assist the firm to achieve its three core objectives:

- Building the world platform of the firm; expanding the scope of IBI activities beyond the prime presence of the firm in North America.
- Becoming a leader in world scale projects in healthcare, and in other areas of social infrastructure; adding breadth and depth of expertise to IBI's momentum in the architecture of healthcare, education and science.
- Strengthening the business of the firm and inherent synergy between the IBI platform of operating offices in China, India, the Gulf, Eastern Europe/Eastern Mediterranean, in USA and Canada, with the world leading capability in health of Nightingale together with its practices in education and science facilities."

Managing director of the IBI Group, David Thom, added: "Healthcare facilities are required on a continuing basis throughout the entire world from developing to developed society in responding to the health challenges of the growing world population and to enhance quality of life. This will strengthen IBI's ability to contribute to this world demand thereby benefitting society as well as the practice of the firm."

Richard Harrington, executive chairman, Nightingale Associates said: "Nightingale is proud of its brand and what it represents in terms of research, design and deep knowledge of the critical and technical matters in health, as well as education and science. We are encouraged that IBI will retain the brand name."



The £840m New South Glasgow Hospital Campus, UK, designed by Nightingale Associates



Heart of the community

A planning application for Cockermouth's new community hospital has been submitted to Allerdale Borough Council in the UK. The new community hospital designed by Nightingale Associates will be considered as a replacement for the town's existing 100-year-old facility.

The new building is being procured by eLIFT Cumbria Limited as part of the NHS Express LIFT programme. The new hospital will co-locate GP practices in a single building, with additional community and treatment services being provided as well as replacement facilities for the existing hospital. The in patient facilities will be single bedroom facilities and designed to maximise relationships with the external surroundings and landscape.

AECOM strengthens global position

AECOM Technology Corporation, a leading provider of professional technical and management support services around the world, has completed its acquisition of Davis Langdon, a global cost and project management consultancy firm.

Davis Langdon provides cost and project management services, and specialist consultancy services, to clients around the world. Davis Langdon's 2,800 employees serve public- and private-sector clients in a variety of markets, including health.

"Davis Langdon's strong cost and project management capabilities enhance our growing construction management services portfolio," said John M Dionisio, AECOM president and chief executive officer. "Davis Langdon's presence in growth markets positions us well to offer our clients a comprehensive, worldwide program management solution," Dionisio said.

The transactions are valued in the aggregate at approximately US\$324 million. Davis Langdon has worked on many high-profile projects in all sectors around the world, including the Tate Modern and the Eden Project in the UK; New Doha International Airport; Grand Egyptian Museum in Cairo, Egypt; the Transbay Terminal in San Francisco, USA.; the Gautrain Rapid Rail Link in Johannesburg, and the Green Point Stadium in Cape Town, South Africa.

DEGW, a subsidiary of Davis Langdon following an acquisition in August 2009 will also join AECOM.



*Submissions
Open Nov 2010
Entry Deadline
1st Mar 2011*

*9 July 2011
Boston, USA*



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Images top to bottom: Centro de Rehabilitación Infantil Teletón, Tamaulipas (Mexico), designed by Sordo Madaleno Arquitectos; Jersey Shore University Medical Center (USA), designed by WHR Architects; Trillium Health Centre - The West Wing (Canada), designed by Perkins Eastman Black Architects.

On the acquisition trail

Stantec moves to secure its position as a top 10 global design firm by acquiring Burt Hill and Anshen + Allen

As government austerity cuts hit across Europe and markets remain depressed in north America, the move reflects the resolve of design and architecture firms to position themselves competitively to take advantage of opportunities further afield in markets such as Asia, the Middle East, China and India.

“The combination of Stantec, Burt Hill, and Anshen + Allen will create a new global architecture practice with world-class expertise in our key market sectors, particularly health care, education, and science and technology,” says Bob Gomes, Stantec president and chief executive officer.

Burt Hill is an international architecture and engineering firm with over 600 employees in 13 offices, including three offices overseas. The firm’s clients represent nearly every facet of the economy, including healthcare institutions, colleges and universities, K-12 schools, technology and biotechnology companies, government bodies, multinational corporations, real estate developers, and nonprofit organisations.

“Our decision to join Stantec was based on the benefit that our clients will receive through our combined ability to provide an unparalleled range of resources, expertise, services, and geographic reach. It will also provide more growth opportunities for our staff,” says Peter Moriarty, Burt Hill president and chief executive officer, who will continue with Stantec in a leadership role.

Anshen + Allen’s acquisition will add more than 200 employees and expertise. “One of our objectives is to expand and strengthen our building design practice across North America, and the addition of this internationally respected firm will help to fulfill that goal,” says Bob Gomes, Stantec president and chief executive officer.

Anshen + Allen’s portfolio of health care, education, and research facility projects reflects its belief that good design transforms lives. “We chose Stantec because it offers a strong platform for us to compete for projects that have significance and impact worldwide,” says Roger Swanson, Anshen + Allen chief executive officer, who will also continue with Stantec in a leadership position.



Above: Stantec’s award winning Montfort Hospital Redevelopment
Below: The London Cancer Clinic, UK, designed by Anshen + Allen



RTKL looks to China

RTKL Associates has acquired AHS International, a Beijing-based healthcare-architecture practice. Terms were not disclosed, but the deal is described as being “structured as a simple asset purchase.”

The two firms are working on the 2,200-bed, 1.18 million-square-foot Shanghai Changzheng New Pudong Hospital (pictured left). Construction is expected to start this year and cost \$413 million.

The RTKL-AHS deal follows the purchase of Anshen + Allen and Burt Hill by the Canadian

engineering firm Stantec. While there have been several recent mergers of architecture firms, RTKL executive vice president Brad Barker said this one is different. “Stantec has been trying to get into the US healthcare market for years,” Barker said. “Our goal is to no longer be a US firm that does work around the world, but to be a global firm.”

Barker compared his company’s international moves to efforts made by Johns Hopkins, Mayo Clinic and Cleveland Clinic to operate facilities abroad. “You’re seeing healthcare become a globalised industry,” he said.

RTKL was acquired by the Amsterdam-based design, engineering and management services consultant Arcadis in 2007.



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Driving up quality

The 2011 Design & Health International Academy Awards, the leading international advocacy programme recognising professional excellence in the research and practice of designing healthy built environments, has opened for entries

The Design & Health International Academy Awards has a significant influence on the design and development of humanistic environments that support health, wellbeing and quality of life around the world. This year, the programme comprises 14 categories across the key areas of international health delivery. The final awards, which will be presented at a prestigious ceremony to be held on 9 July 2011 in Boston during the 7th Design & Health World Congress, will reflect important aspects of the exceptional work undertaken by researchers and practitioners at the forefront of the field. Recipients of the awards will be teams and individuals who, through outstanding efforts, have contributed to the progress of knowledge and demonstrated vision and leadership in exemplary initiatives within the field.

The 14 categories include: Health Project (over 40,000 sqm); Health Project (under 40,000 sqm); Unbuilt Health Project; Research Project; Mental Health Design; Elderly Care Design; Sustainable Health Project; Healthy Community Design; Interior Design; Use of Art in the Patient Environment; Low Cost Project in a Developing Economy; and Lifetime Leadership Award. Details of a new International Student Design Award will also be released shortly.

Eligibility

Built projects or research programmes completed between 1 January 2010 and 1 March 2011 are eligible to enter. The exceptions are the Sustainable Health Project, Low Cost Project in Developing Economies; and Healthy Community Design categories; (see the category and criteria information at www.designandhealth.com). Projects may be entered into multiple categories, provided they are tailored to meet the specific requirements for the judging criteria of each award. Previous entrants are not eligible to enter the same category but may enter other categories. The closing date for each entry is 1 March, 2011.

Judging panel and criteria

The judging panel consists of a group of independent experts from Europe, Asia, Africa, Oceania and the Americas. Experts in their field, the judges come from multidisciplinary backgrounds in research and practice. Each award has its own criteria defined by the lead judges in each category (see awards entry form).

How to submit

Complete the entry form and the 750-word submission statement and send to the address on the form together with a maximum of 10 powerpoint slides.

To download the awards entry form and submission statement, visit www.designandhealth.com

Judging process and timetable

The judging process consists of a two-phase process:

1 November Call for entries / awards open for submissions.

1 March Deadline for receipt of submissions.

15 March Phase 1: Entries are scored remotely by each judging panel against the approved criteria. The scores are forwarded to the category chairs who make a recommendation on the shortlisted entries and award winners.

10 April Awards shortlist announced. Shortlisted projects are expected to register and attend the 7th Design & Health World Congress in Boston, from 6-10 July 2011 to present their project in a poster display and receive their award. They may be required to elaborate on the project to the judges or submit further information as required.

June/July Phase 2: Members of the judging teams will meet to make their final award decisions. Judges may also award high commendations.

9 July Awards Ceremony & Gala Dinner at 7th Design & Health World Congress & Exhibition, which will take place in Boston, 6-10 July 2011.



John Wells-Thorpe



Christine Hancock



Lord Nigel Crisp



Geoff Abbott



Kirk Hamilton



Susan Black



Derek Parker



Phil Nedin



Paul Barach



Blair Sadler



Annette Ridenour



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- Assessing the feasibility of proposed changes
- Drafting design briefs
- Devising solutions
- Calculating costs
- Assessing affordability
- Writing business cases



The big prize

Dr Emanuel Mikho identifies Iraq as the focus of the next healthcare design and construction boom in the Middle East



Throughout its history, Iraq has been an attractive destination for various kinds of business investment. It is a rich country blessed with natural resources such as water, rich soil, oil and gas, and sulphur as well as many other resources not commonly found in the region. The country is currently rebuilding its infrastructure after decades of political turmoil and recent warfare. As a result, the new government is now planning a series of megaprojects to satisfy the needs of its citizens.

Iraq is one of OPEC's largest oil-producing members. It is also among the world's top five countries with proven oil reserves. Saudi Arabia is the top exporter and has production of nearly 8 million barrels per day, while Iraq's current production is around 2.4 million barrels per day. Iraq's current oil production comes from only 25 out of 85 known oil fields in the country and oil experts believe that it could be realistic for Iraq to achieve the level of production of six to seven million barrels per day by 2020.

'Iraq: The prize that outweighs all risk' was chosen as a title for a paper presented at a conference on doing business in Iraq that was held in Dubai recently. One of the characteristics of the grand 'prize' is the fact that it has a "\$600 billion investment requirement", explained Luay Al Khatteeb, executive director of the Iraqi Energy Institute and author of the paper.

Iraq is still the land of the 'century's deal', and it will continue to grow, said Adnan Blebil, director general of the Iraqi Civil Authority, in an article in *Gulf News* earlier this year. He also added that Iraq is looking for necessities today and will be searching for unessential items and luxury goods in the near future.

The need for expansion in the country is great in many sectors, including healthcare, education, sport and hospitality, all of which we contribute to effectively helping design Iraq's future. During the most recent visit by HKS's team to Iraq, we met with the Governor of Najaf, a southern province. He made it clear

that substantial government funds will always be available for redevelopment.

It is believed that the elections held last March will eventually produce a new government, and the remaining threat of deadly attacks against foreign firms will come to a halt as well. Then investment companies especially companies based in the GCC (Cooperation Council for the Arab States of the Gulf) countries are getting ready to enter the Iraqi market.

Before the imminent formation of the new Iraqi government, international architectural and engineering firms should be ready to enter the Iraqi market. In many ways, the country is a blank canvas in need of painters and the international business community should now be preparing to assist the country and its people through this critical stage of infrastructure redevelopment.

Dr Emanuel Mikho is vice-president and director of healthcare for the Middle East region at HKS Architects

Investing in health infrastructure

The following are four examples of healthcare facilities being developed in the Central Government Planning Board by the Ministry of Health in Baghdad. In total, the project consists of 11 hospitals of four different sizes, which will be developed through a design-and-build process. They are:

- 400-bed hospital: a general teaching hospital with 492 beds, including emergency and ICU. There are three hospitals of this size planned in the Governorates of Kirkuk, Wasit and Muthana;
- 300-bed hospital: a women and children hospital with 372 beds, including emergency and ICU. There is one hospital of this size planned for the holy city of Karbala;
- 200-bed hospital: a general hospital with 245 beds, including emergency and ICU. There are three hospitals of this size planned in the cities of Qaem, Heet and Hadeetah, all in the Anbar Province;
- 100-bed hospital: a general hospital with 135 beds, including emergency and ICU. There are four hospitals of this size planned in the cities of Aldour, Samara, Altouz and Aldujail, all in the Salh Aldeen Province.



A brand new smile

The design concept for the KU64 dental clinic utilises a radical new morphology for a medical setting. Inspired by the landscape of sand dunes on a beach, the floor undulates, creating rises and hollows behind and within which activities and objects can be obscured. The ceiling and floor partially reflect each other, defining protective spaces without the use of distinct enclosures. Hills and valleys are configured to enable privacy and intimacy as well as openness and vistas. White anamorphic images, silkscreened onto the orange surfaces, can only be deciphered from distinct viewpoints, changing as you move through the clinic. Furniture and topographical volumes double as storage space, and technical equipment is seamlessly integrated into the contours of the interior.



KU64 Dental Clinic, Germany

Location: Berlin, Germany

Size: 940sqm

Completion: 2005

GRAFT design team: Lars Krückeberg, Wolfram Putz,
Thomas Willemeit, Alejandra Lillo, Gregor Hoheisel

Project architects: Tobias Hein, Karsten Sell

Architects: Sven Fuchs, Lennart Wiechell

Project team: Björn Rolle, Markus Müller

Construction: KNAUF Drywallsystem

Structural engineer: KGG Dipl Ing K+T Gehlhaar

MEP: ICM Ingenieurbüro C Meyer

Client: Dr Med Dent Stephan Ziegler

Photography: hiepler brunier architektur fotografie





Jacqueline Vischer, PhD



Ray Pentecost, PhD



Gunnar Öhlén MD, PhD



Lord Nigel Crisp



Dr Julio Frenk



Richard Jackson, MD, MPH



Mohsen Mostafavi



Derek Parker, FAIA



John Zeisel, PhD



Alan Dilani, PhD



Philip Mead, AIA



Mike Nightingale, RIBA



Martha Rothman, FAIA



Mardelle Sherpley, PhD



Jain Malkin, AIA



Michael Moxam, AIA



Paul Barach, MD, MPH



Tye Farrow, AIA



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Diana Anderson, MD, MArch, LEED AP

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Never has there been a better time for the Design & Health World Congress & Exhibition to come to the US. This is a time of monumental change in healthcare provision and reform – not just in the US but in developed countries all over the world, as governments, health providers and private industry come to terms with the continuing repercussions of the global economic recession.

In Europe, North America and other rich world economies, government spending cuts and tax rises will collectively amount to 1.25% of GDP in 2011, reported to be the biggest synchronised fiscal tightening on record¹. This may be necessary to protect currency values and restore balance sheets in order to ensure short-term economic stability but risks being damaging to long-term growth and investment in critical infrastructure, such as health and education.

Meanwhile, in emerging economies, growth continues at a rapid rate – as much as 10% in some countries. The continuing mass migration of people from farms to cities will only speed up as the world continues to globalise, and increasingly, economic and ultimately political power will move from West to East.

Arguably, the rich world is yet to fully come to terms with the way in which the recent global financial crisis has quickened this shift in economic, political and social power to the East, by exposing the debt-driven growth culture of the West. Evidence that the West is starting to wake up, however, is evident in the recent bout of acquisitions in the infrastructure sector, with companies such as AECOM (which has acquired firms such as Ellerbe Becket, Davis Langdon, RSW and DEG), and Stantec (which recently acquired Burt Hill and Anshen + Allen) leading the way in recognition that their combined expertise will be necessary to compete in a globalised market.

A platform for international trade

Book your exhibition and sponsorship at the 7th Design & Health World Congress & Exhibition, from 6-10 July, 2011 in Boston today. With exhibitor traffic flow at the heart of our programme and venue, you will be able to reach an unprecedented new international audience with your products, services and design solutions.

The exhibition is arranged in two key areas at Boston Marriot Copley Place: the exhibition hall which includes the principal catering points, and the congress lobby which provides access to the main conference room, exhibition hall, poster displays and additional catering points.

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- technology & communications; and
- suppliers of furniture, furnishings & floor coverings; medical equipment; beds & patient rooms; signage & safety products; healthcare products.

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The 7th Design & Health World Congress in Boston next year will not only offer a leading-edge scientific programme but also a unique platform for international trade, reports *Marc Sansom*

A global affair



Global firms looking for global opportunities

When it transports the world of design and health to Boston in July, the International Academy for Design & Health, in partnership with the American Institute of Architects, Academy of Architecture for Health, will bring with it not only a leading-edge scientific programme that will underpin future professional practice in health promotion by design, but also a platform for international trade that will truly reflect the modern global economy that we live in today.

In the US, there are new opportunities for international firms to bring their expertise and innovation to a raft of new typology of hospital infrastructure that will serve the previously uninsured, whilst North American firms will have the opportunity to meet with international delegates to explore opportunities to expand into international markets, notably in the Middle East, Africa and Asia.

Those firms that wish to survive in an increasingly globalised world will understand the imperative to invest now in international markets, collaborations, partnerships and knowledge, while those that retreat into the comfort of domestic home markets hoping to ride out the storm, risk an uncertain future.

Here at the International Academy for Design & Health, we hope we can assist you at the 7th Design & Health World Congress & Exhibition to build your global trading platform for developing and expanding your international markets.



Keynote speakers at the Congress will include (L-R): Lord Nigel Crisp (UK House of Lords) and Dr Richard Jackson (UCLA)

Marc Sansom is a director of the International Academy for Design & Health

References

1. The quest for growth. *The Economist* 7 October 2010; No 8703, Vol 397, p15.

A Mexican physician and former Secretary of Health of Mexico, Dr Julio José Frenk Mora is one of the great leaders and visionaries in the field of global and public health with a long list of career achievements. Dr Frenk served as the Minister of Health of Mexico from 2000 to 2006, where he introduced universal health insurance. He has also held leadership positions at the National Institute of Public Health of Mexico, the Mexican Health Foundation, the World Health Organization, the Bill and Melinda Gates Foundation, and the Carso Health Institute. In September of 2008, Dr Frenk received the Clinton Global Citizen Award for changing “the way practitioners and policy makers across the world think about health”.

In anticipation of his keynote presentation at the 7th Design & Health World Congress, which will be held in Boston, from 6-10 July 2011, Prof Alan Dilani asks Dr Frenk his thoughts on the relationship between the designed environment and health, wellbeing and quality of life.

Prof Alan Dilani: In 1997, the World Health Organization stated that frequently used spaces such as the workplace, schools and public spaces should be at the centre of health promotion. How far have we come in the last 13 years?

Dr Julio Frenk: Most people are aware that the leading risk factors for mortality in the northern hemisphere (tobacco use, physical inactivity, overweight and obesity, low fruit and vegetable intake) are related to specific lifestyles. They also understand the need for the promotion of healthy behaviours and the development of healthy spaces. This awareness is exemplified in, among other things, the recent increase of physical activity and healthy nutritional practices among certain populations in the developed world, and support for the expansion of smoke-free public places.

AD: How does this approach relate to developing countries in Africa, Latin America and Asia?

JF: Progress on the health transition has not been shared equally by all nations of the world. Whereas rich countries experienced a substitution of old for new patterns of disease, the developing world is simultaneously facing a triple burden of ill health: i) the unfinished agenda of infections, malnutrition, and reproductive health problems; ii) the emerging challenges represented by noncommunicable diseases, mental disorders, and the growing scourge of injury and violence; and iii) the health risks associated with globalisation, such as pandemics like AIDS and influenza, trade in harmful products like tobacco and other drugs, health consequences of climate change, dissemination of leading harmful lifestyles. The increasing importance of noncommunicable diseases and risks related to globalisation are making developing countries aware of the need for the promotion of healthy behaviours, practices and spaces. Policies to control tobacco consumption were first adopted in developing regions, but policies

to promote healthy nutrition and physical activity, and to improve road and public security are also being designed and implemented, slowly but steadily.

AD: What have been the success stories and how much more needs to be done?

JF: One of the major success stories related to healthy spaces is the smoke ban policy. A law to ban smoking in most public places was first enacted in 1975 in Minnesota. In 2004 the Republic of Ireland implemented a ban on smoking in the workplace. The UK approved a ban on smoking in enclosed public places in 2007. In 2008 lawmakers in Mexico approved a bill to ban smoking in workplaces,

The health of nations

Dr Julio Frenk tells Prof Alan Dilani how global health means making major investments in the promotion of healthy lifestyles and the creation of healthy spaces to reduce the burden of disease



public buildings and public transportation across the country. Nepal announced a ban on smoking in public places just a few months ago. As of today there are no less than 90 countries where smoking bans have been implemented. Other similar policies to promote healthy nutrition and physical activity, control the use of alcohol and drugs, and develop other types of healthy spaces need to be designed, implemented, promoted and evaluated.

AD: What is the role of design in supporting and facilitating health promotion?

JF: The design of the environment is crucial for health. Home designs are not responding to an increasingly ageing population. In urban areas, poor public transportation and pedestrian security inhibit walking. Air pollution contributes to a rising burden of respiratory illness. If we take health into account in the design of our environment, we will improve the health of our population and reduce healthcare demand.

AD: What are the most important and influential health paradigms in the world today?

JF: The dominant health paradigm in the 20th century was based on the provision of healthcare. This paradigm is reaching its limits, as shown by the fact that health outcomes are no longer improving despite larger percentages of GDP being invested in healthcare. A new health paradigm based on attention to health prerequisites (income, housing, food, social interaction) and health promotion is emerging – and a key factor is the creation of healthy environments.

AD: How do you perceive the role of the designed environment in supporting preventative models of care and reducing costs in global health systems?

JF: In order to reduce the global burden of disease in an efficient way, major investments need to be made in the promotion of healthy lifestyles and the development of healthy spaces. Research has shown that well-designed and people-friendly spaces stimulate walking, cycling and the use of public transportation. High levels of greenery also encourage physical activity which lowers blood pressure, decreases the risk of heart disease, stroke and diabetes, and prevents falls in the elderly. Evidence also shows that attractive public open spaces reduce mental fatigue and stress. All this contributes to the reduction of the burden of disease which may eventually reduce the costs of healthcare.

AD: What countries in the world are demonstrating leadership and innovation in addressing the health issues of modern society?

JF: Australia and Canada are developing initiatives to confront health challenges through health promotion. In 2008, the National Health and Hospitals Reform Commission in Australia released a paper recommending the creation of a national health promotion agency, while the Australian government has been implementing a 'health in all policies' approach with a focus on creating healthy physical and social environments. In Canada, the province of Ontario created the Ministry of Health Promotion and Sports, whose mission is to inspire individuals, organisations, communities and governments to create a culture of health and wellbeing; create healthy and supportive environments; and contribute to embed in the population behaviours that promote health. In the developing world, one of the most interesting initiatives is Agita, a Sao Paulo-based programme created in 1995 whose purpose is to encourage daily physical activities at home, during transportation and in moments of leisure. It has become a model programme for the promotion of physical activity worldwide.



Dr Julio Frenk

- 1979 Received medical degree from the National Autonomous University of Mexico UNAM
- 1981 Master of Public Health, University of Michigan
- 1982 Master of Arts in sociology, University of Michigan
- 1983 Joint Doctor of Philosophy in Medical Care Organization and Sociology, University of Michigan
- 1984–87 Founding Director of the Centre of Public Health Research, Ministry of Health, Mexico
- 1987–92 Director-general of the National Institute of Public Health of Mexico
- 1992–93 Visiting Professor at the Harvard Center for Population and Development Studies
- 1995–98 Executive Vice-president of the Mexican Health Foundation, a private non-profit organisation, and the Director of its Centre for Health and the Economy
- 1998 Executive director of evidence and information for policy at the World Health Organization (WHO) in Geneva
- 2000–06 Minister of Health of Mexico
- 2006 Senior Fellow – Global Health Programme, Bill and Melinda Gates Foundation
- 2009 Dean of the Faculty and T & G Angelopoulos Professor of Public Health and International Development at the Harvard School of Public Health

Professor Alan Dilani is director-general of the International Academy for Design and Health

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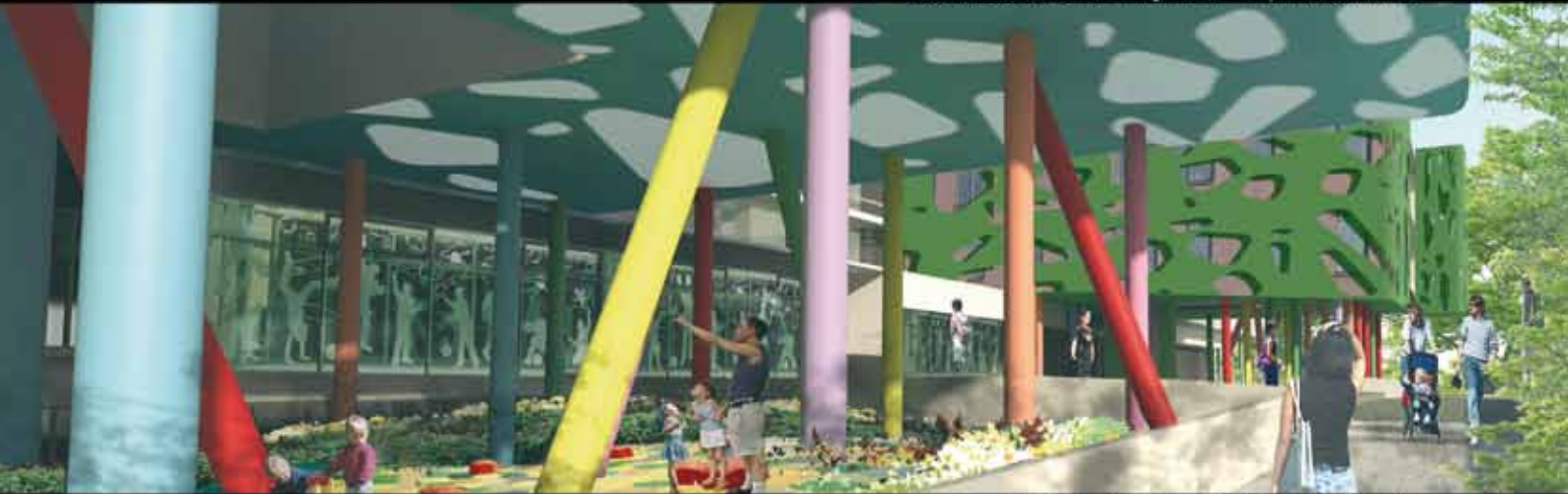


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MILITARY HOSPITAL In Brussels, Belgium European Reference Center for Burns treatment



PEDIATRIC HOSPITAL In Nha Thrang, Vietnam competition won winter '09



AZ SINT-JAN HOSPITAL In Bruges, Belgium General Hospital

Amidst the gloom of deficit cuts to health capital and revenue budgets, delegates at Design & Health Europe 2010 agreed that here was also a once-in-a-generation chance to reshape the global healthcare system. *Katy Cooper* reports

What it is that really keeps us healthy? Is it our genes, the care we receive when we are ill or the environment in which we live? The answer, of course, is that it is all of these things. But at Design & Health's recent conference in Brussels, I discovered that, although a full 20% of mortalities can be attributed to environmental factors, only a tiny proportion (1.5%) of government spending on health is dedicated to improving our environment. In contrast, the proportion of the health budget spent on treating illness is vastly greater (over 90%).

The conference addressed this imbalance by making explicit the synergies between the environment and healthcare: how can healthcare become an integrated part of our largely urban environment, with facilities that benefit both the sick and the well? Discussion centred on the health benefits of good design, the practicalities of delivering these benefits, and – unsurprisingly, in the current climate – the implications of looming budget cuts. As one delegate put it, there will be a “redefinition of global healthcare” as budgets are squeezed.

Only an estimated 45% of care is truly evidence-based and, shockingly, up to 20% of expenditure is to undo harm that has been done by earlier health ‘care’. As demographics shift – as populations age, and chronic diseases and dementia increase – demands on budgets will escalate: there is a clear need “to do more, and better, with less”. Health is also a key part of sustainability, lying at the intersection of social, environmental and economic issues. Combining thinking in these three areas in innovative ways can lead to improved health environments and outcomes, and design has a central role to play.

Patient empowerment

One recurring theme was that of patients being at the centre, empowered to make the best decisions about their own care, and living in a physical environment that is as salutogenic (health-promoting) as possible. There were myriad examples given of ways in which to create a therapeutic environment in healthcare settings: natural lighting, clear layout of facilities with easy ‘wayfaring’, natural building materials, fresh air, art works (one hospital was cited as having 2,000 works of art), relaxing waiting areas and appropriate levels of privacy. These do not necessarily come cheap and, although “design adds value”, it can be difficult to quantify the cost-benefit, leaving architects and designers struggling to retain their innovations, particularly if clinical need is always seen as the priority. There was lively debate about the extent to which

patients, hospital staff, service providers, health professionals, visitors and the local community should hold sway over clinical requirements – and general agreement that effective local consultation is essential.

There was general concern that, too often, healthcare facilities are designed to deliver a building, rather than a living entity in which work and care can take place. This, it was suggested, is partly down to the funding model. The dominant model of funding, discussed by many delegates, is that of PPP/PFI/AFP – the funding of public facilities by private consortia – and that those delivering

Rethinking global health



L-R: Prof Mark Noppen, CEO of the University Hospital Brussels and Paul Corbeel, MD of VK Studio, Belgium



Queen's Centre for
Oncology &
Haematology

New Victoria
Hospital



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Aitnagelvin Hospital
Redevelopment

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Community
Hospital



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HLM has a wide range of recent experience in various different building types, of which many have involved major public spaces and the integration and co-ordination of complex services installations. Technical expertise in achieving very specialised operational requirements and environments which accommodate extremes of heat, cold, cleanliness, security and air-handling - are integral to our design philosophy, which we introduce throughout the design and construction process.

HLM's ongoing and recently completed healthcare projects include:- Queen's Centre for Oncology & Haematology, Hull; Nottingham City Hospital, Coronary Heart Disease Unit; Addenbrookes Hospital; Aitnagelvin Hospital; Mid Argyll Community Hospital, Lochgilphead; BECAD; New Victoria ACAD and the following Procure21 projects:- Worthing & Southlands Hospital; Bethlem Hospital; Scarborough Hospital; Enhanced MS Learning Disabilities Unit, Wakefield

Christopher Liddle
Chairman
HLM Architects
3rd Floor
Friary Court
13-21 High Street
Guildford
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Top: Dr Liz Gale, Australia; Prof Roderick Lawrence, Switzerland
Bottom: John Cole, European Health Property Network, Northern Ireland; Mungo Smith, MAAP, UK; Chris Liddle, HLM Architects, UK.

the hospital or health centre have not sufficiently thought through how it will actually be run. One way to overcome this is to incorporate operational requirements within the PPP contract – a new approach that has already been trialed in Germany.

The need for localisation of care – a move away from monolithic hospitals, towards care delivered at home and in local facilities – was a point of consensus among delegates. Localisation is the inverse of the traditional model in which society revolves around the hospital. Instead, healthcare facilities should revolve around society and the individual, creating a ‘continuum of chronic care’. Mental health care in the United Kingdom was cited as an example where this has already taken place – care has been devolved away from institutions and into local communities.

In addition, the design of healthcare facilities – whether major hospitals or, increasingly, locally provided care services – will have to remain fit for purpose for many years to come: “the right design of the right facility”. Second-guessing changes in technology has never been more difficult with the astonishing speed of change in areas such as gene therapy, the rise of the internet, and concerns over the impact of climate change, so flexibility of building design is essential.

Keeping people well

Prevention of disease is an aspect of planning that is too often overlooked and under-resourced. The best solution (and one that would reap dividends in years to come) is to keep well people well: up to 80% of incidences of type 2

diabetes, for example, can be prevented by eating a healthy diet, doing enough physical activity and not smoking. Diabetes is already consuming about 10% of the national health budget in the UK – with clear implications for long-term health expenditure, as diabetes prevalence is expected to rise in line with obesity. Perhaps healthcare facilities could practise what they preach, by including healthy food outlets in the design of the buildings and encouraging patients and (healthy) visitors and staff to take physical activity in the green spaces.

Examples of innovation were given from many countries, reflecting the diversity of those attending – including Belgium, Canada, Australia, the United States (particularly an urban regeneration project in St Louis, on the site of the infamous Pruitt-Igoe estate), the UK and Finland. One of the most holistic examples is a new partnership to create a new community on the outskirts of Lille, France, with a hospital at its centre. linked firmly into the urban environment. The whole community, a ‘city within a city’, is being designed around health, with a ‘soft street’ (open only to pedestrians and cyclists) at its core. Another delegate spoke of the importance of green alleyways and networks, pathways that stretch from the countryside right to the heart of the development – a concept described as “opening the windows of the city”.

Perhaps surprisingly, given the concern over the extent of the potential cuts to health budgets, there was a real sense of opportunity among the delegates. Optimism was high: designers, working in interdisciplinary teams, are already demonstrating that they can make a tangible difference. This is not only a time of potential cutbacks, but is a once-in-a-generation chance to reshape a healthcare system that has not always lived up to expectation.

Katy Cooper is senior project manager at C3 Collaborating for Health

About C3

C3 Collaborating for Health recognises health as being about more than healthcare, bringing together policy-makers, businesses, government, teachers, health experts, young professionals, academics and others to design ways to make it easier to be healthy and to put these ideas into action.

Tackling the three major risk factors – tobacco use, poor diet and lack of physical activity – can prevent the majority of cardiovascular disease, diabetes, many cancers and chronic lung disease. These diseases are responsible for the majority of premature deaths and disease throughout the world, but are often under-reported, under-acknowledged and underfunded.

www.c3health.org

Across Europe healthcare is changing. According to Kimmo Lintula from K2S Architects in Finland, the challenge is to make the healthcare system so that people can stay longer in their homes without being isolated.

"Healthcare planning is becoming more a place for healthcare prevention than a place for curing diseases," Lintula says. "We therefore have to rethink what

to do with the square metres in existing hospitals that have been designed in specific ways."

The demand for healthcare is increasing so the country is looking at ways to reorganise care creating community centres. Traditionally in Finland, hospitals have been placed far away in forests away from everything. But there is a need for a more even spread of healthcare units, Lintula says.

One of the main issues is the ageing population. Lintula is currently working on a hospital targeted at older patients in Espoo, the second largest city in Finland on the outskirts of Helsinki.

Espoo Hospital is being built as both a hospital and a community service centre and a housing unit. "It is like a

Kathleen Armstrong examines how efficiency policies are causing European healthcare providers to re-evaluate how healthcare is delivered

Are you being served?

small village," Lintula says. The hospital is mainly for stroke patients and has been designed with rehabilitation in mind. Rather than have traditional corridors with rooms on either side, rooms open out onto communal spaces that encourage people to walk around. It also helps to get rid of the institutional feel. The design has also taken advantage of the location of the old hospital which is surrounded by forest. Outdoor tracks, indoor and outdoor gardens and floor-to-ceiling windows help to provide access to nature – and to encourage patients to walk. The hospital also has 100% single-bed rooms.

Like many other countries in Europe, redevelopment of old hospitals is on the agenda as most were built over 30 years ago and are in urgent need of attention. Patient care in Finland is offered in both public and private hospitals but private healthcare comprises only a small percentage of total care provided in the country and tends to be restricted to elective care.

In Scandinavia and the UK, the main source of funding for healthcare continues to be provided through the government. However, in other parts of Europe, insurance-based funding is taking a more prominent role. In Belgium and the Netherlands, for example, hospitals are primarily funded by insurance. Competition is actively encouraged and healthcare facilities are expected to promote their services to attract patients.

However, most of the hospitals were designed in the 60s and 70s and are now in need of redevelopment. According to Stéphane Vermeulen of VK Studio Architects in Belgium, 80-90% of hospitals in Belgium will have to be remodelled. The country currently has around 300 hospitals, but there is a move to reduce the number of hospitals, merging smaller ones together to create large facilities of 500-1,000 beds or more. VK is currently working on two hospitals of 720 beds each – the Heilig Hart Hospital in Roeselare and General Hospital Sint-Maarten in Mechelen. Rooms are larger, providing more room for nurses, patients and their visitors. Funding, provided partly by the state, partly by the local authority, allows for 100sqm per bed. More room is allowed if there are more operating theatres, however if a hospital goes over the limit, it must find the funding for the extra room itself.

VK is also working on the expansion of the Onze-Lieve-Vrouw Hospital in Aalst, Belgium. Located



Onze-Lieven-Vrouwe Hospital in Aalst, Belgium, designed by VK Studio Architects



Cork University Hospital Cardiac and Renal Centre, Cork, Ireland

Client: Health Service Executive (HSE) Estates Department

Architect: Watkins Gray International

Cost: €31m

Completion: October 2010

Structural engineers: Arup

Design team: Watkins Gray International, Arup and JVTierney & Co

Client: Health Service Executive

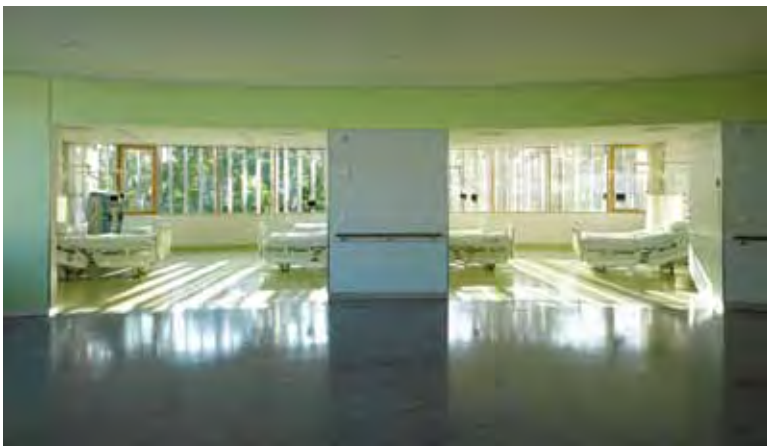
M&E consultant: JVTierney

Quantity surveyor: Bruce Shaw Partnership

Cork University Hospital Cardiac and Renal Centre, Cork, Ireland

One of the key trends throughout Europe is the creation of centres of excellence, bringing together specialisms into one healthcare facility to serve a region. In Ireland, the Cork University Hospital Cardiac and Renal Centre brings together cardiac and renal services from a range of different hospitals. The original design for the facility, put together several years ago, had services stacked on several floors over a small footprint. The new design, developed by Watkins Gray in partnership with Arup and JVTierney and Co, created a more integrated facility that mirrors the patient journey, says Watkins Gray International associate Oana Gavrilu. "Surgery is next to ICU which is next to high dependency and the wards, meaning that patients don't have to move much."

The design is arranged around a large atrium to help create a sense of place. Wall-climbing lifts provide public access from the atrium to the other parts of the facility, adding to the sense of positioning and helping to avoid any feelings of confinement.



Dialysis Clinic designed by Nickl and Partner in Vienna, Austria

on a crowded urban site, the redevelopment included the clustering of consultation and outpatient services, a separate day clinic and a 45,000sqm underground parking space. This required a phased development, so that services could be moved elsewhere while construction was taking place.

In the Netherlands as hospitals have to compete with each other, efficiency has become more important and hospitals have to promote themselves to clients. According to Maurits Algra from De Jong Gortemaker Algra, this means that they have to think what the patient needs. "If a patient comes in in the morning, they get all their appointments in one day – and they have as nice a stay as possible while they are there. Wards are

designed so the family can easily visit, more like a hotel."

Not every hospital has the finance to build single rooms, though many would like to. They tend to be more in university hospitals which are publicly funded than in general hospitals which are self-funding. Community centres are operated as extensions of hospitals, providing GP and non-emergency services at community level in order to attract more patients.

In order to build flexibility into the hospitals it designs, De Jong Gortemaker Algra has developed a design which divides the facility into four separate but integrated buildings: the hotel which includes patient accommodation; the factory which contains laboratories, engineering, heating, logistics, etc; the office which comprises consultation rooms, administration, etc; and the core which includes operating theatres, accident and emergency, intensive care units and other high-tech facilities.

"You can work out what you need in each area, making the building more cost-effective and allowing you to future-proof," Algra says. The design was first put into use in Deventer Hospital but has been further

developed in designs for St Anthony Hospital in Utrecht, Bernhoven Hospital and the the University Hospital in Gent, Belgium.

According to John Cole, director of Health Estates in Northern Ireland and chairman of the European Health Property Network, the Netherlands approach to creating different types of buildings is a good example as each building could be diverted to another use should it no longer be needed for healthcare. Flexible design is also one that is being closely looked at, both from the perspective of responding to patients' needs as they change and for long-term changes in future.

He says that although there is a wide diversity in how countries across Europe deal with healthcare infrastructure, there are some key trends, one of which is the move towards preventative rather than solely curative care. "Up to 35% of people who go to hospital don't need to be there and would be better off in their own community – especially those with chronic diseases," Cole says.

Under Cole's leadership, there is a move within Northern Ireland to move services out of hospitals that could be better provided at the community level and locate specialist services in city hospitals. Northern Ireland is being recognised for its innovative work at designing 'wellness centres' which aim at providing a more holistic type of community care. The centres include not only primary healthcare services such as GPs but also leisure centres with gyms and swimming pools to encourage not only medical solutions but also changes in lifestyle. Healthcare infrastructure development in Northern Ireland has been primarily funded by the government.

**Up to 35% of
people who go
to hospital don't
need to be there**

Despite the popularity of public-private partnerships in England and Wales (known as the Private Finance Initiative (PFI)), Northern Ireland, for the most part, avoided using it for its developments. Only one building is being provided through PFI in the province. According to Cole, the main problem with PFI was that health services were not provided by the same people as those who provided the building.

What worries MAAP's Mungo Smith, however, is the trend to build megahospitals in the UK, which he says are in general not well designed.

"Why build megastructures?" he comments, using the recent redevelopment of the Royal London as an example. "The concept is dead – you can't downsize and there is almost no flexibility."

Another issue which is worrying many architects in the UK are recent announcements to axe a number of 'quangos' (quasi-non-governmental organisations) such as the Design Review Panel. "It was extremely beneficial in architectural planning and getting trusts to think more broadly about design," Smith explains. "For a small outlay it had enormous potential benefit and the quality of healthcare buildings has improved, particularly in an aesthetic sense."

In Germany, two parallel developments can be observed, says Professor Hans Nickl from healthcare architecture specialists Nickl and Partner: large, high-



Espoo Hospital, Espoo, Finland

Project completion date: approx 2016

Cost: □ 90m

Area: approx 67,000sqm

Client: City of Espoo

Architect: K2S Architects

Structural engineer: Turun Juva



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Bernhoven Hospital, Uden, Netherlands

Architect: De Jong Gortemaker

Algra architects & engineers

Completion: exp. end 2012

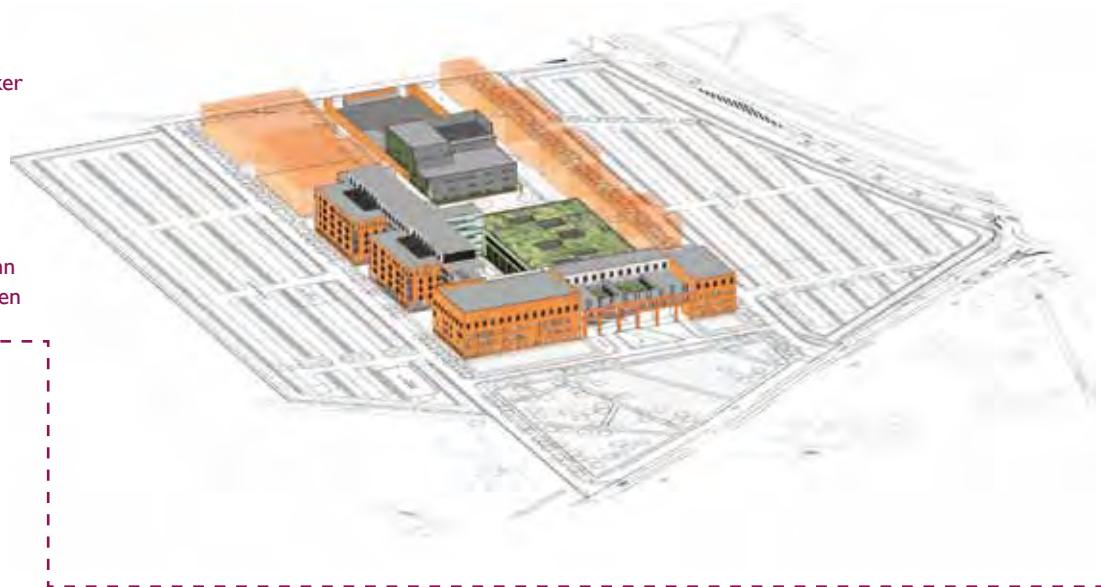
Cost: €91,591,000

Area: 54,527sqm

Client: Bernhoven Hospital

Structural engineer: Aronsohn

Technical concept: Van Heugten



tech super-clinics, which are normally set up close to universities or research facilities and the development of 'clinical hotels'. "Both developments mean that the patient and not the illness is at the fore," Nickl says. Nickl and Partner is currently working on the expansion and renovation of the Johann Wolfgang Goethe University Clinic in Frankfurt am Main, due for completion in 2014, as well as the reorganisation and the expansion of the Kaiser-Franz-Josef-Spital mother-and-child centre in Vienna which is due for completion in 2013.

As in Belgium and the Netherlands, the healthcare landscape has become more competition-based. This, Nickl says, ensures a high standard of infrastructure for individual clinics and architectural design is becoming a marketing tool. However, he adds, the selection of architect and consultants for hospital projects is becoming increasingly decoupled from the previously prevailing competition system. "It is no longer the best architectural solution which wins. Instead, economic values of the architecture and planning office also decide on the allocation of projects in the negotiation procedure. To what extent this development is leading to quality hospital architecture remains debatable."

Kathleen Armstrong is a freelance healthcare journalist

The development of the oil and gas resources has long been the focus of the countries of the Arabian Gulf but now healthcare has come under the spotlight.

Kathleen Armstrong reports

Expanding horizons

The Council of Cooperation of Arab Gulf states (known more commonly as the GCC) is made up of seven states – the United Arab Emirates (UAE), Kuwait, Yemen, Oman, Saudi Arabia, Qatar, Bahrain. Economic progress, thanks to the large reserves of oil and gas, has led to improvements in life expectancy and public health and, as a result, lifestyle expectancy in the region has increased by 50% since 1970¹. However, it has also given rise to a proliferation of the diseases connected with modern lifestyles as obesity soars and physical exercise drops. Four of the countries in the region (Saudi Arabia, UAE, Qatar and Bahrain) are among the top five countries in the world for the incidence of type 2 diabetes among adult sufferers.

With the expansion of the economy has also come significant growth in the populations of the countries and they are projected to grow even more in the coming decades. As a result, countries throughout the region are taking a close look at their healthcare provision and how they will meet the healthcare needs of the local and ex-pat populations.

Abu Dhabi is redeveloping a number of hospitals and building a range of special care facilities as part of its plan to create a centre for world-class healthcare provision (see pp40-41).

Mubadala Healthcare is a business unit of Mubadala Development Company, and was established to oversee the development of partnerships with international organisations for the provision of private healthcare in Abu Dhabi, including Johns Hopkins Medicine International, the Cleveland Clinic and Imperial College London.

Its facilities include the Imperial College London Diabetes Centre, established in 2006, the Arzanah Wellness and Diagnostic Centre which is due to open in 2012, and the Cleveland Clinic Abu Dhabi, which also opens in 2012 (see *WHD*, April 2010). In July, the Tawam Molecular Imaging Centre in Al Ain, Abu Dhabi opened, the first facility in the region to combine PET, CT and 3T-MRI imaging. It was designed by Austrian architectural firm Titus Walter Pernthaler on behalf of Siemens Healthcare which oversaw the project. The facility will be managed by Johns Hopkins Medicine International and sits adjacent to the Al Ain Hospital (which is also being redeveloped).

Waleed Al Mokarrab Al Muhairi, chief operating officer of Mubadala, said: "The opening of Tawam Molecular Imaging Centre is a significant milestone in Mubadala Healthcare's plan to stimulate the development of Abu Dhabi's healthcare sector by setting the very highest standards in medical treatment and patient care. Our partnership with Siemens and Johns Hopkins has allowed us to develop a world-class diagnostic imaging centre that will considerably improve the detection, diagnosis and subsequent treatment of diseases in the region."

Qasim Mansoor, who recently joined Woods Bagot Architects from Ellerbe Beckett, has been involved in a number of healthcare projects in the Middle East. Woods Bagot recently designed the new Special Care Centre for Abu Dhabi which will cater for children with learning disabilities. According to Woods Bagot, the layout of the facility will enable a range of special care development plans to be implemented within an inclusive, collaborative and specialised environment. "Refreshing, naturally lit galleries, exhibition spaces and transformational learning environments combine to ensure that a reflective, interactive and creative pedagogy is delivered," it says.

Doug Wignall, HDR Architecture

The key health challenges in the Middle East are similar to challenges faced by nations everywhere. Unique to this region, however, is that the healthcare sector continues to be among the fastest developing industry sectors. As the need for more and better facilities and services escalates, most Middle Eastern nations have continued to increase investments in the development of modern healthcare infrastructure and industry.

In the Middle East and globally, perhaps the greatest healthcare challenge is the ability to deliver accessible healthcare services to a diverse demographic. As healthcare costs rise, top-quality, affordable healthcare is more difficult to achieve. As designers of healthcare facilities, we focus on how the design of healthcare spaces and the incorporation of technology can assist in this endeavour.





Assassi Productions

Al Mafraq Hospital, Abu Dhabi

The masterplan for Al Mafraq Hospital in Abu Dhabi, developed by Burt Hill provides a model for sustainable design. encourages alternative modes of transport and features a range of integrated open spaces, designed to encourage pedestrians and social cohesion.

Al Mafraq Hospital, Abu Dhabi

Architects: Burt Hill

Client: Abu Dhabi Health Services (SEHA)

Size: 12,593,775 sq ft



Mansoor's former firm, Ellerbe Beckett, has designed a number of healthcare facilities in the Middle East. This includes a specialist cardiology hospital in Bahrain (see WHD, July 2009) and a new 200,000sqm state-of-the-art hospital in Sidra, Qatar, which it has designed in partnership with Pelli Clarke Pelli – the first academic medical research facility in the region based on the North American healthcare model.

When designing in the GCC, there are a number of cultural issues that need to be taken into account. For example, privacy is a major issue, particularly between men and women. Although the ideal answer for this would be single-bed rooms, budgets often prohibit this, so multi-bed rooms must be flexibly designed to enable them to be able to be switched from all-male to all-female rooms if necessary. Access to bathrooms and visitor areas also need to be taken into account. "You can't wander around in a dressing gown," says Nadia Tobia of Farrow Partnerships.

In Canada, where Tobia is based, bunker rooms are now often being designed without doors in order to ease access and provide less of an institutional feel. However, when she was designing a cancer centre in the UAE while at Perkins Eastman (Tobia only recently joined Farrow), she was told doors were a necessity to prevent families from entering the room during radiation treatment. The solution was to install lighter doors instead of the traditional heavy doors.

Families are a big part of healthcare in the Middle East and need to be taken into consideration in the design of hospitals in the region. Rooms need to have the space to accommodate families who visit for extended periods and often there are quiet areas integrated into the designs of healthcare facilities in the region where family members can sleep overnight if they wish.

According to Nadia Tobia another which is coming into focus is Saudi Arabia – an 'emerging market' for healthcare development, she says. The Kingdom currently has several hospitals and clinics in development (see p43) and is planning to create a high-class healthcare system.

As in Abu Dhabi, urban areas are expanding. In 2006 the Jeddah Development and Urban Regeneration Company was set up by royal decree to help drive economic growth in the city and to improve the quality of life for its inhabitants. As part of this development, UK-based Space Syntax has put together a design for the city which, it says, will help to transform Jeddah into a 'healthy city' (see p39).

The company also recently carried out a

Adrian Marriott, Tribal Group

Much of the focus of healthcare development in the Middle East has been on the construction of secondary care hospitals. The tendency now is to develop tertiary capability to reduce the need to send patients overseas and to develop centres of medical tourism.



The role for design and architecture is to help create the required built infrastructure. Buildings will need to be affordable, culturally sensitive, providing increases in capacity and reflecting the transition to the provision of very specialist high acuity medical care and the greater emphasis on community facilities. Solutions will need to be tailored for both the high-income, oil-rich states and those states without the benefits of oil revenues.



Abu Dhabi Special Care Centre

The simplicity of the crisp concrete forms, breezeway gardens, temperature modulation, play of natural light, prevention of direct sunlight, provision of shade and legible planning of the buildings adjacencies combine to promote an environmentally sustainable facility in the Abu Dhabi Special Care Centre, designed by Woods Bagot for Abu Dhabi Health Services (SEHA).



baseline study for the redevelopment of the American Mission Hospital in Bahrain. Built in 1902, the hospital operates as a non-profit and charitable healthcare institution focused on providing primary and limited secondary care services. In 2000, two new buildings were completed. However, the remaining facilities at the main site in Manama were outdated, inefficient and demanded high levels of maintenance.

"This baseline study allowed us to provide recommendations for improvements to the Manama site such as improving accessibility to the hospital's public-facing functions (e.g. cafeteria, shop, reception), relocating a number of departments to improve patient's pathways and reduce walking distances, and in general to establish a clear circulation system by re-instituting the existing 'hospital street'. This would improve the overall wayfinding of the hospital, as well as increase chance encounters between staff to promote social interaction and knowledge transfer," the company says. The baseline study was then used as a briefing document for the architects. It was also used to inform the design of a new campus in Saar and to replicate Manama's 'spatial culture'.

It is clear that there is much activity in the region as it works to build up its healthcare delivery to international standards and it is unlikely that it will slow down. According to a study by private equity firm Ithmar Healthcare¹, a total of 138,965 extra hospital beds will be needed by 2050 in order to sustain current levels of care in the GCC. This is made up of 2,738 beds in Qatar; 3,585 beds in Bahrain; 7,702 beds in Oman; 9,582 eds in Kuwait; 15,698 beds in the UAE; and 99,660 beds in Saudi Arabia.

Kathleen Armstrong is a healthcare journalist and writer



Tawam Molecular Imaging Centre, Al Ain, Abu Dhabi, UAE

Tawam Molecular Imaging Centre's interiors utilise natural light through façade panels to promote a feeling of peace and tranquility during what can be a stressful and anxious time. The patient rooms are strategically located throughout the building so that each one looks out onto a central courtyard garden.

Architects: Titus Walter Pernthaler

Completion: June 2010

Turn-key Contractor: Siemens

Landscape design: Imagineering

Structural engineers: Vatter Ziviltechniker (Austria)

Client: Mubadala Healthcare

Consultant: Helal & Partners

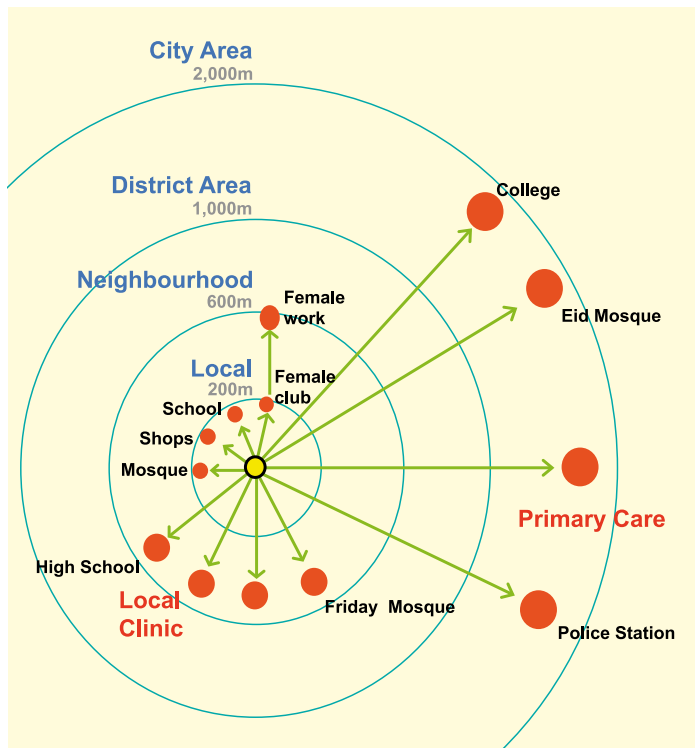


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Jeddah Unplanned Settlements

Space Syntax recently completed a five-year project on unplanned settlements in Jeddah. Approximately one million of Jeddah's 3.4 million inhabitants live in unplanned settlements, which vary in condition from very good to very bad.

The plan, based around recreating Jeddah's main streets and building new public spaces, will provide a network of urban boulevards, with all movement at grade, allowing transaction between global and local activity. "This meaningful project will improve living standards in Jeddah and could potentially be replicated to impact millions of lives worldwide," says project director Dr Kayvan Karimi.



Above: Al Mafraq Hospital in Abu Dhabi, masterplanned for SEHA by Burt Hill

Towards 2030

Kathleen Armstrong talks to two organisations responsible for the provision of public healthcare in Abu Dhabi

The second largest of the seven emirates that make up the United Arab Emirates, Abu Dhabi is on a mission to bring its healthcare delivery to world-class standards. Its strategy is led by two organisations – the Health Authority of Abu Dhabi (HAAD) which is responsible for policy and regulation, and the Abu Dhabi Health Services Company, known as SEHA (Arabic for health) which was created by Emiri decree in December 2007 to manage and develop the emirate’s public hospitals and clinics. The idea was to separate operations from regulation.

Each is working to meet the strategy outlined in ‘Plan Abu Dhabi 2030’, the strategy for social and economic development developed in 2007. Healthcare comes second in the list of priority areas identified by the plan, just behind education. However, all are interlinked in the agenda.

As the regulatory body for healthcare, HAAD defines the strategy for the healthcare system, shapes the regulatory framework, monitors the health status of the population and plays a role in the enforcement of standards. It also works to increase awareness of health issues within the population.

The 2030 plan includes a significant proposal for urban development to address the rapid growth in its three cities – Abu Dhabi City, Al Ain and the western region (Al Gharbia). Abu Dhabi currently has 1.9m residents but the area is growing at a phenomenal rate and the population is expected to rise to over 3m in the next 10 years. In order to ensure there is adequate healthcare provision, healthcare facilities

must be made available for every 5,000 residents – and HAAD is working closely with the urban planning department to ensure that land is made available for it as urban areas expand.

Healthcare is provided both by the public sector and by private companies, catering to both the ex-pat and local community. All facilities, public and private, are regulated by HAAD. Healthcare services are remunerated through insurance, which is mandatory for all residents in the emirate.

HAAD provides a picture of healthcare trends through the regular release of statistics to support capacity planning. “We have brought on board partners such as John Hopkins from the US,” comments senior analyst Tammie Lawrie. “We want to be seen as a world-class healthcare provider.”

Before an investor can go ahead with building a healthcare facility, it must first apply to HAAD for a preliminary licence. The application must be accompanied by a detailed proposal for the design of the facility which is reviewed by the licensing committee against international standards – US standards are followed for healthcare facilities – and against the need for such a facility in the area. Once the facility is complete, it is again inspected before a final licence is issued. There are currently 88 private facilities with a preliminary licence, Lawrie says, and 41 hospitals in development.

Serving the population

SEHA is responsible for public hospital provision, which covers 80% of inpatient care and 60% of the outpatient market. Its role is to own, operate and develop public healthcare in Abu Dhabi, with its primary goal to improve the quality of care to the whole population. One of the ways it is doing this is to set a goal that its healthcare facilities all achieve international (JCI) accreditation. So far, says James Ferrier, SEHA’s manager, corporate marketing, 16 of its facilities have been accredited. He expects the rest to gain accreditation within the next 18 months.

SEHA operates 15 hospitals, as well as more than 55 ambulatory health centres and primary health centres in partnership with six international healthcare organisations. Its hospitals include Sheikh Khalifa Medical City in Abu Dhabi which is managed by the Cleveland Clinic; Mafraq Hospital which is managed by Bumrungrad International; Tawam Hospital, managed by Johns Hopkins Medicine; Corniche Hospital, an obstetrics and gynaecology facility managed by Johns Hopkins; Al Rahba Hospital, the first in the UAE to receive JCI accreditation; Al Ain Hospital; and six hospitals in Al Gharbia, the western region. In addition, there is the New England Center for Children which provides education and treatment for children with autism and related disabilities.

Despite having a relatively young population (over 75% of the population is under 40), Abu Dhabi has the second largest incidence of diabetes in the world. Cardiovascular disease and cancer – in particular breast cancer – are also major issues in the region. As a consequence, SEHA is developing its ambulatory health services where patients can go for a ‘suite of services’, including primary care and diagnostic tests. From there they can be referred on to more specialist care. Urgent care centres are also being developed for patients with minor emergencies.

“We are moving towards a wellness model, reserving hospitals for people who need them,” Ferrier explains. In June, SEHA announced the development of nine more ambulatory care centres across Abu Dhabi.

It is also redeveloping a number of acute hospitals, including Mafraq and Al Ain, and it has just put out a tender for a new rehabilitation centre in Khalifa City A. A new dialysis centre will also be built near the Mafraq campus. SEHA has just completed putting together a five-year plan with strategies created around international performance benchmarks.

Kathleen Armstrong is a freelance healthcare journalist



Dr Oliver Harrison, director public health & policy, HAAD

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* Modern Healthcare survey of U.S. architecture firms

Since the 1980s the Saudi Arabian (KSA) healthcare market has been undergoing a new era of development. Over the past five years, the market has experienced significant growth and major changes. In addition to expected growth, as a result of population growth and increased wealth brackets, there have been substantial public and private investments.

The Saudi healthcare market has also directly benefited from favourable regulations towards the private and health insurance sectors, resulting in a significant increase in the number of insured expatriates and Saudis. This increase has had a further effect on the factors driving consumer choice, shifting them from a price to a quality focus.

As a result, the private Saudi healthcare sector has had an influx of patient traffic, although it has maintained a generally constant capacity over the equivalent period. This stable capacity, as well as the shift in drivers and the rise in demand, has enabled private healthcare providers to augment their pricing power.

By illustration, the changes in hospital bed capacity in the capital city, Ar Riyadh (population = 4.6 million; population growth [1990–2004] = 4.2%)*, can be observed. The average number of inpatients per public hospital bed in Riyadh increased by over 12% between 2005 and 2008. Even more prominently, the average number of inpatients per private hospital bed in Riyadh increased by more than 59% for the same period. In addition, KSA healthcare expenditure increased by 15%

(see Figure 1). This has also had a direct effect on associated markets, such as the pharmaceuticals and medical supplies market, which have both grown in parallel by 10% and 5% respectively.

However, despite clear growth in the market, KSA healthcare providers still face major challenges. From a political and legislative perspective, Ministry of Health regulations, pharmaceutical price and trade regulations, employment laws and 'Saudiasation' all affect operational decision-making.

From an economic outlook, as a result of high wealth levels and the fast growing market, the industry is attracting liquid investors. The sudden introduction of private competitors, however, could threaten the competitive balance and stability of the market. At the same time, limited specialised human resources, both medical and managerial, in comparison to demand, is creating a notable recruitment challenge.

From a technological standpoint, research and development activity is limited. This, in real terms, causes the impact of technological transfer to be high.

Saudi Arabia is well known for its cultural individuality and sociocultural factors need to be considered carefully by any service provider entering the market.

Therefore, the sensitive nature of Saudi Arabian market is emphasised in the health sector for both healthcare providers and the design and construction community who are developing new facilities to meet rising standards of patient care.

Public education and awareness of health and wellbeing issues are still highly underdeveloped in the kingdom. This is evident when comparing the number of outpatient visits per capita, which tend to be higher in more mature healthcare markets, such as Germany, where preventative approaches to medical treatment are more in focus.

In addition religious, cultural and social norms all affect customer services, as well as the health planning focus, interior design and architecture, communications and branding, and all need to be taken into consideration during decision-making processes.

With all this in mind, KSA may be one of the most challenging healthcare markets – yet it is a promising one.

For more information, visit the High Commission for the development of Ar Riyadh at www.arriyadh.com.

Mohanned Al-Saab is marketing manager for Dallah Hospital, Dallah Healthcare Holding Company in Riyadh

Land of promise

Paying attention to the socioeconomic and cultural challenges of working in Saudi Arabia is critical to success in its growing healthcare sector



Figure 1. (Source: BMI, Euro-monitor)



Dallah Hospital in Riyadh provides a full range of healthcare services

Like getting down on our knees to listen to a child and see them eye to eye in order to better understand their needs, designers must be observant and able to understand the sensory issues that affect children with neurological disorders so that they can adjust the environment to accommodate the sensory input needed to enhance their treatment.

The Cincinnati Children's Hospital Medical Office Building provides treatment for children with a diversity of neurological disorders such as autism, cerebral palsy, Down syndrome, Asperger syndrome and attention deficit disorders. It also provides other related services within the facility for the convenience of the patient and family.

Designed as a patient/family-centred care facility, the diversity of sensory integration issues among children with neurological challenges was the focus of design decisions for the interior environment. The facility integrates knowledge in sensory variations to aid in the best possible treatment outcome by providing an environment which responds to specific sensory needs but yet allows ample opportunity for discovery.

Although there is a great diversity of treatment areas provided, some of the programmed areas worth mentioning include audiology and speech pathology treatment, physical therapy, treatment areas with specialised equipment to encourage flexion activities, a severe behaviour treatment suite and infant/parent nurturing treatment spaces.

Other key spaces include occupational therapy with areas supporting activities of daily living environments, such as a bedroom and kitchen to teach children aged eight years and older how to use standard home environment, a patient education lending library with educational and therapeutic toys available for check-out, a durable medical equipment department where patients can get fitted for the, repair and purchase of wheelchairs, and interior and exterior playgrounds for gross and fine motor skill therapy.

Many of these spaces include one-way observation rooms adjacent to treatment or via cameras. Additionally, there are spacious conferencing areas with break-out rooms outfitted with videoconferencing capabilities.

Sensory design challenges

Understanding sensory issues and translating them to the construction world to enhance the treatment was part of the fun challenge of this project. For example, hearing in some children with neurological disorders can be hyperacute and cause overstimulation, thereby disruptive to their treatment. Research on design intervention for the treatment of autistic children¹ hypothesises that sound attenuation and spatial sequencing through compartmentalisation is the most effective and influential environment

intervention in the treatment of autistic children to help them focus and improve behaviour.

In response to this sensory challenge, specific treatment areas of the facility have been designed with sound-rated walls that extend to structure above, doors with sound seals and acoustic wall-treatment products to help during treatment sessions by reducing echo and sound transmission. Airborne sound transmission for this facility is designed with a sound transmission class (STC) rating of STC 57 in certain treatment areas. Individual speech

Do you see what I see?

Understanding that children with neurological disorders perceive the world differently is critical when developing a facility to serve special neurological needs



Interiors are as subdued and as simple as possible, with soft pastel colours and just enough distractions to avoid overstimulation



Cincinnati Children's Hospital Medical Center's Medical Office Building, Cincinnati, Ohio

therapy rooms were also requested. This individualised compartmentalisation helps the children focus during treatment.

Aggression, explosive behaviour and self injuries avoidance are constant topics and of great importance with neurological disorders. Such behaviour may stem from not knowing how to react to surroundings. Studies show that autistic people exhibit enhanced performance in static information processing, but decreased performance in dynamic information analysis², which gives way to some successful treatment programme interventions that have to do with simplifying every activity and every event into small parts³ in reference to visuo-spatial cognition, which is the ability to understand visual representations and their spatial relationships to create a sense of predictability and routine.

Minimising triggers

In response to this sensory issue, simplification was translated into this facility as much as possible, from the point of entry to the point of treatment, to avoid overstimulation. Therefore, the facility interior is not, as many would have guessed, decorated with bright and vibrant colours. Instead, every effort was made to develop the facility's interior as subdued and as simple as possible along the way to the treatment areas, with soft pastel colours and just enough distractions to avoid the overstimulation that may lead to aggression.

Similarly, in an attempt to help the sensory spatial definition, the treatment rooms are set up to be as similar in layout as possible, such that the child can get comfortable with a sense of predictability as they enter

any of the rooms. The design team, along with owner representatives, evaluated and discussed recommendations which have been applied to this facility to aid in avoiding injury with features, such as impact-resistant drywall, properly located wall protection, and concealing items such as switches, dimmers, outlets, sinks, computers, etc. within specific treatment areas.

Confusion and distraction in children with neurological disorders may be caused by differences in sensing and perceptions. For example, fluorescent lighting has a nearly unnoticeable bounce to the naked normal eye, but for children with sensory challenges, fluorescent lighting has a flickering sensation similar to what could be confused with a strobe – it pulsates and bounces according to the Autism Research Institute⁴.

In an effort to enhance the sense of calmness, the facility was outfitted with lighting that provides the flexibility to turn off the fluorescent lights and turn on dimmable incandescent lighting in the treatment areas. LED products were considered the products of choice due to their environmental benefits and their lack of tendency to flicker. However, some limitations on dimming were found on LED products at the time of product research. New LED products may have come to market since then that will function effectively without flickering at the lowest dimmable level.

This facility provides the opportunity for observation into the treatment areas. These rooms are strategically located throughout the facility in areas adjacent to treatment areas or in separate monitoring rooms which allow observation via



Butterflies inset on the rubber flooring are placed along the corridors at main points of decision-making as a wayfinding tool

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A multi-activity play structure is located outside, directly accessible to treatment rooms

Project credits:

Architect: DNK Architects

MEP engineer: Dynamix Engineering

Structural engineer: THP Limited

Construction manager: Al Neyer

Graphic design: Kolar Design

cameras. These observation rooms can be utilised by the parents to observe the children's treatment and, in some instances, to conduct research. Some of the features in these rooms include one-way glazing with integral blinds that can be operated by the caregiver on the caregiver side of the window, due to potential privacy issues.

To further aid order and predictability, the facility utilises unique wayfinding techniques, where specific coloured butterflies, inset on the rubber flooring, are strategically placed along the corridors at main points of decision-making as a wayfinding tool.

Outdoor activities

As part of the programme curriculum and viewed as a therapeutic setting for this project, outdoor areas within the urban setting were provided with this

building, affording multiple opportunities to bring treatment activities to the outdoors.

A multi-activity play structure is located outside directly accessible to treatment rooms. It was developed collaboratively between DNK Architects landscape architect, Matthew Latham, ASLA, and the product manufacturer's designer, Michael Carlson, CPSI.

Carlson, who has two children with autism, is familiar with the unique design considerations for children with neurological challenges. The structure provides opportunities for sensory play, decision-making, cooperative play, role playing, turn taking, and observation. Semi-enclosed hiding spaces are provided as areas of refuge for children who get overstimulated. Colours are subdued to prevent overstimulation. Other features

include climbers for developing upper-body strength, balancing activities for stability, handrails, wheelchair transfer points to facilitate access and a wheelchair-accessible garden.

Another outdoor play area nearby provides swings and sheltered picnic tables to provide space for fine motor skills classes, such as crafts. In a nearby area, sheltered from the weather, is a practice terrain where wheelchair users and others can experiment on a ramp and a variety of paving surface textures. Bike lockers and a fenced-in area with a short bike path were also provided for the physical therapy programme, which often uses bicycles as part of treatment.

This project proved to be a unique learning opportunity related to the diversity of neurological sensory issues, as it applies to the physical environment component to support the treatment of children with neurological challenges. Although the learning opportunities were many, much learning remains to be done to accomplish excellence in design of treatment environments to better serve patients with neurological disabilities as new research on sensory issues develops.

With the onset of Leadership in Energy and Environmental Design (LEED), evidence-based design and current research being conducted on environmental issues related to products and neurological effects, the opportunities for improved design and materials selections in these types of facilities will continue to improve greatly.

Eileen D Trimbach, AIA, LEED AP BD&C, EDAC is a designer at DNK Architects, USA

"...the designer must be able to understand the sensory issues"

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Alice in Wonderland

A new GP surgery and community health centre in Streatham, south London has been delivered under the LIFT (Local Investment Finance Trust) initiative on behalf of Building Better Health. Designed by Henley Halebrown Rorrison, the 1,023sqm Baldry Gardens health centre is a modest £3 million community building designed in an L-shaped plan, with two wings of cellular rooms arranged either side of a central corridor separated by a reception area and waiting room. Clinical rooms and consulting rooms are on the first floor beside the main reception/waiting room in a light-filled double aspect space at the centre of the plan. The ground floor is reserved for office accommodation, store rooms, plant rooms and a flexible suite for group activities leading onto a walled garden. Inside interiors create a calm and therapeutic environment. The glazed guarding is framed in heavy timber sections, which make for an unusually scaled – Alice in Wonderland – element. The clinical rooms are wide but shallow in plan and the size of the windows ensures that spaces may be genuinely daylight and naturally ventilated.

Design sensibilities

Hoag Hospital Irvine in Orange County, California has reopened as an acute care general hospital and fully staffed emergency room. Nearly US\$85 million has been spent on the revitalisation of the former Irvine Regional Hospital and Medical Center, which was closed for renovation after Hoag took over the hospital from Texas-based Tenet Healthcare. Designed by TAYLOR, the simple, cost-effective architectural concepts of the 244,000 sq ft, 154-bed renovation changed the aesthetic sensibility of the hospital, complementing investment in state-of-the-art technology, new medical programming, and re-imagined patient flow patterns. The hospital's colour palette, finishes and artwork were inspired by the region's Mountains-to-Sea Trail. Adopted as the design theme for Hoag Hospital Irvine, the 22-mile hiking and biking trail's plants and views were incorporated into the design. The facility also incorporates the Hoag Orthopedic Institute which will serve the needs of the region's ageing, but athletic, community.



Community focal point

Jubilee Gardens Health Centre and Library which has been built for NHS Ealing in London under the LIFT (Local Improvement and Finance Trust) initiative is an innovative £4.9 million, 2,100sqm scheme integrating a health centre and library. With accommodation for two local GP practices, as well as much-needed community treatment and specialist facilities, including audiology, maternity, podiatry and leg ulcer clinics, it is said to provide a truly modern service for the community. The approach of providing several services under one roof gives a focal point for the community. Designed by partner architect Penoyre & Prasad and constructed by Willmott Dixon, the project includes a well-lit, double-height public foyer where health information is provided, and leads to a community meeting space. The new branch library provides valuable community resources in the form of computer terminals, media loans and books.



Lit from above

A new 84,000 sq ft outpatient clinic for the US Department of Veterans Affairs, located within Seagate Corporate Center in Oceanside, California, has been completed. Developed by Rockefeller Group Development and designed by Smith Consulting Architects, with Raymond Fox & Associates as the consulting medical architect providing interior design services, the two-storey, tilt-up building is strategically located in close proximity to the US Marine Corps' Camp Pendleton, allowing easy access for veterans living in North San Diego County and injured service personnel returning from tours of duty in Iraq and Afghanistan. The facility provides two MRI pads that accommodate onsite mobile MRI units. Design features include skylights installed in the main corridor that have openings in the second floor to allow in natural daylight.



Imagination

The new 279,000 sq ft Rady Children's Hospital Acute Care Pavilion has been completed. Built on a tight, 148,650 sq ft site, the new US\$260 million facility has been developed by McCarthy Building Companies and designed by Anshen+Allen, and is the only dedicated child-specific medical centre in the San Diego region. When equipped, the Acute Care Pavilion will house a surgical centre, 84 medical-surgical beds, a neonatal intensive care unit (NICU), and a cancer centre. It will also provide 16 operating rooms, a 28-bed haematology and oncology unit, and a 10-bed bone marrow transplant intensive care unit. The facility's exterior features a glass-fibre reinforced, precast concrete exterior; integral-coloured plaster, storefront and curtain wall glass systems with coloured accents, metal panels and railings, and a billowing steel front entry canopy carrying the hospital's 'kite' insignia. The facility introduces a series of healing gardens that utilise sustainable design principles and embrace the hospital's healing arts programme. Central to the theme of the building is the 'River of Life', manifested through an immense, four-storey mineral panel that incorporates a kinetic lighting system, which radiates a rainbow of vibrant colours through the front-entry curtain wall. Each floor has its own nature theme.

Technologically elegant

The Methodist Hospital (TMH), the largest facility dedicated solely to patient care in the renowned Texas Medical Center, has opened its doors. The architecture and interiors of the 760,000 sq ft facility have been designed to respond to both multiple programmatic demands and the constraints of the site, and has a distinctive tower with a structural tiara of spires that creates an identifiable landmark that can be seen from all directions of the city. Inside, the 26 floors accommodate a complex programme of public spaces, medical treatment facilities and 1,370 parking spaces. Conceived to consolidate previously decentralised services, the new building houses audiology, breast care, oncology, cardiology, imaging, labs, surgery, pharmacy and wellness services. TMH's environment evokes hospitality rather than hospital. Refined and comfortable furnishings, understated, quality materials and lighting are deployed to define waiting areas and assist in wayfinding across the large floor plates. Innovative technology guides patients through the building, making the centre virtually paperless, as well as providing the latest technology for treatment.



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JOHANNESBURG

T: + 27 11 463 9429
F: + 27 11 463 6835
sibo@noact.co.za

Unit J Block 2, 1st Floor
Coachmans Crossing
Office Park,
8 Brian Street, Lyme
Park, Bryanston, 2021

CAPE TOWN

T: + 27 21 418 9224
F: + 27 21 418 9229
info@noact.co.za

Unit 21 & 22
Foregate Square,
Foreside
Cape Town
8001

EAST LONDON

T: + 27 43 743 8888
F: + 27 43 743 8892
admin@noael.co.za

13 Luken Road
Selborne
East London
5247

PORT ELIZABETH

T: + 27 41 582 2753
F: + 27 41 582 2869
mail@noarchitects.co.za

16 Clyde Street
Trafalgar Centre
Central
Port Elizabeth
6000

BLOEMFONTEIN

T: + 27 51 447 8338
F: + 27 51 447 8339
sibo@noact.co.za

63, 65 & 67
Kaiser Park
Suite 6 Kaiser Street
Westville
Bloemfontein, 9301

MMABATHO

T: + 27 18 384 1568
F: + 27 18 384 2788
sibo@noact.co.za

Office 204, Mega
City Shopping Centre
Cnr of Sekame &
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NELSPRUIT

T: + 27 13 755 3614
F: + 27 13 755 3615
info@noact.co.za

Suite 407
The Medcine Building
14 Hereshall Street
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1200

FOURKWANE

T: + 27 15 291 4987
F: + 27 15 291 5847
sibo@noact.co.za

Standard Bank
Building, 3rd Floor
Cnr of Landross Mare
& Thabo Mbeki streets
Plokwane, 0699

NIGERIA

Cell: +234 82 566 3650
T: +234 806 263 5401
info@noact.co.za

51 Lobito Crescent
Wuse 11, Abuja
Nigeria
23400



Ngonyama Okpanum & Associates

ARCHITECTS PROJECT MANAGERS URBAN DESIGNERS INTERIOR DESIGNERS TOWN PLANNERS

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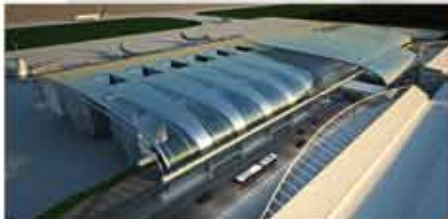
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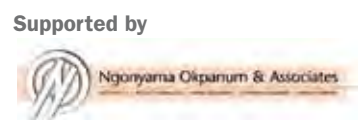
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CBF Women's Health Centre designed by FAREstudio



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Design & Health Africa 2011 will explore design opportunities to improve global health through recognition of international interdependence and the need for a new paradigm of co-development, writes *Prof Alan Dilani*

All together now

Today's rapid movement of populations living in ever larger, multicultural, urban environments, combined with the evolution of the knowledge society means that the world we live in today is one with few boundaries. In the 21st century, to achieve improvements in global health requires a recognition of the interdependence of the developed and developing worlds.

Eleven percent of the world's population inhabits sub-Saharan Africa, yet the African continent carries 24% of the disease burden in both human and financial costs, while benefiting from less than 1% of global health expenditure¹. At the same time, almost 50% of the world's deaths of children under the age of five occur in Africa, and only a few countries in the region are able to spend the US\$35–\$50 per person per year that the World Health Organization (WHO) identifies as the minimum necessary to meet a population's basic healthcare needs².

In recent times, improved political and macroeconomic stability and microeconomic reforms, combined with rising oil prices, reduced government debt and a flourishing private sector, have helped to create economic growth that saw GDP in Africa rise by 4.9% on average every year through to 2008³.

The International Finance Corporation estimates that over the next decade US\$25–\$30 billion of new investment will be needed in healthcare assets, including hospitals and clinics, to meet the growing demands of the healthcare market in sub-Saharan Africa, which is set to double, reaching US\$35 billion⁴ by 2016. The continuous improvement of the quality of life and wellbeing of all African citizens will be founded on the recognition that a healthy population is the foundation for social development and economic growth.

Chaired by Lord Nigel Crisp, Design & Health Africa 2011 will explore how richer countries can learn from poorer ones and suggest that, instead of talking of international development – where the rich help the poor – we should think in terms of co-development, each learning from the other. By bringing together interdisciplinary world experts to share their knowledge to create a new vision for health in Africa, based on our interdependence, our desire for independence and on our rights and accountabilities as citizens of the world.

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Keynote speakers will include (L-R): Lord Nigel Crisp (UK House of Lords), Dr Oliver Harrison (Abu Dhabi Health Authority, UAE), Dr Innocent Okpanum (Ngonyama Okpanum & Associates, South Africa) Mike Nightingale (Nightingale Associates, UK and South Africa)



Children playing outside the Centre pour le Bien-être des Femmes (Women's Health Centre) in Burkina Faso

Design & Health Africa 2011: Global Perspectives. Local Identities Cape Town, 15–16 March, 2011

Design & Health Africa 2011 is an international symposium and workshop, which will explore global 'salutogenic' perspectives on the planning, procurement, finance, design, construction and operation of health facilities within the local context of infrastructure development in the region.

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- international health planning / models of care
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- infrastructure investment, finance and procurement
- sustainability, climate change & global health
- emerging technology & the patient experience
- interdisciplinary approaches to research and evaluation



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Now that the cost of coping with chronic diseases has become unsustainable, we must design our way to health. All around us we see opportunities to re-think the built environment as a means to promote health rather than support illness. Let's work together to raise our expectations for design as a powerful catalyst for health.

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Design & Health Scientific Review

Celebrating ambiguity



Dr John Zeisel is chair of the international advisory board of the International Academy for Design & Health and president of Hearststone Alzheimer Care

Full disclosure requires that I attest to being a member of the 'expert reference group' for Brand's project, along with my French colleague Kevin Charras whose PhD thesis on autism design, based partly on my own work on design for dementia, is referenced in the bibliography. My judgment is therefore clearly coloured. That being said, this article seems to me to be a model of how to present evidence-based design guidance – just the right balance between hypothesis and data, between data and performance criteria, and between performance criteria

and design guidance. This project takes a very traditional approach to the topic of design for people living with autism – it is rooted in the well-established approaches of environment-behaviour (E-B) studies. For many the term 'traditional' means *old hat* or *staid*; to me it means *tested over time, valid and reliable* – positive characteristics for research in any field. Brand skilfully takes on the old bogeyman (bogey person?) of environmental determinism – the long since discredited belief that the way the physical environment is designed determines within a narrow band of behaviours what people in a setting will do; how they will react. How does Brand do this? By embracing ambiguity!

Ambiguity is reality. I am just now writing a foreword to a book by Montreal-based Zen Buddhist teacher Albert Low entitled *Dynamic Life*, a main point of which is that the simplistic deterministic view of the world as reducible to cause-effect reasoning has led us into one blind alley after another, limiting us to seeing only superficial connections between things while overlooking the profound questions of existence – namely the ambiguity in everyday life and the dynamism this ambiguity invites and challenges us to cope with. Brand seems to embrace ambiguity and the accompanying richness it generates – thankfully. Each of the study's autism design-guidance principles is steeped in *either/and* rather than *either/or* thinking and thus invites creative design responses – the ultimate goal of such design research and guidance.

Brand's four design themes celebrate ambiguity, challenging designers' creativity to provide rich and robust design responses. To promote growth and development among this group of users, the research calls for a balance between limited choices that avoid anxiety and agitation, and freedom of choice that provides users with independence and opportunities for growth – ambiguity. To control environmental triggers that might induce anxiety and agitation, the research calls for colours, textures, noises, aromas and spaces that provide ranges of stimulation, yet provide options to retreat into more private and protective space when needed – ambiguity. To provide a robust setting, the research calls for a balance between target hardening (characteristics of the environment that can withstand spontaneous and uncontrolled damage), yet one that feels and is homelike – ambiguity. And finally, to provide support for both living and working in the same place (ambiguity), the research calls for settings in which all the information necessary to use it is embedded in the setting itself (naturally mapped), in which technical aids promote unobtrusive staff surveillance for safety and security, and at the same time provide feedback to residents how their actions relate to outcomes, to the consequences of their actions – ambiguity.

Ambiguity not only opens the door for creative design, it also invites creative research. The article calls for further research into the way in which people with autism "perceive spatial relations and connect contextual information with detail information". The ambiguities celebrated in this article invite scientists, as well as designers, to join together to resolve and solve together the environmental design issues for people living with autism. What a wonderful and unambiguous invitation.



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Living in the Community: Housing design for adults with autism

Andrew Brand, Research Associate, RCA Helen Hamlyn Centre



Partners:
RCA Helen Hamlyn Centre
Kingwood
BEING (Colum Lowe, pictured left)

Living in the Community: **Housing design for adults with autism**

The environment in which an adult with autism lives can have a profound impact on their health and wellbeing. This UK study looks at how the design of residential accommodation can meet their needs

Andrew Brand, Research Associate, RCA Helen Hamlyn Centre

Autistic spectrum conditions, including Asperger's syndrome, affect one in 150 people. They are lifelong and complex neurological conditions that affect social development, interaction and communication, and can cause unusual behaviours and interests. The environment in which an adult with autism lives can have a profound impact on their wellbeing, exacerbating behaviours that may inhibit progress and diminish motivation and confidence. This article is an extract from the publication, *Living in the Community*, which summarises a one-year design research study that was conducted in partnership by autism charity Kingwood

and the Royal College of Art Helen Hamlyn Centre with support from London-based design consultancy BEING. The work looked at autism from a design, rather than a behavioural or sociological, point of view. It recognises that a great deal more research is required in order to understand how design may benefit people with autism, their families and the people who support them.

For the purposes of this article, the term autism is used to refer to all autistic spectrum conditions including Asperger's syndrome, except when referring specifically to individuals who have this diagnosis.

The study was concerned with the design of ordinary residential buildings in the community, and the guidelines and concepts presented in *Living in the Community* reflect this focus. This does not preclude these

recommendations being used for other building types.

The aims of the study were:

- to understand how the built environment, and housing design in particular, affects the health and wellbeing of people with autism;
- to look at how housing design impacts on the effective delivery of care and support for adults with autism;
- to develop recommendations and concepts that show good practice in the design of residential accommodation for people with autism; and
- to publish key findings and recommendations as a reference for planners, architects and other decision makers in the development of residential accommodation for people with autism.

The study took a people-centred design approach to research, engaging people in their own homes as well as completing secondary research and interviewing experts in the field of autism. An understanding of people's needs, constraints and aspirations was built from observations and their stories. Key insights and patterns of behaviour were extracted from the data leading to the development of four design themes.

The design themes are expressed in terms of qualities rather than physical variables and can be used as a framework for generating concepts and making decisions about all the different considerations involved in planning a building, from its location and orientation to details such as wall finishes.

Recommendations and concepts relating directly to building elements are also presented. These are based on existing research, observations from site visits and insights from an expert reference group, as well as other professionals who work within autism. Together they represent a collection of recommendations that should be considered when commissioning or



Supported living residence, NAS Cymru (National Autistic Society Wales)

refurbishing residential accommodation but are not written to be mandatory or prescriptive.

About autism

Autism is a lifelong neurological and complex condition that affects the way a person perceives and interacts with other people and the world around them. It is a spectrum condition, which means that while all people with autism share certain difficulties, they will be affected by them in different ways.

Adults with autism experience sensory perceptual differences and difficulties in communicating and organising. These characteristics can seriously affect their ability to live independently and they often need support in managing basic everyday tasks such as shopping, preparing meals and paying bills. Some may lead relatively independent lives while others require dedicated support every day.

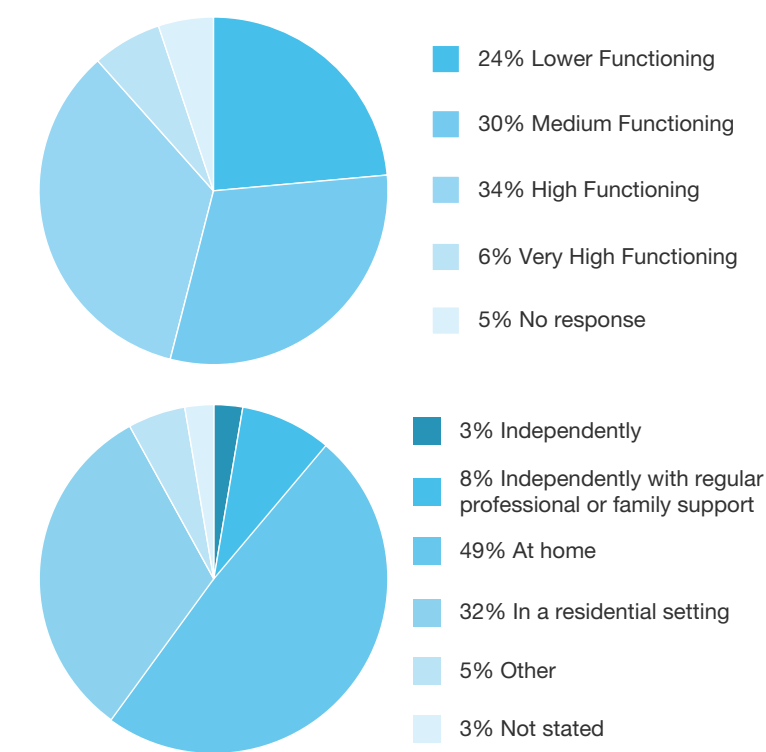
Historically, this has been provided in residential institutions but the emphasis has shifted to community-focused models of support that take place in people's own homes. In the UK, up to half of adults with autism receive support in the homes of their foster families or parents¹.

With an increasing number of people being diagnosed with autism and parents of autistic adults getting older and less able to provide care, many are seeking opportunities to live outside traditional institutions or their parental home and want or need to find alternative housing or accommodation.

Some people with autism have accompanying learning disabilities, while others may possess high levels of intellectual ability. However, everyone living with the condition shares a difficulty in making sense of the world and exhibits difficulties in three main areas:

Social interaction. This includes difficulty with social relationships, appearing aloof, showing compromised ability and little desire to live in communal situations, trouble in understanding social rules and prioritising their own needs over those of other people.

Communication. There can be difficulty in interpreting verbal and non-verbal communication such as understanding the meaning of common gestures, facial expressions or tone of voice. In some cases,



Parents rated their adult sons' and daughters' capabilities in a National Autistic Society England & Wales survey

people may have limited or no ability to talk.

Restricted repetitive behaviours. There can be difficulty in managing transitions and dealing with changes in routine. Repetitive behaviours, such as pacing, hand flapping or rocking, and persistent preoccupation with certain subjects and objects are typical.

People with autism may also display some or all of the following characteristics, which can present themselves as either challenges or strengths, but all of which have implications for the design of their home environments:

- sensory abnormalities such as unusual reactions to stimulation or difficulty in making sense of stimulation. Certain visual details, colours, sounds, smells, tastes or textures can cause both distress and enjoyment;
- a need for more personal space and dislike of physical contact;
- poor awareness of danger;
- an inability to generalise concepts, which means skills learnt in one situation may not be transferred and employed in a similar situation;
- poor coordination and balance;
- seizures or periods of loss of consciousness;

- special interests and sometimes high levels of ability in music, mathematics, technology or art;
- vulnerability to mental health problems such as anxiety and depression.

In March 2010, recognising the increasing urgency to meet the housing and support needs of this population, the UK government published an autism strategy, directing local councils to take into account the needs of adults with autism in the planning, design and allocation of local housing.

However, while more housing opportunities are set to become available, there is a distinct lack of documented design guidance and, therefore, a risk of placing people in buildings that do not meet their needs or aspirations. The consequences of not providing appropriate accommodation can lead to family dependence, stress, incidences of aggression and social isolation.

Residential building type

Large institutional residences are not appropriate for most people with autism. They can be overstimulating environments, occupied by large numbers of people for whom daily routines are determined by staff rather than residents. In response to

these older types of services, there has been a shift towards providing residential accommodation in domestic-sized buildings in the community, not apart from it.

Smaller living units, such as group homes or self-contained flats in a single building, have been shown to lessen the incidences of challenging behaviour, with individuals benefiting from more variety and stimulation from their living environment and inclusion in a community². While these new types of residential buildings form the focus of this study, it is recognised that they may not be suitable for all people with autism. Different models of accommodation and support exist in the form of clustered housing in one locality, sometimes referred to as villages or farmsteads.

Research methods

When designing for people with autism, it is essential to have an understanding of how

they might experience the environment and perceive people and objects in it. Autism cannot be simulated with empathy tools such as age suits³ or low-vision goggles. The way people with autism perceive the world is on the edge of our typical experiences. To build a better understanding, published works on the nature and complexities of sensory processing, behavioural and architectural research on the built environment and its effect on people with autism were reviewed. Biographical works by people with autism were also considered. They provided insightful and lyrical accounts that complemented pathological descriptions of autism.

Interviews were conducted with adults with autism as well as with professionals who work with them, such as support workers, psychologists and architects, and an expert reference group was established.

The third element of the research

study included visits to supported living residences. Seven homes for autistic adults were visited on a number of occasions. The purpose of conducting studies *in situ* was to observe firsthand how residents use and respond to their living environments, see how support workers interact with them and carry out contextual interviews.

Throughout the project, contributors were invited to comment on the work. To get feedback on specific issues, illustrated concepts were reviewed in workshops with autistic adults. Insights were drawn from the stories and observations to develop universal themes and a design guide.

Material gathered during the research phase was used to uncover patterns, decipher common themes and define a structure for understanding how the design of built environments can affect people with autism. From an analysis of what had been observed and recorded, key project findings and insights were defined.

Key findings

The design of residential buildings can profoundly impact on the health, wellbeing and behaviour of adults with autism. To enhance the confidence and independence of people with autism and complex needs, a holistic approach must be taken that aligns the building design and level of personal support with individual preferences and aspirations.

The abilities and sensitivities of individuals on the autistic spectrum vary greatly, so reactions to the environment can differ. Unique groupings of behaviour have started to emerge from the research, but further study is required to prove their universality.

Service staff, prospective residents and their families are rarely consulted in the writing of design briefs and are typically not involved in the preparation and initial stages of building projects. Post-occupancy evaluations are more common, though not universally performed, and while their findings may inform the next project, it can be difficult and expensive to modify the building being evaluated, which may have several shortcomings. Architects and designers should involve end-users throughout the design-and-build process.

There has been a shift from institutional care to community-focused, social models of support, which advocate personal planning rather than regulated schedules as



Personalisation of a bedroom with arts and crafts

fixed by staff. Emphasis is rightly placed on the individual needs and wishes of residents. However, in aiming to provide normal home-like environments, the requirements of staff have been overlooked and this affects their ability to provide appropriate levels of care and support. It must be remembered that, while residential buildings are people's homes, they are also places of work.

In addition, homes are more likely to be successful when the compatibility of residents has been assessed and people are cohabitating alongside those with similar needs, routines and life stage.

Design themes

These findings were distilled into four design themes that were used to drive the next stages of the project. They are expressed in terms of the qualities and performance criteria that are critical to improving housing for adults with autism. Some of the qualities are specific to people with autism while others may benefit wider groups of people. They are written in a manner that tries to help architects and designers ask the right sort of questions at the briefing stage. The aim is to inspire creative responses to these qualities rather than provide prescriptive rules or regulations.

Design responses to these themes are expressed as guidance and concepts in the publication *Living in the Community* to practically show how they might be used and applied in real spaces.

Growth and development. To improve the quality of life for adults with autism, there must be opportunities for them to make free choices and be independent. Simple activities like answering the front door and choosing who they invite in enhances their sense of ownership and engagement with the home environment. Similarly, enabling residents to make informed choices and take on responsibilities such as preparing food, cleaning and doing laundry can add meaning and purpose to everyday life.

However, increased autonomy and multiple options present ambiguities, which people with autism may find difficult to process and this can lead to agitation or increased anxiety. The challenge, therefore, is to design environments that appear to have limited options while at the same time building in systems that allow them to be adapted to the changing needs of residents.

Triggers. People with autism can be



The four design themes can help designers and architects ask the right questions at the briefing stage

prone to acute and disabling anxiety, resulting in unusual reactions and complex behaviour. They can become easily overwhelmed or even fearful of ordinary daily experiences and activities. This can be compounded by communication issues and sensory abnormalities that affect the ways people with autism process and interpret stimuli in the environment. Through careful selection of design elements, triggers that lead to agitation or increased anxiety can be reduced.

Adult residents living with autism may demonstrate underdeveloped or overdeveloped sensitivities to stimulation, resulting in adverse reactions to the presence or absence of certain visual details, colours, textures, noises or aromas. These triggers vary from one individual to another and so home environments may have to provide ranges of stimulation.

People with autism can be particularly sensitive about the amount of personal space they occupy in group situations and may feel threatened if distances are

insufficient. When overwhelmed, they may need to retreat to a private space.

Robustness. People with autism can make unexpected, spontaneous movements or lack an appropriate fear of danger. They can also show an underdeveloped sensitivity to temperature or pain. These characteristics mean there can be significant risk to residents and staff and preventative actions many need to be taken to protect them from injury. Overtly protective features such as wall guards can look institutional and create a sense of containment or become the targets of challenging behaviour. Therefore, the specifications of safe, durable environments need to be balanced with the aim of providing aesthetically pleasing, homelike accommodation.

People with autism can lose confidence quickly. If their home environment and the objects within are designed to withstand heavy or unintended use, both the physical and emotional impact on residents can be lessened and they will be more likely to engage in household activities. Residents



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Concept plan for residential home for four residents

can be further helped to complete tasks necessary for daily living by designing environments that are easy to clean and repair. This has the added benefit of giving staff more time to support residents in these activities and in developing skills for independent living.

Support tools. While supported-living residences are people's homes, they are also places of work. The design of these buildings affects the quality of service and contributes to staff morale. People with autism have difficulties in conveying their wishes and feelings and in understanding verbal and gestural communications, which impacts on the relationship between them and support workers. By embedding non-verbal communication systems in home environments, interactions between staff and residents can be rendered more meaningful and purposeful.

Designing environments and the objects within in a way that helps residents better understand how their actions relate to outcomes can motivate them and make daily activities more manageable. As such, employing Norman's design principles of feedback and natural mapping⁴ may have particular benefit for people with autism.

If sufficient space is provided for staff to give one-to-one support, then residents are more likely to carry out household tasks rather. Embedding buildings with sensor technologies and clear sightlines can help staff to monitor residents from a distance without making them feel like they are constantly being watched. For residents who physically need more personal space, this may help to reduce their anxiety.

Design guide and concepts

Recommendations for the design of residential buildings for adults with autism have been published in the handbook *Living in the Community*, which is available upon request from Kingwood or the Royal College of Art Helen Hamlyn Centre.

The publication contains concepts to illustrate some the design guidance and provide ideas for the layout (above), main living spaces such as the kitchen, bedroom and dining area and facilities such as bathrooms and toilets. These concepts are not presented as a universal design of housing for adults with autism.

Meaningful design solutions can best be achieved by responding to the context of a building site and specific requirements of its residents.

Conclusions

The main contribution of this study is a set of design themes that can be used as a framework for generating concepts and making planning decisions for residential buildings for adults with autism.

Design guidance has also been developed and is intended for use by planners, housing providers, architects and designers. Many of the ideas are drawn from the evidence of working schemes that are currently in existence, while others are potential solutions that have yet to be validated.

As with most of the literature on autism and the built environment, this study has attributed observed patterns of behaviour to certain design decisions. In many cases, links between design elements and improvements in behaviour such as

enhanced levels of confidence or social interaction, have been interpreted rather than measured.

Recommendations presented in *Living in the Community* are expected to bring benefit. However to validate their impact and quantify how the design of individual design elements affect adults with autism, baseline or intervention studies are required.

A large number of unmet design challenges emerged from this study, particularly with regard to how communication, sensory integration, and control of environments in domestic settings might be improved.

More research needs to be done to understand ways in which people living with autism perceive spatial relationships and connect contextual information with detail information.

This work might inform future studies that investigate how architectural principles and elements, such as colour and texture or embedded technologies, could be used to help adults with autism improve perception and understanding of their domestic environments and the objects within.

The next phase of this project, taking place between October 2010 and September 2011, will focus on the detailed design of different spaces within residential buildings. Prototypes will be developed and tested to evaluate some of the ideas produced in this study.

The design of residential buildings clearly makes a difference to the quality of life of adults with autism, but should not be considered in isolation. A holistic approach should be taken that includes the design of people-centred support plans, models for financing accommodation,



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inclusion in the community as well as meaningful employment and help developing friendships, relationships and interests that bring meaning and purpose to everyday life.

No singular model of housing or support will meet all the needs of this population. Planners and design professionals are encouraged to stay up to date on literature in the field and consult adults with autism, their families and service providers to meet their individual condition and circumstances.

Research partners

A registered charity since November 1994, Kingwood has worked steadily to provide a new approach to support for people with autism and Asperger's. In ordinary houses, close to local shops and services, individuals and small groups of people are helped to take control of their lives and to develop interests and skills through which they may begin to reduce the most disabling aspects of their condition. Kingwood's goal is to

provide a full life within the community for people with autism and Asperger's.

The Helen Hamlyn Centre provides a focus for people-centred design research and innovation at the Royal College of Art, London. Originally founded in 1991 to explore the design implications of an ageing society, the centre now works to advance a socially inclusive approach to design through practical research and projects with industry. Its Research Associates programme teams new RCA graduates with business and voluntary sector partners.

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Author

Andrew Brand is a chartered mechanical engineer and a founding member of Squease, a start-up company which is developing smart clothing for people with autism, and the design collective BREAD.



Circulation space of supported living residence

He holds Masters degrees in engineering from Loughborough University and in industrial design engineering from the Royal College of Art.

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David Barbour

Royal Alexandra Children's Hospital, designed by BDP

Healthy Buildings – Architectural Solutions for a Changing Health Sector in the UK

RIBA, London, 19 July – 25 August 2010

RIBA North West, Liverpool,

30 September – 28 October 2010

School of Architecture, University of Manchester, 5–11 November 2010

Alive and still kicking

A RIBA exhibition demonstrates the diversity and quality of recent health buildings in the UK, despite the current economic malaise across Europe, reports **Colin Martin**

While visiting the fictional St Boltoph's Hospital for Women and Children, the protagonist of William Boyd's novel *Ordinary Thunderstorms* (Bloomsbury, 2009, page 46) conjectured: "The glass and steel stacked floors of the new NHS Foundation Trust Hospital's buildings spread through its car parks and newly landscaped gardens, some of the blocks linked by transparent aerial walkways lit by red or green lights – like arteries or veins, Adam thought – no doubt this was the 'wit' that had won the architect his gold medal or his knighthood."

Unsurprisingly, the Royal Institute of British Architects (RIBA) Health Client Forum does not share this fictional character's dyspeptic view of design quality in contemporary UK health buildings. Instead, the touring exhibition it developed in collaboration with the

Department of Health celebrates the diversity and quality of architectural design in the health service. Twenty projects are presented, 19 of which have a total value of £684 million, ranging from £1.1 million for a 650sqm disability centre to £400 million for a 108,000sqm hospital redevelopment project – proof that healthcare design is alive, and still kicking, despite governmental and economic constraints. The three main categories of projects included in the exhibition are primary and community care, masterplanning health, and specialist care.

Sunshine House is a primary care centre in Southwark, south London, which opened in autumn 2007. It provides integrated services from diverse agencies for young people who are vulnerable or have special needs. Vividly coloured massed volumes animate

Its cross-ventilated sun-drenched waiting area evokes 1930s design principles

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Southmead Hospital Redevelopment, designed by BDP

the centre's exterior and inside, naturally lit internal voids help people find their way around the building, designed by architects Alfred Hall Monaghan Morris. Jubilee Gardens Primary Care Centre and Library in Ealing, west London, opened in early 2010. Designed by Penoyre & Prasad, its two-storey glazed entrance provides access to healthcare and library services, which operate independently. Its cross-ventilated sun-drenched waiting area evokes 1930s design principles of light, air and openness.

An example of masterplanning a health project is the Finchley Memorial Hospital in Barnet, north London, a community hospital building which is being redeveloped as part of a wider 'health campus'. The surrounding green space will provide joint hospital and community outdoor facilities, including access for the neighbouring primary school and junior grass pitches. The design of the building reflects the dual requirements of clinical functionality and the needs of patients and visitors. Designed by Murphy Phillips Architects, the project is due for completion in summer 2012. The £400 million Southmead Hospital Redevelopment Project on a 27-hectare site in Bristol, due for completion in 2015, is the most sustainable major acute hospital under construction in the UK. Designed by BDP, this masterplanning health project aims at achieving a BREEAM rating of excellent. Its aesthetic aim is to create a hospital with a greater feeling of openness than is usually the case, which will benefit patients and staff.



Sunshine House Southwark, designed by Alfred Hall Monaghan Morris



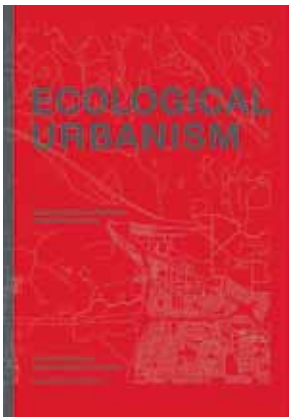
Jubilee Gardens, designed by Penoyre & Prasad

Specialist paediatric care is provided at the Royal Alexandra Children's Hospital, completed in spring 2007, which perches above the seafront at Brighton. Also designed by BDP, the nautical curves of its white walls evoke art deco architecture, but the use of bright colours on its top 'decks' – which house patients and their families – signals its identity as the 'Children's Ark.' The new University College London Hospital Cancer Centre, designed by Hopkins Architects, will be completed in autumn 2011. Although distinctive, its bronze façade complements adjacent buildings in an area devoid of green spaces, although natural light is brought deep within the hospital by a central atrium, which incorporates a winter garden.

All in all, the exhibition provides a healthy report on the state of architectural design in the NHS, but chair of the RIBA Health Client Forum Bill Murray issued the following health warning: "There will be increasing scrutiny on revenue costs in running our health service."

The exhibition booklet can be downloaded at www.architecture.com.

Colin Martin is an architectural writer and journalist



Ecological Urbanism

Dean Mohsen Mostafavi with Gareth Doherty, Harvard University School of Design

Lars Müller Publishing, 2010

Price: £39.90/US\$59.90/£40.00

This book contains a diversity of approaches to, and solutions for, ecological urban planning. It brings together a wide range of authors – 116 practitioners, theorists, scientists and public health specialists – in an interdisciplinary approach to consider the future of sustainable city planning. A sustainable city is one that provides energy, water, waste management, infrastructure, transport and accessibility in a way that is in harmony with daily life and promotes health and wellbeing – in other words, a ‘healthy city’.

In 1900, only 10% of the world's population lived in cities. By 2000, that number had increased to 50%, and by 2050, the population is estimated to reach 10 billion, 70% of whom will be living in urban centres. In the US, life expectancy has increased by around 40 years since 1900. However, only seven of those years can be attributed to improvements in the treatment of disease. The other 33 years are the result of better efforts at preventing disease, as well as improved environmental conditions, such as sanitation and water supply, underlining the link between environmental quality and health improvement.

As far back as 1997, the World Health Organization recommended that frequently used spaces such as workplaces, schools, commercial offices and public spaces within our towns and cities should be at the centre of health promotion activities in the 21st century. In addition, several studies clearly demonstrate how the form and character of cities are linked to many risk factors that cause illness.

The challenge for ecological urbanism is to provide a context for promoting health and wellbeing in the planning of cities and towns. As such, this book provides a unique contribution to the field of design and urbanism. This book examines the urban setting and the complex relationships between economic, political, social and cultural influences that impact on health. To address these issues, and to create viable solutions for the future that take an interdisciplinary approach, requires an equally complex range of perspectives and ideas.

The goal of this book is to provide an agenda for action. It calls for a change in the way we see the world in the context of health and wellbeing and suggests that we need to find new tools with which to tackle with the problems of this century. The book provides information and evidence supporting the need to make the connection

between ecology and urbanism mainstream in order to shape our cities into better environments in which people live and work.

It emphasises the need to create an urban environment that promotes health and wellbeing for future generations. However, it also stresses the need to recognise how processes and outcomes differ from culture to culture and are highly dependent on the societies in which they are being developed. This knowledge provides the foundation upon which better standards and benchmarks for urbanism can be developed, and supporting this process will have a significant influence on the design and development of healthy urban environments that support health, wellbeing and quality of life around the world.

Ecological issues should become an integral part of urban planning – the interaction between health and the urban environment needs to be examined with regard to how health is directly affected by various chemical, physical, and biological and social environments, including housing, urban development, land use planning, transportation, industry and agriculture.

It is a responsibility which falls primarily on architects and urban planners who need to collaborate and work together to visualise the concept of a healthy city and anticipate a solution for ecological urbanism which considers both salutogenic design factors and healthy urban planning.

The natural conclusion of this book is that the concept of ecological urbanism is an inevitable task for the designer in our turbulent world of urban planning.

Professor Alan Dilani is a public health architect and director-general of the International Academy for Design and Health

Ecological issues should become an integral part of urban planning





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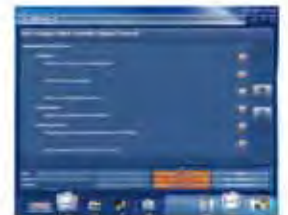
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