Fairmont Royal York Hotel, Toronto, 9-13 July 2014

Design & Health

10TH WORLD CONGRESS & EXHIBITION

FINAL PROGRAMME

An international forum for continuous dialogue between researchers and practitioners

www.designandhealth.com

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Design & Health
International Academy for Design and Health

In Partnership With

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Welcome to the 10th World Congress

Prof Alan Dilani PhD,
Chief Executive Officer,
International Academy
for Design and Health

Dr Ray Pentecost III,
DrPH, FAIA, FACHA
President,
International Academy
for Design and Health

Marc Sansom MBA,
Chief Operations Officer,
International Academy
for Design and Health

Dear Colleagues and Friends,

It is with great pleasure that we welcome you to the 10th World Congress on Design & Health (WCDH 2014) in Toronto, at the Fairmont Royal York Hotel.

Organised by the International Academy for Design & Health in partnership with the Ontario Ministry of Research & Innovation, WCDH 2014 will focus on how government and private investment can support the creation of healthy and sustainable social, domestic, commercial and urban infrastructure through ecological and salutogenic design principles.

The health status of people living in Canada is one of the highest in the world, but the region's healthcare system faces similar challenges to the rest of the developed world, characterised by increasing cost pressures and a rise in chronic diseases linked to unhealthy lifestyles. In recognition that a healthy population is the foundation for social development and economic growth, Canada is addressing the need to redesign its health systems to embed a preventative approach based on leading-edge science, research and innovation.

The WCDH 2014 scientific programme will explore how infrastructure investment can be applied to better connect communities and urban life to health systems, in a way that encourages healthier lifestyles and prevents the onset of disease through wellness factors that enhance and support health processes. Emphasis will be given to the challenges facing public-private partnership in adopting a salutogenic approach that supports the delivery of healthy and sustainable environments.

Participants will enjoy a diverse mix of stimulating topics with plenary sessions, technical showcases, posters, and an exhibition of the latest innovations in the field. Sessions will include presentations by architects, designers, health planners, engineers, public-health scientists, physicians, health administrators, psychologists, economists, artists, and many other disciplines to bring together as wide a range of perspectives as possible.

Topics addressed at the congress will include: the salutogenic design approach; innovation in procurement and delivery: new models of P3/PPP; case studies of successful healthy built environments; city life, culture and health; stimulating built environments; healthy communities and urban planning; international benchmarks in design and health; and promoting active living and healthy lifestyles to prevent NCDs.

In addition, the socio-economic and technological trends and influences on design and health will be considered in a pre-congress symposium programmed by our partners the Canadian Urban Institute and entitled 'Healthy Cities 2030: Reshaping the Supply Chain to Improve Health and Quality of Life'. The interactive framework for the pre-congress symposium will enable delegates to explore ideas and visions for a healthy city of the future.

On the final evening of the congress, the annual Design & Health International Academy Awards 2014 will be presented at a prestigious ceremony and gala dinner at the Fairmont Royal York Hotel. Enhanced to incorporate 10 award categories, and judged by the leading international researchers and practitioners in the field, the awards perform a vital advocacy role globally, rewarding and recognising excellence and helping to benchmark design quality.

The congress will be concluded with the choice of a range of impressive study tours around Ontario of recently completed state-of-the-art healthcare facilities and other innovative examples of Canadian architecture. The high quality of scientific research presented in combination with powerful case studies, a design exhibition displaying the latest innovations in the field, and a varied social and cultural programme, will ensure participants enjoy a unique knowledge-enhancing experience.

We wish you a rewarding and enjoyable congress in the beautiful city of Toronto.

Venue Information

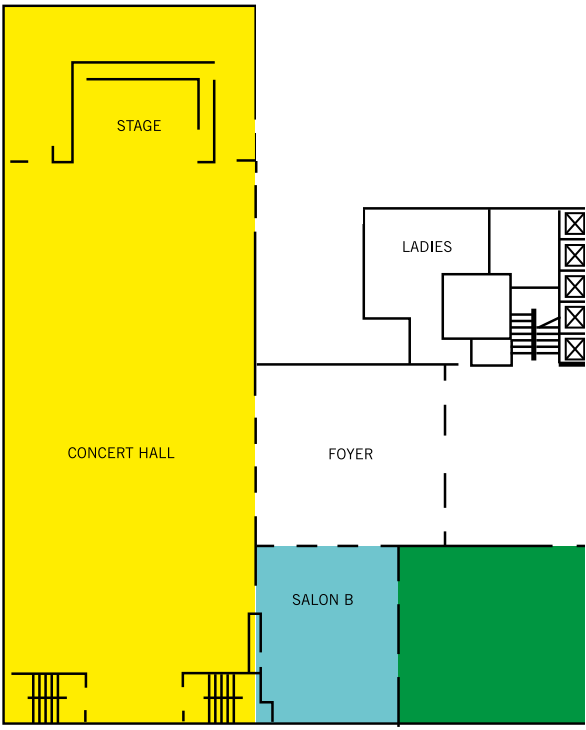
The historical Fairmont Royal York Hotel is right in the heart of the city of Toronto, steps away from the best dining, shopping and other cultural entertainment

Carefully chosen to reflect the values of Design & Health, the venue of the Fairmont Royal York Hotel in Toronto will ensure the congress offers an enriching experience for all participants.

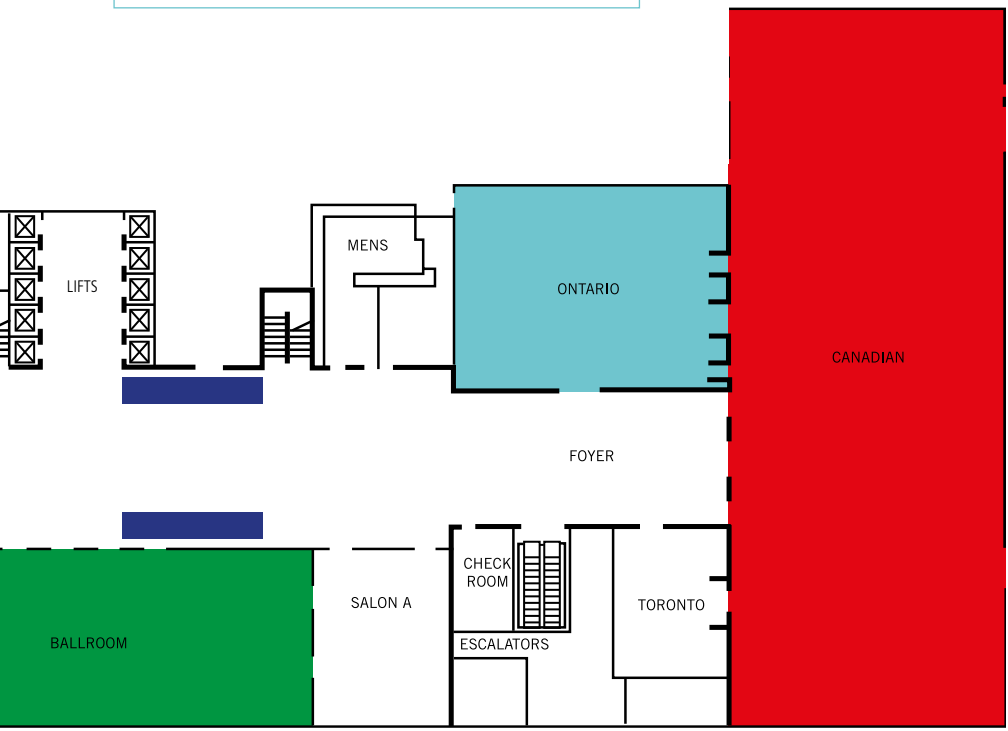
Located in the heart of the city, the Fairmont Royal York has everything you will need for a memorable stay, stimulating surroundings, a knowledgeable concierge team and friendly staff, a range of fine dining options, and state-of-the-art exercise facilities.

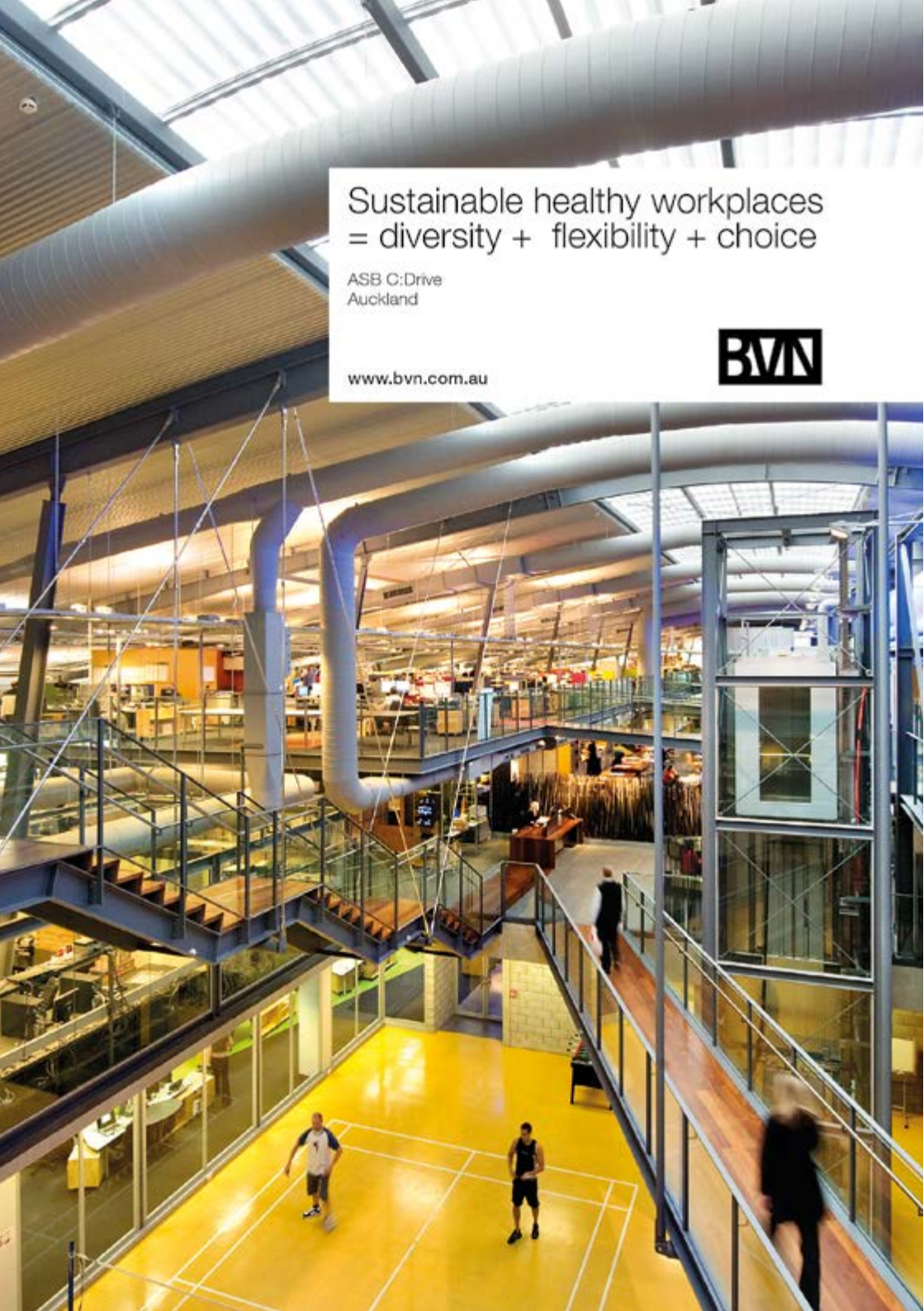
As the official conference hotel, this historical downtown hotel is right in the heart of the city, just moments away from the best nightlife, dining, shopping and other cultural attractions. The hotel is also conveniently located across from the main Union Station at 100 Front Street within the financial and entertainment districts.

As well as Union Station, the hotel is connected within walking distance of more than 1,200 shops, services and attractions, including the iconic CN Tower, the Hockey Hall of Fame, the Air Canada Centre and the Eaton Centre.



- CONCERT HALL - Main Conference
- ONTARIO, SALON B - Breakfast Seminars
- CANADIAN ROOM - Exhibition, Showcases, Posters & Lunch
- BALLROOM - Pre-Congress Symposium
- REGISTRATION COUNTERS





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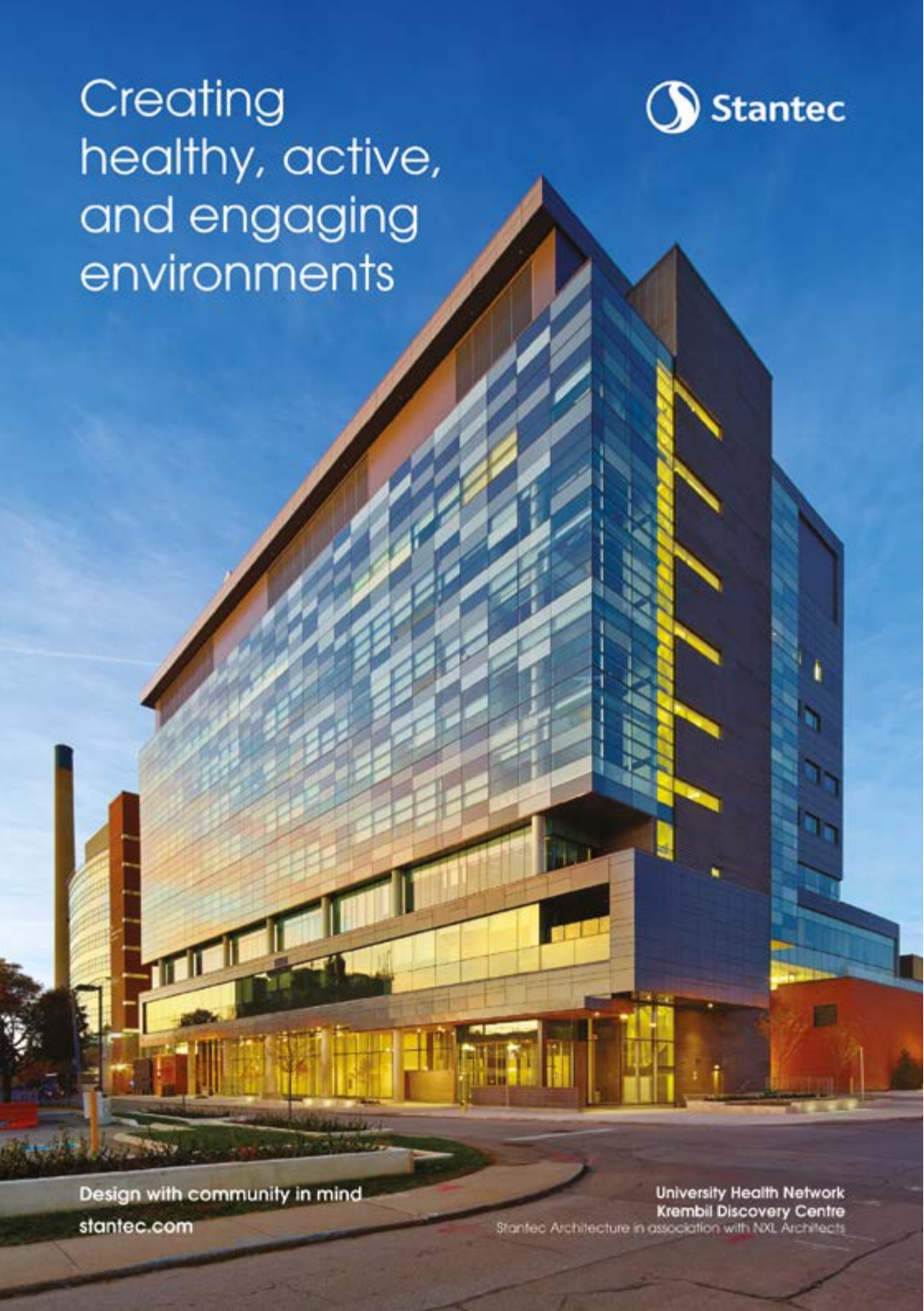
Fairmont Royal York Hotel, Toronto, 9-13 July 2014

Design & Health

10TH WORLD CONGRESS & EXHIBITION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Kathleen Wynne
Premier of Ontario,
Canada

A warm welcome to Ontario

On behalf of the Government of Ontario, I wish to extend greetings to everyone attending the 10th Design and Health World Congress and Exhibition. I am pleased that our government's Ministry of Research and Innovation has joined the International Academy for Design and Health in helping make the congress a reality. And to all those who have made the journey to our province to take part in this much-anticipated event: a very warm welcome to Ontario!

This year's programme reflects the academy's continued commitment to fostering the wellbeing of communities through an exchange of information on the synergistic interaction between health and design. I applaud the keynote speakers, session chairs and panellists – and all those who have developed poster presentations – for their invaluable contributions to deepening our understanding of how environmental design can favourably influence quality of life.

I wish to commend the members of the organising committee, the international advisory board, the exhibitors and event sponsors, and everyone who has played a part in ensuring the success of the congress.

Please accept my best wishes for an informative and inspiring event.

Dr Reza Moridi
Minister of Research
and Innovation
and Minister of
Training, Colleges and
Universities, Legislative
Assembly of Ontario,
Canada

Facilitating research to innovate and grow

As global health budgets rise and place growing demands on the public purse, research and innovation are increasingly the pathway towards a more sustainable healthcare system. Governments play an important role in facilitating research into this important sector.

The Ontario Ministry of Research and Innovation supports the need for research and the commercialisation of innovation. We proudly facilitate the collaboration of research partners in universities, colleges, healthcare providers, entrepreneurs, venture capitalists and business leaders.

Scientific enquiry and discovery are cornerstones for the creation of new products and services that can successfully be commercialised and be brought to an increasingly global market. The commercialisation of research is key to economic growth in Ontario.

Colleagues from government and health departments, universities, health providers, and industry are invited to join the discussion on how research and innovation can drive a healthier society through the creation of urban and health infrastructure that supports healthier and more productive lifestyles. Ontario is endowed with a world-class research capacity and a strong desire to share the knowledge and experiences of our international colleagues in both scientific research and professional practice. We share a common mission to create a healthier society that is less dependent on hospital care and medical treatment.

I am delighted to welcome interdisciplinary researchers and practitioners from all over the world to participate and share their research and innovations within the field of design and health at the 10th Design & Health World Congress and Exhibition in Toronto.

Scientific Programme

Wednesday 9 July, 2014

09.00 – 18.00	**Registration at the Fairmont Royal York Hotel**
10.00 – 17.00	**Pre-congress Symposium: Healthy Cities 2030: Reshaping the Supply Chain to Improve Health and Quality of Life** In partnership with Canadian Urban Institute / Institut urbain du Canada
10.00 – 10.10	**Welcome and Introduction**
10.10 – 10.40	**Opening Keynote: Making Cities Good Places to Grow Older** How to make the most of opportunities for collaboration across disciplines **Dr Heather McKay,** director, Centre for Hip Health and Mobility
10.40 – 11.40	**Panel: Healthy Communities** A discussion of ideas for how to encourage healthy development and healthy activities **Moderator: Dr David Mowat,** medical officer of health, Region of Peel, Ontario **Dan Leeming, partner,** The Planning Partnership; and adjunct professor, University of Guelph **Dr Gillian Booth,** scientist in the Li Ka Shing Knowledge Institute of St Michael's Hospital **Dennis A Kar,** associate transportation planner, Dillon Consulting
11.40 – 12.30	**Panel: Interior Design's Impact on Health and Community** The role interior designers play in strategies that affect productivity, happiness, innovation and wellbeing **Moderator: Randy Fiser,** executive vice-president and CEO, American Society of Interior Designers **Rita Carson Guest,** president, director of design, Carson Guest **Lisa Fulford-Roy**, senior vice-president, client strategy, strategic accounts and consulting, HOK
12.30 – 13.30	**Lunch and Networking**
13.30 – 14.30	**Policy Conversation: Provincial Policy Nexus: Who decides?** How to link our desire for healthier communities with smart decisions on major infrastructure investments **Moderator: Dr Murtaza Haider,** associate professor, Ted Rogers School of Management **Dr Samir Sinha,** director of geriatrics at Mount Sinai, and provincial lead, Ontario's Seniors Strategy **Michelle Noble,** director, partnerships and consultation – Ontario Growth Secretariat, Ministry of Infrastructure
14.30 – 15.30	**Panel: Healthy Neighbourhoods: Towards Civic and Institutional Maturity?** Integrating mental health facilities into neighbourhoods is leading to a number of innovative solutions **Moderator: Denise McNally,** senior project manager – project delivery, Infrastructure Ontario **Alice Liang,** partner, Montgomery Sisam Architects **Ian Sinclair,** vice-president of facilities and capital development, Bridgepoint Health **Michael McClelland,** founding partner, ERA Architects **Frank Lewinberg,** partner, Urban Strategies
15.30 – 15.50	**Refreshment Break**
15.50 – 16.50	**Panel: Healthy Buildings: Improving the Quality of the Workplace** How employers and policymakers are improving the built environment to deliver better work set-ups **Moderator: Mark Salerno**, Ontario manager, communications & marketing, Canada Mortgage and Housing Corp **Becky Upfold,** director of SmartCommute, Metrolinx, Toronto **Antonio Gomez-Palacio,** principal, DIALOG **David Hoffman,** general manager, TD Centre
16.50 – 17.00	**Closing Remarks**
19.00 – 22.00	**Welcome Reception at the Fairmont Royal York Hotel** Welcome speech, International Academy for Design and Health, Cultural Performance Sponsored by GLOBAL

Scientific Programme

Thursday 10 July, 2014

07.30 – 08.30
Ontario Room

Breakfast Seminar:
Embracing the future: Integrating Innovation and Disruptive Technology into Healthcare Infrastructure

ARUP

A participatory seminar exploring the opportunities and barriers to the adoption and integration of service innovation and frontier technologies into healthcare infrastructure

08.00 – 08.45 **Late Registration**

08.50 – 10.30

Chair: Cliff Harvey (Canada)

Session 1: Introduction: Visions, Challenges and Strategies for Health

AECOM

Dr Reza Moridi (Canada), The Honourable Minister of Research and Innovation
Alan Dilani (Sweden), The Salutogenic Approach on Healthcare and Policy
Richard Jackson (USA), Designing Healthy Communities

10.30 – 11.00 **Coffee Break**

11.00 – 12.30

Chair: Mark Henderson (USA)

Session 2: Healthy Cities by Design in North America

Ryan Gravel (USA), The Atlanta Beltline: Creating Healthy and Sustainable Communities
Glenn Miller (Canada), Ageing in Place: Retrofitting Canada's Suburbs
David Sisam (Canada), Design and Health in Non-programmed Spaces in Buildings and Cities
Gordon Stratford/Kevin Katigbak (Canada), Toronto – A Healthy City?
Discussion

12.30 – 14.00 **Lunch, Trade Show, Technical Showcases and Posters**

14.00 – 16.00

Chair: James Grose (Australia)

Session 3: The Impact of Healthcare & Urban Design on Wellbeing

DESTRAVIS GROUP

Tye Farrow (Canada), Can the Design and Architecture of Public Spaces Cause Health?
Tarek El-Khatib (Canada), Improving Health and Community: Reconstructing the Village Ecology
Kelly Pollard (UK), Improving Patient and Staff Experience in A&E
Stéphane Vermeulen (Belgium), Designing Hospitals in an Urban Revitalisation Context
Sharon Woodworth (USA), A Salutogenic Approach for Designing Healthcare Environments
Discussion

16.00 – 16.30 **Coffee Break**

16.30 – 18.00

Chair: Tarek El-Khatib (Canada)

Session 4: Innovation in Procurement, Delivery & Design

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Ragnhild Aslaksen (Norway), The Innovative Design of St Olav Hospital in Trondheim – From Vision to Reality
Walt Vernon (USA), Reverse Innovation: New Ideas for US Healthcare Buildings
Kenneth Schwarz (USA), PPP in Global Healthcare: New Models and Better Outcomes
J Jeter/J Kresimon/R Hicks (USA/Germany/Australia), The Evolving PPP Delivery Model
Discussion

19.00 – 22.00 **International Academy Advisory Board Meeting**

Friday 11 July, 2014

07.30 – 08.30
Ontario Room

Breakfast Seminar: Planning Technology Into Healthcare: Can We Do It Better?
Exploring new ways to tackle the challenges of medical equipment and technology planning for users, designers, constructors and health administrators

AECOM

07.30 – 08.30
Salon B

Breakfast Seminar: Future of Work: Scenarios 2018
The future is profoundly unpredictable. Herman Miller explores the future through scenario thinking about how work will change through 2018 – all grounded in rigorous research.

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08.00 – 08.30 **Late Registration**

08.50 – 09.30

Keynote Speaker: Ray Pentecost (USA)
The Economic Challenges and Demands for Health

09.30 – 10.30

Chair: Innocent Okpanum (South Africa)

Session 5: Learning from Africa: Innovation in Low-Middle Income Countries
Massoud Shaker (South Africa), The Vision of a Health Minister concerning Affordability for Good Health in Africa
Melinda Lehman/Gerald Puchlik (USA), Designing a Salutogenic Teaching Hospital in Ethiopia
Ahmed Sherif (Egypt), Impact of Daylight and External Views on Recovery
Discussion

10.30 – 11.00 **Coffee Break**

11.00 – 12.30

Chair: Gunther De Graeve (Australia)

Session 6: Access to Art and Nature to Promote Community Health
Clare Cooper Marcus (USA), The Salutogenic City
Stephen Verderber (Canada), Healthy Communities: Transforming the Shopping Mall
Debajyoti Pati (USA), Neural Correlates of Nature Stimuli
Dominic Pote (UK), How Artwork can Reinforce the Salutogenic Theory in Healthcare
Discussion

PERKINS+WILL

12.30 – 14.00 **Lunch, Trade Show, Technical Showcases and Posters**

14.00 – 16.00

Chair: Guela Solow Ruda (Canada)

Session 7: Innovative Design for the Elderly and Children
William Reichman (Canada), The Innovation Imperative in Residential Care
Deb Bryson/Frances Morton-Chang (Canada), Optimal Environment Design for People with Dementia
Lynne Wilson Orr/Robert Hofmann (Canada), Salutogenic Design of a Children's Treatment Centre
Elaine Biddiss (Canada), Interactive Media Reduces Waiting Anxiety at a Paediatric Rehabilitation Hospital
Discussion

ARK

16.00 – 16.30 **Coffee Break**

16.30 – 18.00

Chair: Alice Liang (Canada)

Session 8: The Impact of the Physical Environment on Mental Health
Catherine Zahn (Canada), Challenges and Innovation in Mental Health
Jan Golembiewski (Australia), The Built Environment and Schizophrenia: A New Perspective
Mary Potter Forbes/Ian Forbes (Australia), Designing Positive and Supportive Mental Health Spaces
Guela Solow-Ruda (Canada), Three Downtown Hospitals and Three Mental Health Facilities
Discussion

MontgomerySisam

Saturday 12 July, 2014

08.00 – 08.30 **Late Registration**

08.50 – 10.30 **Session 9: Evaluating Healthy and Sustainable Built Environments**

Chair: Michael Moxam (Canada)

Whitney Gray/Timothy M Rommel (USA), Changing the Paradigm for Behavioural Health
Gayle Nicoll (Canada), The Evolution of Active Design in Preventing Chronic Disease
Alisdair McGregor/Raj Daswani (USA), Sustainable Procurement: The University of California San Francisco
Discussion

10.30 – 11.00 **Coffee Break**

11.00 – 12.30 **Session 10: Healthcare Planning Processes, Tools & Research**

Chair: James Barlow (UK)

Bruce Raber/Ray Pradinuk (Canada), Collaborative User Engagement: The Nanaimo Regional General Hospital
Angela Bourne (Canada), Integrated Design Approaches for Adults with Diverse Intellectual Disabilities
Thomas Harvey (USA), Where Research Meets Design
Mardelle McCuskey Shepley/Yilin Song (USA), The Globalisation of Research-informed Design in Healthcare
Discussion

12.30 – 14.00 **Lunch, Trade Show, Technical Showcases, and Posters**

14.00 – 16.00 **Session 11: Post-Occupancy Evaluation Methodologies To Improve Health**

Chair: Ronald Hicks (Australia)

Cheryl Atkinson (Canada), Graphical Methodologies to Support Pre- and Post-occupancy Evaluation
Gelun (China), Tools, Guidelines and Evaluation Methodologies for Healthcare Facilities in China
Catherine Ahern/Karen Langstaff (Canada), Lessons Learned from a Pre-occupancy Evaluation of a New Mental Health Facility in Canada
Peter Jones (Canada), Form Follows Function: Improving Health Service Architecture
Discussion

16.00 – 16.30 **Coffee Break**

16.30 – 18.00 **Session 12: Panel Discussion with Ministries of Health**

Chair: Alan Dilani (Sweden)

Dr Robert Bell, Deputy Minister of Health, Ontario Ministry of Health, Canada
Dr Pham Le Tuan, Deputy Minister of Health of Vietnam
Dr Nguyen Quang Tuan, Director, Hanoi Heart Hospital, Vietnam
Dr Massoud Shaker, Special Advisor to Health Minister of South Africa
Dr Rang Noory Shawis, Special Advisor to Prime Minister of Kurdistan Regional Government

19.30 – 23.00 **International Academy Awards & Gala Dinner**

Rewarding Global Excellence in Research and Practice
Over 30 international awards will be presented on this prestigious evening and celebration of innovation in the research and practice of designing healthy environments. For more information, see **pp 42-55.**

Sunday 13 July, 2014

09.00 – 13.00 **Architectural Study Tours (see pp 56-59)**


ARK
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Poster Gallery A

P01 Thursday 10 July, 12.45pm
Timothy Fishking (USA) Healthy built environments through a lean and integrated process

P02 Thursday 10 July, 13.10pm
Dennis Vonasek/Christine Guzzo Vickery (USA)
Medical tourism: Redefining global perspectives on healthcare delivery

P03 Thursday 10 July, 13.35pm
Gordon Stratford/Kevin Katigbak (Canada)
Edmonton Clinic Health Academy – Leading by example

P04 Thursday 10 July, 16.10pm
Magdalena Warshawski/Ben Embir (Canada)
Maintaining design quality in healthcare P3/PPP delivery model

P05 Friday 11 July, 10.35am
Edward Applebaum/Terry Montgomery (Canada)
Places to learn, to heal and to grow

P06 Friday 11 July, 12.45pm
Jill Joseph/Kim Montague/Janet Zeigler (USA)
Continuous improvement in the healthcare environment – A simulation workshop

P07 Friday 11 July, 13.10pm
Angela Dosis/Gayle Nicoll (Canada)
A framework for analysing and designing inclusive online health communities

P08 Friday 11 July, 13.35pm
Elizabeth Rack/Andrew King (USA)
The creation of the CHUM: The synergistic co-existence of planning, design and the urban fabric

P09 Friday 11 July, 16.10pm
Jason Harper (USA) Community design for human health

P10 Saturday 12 July, 10.35am
Eve Edelstein (USA) International benchmarks for design and health

P11 Saturday 12 July, 12.45pm
Robert Bostwick (USA) Improving project delivery for complex medical buildings through team development

P12 Saturday 12 July, 13.10pm
Saleh Kalantari (USA) Post-occupancy evaluation: A step toward effective design process

P13 Saturday 12 July, 13.35pm
Ellen Ziegler (Canada) Application of a salutogenic model on the architecture of low-income housing

P14 **Paul Dolan and Chloe Foy (UK)**
Designing stimulating environments – the SALIENCE checklist

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Poster Gallery B

P15 Thursday 10 July, 12.45pm
Guela Solow (Canada) A framework for analysing and designing inclusive online health communities

P16 Thursday 10 July, 13.10pm
Ben Embir/Magdalena Warshawski (Canada) Co-locating specialised mental health, physical medicine and rehabilitation and complex continuing-care patients through the planning, design and compliance role: a case study in Kingston, Ontario

P17 Thursday 10 July, 13.35pm
Stephen McCoullough (Australia) Modern healthcare facilities – can we afford them? A comparison of two hospital developments 20 years apart

P18 Thursday 10 July, 16.10pm
Christine Chadwick/Mark Henderson (Canada)
Does "design" really matter in the Public-Private Partnerships process?

P19 Friday 11 July, 10.35am
Dennis Vonasek/Christine Guzzo Vickery (USA)
Defining the patient experience in an outpatient setting

P20 Friday 11 July, 12.45pm
Randy Guillot (USA) The Brain Building: The journey to salutogenic design at the Indiana University Health Neuroscience Center of Excellence

P21 Friday 11 July, 13.10pm
Sheila Cahnman (USA) Enhancing patient satisfaction through the built environment

P22 Friday 11 July, 13.35pm
Bruce Crook (Australia) Integrated cancer centres – A salutogenic design approach: Design drivers, operational principles and "the patient journey"

P23 Friday 11 July, 16.10pm
Cameron Shantz (Canada) A case study of the healing environment in a forensic mental health facility

P24 Saturday 12 July, 10.35am
Albert Wimmer (Austria) Vienna North Hospital: High tech meets high touch

P25 Saturday 12 July, 12.45pm
Uthayan Rajah (Canada) Lighting design and health: A source, modifier and receiver-model approach for salutogenic design to promote health, wellbeing and quality of life in built environments

P26 Saturday 12 July, 13.10pm
Tom Harvey (USA) Best-practice benchmarking: What is the role of post-occupancy evaluations in design?

P27 Saturday 12 July, 13.35pm
Bruce Crook (Australia) PPP procurement: Innovation, benefits and best practice for major hospital projects

P28 **Lynda Cannell/Julie Sless (Canada)**
Human-centred design to optimise human performance and client experience

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ARCHITECTS & ENGINEERS

Design & Health Showcases

Venue: Canadian Room

10 July	13.05pm	**The Chris O'Brien Lifehouse** Ronald Hicks, principal and director of health and research, HDR | Rice Daubney
10 July	13.30pm	**Human-centred design to optimise human performance and client experience** Lynda Cannell, chief operating officer, Fortius Sport & Health Julie Sless, vice-president healthcare, Herman Miller Canada
10 July	16.05pm	**Three hospitals under one roof: A vertical city** Jürgen Henze, partner, Zeidler Partnership Architects
11 July	10.35am	**Google procurement and the lack of client-to-manufacturer collaboration** Kevin Gorman, chairman, Britplas
11 July	12.45pm	**How do we design for a good life?** Timothy Fishking, principal, NBBJ Farah Rahman, healthcare director, NBBJ
11 July	13.15pm	**St Mary's Hospital, Canada** Tye Farrow, senior partner, Farrow Partner Architects Susan Gushe, managing director, Perkins+Will
11 July	16.05pm	**Gualv New City General Hospital, Guangdong, China** Keith Guidry, vice-president, RTKL Healthcare
12 July	10.35am	**Designing for champions** Mark Rowe, partner, Penoyre & Prasad
12 July	12.45pm	**Southwest Centre for Forensic Mental Health Care St Joseph's Health Care London** Cameron Shantz, principal, Parkin Architects
12 July	13.15pm	**Living Charleroi – The new GHdC hospital** Stéphane Vermeulen, healthcare director, VK
12 July	16.05pm	**Sint Antonius Ziekenhuis, Utrecht, Netherlands** Roelof Gortemaker, board architect, De Jong Gortemaker Algra

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Thursday 10 July 2014, 13.05pm

The Chris O'Brien Lifehouse

The ability to combine architecture and art with medical science, logistics, technical equipment and building technology is of great importance when it comes to environments that meet the needs of patients, relatives, medical staff and researchers.

Housed in a new high-performance building, The Chris O'Brien Lifehouse accommodates research facilities, clinical services, education facilities, and support functions, integrating with the existing functions of the Royal Prince Alfred Hospital and research facilities of The University of Sydney.

The vision for the Lifehouse is to become Sydney's premier integrated cancer centre and a centre of excellence. From the outset, patients and staff were engaged in discussions about the design approach of the building, focusing on how to improve the hospital experience and make it a better place for staff, patients and their families.

This paper will focus not only on the completed project but also on the design process, the experience and involvement of patients in the design, and the genuine commitment of the clinicians to a patient-centred approach. It will touch on the legacy of Chris O'Brien, his vision, and his belief in holistic care. It will also include comments from the facility's clinicians as well as feedback from patients who have experienced the building.

The Lifehouse has impacted the lives of all who were involved in the delivery process, evoking a special response in the design and a direction well beyond pragmatism.

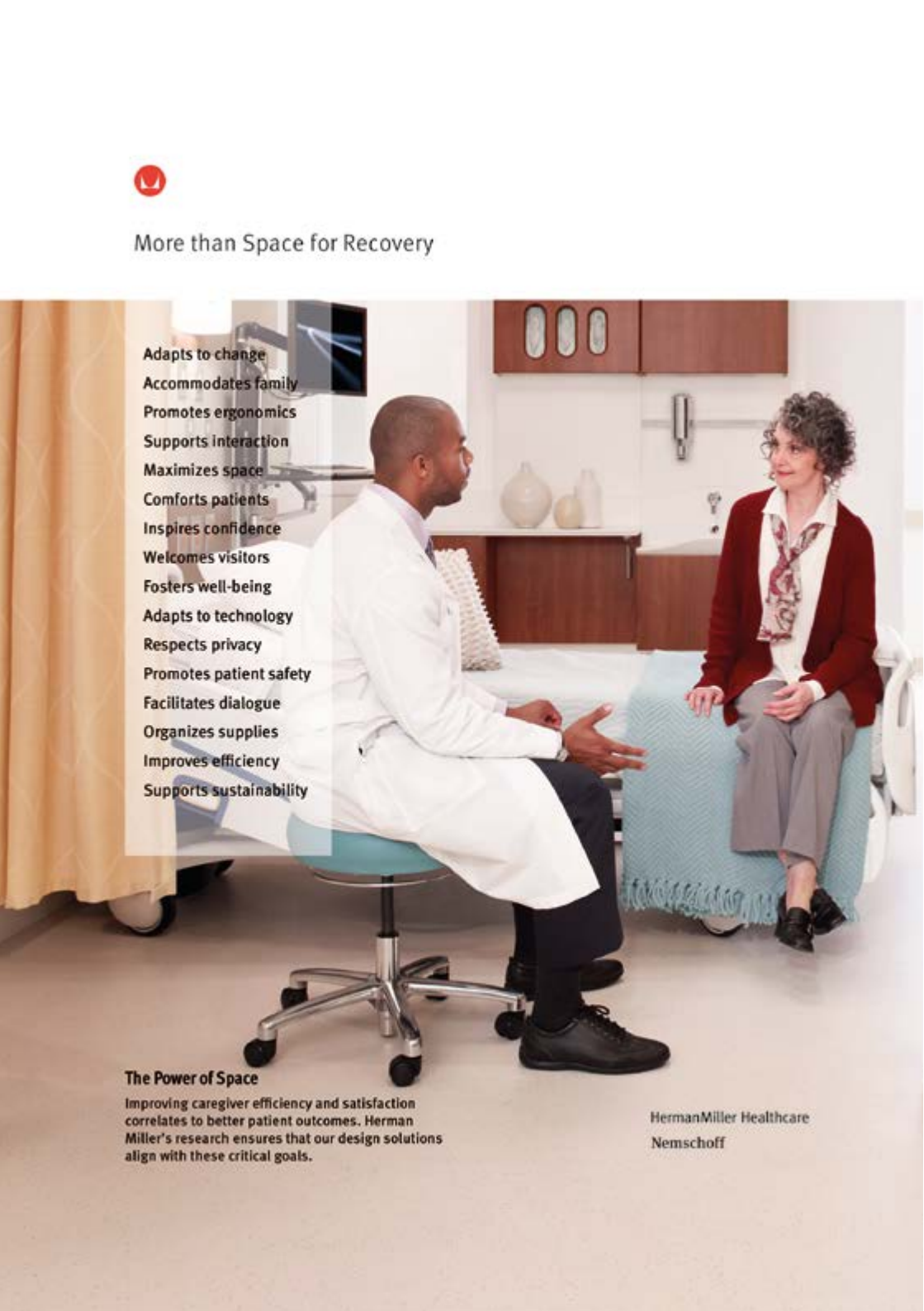
Ronald Hicks

Principal and director of health and research, HDR | Rice Daubney

With experience both internationally and in Australia, Ronald Hicks has specialised in the design and delivery of healthcare facilities for more than 30 years. His architectural career spans early conceptual and strategic studies through to on-site delivery as project director on some of Australia's most significant large hospitals, including the Royal Prince Alfred Hospital in Sydney, the Liverpool Hospital redevelopment, and the AU$1.8bn Sunshine Coast University Hospital in Queensland.

Ronald is also an experienced architectural project director with proven track records on large, complex projects. He has extensive masterplanning experience in urban and regional contexts, and is well versed in the current approach to clinical planning.

A frequent contributor to health design conferences, Ronald undertakes regular research tours of new health + research developments around the world, which help place him at the forefront of current international best practice. He is also the recipient of four architectural design awards from the Institute of South African Architects.



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Adapts to change
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Promotes ergonomics
Supports interaction
Maximizes space
Comforts patients
Inspires confidence
Welcomes visitors
Fosters well-being
Adapts to technology
Respects privacy
Promotes patient safety
Facilitates dialogue
Organizes supplies
Improves efficiency
Supports sustainability

The Power of Space

Improving caregiver efficiency and satisfaction correlates to better patient outcomes. Herman Miller's research ensures that our design solutions align with these critical goals.

HermanMiller Healthcare
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HermanMiller Healthcare

Thursday 10 July 2014, 13.30pm

Human-centred design to optimise human performance and client experience

Fortius Sport & Health is said to be the first fully-integrated sport medicine, science and training venture in Canada. The organisation builds on the world-class amenities of the $61m 148,000 sq ft Fortius Athlete Development Centre and the Fortius Institute's internationally recognised practitioner team based in Burnaby, British Columbia. Members of the integrated team of sport medicine and exercise science practitioners include: physicians, therapists, chiropractors, dietitians, psychologists, sport scientists and kinesiologists.

The centre creates an environment in which athletes and coaches gain access to the full range of sport medical, science and training expertise under one roof. But its larger purpose is to create a hub for programmes and services designed to help clients of all ages and levels of ability remain healthy and active throughout their lives.

The facility's design is bright, modern and sophisticated with a blend of contemporary and classic elements. Staff work areas are open concept, highlighting the different modes of collaborative work such as impromptu interaction, co-creation and sharing of information. Highlights include The Lodge @ Fortius and the gymnasium, which are open both to athletes and the local community, and a laboratory featuring state-of-the-art force, time, motion and muscle activity measurement technologies to analyse human performance.

This case study will illustrate how Fortius created an inspirational, human-centred design to promote working, healing and healthy living.

Lynda Cannell

Chief operating officer, Fortius Sport & Health

Lynda Cannell is co-founder and chief operating officer of Fortius Sport & Health, located in Vancouver, British Columbia. Lynda has supported numerous Canadian teams as medical coordinator and medical director at several Summer and Winter Olympics, the World University Games, and the World Police and Fire Games. She also served as a member of the medical advisory board for the Vancouver 2010 Olympics and Paralympics Organising Committee.

Julie Sless

Vice-president healthcare, Herman Miller Canada

With 25 years of design experience, Julie works with leadership teams to ensure that their investment in physical space produces a positive return -- reducing operating costs and increasing staff performance. She has co-developed a research methodology that can measure staff satisfaction and engagement as a result of adaptive, transformable physical space design. She is a corporate member of the Canadian College of Healthcare Leaders.

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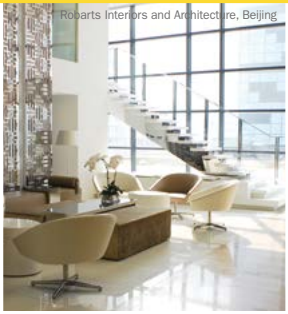
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Thursday 10 July 2014, 16.05pm

Three hospitals under one roof: A vertical city

King Abdulaziz University Hospital (KAUH) exemplifies how designers can apply creativity, programmatic integration and design innovation to create the best healthcare facilities possible.

Located in Jeddah, Saudi Arabia's second largest city, the new hospital stands 18 storeys high. As an immersive medical teaching facility, KAUH offers extensive "hands-on" pedagogical programmes, engaging students in the medical care of almost 900 patients on a daily basis.

The planned expansion of the hospital will not only meet the most pressing priorities (emergency and ICU) but it will also focus on providing medical care for women and children. As such, KAUH is essentially three hospitals under one roof: adult acute care, women's obstetrics and gynaecology care, and paediatric care. The concept of this "vertical city" is one that grew out of an exploration of the masterplan, including stacking options and seamless integration of the various departments.

The tallest building on the university campus, it has come to be easily identifiable as an architectural landmark and icon of modern medicine. The hospital has also received recognition from the Canadian Council on Hospital Accreditation – the first hospital outside of Canada to receive such an accolade.

Jürgen Henze

Partner, Zeidler Partnership Architects

Jürgen Henze is an architect and expert on "cities of knowledge" – a discipline focused on the convergence of clinical care, research, education, and city life in healthcare facilities. Throughout his career, Jürgen has implemented and built on this concept through transformative urban projects.

A graduate of the University of Toronto, Jürgen has been with Zeidler since 1983 and has served as lead design architect for some of the firm's most significant healthcare, commercial, residential and civic projects. A key member of the design firm's healthcare studio, Jürgen brings experience and global insight from healthcare projects such as: the Juravinski Hospital, Cancer Centre and Breast Assessment Centre in Hamilton; BC Childrens' Hospital; and the Assuta Medical Center in Tel Aviv. His portfolio also includes: the Hospital for Sick Children's atrium and various renovations in Toronto; Sunnybrook's M-Wing; and the University of Maryland Medical System's Homer Gudelsky building.

With a continuing focus on emerging healthcare trends, guided by lean principles and salutogenic design, Jürgen brings a thorough knowledge of research-based healthcare design to each project in which he is involved.

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Friday 11 July 2014, 10.35am

Google procurement and the lack of client-to-manufacturer collaboration

This showcase will highlight the need for better communication between healthcare professionals, estates staff, facilities management companies and manufacturers. The speaker, Kevin Gorman of Britplas, will cite his own experiences of getting involved in voluntary groups and organisations outside of his business, and explain how this has allowed him to understand the needs of his clients (and potential clients) from their perspective. Gorman says the insight he gained has helped him invent solutions that became award-winning products and have improved the healthcare environment as a whole.

His message is: 'Don't accept the status quo just because Google has no answers,' as there are many ways to challenge manufacturers and clients. With this philosophy in mind, Gorman will present some ideas to boost creativity and promote innovation and excellence.

Kevin Gorman

Chairman, Britplas

Kevin Gorman is the chairman of Britplas, a multi award-winning international company fabricating windows, doors, curtain walling and fencing systems for the healthcare, education and commercial sectors. Britplas has a unique competence in working with the complex needs of the mental health environment, where Kevin's problem-solving skills have led to the development of a range of innovative products that are both safe, secure and bring benefits in terms of salutogenic design over and beyond their pure functionality. Involved closely with the leadership of the Design in Mental Health Network, a UK-based social enterprise dedicated to bringing together those who use and work in mental health services with those who commission and design them so that environments become more responsive to their end-users' needs, Kevin is a strong advocate of the need for more salutogenic environments and applies this as a research framework to his product design.

DESIGN FOR HEALTH AND WELL-BEING

MASSACHUSETTS GENERAL HOSPITAL, LUNDER BUILDING

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Friday 11 July 2014, 12.45pm

How do we design for a good life?

The important question for NBBJ is: how do we design for 'a good life'? As health and wellbeing is integral to a good life, so the question becomes: how do we design for health and wellbeing, and how do we transition from an era of interventional healthcare to a model focused on the health and wellbeing of our population?

The World Health Organization defines health as a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity. Although there is no absolute definition of wellbeing, there is general agreement that it includes the presence of positive emotions and moods that result in contentment and happiness. The foundation of wellbeing adds three dimensions: spiritual, economic and environmental.

As a design practice, NBBJ is focused on research and innovation. We have enlisted John Medina, a developmental molecular biologist, research consultant, and affiliate professor in bioengineering at the University of Washington's School of Medicine, to help us understand science and how to apply it in the environment. Our attitude towards applied design is based on real science – understanding how we apply this through our own creative mechanism to form the basis of salutogenic design.

It could be racing down the ski slope, connecting with nature, enjoying a great meal, making it to the top, or laughing with family and friends. This is what we are designing for – we're designing for life!

Timothy Fishking

Principal, NBBJ

Tim Fishking has been a driving force behind several of NBBJ's most significant domestic projects and celebrated international work. Most recently, he has been focused on advancing the relationships between building information modelling, integrated delivery, and prefabrication opportunities in the healthcare industry. Tim embraces the opportunity to design facilities that improve the human condition, a philosophy that has garnered him praise for his work in the healthcare industry.

Farah Rahman

Healthcare director, NBBJ

Farah Rahman has more than 30 years of experience as an accomplished senior healthcare leader. Her extensive public, private and community healthcare design expertise has seen her focus on strategic planning, design, and project management, including the implementation of successful and collaborative partnerships, and innovative marketing and business development strategies.

Farrow FARROW PARTNERSHIP ARCHITECTS INC.

Friday 11 July 2014, 13.15pm

St Mary's Hospital, Canada

St. Mary's Hospital was designed with the goal of becoming "the greenest hospital in Canada" as well as North America's first carbon-neutral hospital. It was conceived as an enduring asset for the community in terms of both resource conservation and therapeutic effect. The hospital's strong First Nation themes connect the spiritual and physical worlds. Members of the local Sechelt Indian Band played an important role in the design process by advising on the most meaningful and enduring elements of native tradition to incorporate.

The shape of the building was inspired by the cedar bent-box, which is unique to the coastal First Nations. In this concept, the bent-box holds our most precious possession – our health. Major artworks tell stories and depict well-known cultural symbols, such as the three totem poles that mark the main entrance. The lobby area is animated by a spectacular mural, which spans the entire 70-feet-long lobby. This mural, originally conceived by the design team as an integral element of the hospital experience, was developed and created by First Nation artist Shain Jackson.

Sustainable features include operable windows, access to daylight for 85% of floor area, stormwater-management ponds, and landscaped roofs. St. Mary's was designed using locally harvested British Columbia wood products. A geo-exchange system, a high-performance envelope, and a 19kW photovoltaic array contribute to the facility being on target to achieve 40% energy savings compared with other LEED Gold certified hospitals.

Tye Farrow FRAIC, BArch, MArchUD

Senior partner, Farrow Partnership Architects

Tye focuses on the creation of seminal places where people can thrive – economically, culturally and physically. He has initiated a global "Cause health" movement aimed at raising public expectations for design that optimises wellbeing. Tye's projects across North America, the Caribbean, Asia, Africa and the Middle East demonstrate leadership in this visionary quest. He is a frequent keynote speaker on opportunities to optimise health, rather than cope with disease, by re-thinking public and private-sector places.

Susan Gushe AAA, AIBC, SAA, MRAIC

Managing director, Perkins+Will

As managing director of Perkins+Will's Vancouver studio, Susan provides strategic, executive and financial leadership while overseeing the high level of design excellence that has won the Vancouver office more than 150 design honours. Over her 20-plus years with the firm, Susan has contributed to the growth and evolution of the practice, helping it become a recognised international leader in sustainable design. Her skill in combining leading-edge sustainability with design excellence won the firm a Governor General Medal, the highest architectural honour in Canada that celebrates outstanding design.

RTKL SM
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Friday 11 July 2014, 16.05pm

Gualv New City General Hospital, Guangdong, China

Gualv New City General Hospital is located at the core of the newly developed area in Zeng Cheng city, Guangdong province. As part of the biggest hospital chain in the province, the project aims to become a symbolic healthcare community focused on patient wellness, digitalisation, and sustainability.

The main goal for the hospital is to create a 'park in the city' by providing a 'sustainable healing environment'. A balance between the natural beauty of the site and man-made landscapes shows the contextual relevance of this scheme, and the harmony between natural spaces and intimate and communal plazas helps promote and enhance the wellness of patients, staff and visitors.

The geometry of the site is rectangular and longer on the north-south direction. The north side is on higher ground than the south, which allows the opportunity for gradual step-downs of the massing and the creation of natural gorges in between functional divisions. To allow adequate natural light and ventilation into the five-storey podium, which houses D&T and clinics, the gorges work as breathing gills. Access points are on three sides, except the north, which is connected to the reserved nature.

Keith Guidry

Vice-president, RTKL Healthcare

Keith is a vice-president with RTKL's healthcare practice group. His 25 years of experience include planning, design and development of a broad range of projects, with an emphasis on healthcare-related projects. His professional practice, in both the private and corporate sector, has led to an in-depth understanding of the needs of healthcare clientele resulting in projects of high value to the user. Keith's project experience ranges from preparation of feasibility studies to the design and delivery of full turnkey project development.

Penoyre & Prasad

Saturday 12 July, 2014, 10.35am

Designing for champions

The Sir Ludwig Guttman Health & Wellbeing Centre is a practical realisation of the oft-cited principles of flexibility and adaptability in healthcare design. Visited by 16,000 Olympians and Paralympians during a period of five weeks when the Games were held in London in 2012, the centre re-opened a year later to serve the local community. By responding to competing technical briefs and, hence, questioning specificity and operational dogma, the critical need to respond to more general architectural principles became clear.

However the clinical spaces of any healthcare building are configured, today and in the future, the spaces between – entrances, waiting areas, corridors, staff clubs, etc – remain relatively constant. It is in these spaces that visitors and staff will form their clearest impressions of their experience within the building and therefore where significant value can be achieved through high-quality design beyond the functional.

Similarly, if we are to achieve true salutogenic design, our healthcare buildings must use their architectural presence to speak of their place at the heart of communities and to encourage visits as much in aid of wellbeing as of sickness. In this respect, it could be argued the sculptural dynamism and elegance of this building may be its most significant contribution to successful healthcare delivery during its lifetime.

Mark Rowe

Partner, Penoyre & Prasad

As a partner at Penoyre & Prasad, Mark leads projects across a range of typologies – from healthcare to housing, and from education to masterplans. He believes ardently in the power of high-quality design to create buildings that support functional efficiency and innovation for ordinary people; design that architecturally augments and enhances the localities in which they exist; and design that addresses the wider environmental challenges that face us as a society. He teaches regularly on the University of Westminster's architectural degree course and serves as a professional external examiner for London Metropolitan University.

PARKIN
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Saturday 12 July, 2014, 12.45pm

Southwest Centre for Forensic Mental Health Care

St Joseph's Health Care London

St Joseph's Health Care is committed to a recovery model of care for its mental health patients. The care providers assist patients in their personal journey, moving them beyond the stigma and limitations of illness, and towards recovery. For its new building, St Joseph's was intent on creating a healing facility that supported its care model in its philosophical realisation, as well as the physical environment.

The design of the building symbolises the healing steps that clients must take on their road to recovery. It includes three main components: a house, neighbourhood and downtown. Each of these spaces was developed to support the clients in their rehabilitation: private spaces within the home unit; small group spaces in the neighbourhood; and larger social spaces, resembling the community at large, in the downtown area. A particular emphasis was placed on the introduction of natural light and views into all areas of the building. These light-filled spaces support the patients' healing by creating normalised environments.

Cameron Shantz

Principal, Parkin Architects

Cameron received his Bachelor of Architecture degree from Carleton University, Ottawa, Canada in 1985 and recently completed a Lean Healthcare Certificate Program at Belmont University, Nashville, Tennessee. A principal with Parkin Architects in Toronto, Canada, he has worked exclusively on healthcare projects for the last 25 years. Most of his recent work has been delivered through the public-private partnership model. He was the principal architect and clinical planner for the Southwest Centre for Forensic Mental Health Care, a project architect/manager for Ontario's first PPP hospital project – the William Osler Health Centre – and a project architect for the new NICU for Rainbow Babies and Children's Hospital, Cleveland, Ohio.

Saturday 12 July 2014, 13.15pm

Living Charleroi – The new GHdC hospital

Despite boasting a glorious industrial past, the Belgian city of Charleroi has enjoyed less favourable times in recent decades. Today, a sustainable metropolitan vision is aiming to rebuild the city through iconic projects. The black coal tips in the surrounding Samber and Meuse valley also used to prompt negative perceptions, but now they are seen as green pyramids in the landscape heritage. One topped-off coal tip will house the new 1,000-bed Grand Hopital de Charleroi (GHdC), which forms part of the aforementioned urban revitalisation.

Reflecting this change, the GHdC wants to convey new values based around a salutogenic approach to health, evolving into a place of predilection and health promotion, with high-quality open spaces optimising the landscape and environmental qualities.

The design competition included four requirements: applying the 'layers' method; providing flexible solutions; cost control; and handling deadlines while integrating the new medical project. Separating and regrouping functions by typology opened up specific architectural approaches, optimising structural and spatial functionality while improving infrastructure. This solution starts from the care organisation, in whatever arrangement. Following economical and real-estate management logics, the concept reinterprets the 'layers' method and a Total Costs of Ownership approach involving analysis of the life-cycle costs to reduce maintenance, energy and operational costs.

This compact, flexible concept on a human scale discretely starts a dialogue with its surroundings: an urban green plateau where daylight, materials, colours and textures coincide with a salutogenic hospital for tomorrow.

Stéphane Vermeulen

Director healthcare, VK

Stéphane Vermeulen is an experienced hospital planner, designer and project manager. Focusing on the quality of VK's designs and steering its innovative and technological capabilities, he contributes both to the general strategic approach of the healthcare sector and through specific interpretation and conceptualisation of projects. He believes two principles are essential: on the one hand, the respect for and balance of various stakeholder interests, and, on the other hand, the care for a technical integrated approach of a project. Stephane's extensive know-how has been gained over many years in managing several hospital projects – from new realisations to renovations, and specific medical-technical services to more general units.

de jong gortemaker algra

Saturday 12 July, 2014, 16.05pm

Sint Antonius Ziekenhuis, Utrecht, Netherlands

In this paper, the new Saint Anthony Hospital (Sint Antonius Ziekenhuis) in Utrecht, Netherlands will be presented. This building complex – constructed in 2013 – with a gross area of 85,000m², consists of three parts: a hospital (57,000m²), a parking garage (510 parking places, 18,000m²) and a psychiatric centre (10,000m²). The hospital has 144 clinical beds, 70 day-hospital beds and 10 operation theatres.

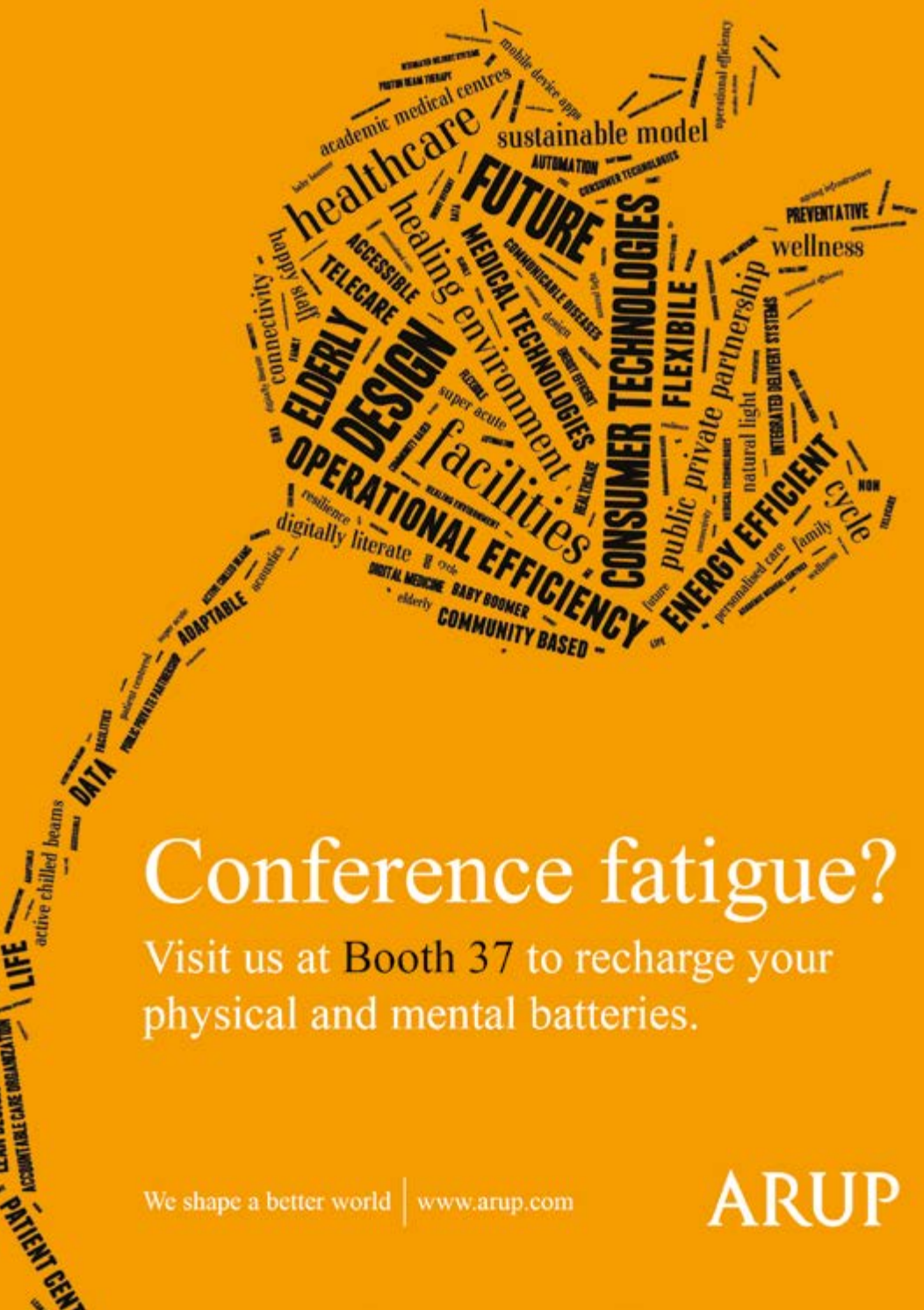
Important issues in the design are:

- hospital logistics: a functional layout;
- flexibility: an orthogonal grid structure can contain every possible function;
- orientation: simple and straightforward;
- healing environment: colour, light, space and a view outside from every room;
- daylight: patios and gardens; and
- room for the patient: shops, restaurant, roof garden and single bedrooms.

Roelof Gortemaker

Board architect, De Jong Gortemaker Algra

Roelof Gortemaker is part of the management team of De Jong Gortemaker Algra, a multidisciplinary firm of architects employing 90 staff in the disciplines of architecture, interior design, construction, architectural engineering, and project management. After completing his Master's degree in architecture at Delft University of Technology, Roelof started his architectural career in 1986 at Campman Tennekes de Jong Architects, where he worked on the design for the Hilversum Hospital. Four years later he left the firm to start working at Benthem Crouwel Architects as an architect for Amsterdam Airport Schiphol. In 1991, he returned to the firm to serve as board architect. His designs in the social sector are typified by the pursuit of high-quality humane and respectful architecture.



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Thursday 10 July, 2014, 07.30 – 08.30
Ontario Room, Convention Floor

Embracing the future: Integrating innovation and disruptive technology into healthcare infrastructure

Generally, healthcare lags behind other sectors in adopting technical innovations that can vastly improve safety and quality, efficiency, and the patient experience. Why is this? What can those involved in the design and development of healthcare facilities do to improve this? Panellists with wide global experience as owner, architect and IT advisor will each present their views on the opportunities and barriers to the adoption and integration of service innovation and new technologies into healthcare infrastructure. This will be followed by a facilitated discussion in which audience participation is encouraged.


Katie Wood

Facilitator: Katie Wood, principal and healthcare lead, Arup Canada
Katie brings together technical, people and process consulting to apply international best practice for the benefit of clients. Her healthcare-specific experience across the UK, Australia and Canada includes: the planning and implementation of health facility developments; Public-Private Partnership procurement; and organisational change covering people, processes and IT systems.


Cliff Harvey

Cliff Harvey, vice-president, planning, facilities & support services, North York General
Prior to his current role, Cliff was the senior architect for the Ontario Ministry of Health and Long-Term Care. With more than 20 years' experience, Cliff has extensive expertise in operational planning, design, and construction of health facilities, as well as health systems planning.


Tom Harvey

Tom Harvey, president and managing principal, HKS' Center for Advanced Design Research & Evaluation (CADRE)
A fellow of both the American Institute of Architects and the American College of Healthcare Architects (ACHA), Tom chairs the latter's examination committee and is the treasurer of the Academy of Architecture for Health Foundation (AAHF). He founded the Center for Advanced Design Research & Evaluation (CADRE), dedicated to conducting research into the performance and improvement of architectural design, with an emphasis in healthcare.


Justin Trevan

Justin Trevan, senior consultant, IT & communication systems, Arup Canada
Justin is an Associate at Arup in Canada, and a Chartered Engineer in the UK, with over 10 years of experience working at the intersection of technology and the built environment. With extensive knowledge of IT, security, radio and audio visual systems across a number of sectors including healthcare both in the UK and Canada, Justin's professional focus revolves around the effective integration of technology within complex facilities and as an enabler for more efficient operations. He is a proponent of lean, operational-centric system design; ensuring operational goals are met with appropriate technology solutions, rather than retrofitting operations around 'exciting' new technologies.

AECOM

Friday 11 July, 2014, 07.30 – 08.30
Ontario Room, Convention Floor


Mounir Marhaba


Andrew Loblaw


Christine Stead

Planning technology into healthcare: Can we do it better?

Rapid advancement and application of technology continue to be a key driver for the future of medicine and the delivery of healthcare. With equipment budgets for hospitals accounting for up to 50% of capital construction costs, how can costs be contained and the right decisions made when selecting medical equipment and technology? Judgements have to be made today on how health facilities will operate in the future, and decisions taken that provide a return on investment alongside an enhanced patient experience.

A panel of respected healthcare professionals will explore ways to tackle these medical-equipment planning challenges, as well as: the future of healthcare and technology; provocative timing issues relating to large technology purchases and their return-on-investment potential versus the patient experience; and the challenges faced by the largest of Saudi Arabia's planned medical cities, as it approaches its construction phase. This debate will demonstrate how the planning process for incorporating new technologies and medical equipment is becoming increasingly sophisticated to keep up with technology itself. The panellists will help synthesise decision-making into a science, rather than a guessing game, and will provide participants with tools to help make effective and efficient investment decisions to ensure the provision of future-ready healthcare.

Moderator: Christine Chadwick, senior vice-president, Canada national healthcare sector lead + strategic consulting, AECOM

Mounir Marhaba Hon BSc, MSc ED (Admin), DGTTPE, MSc HPF, CHE, SCPM, program director, contracts, business operations and special projects, King Khalid Medical City, Mega Project Management Office, Dammam, Saudi Arabia
Mounir Marhaba is a Canadian-certified health services executive and former senior Canadian government official. He is a leading healthcare expert and respected strategist with more than 25 years of experience working with evidence-based research and development organisations to build capacity and transform healthcare delivery.

Dr Andrew Loblaw BSc, MD, MSc, FRCPC, CIP, clinician scientist, GU lead, Sunnybrook Health Sciences; associate professor, University of Toronto
Dr Andrew Loblaw's clinical practice and research interest focus on improving outcomes for men with prostate cancer, and the cancer system. He has a particular interest in the design and conduct of clinical trials; the generation of evidence-based guidelines; and image-guided radiotherapy. He is the North American editor for Clinical Oncology, the co-chair of the American Society of Clinical Oncology's Genitourinary Advisory Group, and co-chair of the GU group for Cancer Care Ontario's Program in Evidence-Based Care.

Christine Stead, executive strategist, Blue Cottage Consulting
Christine works with clients in the US and Canada on innovation, systems change, and new models of healthcare. She works with academic medical systems, large health systems, and safety-net systems of care, and has led health-reform readiness efforts with national consortia to evaluate viability of value-based models and requirements for success. She has also applied this knowledge to academic medical centres to reduce cost structure, provide IT infrastructure, and develop affiliations with surrounding community hospitals while expanding ambulatory access.

HermanMiller

Friday 11 July, 2014, 07.30 – 08.30

Salon B, Convention Floor

John Roberts

Julie Sless

Future of work in healthcare: Scenarios 2018

The future is profoundly unpredictable, and yet we all make decisions today that will affect how well we support the work and engage the workers of tomorrow. Many questions arise when we look into the future of healthcare:

- Who are the workers of the future?
- What social media and technology tools will these workers use? and
- How will physical space stay in sync to support future workers?

Herman Miller is a globally recognised leader of innovation, which results from our commitment to research and our focus on human-centred design. In this session we will share one of our key research methodologies that looks into the future of work: scenario planning. Creating scenarios helps us better plan for the future.

We will explore Herman Miller's hypothesis and resulting conclusions about how work might change globally by 2018. Reaching out to a panel including experts from Stanford University and University of California, and PhDs in anthropology, employee relations, political science, and international relations from around the world, we have created our third 'Scenarios study' since 2002 – all grounded in rigorous, global research.

Scenarios 2018 will provoke broader and deeper thinking, reflection, learning, conversation, and create a shared understanding of possible implications for the design of healthcare facilities in the future. Come prepared to think creatively and provocatively, and expand your mind as you become immersed in possibilities for the future of work.

John Roberts, research and workplace strategist, Herman Miller Canada
John draws from more than 30 years of experience in the industry to consult with corporate, education and healthcare clients, as well as architects, interior designers and project managers on all workplace issues. He is a member of the Herman Miller Global Workplace Research initiative, which is focused on interpreting global trends from a local perspective. He holds an honours degree in psychology from Concordia University in Montreal, Canada, as well as a diploma, interior design from Humber College in Toronto.

Julie Sless BAA ID, vice-president healthcare, Herman Miller Canada
With 25 years of facilitation and design experience, Julie works with leadership teams to ensure that their investment in physical space produces a positive return – reducing operating costs and increasing staff performance. She has co-developed a research methodology that can measure – pre- and post-occupancy – staff satisfaction and engagement as a result of adaptive, transformable physical-space design. With a degree in interior design from Ryerson University in Toronto, Canada, she is also a corporate member of the Canadian College of Healthcare Leaders.

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The Design & Health International Academy Awards programme has a significant influence on the global design and development of humanistic environments that support health, wellbeing and quality of life around the world.

Awards will be presented in ten categories across the key areas of international healthcare delivery, including: International Health Project (over 40,000sqm); International Health Project (under 40,000sqm); Research Project; Future Health (Unbuilt) Project; Mental Health Design; Salutogenic Design; Sustainable Design; Use of Art in the Patient Environment; Interior Design Project; and Product Design for Healthcare Application. The criteria and judging panel, as well as the finalists and those submissions who then made the shortlist for each award category are highlighted in the following pages.

The Academy will also present a Lifetime Leadership Award to a leader and visionary who has shown ongoing commitment to enhancing the health, wellbeing and quality of people's lives through research, education and the creation of healthy built environments.

Venue: Fairmont Royal York Hotel
Date: Saturday 13th July
Time: 19.00 – 22.30

The recipients of this year's awards will be teams who, through unique and outstanding efforts, have demonstrated vision and leadership in exemplary initiatives and projects. Open to international organisations and individuals in both the private and public sectors participating in either research or practice, including the planning, procurement, design, construction and management of healthy built environments, only design projects or research

programmes completed between 1 January, 2013 and 30 June, 2014 were eligible to enter. The exception was the Sustainable Design award which had a longer entry period.

The awards are chaired by Prof Alan Dilani, chief executive of the International Academy for Design & Health, who approves the recommendations of the lead judges and their panels in each award category.

The awards will be presented during the Gala Academy Awards Dinner at the Fairmont Royal York Hotel on 12 July. If you haven't reserved your place at the Gala Dinner and Academy Awards Ceremony, we encourage you to book now at the registration desk to support the prize winners, recognise their unique work and enjoy a wonderful evening of music and entertainment with friends and colleagues.

Judging criteria

The decisions of each judging panel were based on criteria specific to each category, including: design/creative approach and values; sustainability; planning and organisation; operational efficiency; stakeholder engagement; hospitality, wellness and culture; health promotion; innovation; accessibility and context; research methodology; and function and performance. The winners of each award were determined by a lead judge, supported by a panel of two judges with proven expertise. Each judging panel comprised experts in their field from multidisciplinary backgrounds.

President: Dr Ray Pentecost III DrPH. FAIA, FACHA
Chief Executive Officer: Prof Alan Dilani PhD
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HEALTHCARE

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Research Project

Awarded for a completed, innovative, independently assessed, piece of research focused on a particular aspect of the design, function, construction, financing or maintenance of a healthcare facility or addressing a relevant topic concerning public health in the context of the working environment.

Lead judge

John Zeisel
Hearthstone Alzheimer Care
USA

Panel

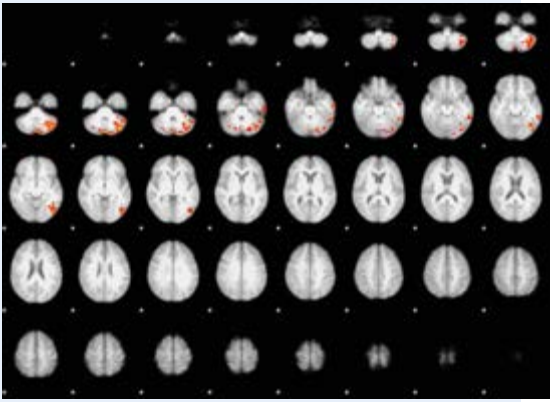
James Barlow, Imperial College London, UK
Eve Edelstein, University of Arizona, USA

The Shortlist

Effect of physical environment on the behaviours of residents with dementia and staff care practice in dementia care setting: A comparison between a small group unit and a traditional care unit; authored by Sookyoung Lee PhD, Habib Chaudhury PhD and Lillian Hung RN, BN, MA, Research Center Design & Health, Sweden

Field observations into the environmental soul: Spatial configuration and social life for people experiencing dementia; authored by Farhana Ferdous, University of Kansas, USA

Neural Correlates of Nature Stimuli: A fMRI study; funded by Sky Factory Foundation; authored by Debajypti Pati, Michael O'Boyle, Cherif Amor, Jiancheng Hou, Shabboo Valipoor and Dan Fang, Texas Tech University, USA



Neural Correlates of Nature Stimuli: A fMRI study

Designing everyday activities: Living environments for adults with autism; authored by Katie Gaudion, The Helen Hamlyn Centre for Design, Royal College of Art, UK.

Design and delivery of robust hospital environments in a changing climate; authored by C Alan Short MA DipArch RIBA, University of Cambridge; Kevin Lomas BSc PhD, University of Loughborough; Alistair Fair BA MA PhD, University of Cambridge; Catherine Noakes BEng PhD, University of Leeds; Giridharan Renganathan BArch MUrDgn PhD AIA, University of Kent; Sura Al-Maiyah BSc MSc PhD, Portsmouth School of Architecture

International Health Project (Over 40,000sqm)

An award for an outstanding healthcare building where patient-centred considerations are as evident as clinical and managerial priorities. The project must demonstrate an understanding of the principles of salutogenesis, and show how innovative design permits ongoing flexibility of use and addresses issues of sustainability.

Lead judge

Tarek El-Khatib
Zeidler Partnership Architects
Canada

Panel

Prof Gelun, Beijing Architecture University, China
Robin Guenther, Perkins + Will, USA

Bridgepoint Active Healthcare, Canada

The Shortlist

Sint Antonius Hospital Utrecht, The Netherlands, designed by de Jong Gortemaker Algra Architects & Engineers

Bridgepoint Active Healthcare, Canada, designed by Stantec Architecture / KPMB Architects and HDR Architecture / Diamond Schmitt Architects

St Olavs Hospital Norway, commissioned and managed by Hesebygg Midt-Norge, and designed by Nordic - Office of Architecture / Ratio Arkitekter / Studio4 Arkitekter / KHR / Pre Knudsen Arkitekter / Asplan Viak / Niels Torp Arkitekter / Pol G Kavli

Finalists

Gundersen Health System, Legacy Building Addition and Renovation, USA, designed by AECOM

Mercy Health - West Hospital, USA, designed by AECOM

The Academia, Singapore, designed by CPG Consultants

Gold Coast University Hospital, Australia, designed by GCUH Architecture (PDT + STH + HASSELL)

NHS Health Care Complex and Walker Family Cancer Centre, commissioned by Niagra Health System, designed by Silver Thomas Hanley and B+H Architects

The South Health Campus, Calgary, Canada, designed by Kasian Architecture Interior Design & Planning

International Health Project (Under 40,000sqm)

An award for an outstanding healthcare building where patient-centred considerations are as evident as clinical and managerial priorities. The project must demonstrate an understanding of the principles of salutogenesis, and show how innovative design permits ongoing flexibility of use and addresses issues of sustainability.

Lead judge

John Steven
Stantec
Canada

Panel

John Hicks, AECOM, UK
Mungo Smith, Medical Architecture, Australia

The Shortlist

Knowledge Centre, St. Olavs Hospital, Norway, commissioned and managed by Helsebygg Midt-Norge, designed by Nordic - Office of Architecture / Ratio Arkitekter / Asplan Viak

National Heart Centre, Singapore, commissioned by Ministry of Health Singaore, designed by Broadway Malyan

Sir Ludwig Guttman Health & Wellbeing Centre, UK commissioned by Olympic Delivery Authority, designed by Penoyre & Prasad

Finalists

Malmi Hospital, Finland, commissioned by City of Helsinki, designed by Olli Pekka Jokela Oy

Midland Memorial Hospital, USA, designed by Perkins + Will

Seattle Children's Building Hope, USA, designed by ZGF Architects

St Mary's Hospital, Canada, commissioned by Vancouver Coastal Health, designed by Farrow Partnership Architects and Perkins + Will

The Steven and Alexandra Cohen Children's Medical Center, USA, commissioned by North Shore LIJ Health System, designed by MorrisSwitzer - Environments for Health

George Brown College of Applied Arts and Technology Waterfront Campus, Canada, designed by Stantec Architecture and Kuwabara Payne McKenna Blumberg Architects in Joint Venture

Sir Ludwig Guttman Health & Wellbeing Centre, UK

Spaulding Rehabilitation Hospital

Chris O'Brien Lifehouse, Australia, designed by HDR | Rice Daubney

Lancaster General Health, Ann B Barshinger Cancer Institute, USA, designed by Ballinger

St. Mary's Hospital, Sechelt, British Columbia, Canada
Farrow Partnership Architects in association with Perkins+Will Architects

Cause Health

Farrow Partnership is leading the way to lift the burden of chronic disease. We are dedicated to cause health by healing the built environment.

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Farrow

Salutogenic Design Project

Sponsored by Farrow Partnership Architects Inc.

Awarded for the design of a completed project of any typology, which is comprehensible, manageable and meaningful, thereby fostering a strong sense of coherence amongst its users that promotes their health and wellbeing. Submissions must show how environmental, social and economic sustainability is improved.

Lead judge

Tye Farrow
Farrow Partnership Architects
Canada

Panel

Ray Pentecost III,
International Academy for Design & Health, USA
Stephane Vermeulen,
VK Architects & Engineers, Belgium

Deheng Clinic,
Beijing, China

The Shortlist

St Olavs Hospital Norway, commissioned and managed by Helsebygg Midt-Norge, designed by Nordic - Office of Architecture / Ratio Arkitekter / Studio4 Arkitekter / KHR / Pre Knudsen Arkitekter / Asplan Viak / Niels Torp Arkitekter / Pol G Kavli

Deheng Clinic, Beijing, China, designed by Robarts Interiors & Architecture

Finalists

Robarts Interiors & Architecture Beijing Office, Beijing, China, designed by Robarts Interiors & Architecture

Mount Sinai Hospital: Sherman Health + Wellness Centre, Canada, designed by ARK

George Brown College of Applied Arts and Technology Waterfront Campus, Canada, designed by Stantec Architecture and Kuwabara Payne McKenna Blumberg Architects in Joint Venture

The South Health Campus, Calgary, Canada, designed by Kasian Architecture Interior Design & Planning

Mental Health Design

An award for a mental health facility where an effective reconciliation between operational requirements for security and supervision and the imperative for a civilising and humane environment that supports therapeutic intervention is evident. Submissions should show an understanding of the principles and practice of salutogenesis.

Lead judge

Ronald Hicks
HDR | Rice Daubney
Australia

Panel

Ron Billard, Billard Leece Partnership, Australia
Cliff Harvey, North York General Hospital, Canada

The Southdown Institute, Canada

The Shortlist

The Southdown Institute, Canada, designed by Montgomery Sisam Architects

Glenside Health Services, Australia, commissioned by South Australia Health, designed by Medical Architecture and Swanbury Penglase Architects

Southwest Centre for Forensic Mental Health Care, Canada, commissioned by Stv Joseph's Health Care, London, designed by Parkin Architects in joint venture with Architects Tillman Ruth Robinson

Finalists

St Joseph's Healthcare Hamilton, Margaret and Charles Juravinski Centre for Integrated Healthcare, Canada, designed by Cannon Design

Dandenong Mental Health Facility, Australia, commissioned by Monash Health, designed by Bates Smart Whitefield McQueen Irwin Alsop Joint Venture

Sustainable Design

Awarded for a healthcare project completed after 1 January 2008, that can demonstrate sustainability performance above the mandatory norm, satisfies legislative, technical, financial and moral imperatives, and shows understanding of the principles of salutogenic and ecological design.

Lead judge

Ihab Elzeyadi
University of Oregon
USA

Panel

Alan Short, University of Cambridge, UK
Katie Wood, Arup, Canada

The Shortlist

St Mary's Hospital, Canada, commissioned by Vancouver Coastal Health, designed by Farrow Partnership Architects and Perkins + Will

Knowledge Centre, St Olavs Hospital, Norway, commissioned and managed by Helsebygg Midt-Norge, designed by Nordic - Office of Architecture / Ratio Arkitekter / Asplan Viak

St Mary's Hospital, Canada

Finalists

Ozanam Industries Stanmore, Australia, designed by DTB Architects

Ethianum Heidelberg, Germany, designed by Schmucker and Partner

Gundersen Health System, Legacy Building Addition and Renovation, USA, designed by AECOM

Beijing United Family Hospital New Hope Oncology Center, China, designed by Robarts Interiors & Architecture

George Brown College of Applied Arts and Technology Waterfront Campus, Canada, designed by Stantec Architecture and Kuwabara Payne McKenna Blumberg Architects in Joint Venture

The South Health Campus, Calgary, Canada, designed by Kasian Architecture Interior Design & Planning

Interior Design Project

An award to recognise a therapeutic space that enhances the health, wellbeing and quality of life of the patients, staff and visitors. Preference will be shown to innovative projects, which show understanding of the principles of salutogenesis, respect the privacy and dignity of patients, and demonstrate environmental sustainability.

Lead judge

Deborah Sheehan
Cannon Design
USA

Panel

Linda Bishop, Interior Design Consultant, USA/China
Nicola Bertrand, Johnstaff, Australia

Chris O'Brien Lifehouse, Australia

The Shortlist

Deheng Clinic, Beijing, China, designed by Robarts Interiors & Architecture

Chris O'Brien Lifehouse, Australia, designed by HDR | Rice Daubney

Mount Sinai Hospital: Sherman Health + Wellness Centre, Canada, designed by ARK

Knowledge Centre, St Olavs Hospital, Norway, commissioned and managed by Helsebygg Midt-Norge, designed by Nordic - Office of Architecture / Ratio Arkitekter

Finalists

Ozanam Industries Stanmore, Australia, designed by DTB Architects

Boomerang Health Sickkids Healthcare Centre, Canada, commissioned by Sickkids Children's Hospital, designed by C & Partners Architects

The Use of Art in the Patient Environment

An award that recognises the effective application of creative endeavour which further advances knowledge of the potential of the arts to support the therapeutic process. Preference will be given to success in new and innovative approaches that also demonstrate an understanding of the principles and practice of salutogenesis.

Lead judge

Guela Solow
ARK
Canada

Panel

Mike Nightingale, IBI Nightingale, UK
Susan Francis, Architects for Health, UK

St Olavs Hospital, Norway

The Shortlist

The Royal Children's Hospital ARCH Creativity Program, Australia, commissioned by The Royal Children's Hospital, Melbourne, directed by Victoria Jones

St Mary's Hospital, Canada, commissioned by Vancouver Coastal Health, designed by Farrow Partnership Architects and Perkins + Will

St Olavs Hospital, Norway, commissioned and managed by Helsebygg Midt-Norge, designed by art consultants and 383 Artists

Finalists

Ozanam Industries Stanmore, Australia, designed by DTB Architects

Elliott Chapel Health Centre, UK, commissioned by NHS Hull, designed by HLM Architects

St Joseph Mercy Oakland South Patient Tower Art Project, USA, designed by Aesthetics

Unique People, Unique Identities, St Giles Palliative Care Hospice, UK, designed by Dominic Pote

Future Health Project

(Projects should be in design or under construction)

An award for the design of a future acute or non acute healthcare building that recognises the changing role of the hospital within the wider health system and the local community. The project must demonstrate a 'salutogenic' vision for healthy environments that addresses anticipated socio-economic challenges of the future.

Lead judge

John Cole
Consultant
UK

Panel

Frankie Lim, CPG Consultants, Singapore
Ian Forbes, University of Technology Sydney, Australia

Private Academic Medical Center in Uttar Pradesh, India

The Shortlist

Gualv New City General Hospital, China, commissioned by Zengcheng Municipal Health Bureau, designe by RTKL Associates

The Greater Accra Regional Hospital at Ridge, Ghana, designed by Perkins+Will

Private Academic Medical Center in Uttar Pradesh, India, designed by Cannon Design

Finalists

Clock View Mental Health Project, UK, commissioned by Mersey Care NHS Trust, designed by Medical Architecture

Grand Hopital de Charleroi, Belgium, designed by VK Architects & Engineers

Oncology Centre of Excellence at King Faisal Specialist Hospital and Research Centre, Saudi Arabia, designed by RTKL Associates

Ministry of the Interior Hospital, Qatar, designed by B+H Architects

Product Design for Healthcare Application

An award for a manufactured product or item of equipment that adheres to the principles and practice of salutogenesis and human factors, and which is integrally installed in a healthcare environment, advances levels of technical performance and integrates satisfactorily with the setting designed to accommodate it.

Lead judge

Alice Liang
Montgomery Sisam Architects
Canada

Panel

Kevin Gorman, Britplas, UK
Gunther De Graeve, Destravis Group, Australia

The Shortlist

The Mobile Cabinet for Vienna North Hospital, Austria, commissioned by City of Vienna - KAV, designed by Atelier Albert Wimmer

Interactive Installation, St Olavs Hospital Norway, commissioned and managed by Helsebygg Midt-Norge, designed by Sony Corp in cooperation wirth Parallel World Labs

Finalists

Foster Collection, designed by AllSeating

Primacare, designed by Global Design Centre, Canada

The Doctor's Bag, designed by the Royal College of Art Helen Hamlyn Centre for Design, UK

The Mobile Cabinet for Vienna North Hospital, Austria

Study tours: Inspiring places

Join colleagues on the morning of 13 July, 2014 for international benchmarking study tours of some of Toronto's most impressive healthcare facilities and iconic architectural buildings

To register for a tour, please visit the Congress registration desk.

Study tour 1: Downtown Toronto

Date: Sunday 13 July, 2014
Time: 8.30-13.00
Departure point: Fairmont Royal York Hotel, Toronto

MaRS phase 2 is an iconic building situated in Toronto's Discovery District and the final piece of the MaRS Centre – establishing it as a central point for the convergence of ideas and innovation between science, business and government.

University Health Network is a medical complex comprising four hospitals: Toronto Western Hospital, Toronto General Hospital, Princess Margaret Cancer Centre, and the Toronto Rehabilitation Institute. A multi-phase project completed in 2004 created a framework for the evolution of the network, focusing on integration, collaboration and revitalisation.

St Joseph's Heath Centre has undergone extensive expansion and renovation since 1999, with the introduction or redevelopment of several departments. In 2012, work was completed on a new four-storey Our Lady of Mercy Wing, which meets the needs of children and families within the context of a larger medical centre.

Ronald McDonald House has a mission to provide accommodation and enhance the quality of life for out-of-town families with seriously ill children through a caring and supportive "home away from home". The new facility is designed to accommodate 81 families, making it the largest in Canada and the second largest in the world.

The **Centre for Addiction and Mental Health (CAMH)** aimed to create a normalised treatment environment for mental illness and addiction in an "urban village", in order to combat stigma. This complex brief was translated into a physical plan integrated within the urban fabric by extending the surrounding streets into a 27-acre hospital site.

Study tour 2: Waterfront and City East Development

Date: Sunday 13 July, 2014
Time: 08.30-13.00
Departure point: Fairmont Royal York Hotel, Toronto

George Brown College is expanding its properties with a new campus dedicated to health science. Recognising that healthcare is shifting from isolated medical functions to an integrated delivery of care, George Brown College required that the design for its new Waterfront Health Sciences Campus embodied the concept of inter-professional education to improve patient care. The design prioritises the principles of sustainability; access to public transit and alternative modes of transportation; and a commitment to building for the long term.

The Toronto Birth Centre is a pilot project that emerged from a recent initiative to shift non-acute health services out of the hospital setting and into community-based healthcare centres. Located in Toronto's revitalised Regent Park neighbourhood, the midwife-run birth centre offers women with low-risk pregnancies the chance to experience a natural, out-of-hospital childbirth. The birth centre is designed to support the delivery of 450 births a year and facilitate a holistic approach to providing care for mothers and babies from conception to six weeks after birth, as well as serving as a community hub offering prenatal classes, breastfeeding clinics, and parenting classes.

Bridgepoint Active Healthcare seeks to set a new standard for chronic disease management and rehabilitation, helping Toronto citizens living with chronic conditions to enjoy an improved quality of life. Located at the eastern edge of Toronto, the site is bordered by a park, residential community, major highway, and a historic jail. An architecture of wellness is achieved by optimising the therapeutic benefit of nature for healing. All patient rooms, therapy spaces, and lounges offer dramatic park and city views. At ground level, an 'urban porch' encourages interaction via café, auditorium, library and terrace spaces. Shared therapy and convalescent spaces on levels five and 10 act as 'sky gardens' with access to outdoor space.

architecture that promotes health

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PROJECTS FROM THE TOP CLOCKWISE Island Yacht Club; Amica Windsor Retirement Community; Arts & Administration Building, University of Toronto Scarborough; Southdown Institute **CONTACT** Montgomery Sisam Architects Inc.
T 1.416.364.8079 F 1.416.364.7723 www.montgomerysisam.com

Study tour 3: New healthcare development at City West

Date: Sunday 13 July, 2014
Time: 08.30-13.00
Departure point: Fairmont Royal York Hotel, Toronto

Trillium Health Partners – West Toronto, Ambulatory Care is a redevelopment of a 1950s hospital. Ambulatory-care patients are led inside, via an external procession of oversized virtual vines, where they encounter real hanging gardens. Privacy in the public garden space is achieved through low serpentine seating enclosures. The Cancer Care and Detection Clinic is created within the second level of what was an inpatient tower. A dramatic pedestrian street is being created and promises to serve as an enduring social infrastructure supporting change and growth. This street is a major reference point for orientation – the main internal connection between health services – and has created a new identity for the site. Threading this 'street' further through the existing scattered buildings, Trillium will eventually create new destinations and opportunities for future wellness services.

Trillium Health Partners – Mississauga Hospital features a social concourse at the entrance level of its new inpatient tower, enhancing the learning environment and public access with a hospitality experience. The length of the tower permits logical organisation of three pods of 36 beds on each floor without reinforcing a race-track plan. Opportunities were created for wayfinding and orientation with light art, a nutrition centre at the intersection, and exterior light penetrating directly into the corridors. This 'west wing' is a Pebble project, wherein an exhaustive post-occupancy study is delivering data on how the decentralised team stations and new inpatient room design compare with old models in terms of patient and staff experiences, and outcomes. An innovative double room offers separation between patients, clear views by staff to each angled bed, and defined family space.

Trillium Health Partners – Credit Valley Hospital has been rated one of the top two hospitals in the Greater Toronto Area. This 366-bed, regional acute-care centre integrates a comprehensive cancer centre with ambulatory clinics. Now part of Trillium Health Partners, it embodies Credit Valley Hospital's stated desire to be "first in the hearts and minds of the people we serve". Dramatic spaces and warm materials promote humanistic health practices among patients and staff in this multiple award-winning facility.

Canadian Urban Institute
Institut urbain du Canada

Dr Heather McKay

Wednesday 9 July, 2014

Healthy Cities 2030: Reshaping the supply chain to improve health and quality of life

Opening keynote: Making cities good places to grow older

Dr Heather McKay, director, Centre for Hip Health and Mobility; professor, UBC Departments of Orthopaedics and Family Practice; and director, Walk the Talk (funded by CIHR)

This talk will focus on how to make the most of opportunities for collaboration across disciplines. Making infrastructure changes to the built environment is dependent on such collaboration.

Using a $1.5 million grant from the Canadian Institutes for Health Research (CIHR), McKay and her colleagues are examining factors that help make cities good places to grow older, working with Vancouver public-works officials to create a "greenway" that encourages walking and cycling, with a particular focus on the needs of the elderly. This stems from a desire to better understand how elements of urban design define the built environment and the impact on health, recognising that this is not an area that has been explored extensively in the literature.

The goal of the Walk the Talk initiative is to identify the factors that can prolong active and independent living, which will also help improve physical and emotional health, and reduce dependency on the healthcare system.

Our three research themes aim to synthesise existing knowledge, refine and develop new tools to evaluate "walkability", and relate these issues to the impact on services and amenities. The project integrates the interests of a number of disciplines, and has benefited from a similarly ambitious commitment from City of Vancouver staff to relate a scientifically rigorous long-term project to the practical needs of a municipal initiative.

The greenway is a complex undertaking in its own right, involving collaboration across multiple city departments and agencies. The ability of the Walk the Talk team to move quickly and nimbly allowed us to take advantage of a major municipal intervention in the built environment to benchmark seniors' access and mobility before, during and after the project. We believe this project can serve to inspire others to integrate health-focused research with built-environment initiatives that will allow older adults to live independently within their own communities for as long as possible.

Moderator:
Dr David Mowat

Dan Leeming

Panel: Healthy communities

Moderator: Dr David Mowat, medical officer of health, Region of Peel, Ontario; chair, Built Environment Working Group, Urban Public Health Network
Dan Leeming FCIP, RPP, partner, The Planning Partnership; adjunct professor, University of Guelph
Dr Gillian Booth MD, MSc, FRCP, scientist in the Li Ka Shing Knowledge Institute of St Michael's Hospital; adjunct scientist at the Institute for Clinical Evaluative Sciences (ICES); and assistant professor in the Departments of Medicine and Health Policy, Management and Evaluation, at the University of Toronto
Dennis A Kar MUP, RPP, associate transportation planner, Dillon Consulting

Concerned that traditional suburban street layouts are fostering unhealthy lifestyles, medical officers of health across Canada are spearheading new ways to improve the physical and emotional health of their constituents. The Peel Healthy Development Index is being developed with a view to reducing the incidence of Type 2 diabetes among Peel residents, building a strong case for developing communities that encourage healthy living. The rapidly growing suburbs adjacent to Canada's largest urban centres are home to a significant portion of the country's population and economic activity. They therefore represent important opportunities for sustainable and healthy development.

This panel will discuss ideas for how to encourage healthy development and healthy activities. Dr David Mowat's interest in working with planners, public-health officials, and municipal decision-makers on improving health by design lies in achieving a level of collaboration among and across disciplines that works at many different scales. Dan Leeming will aim to address the challenges of communicating complex issues to diverse audiences whose interests are not necessarily aligned. Describing her work as an endocrinologist and researcher with St. Michael's Hospital, Dr Gillian Booth says that by determining the impact residential density and proximity of walkable destinations have on Toronto citizens' health, we are moving closer to possessing the ability to modify the built environment and having a direct impact on public health. The final panellist, Dennis A Kar, whose practice is primarily focused on addressing transportation issues, will seek to document his experience as a professional planner.

Moderator:
Randy Fiser

Rita Carson Guest

Lisa Fulford-Roy

Panel: Interior design's impact on health and community

Moderator: Randy Fiser, executive vice-president and CEO, American Society of Interior Designers (ASID)
Rita Carson Guest, president, director of design, Carson Guest
Lisa Fulford-Roy ARIDO, senior vice-president, client strategy, strategic accounts and consulting, HOK

The role of the interior environment is gaining prominence, as there is a growing need to invest in healthy and sustainable urban infrastructure. Through the application of universal- and evidence-based design, interior designers directly impact occupant health and quality of life in the workplace; for example, amenity placement along circulation paths combat sedentary work styles, and bike storage encourages active commuting options. These interventions in the workplace not only improve occupant health but translate to a healthier community overall. Join us for a conversation to hear about the vital role interior designers play in building relationship with clients to understand their needs and business objectives, and strategies that affect productivity, happiness, innovation and overall wellbeing.

Moderator:
Dr Murtaza Haider

Dr Samir Sinha

Policy conversation: Provincial policy nexus: Who decides?

Moderator: Dr Murtaza Haider PhD, associate professor, Ted Rogers School of Management, Ryerson University
Dr Samir Sinha, director of geriatrics at Mount Sinai; provincial lead, Ontario's Seniors Strategy
Michelle Noble, director, partnerships and consultation – Ontario Growth Secretariat, Ministry of Infrastructure

A discussion about how best to link our common desire for healthier communities with smart decisions on major infrastructure investments. In steering the discussion, the moderator will ask how the above two key elements of provincial interest can be resolved to mutual satisfaction. This will consider the need to improve regional planning for the benefit of working commuters, and the need to cater for a rapidly ageing population seeking to achieve a high quality of life in retirement. Dr Samir Sinha sees the challenge as one of transforming the way healthcare is delivered, particularly in respect of the over-65 population. He believes that public policy must provide a framework that works for everyone, recognising the needs of individuals, and, as a result, it must be based on sound values as well as hard evidence. The contribution from Michelle Noble will focus on the challenges facing the Ontario Government as it pursues the implementation of its Growth Plan for the Golden Greater Horseshoe region of southern Ontario.

Alice Liang

Ian Sinclair

Michael McClelland

Frank Lewinberg

Panel: Healthy neighbourhoods: Towards civic and institutional maturity?

Moderator: Denise McNally, senior project manager – project delivery, Infrastructure Ontario
Alice Liang BArch, OAA, SAA, FRAIC, partner, Montgomery Sisam Architects
Ian Sinclair MHA, CHE, vice-president of facilities and capital development, Bridgepoint Health
Michael McClelland OAA, CAPHC, FRAIC, founding partner, ERA Architects
Frank Lewinberg FCIP, RPP, MARC, partner, Urban Strategies

More than 100 years ago, mental health institutions and provincial jails were often built in isolated locations beyond city limits where they could be ignored by polite society. Today, policymakers view mental health through a very different lens, reflected in their desire to make good use of these heritage structures while integrating them into rapidly changing neighbourhoods. This has led to innovative solutions in everything from procurement and financing to programming and urban design, illustrated by two case examples. The Centre for Addiction and Mental Health (CAMH) has given physical expression to the new thinking about mental health by opening up the grounds, extending the street grid, and integrating housing into a village-like setting. On the other side of town, years of expansion of the former Don Jail are being peeled back to accommodate the new home of Bridgepoint Health, a 400-plus-bed, state-of-the-art community hospital.

Alice Liang will document some of the specific challenges associated with achieving a high level of design excellence within fiscal constraints, and in ways that meet the needs of patients and the expectations of the surrounding community. Frank Lewinberg will focus on the challenges involved in working on masterplans for major public-sector institutions. Ian Sinclair will describe how Bridgepoint Health's interdisciplinary team worked with the fiscal and programming requirements of provincial bureaucrats, the needs of municipal and community organisers, and the evolving goals of Bridgepoint itself. Lastly, Michael McClelland will explain how repurposing the heritage structures has, in effect, changed the way the location of Bridgepoint is perceived in the community.


Becky Upfold


Antonio Gomez-Palacio


David Hoffman

Panel: Healthy buildings: Improving the quality of the workplace

Moderator: Mark Salerno, Ontario manager, communications and marketing at Canada Mortgage and Housing Corporation
Becky Upfold, director of SmartCommute, Metrolinx, Toronto
Antonio Gomez-Palacio Arq MES, RPP, MCIP, MRAIC, principal, DIALOG
David Hoffman, general manager, TD Centre

As the impact of the knowledge economy takes effect, an increasing proportion of all jobs are in office buildings. How people get to work (mostly by car, sitting in traffic jams), how we spend our time at work (statistics suggest that the average office worker in the US sits in front of a computer more than six hours a day), and the quality of air we breathe (fluctuations in temperature and airflow directly affect productivity) contribute billions to direct and indirect health costs. Smart employers – often using improvements in energy efficiency as a rationale for investing in better work set-ups – are beginning to make in-roads at all scales of the built environment.

Becky Upfold believes that the opportunity to work collaboratively across many different scales, from the big picture to the building-specific, and with decision-makers in both the public and private sectors, requires TDM practitioners to be innovative, resolute and, above all, patient. Antonio Gomez-Palacio sees the challenge for urban designers, developers and public-sector policymakers as one of understanding and working with the cumulative impact of thousands of decisions made by individuals on whether they should take the car, public transit, or move to a location where they can walk to work.

David Hoffman will illustrate how he and his colleagues have kept the TD Centre at the forefront of iconic design by paying close attention to the quality of working life within each building, and in relation to the surrounding and constantly changing urban fabric. Lastly, Jamie James will underline the need to enhance the working environments within buildings through innovation focused on technologies but also recognise how people interact with their surroundings.

Reza Moridi PhD, MPP

Minister of Research and Innovation,
Minister of Training, Colleges and Universities,
Legislative Assembly of Ontario, Canada

Facilitating research to innovate and grow

Created in 2013, the Ministry of Research and Innovation Ontario supports world-class research, commercialization and innovation taking place across Ontario through a range of programs and services like the Ontario Research Fund, Innovation Demonstration Fund and Ontario Venture Capital Fund. Together with research partners in universities, colleges and hospitals, entrepreneurs and business leaders, the ministry helps foster scientific discovery and commercialization of new technologies and products that can be marketed to the world. By harnessing Ontario's talented workforce, entrepreneurial spirit and highly developed industry clusters, the ministry is helping build an innovative culture in Ontario that continues to support job creation and economic growth for all Ontarians. The Ministry has 602 employees and a total budget (operating and capital) of CA$911m.

Agencies, Boards and Commissions
The ministry is affiliated with two agencies, which are independent bodies established by the government but not part of the ministry.

Advisory Agency: Ontario Research Fund Advisory Board (ORFAB)
The Ontario Research Fund Advisory Board reviews and assesses Ontario Research Fund and Early Researcher Award funding proposals, and makes recommendations to the Minister. The Board also provides strategic advice to the Minister on the research agenda to keep Ontario competitive and prosperous.

Operational Enterprise Agency: Ontario Capital Growth Corporation
The Ontario Capital Growth Corporation oversees the Government of Ontario's interest in the limited partnership known as the Ontario Venture Capital Fund LP. It also oversees a portfolio of investments in businesses considered emerging technology businesses.

Alan Dilani, PhD

Chief Executive and Founder, International Academy for Design & Health, Sweden

Towards a salutogenic society by design: Exploring salutogenic perspectives as science, art and design

The health status of people living in Canada is one of the highest in the world, with rising life expectancies and falling mortality and morbidity rates. However, the region's healthcare system faces similar challenges to the rest of the developed world, characterised by increasing cost pressures and a rise in the level of chronic diseases linked to unhealthy lifestyles, such as diabetes, obesity and cardiovascular diseases.

According to the World Health Organization (WHO), lifestyle is a key determinant of an individual's health status. Health promotion is therefore "the process of enabling people to increase control over, and to improve, their health". However, enhancing the quality of the environment is also one of the most cost-effective and enduring approaches to improving public health. Growing awareness of the importance of health promotion and the need to invest in healthy and sustainable public, social, domestic and urban infrastructure, through the application of ecological and salutogenic design, lie at the forefront of opportunity and the leading edge of change in our society. Embracing these perspectives to shape our built environment and infrastructure investment, while embedding it at the core of a preventative-care strategy, changes the focus from risk factors and the treatment of disease to a more holistic understanding of the factors that determine a healthier society.

The salutogenic perspective embraces both the science and art of health promotion by exposing us to wellness factors in the built environment that support behavioural change and motivates us to lead healthier lifestyles. By improving our understanding of health as a process that engages social, mental, spiritual and physical wellbeing, the salutogenic approach acts on the knowledge that health is a fundamental resource to the individual, the community and society, and must be implemented in all environments where we are living, working and playing. The interdisciplinary application of architecture, design, engineering, medicine, public-health policy, culture and psychosocial factors is directly supporting improved health outcomes for society.

Research on the salutogenic direction highlights the impact of design factors that inspire the designer and planner towards a healthy society and to develop the conditions that stimulate health and wellbeing, thereby promoting health and the prevention of diseases at all levels of society. An increase in the consideration of the salutogenic design approach to health infrastructure leads to social innovation and economical growth that requires the interdisciplinary application of sciences such as architecture, medicine, public health, psychology, design, engineering with culture, art and music.

Keywords: Salutogenic Design, Stress-reducing, Health Promotion, Psychosocial Factors

Richard Jackson MD, MPH, FAAP

Professor and chair of environmental health sciences, School of Public Health, University of California Los Angeles, USA

Designing healthy communities

Public health has traditionally associated the built environment with issues such as poor sanitation, lead-paint poisoning children, workplace safety, fire codes, and access for persons with disabilities. If we are what we eat, it can also be said that we are what we build. We now realise that how we design the built environment may hold tremendous potential for addressing many of the nation's current public-health concerns. These include obesity, cardiovascular disease, diabetes, asthma, depression, violence, and social inequities. Almost everything in our built environment is the way it is because someone designed it that way.

North America faces grave challenges in environment, economy and health. The banquet is over. "Easy oil" has disappeared; so, too, other resources are being depleted. Increasingly, global heating will threaten human and species survival worldwide. Economies built on ever-increasing consumption have contracted, and secure incomes are unlikely to be available to working people for a long time, if ever. And our medical care costs will continue to escalate for reasons of technology and population ageing, but, particularly, as the tripling of obesity and doubling of diabetes rates show their health and cost effects.

We must search for solutions that solve problems across many challenges; piecemeal strategies will fail. We must start from the bottom up, which means creating buildings and communities that use fewer resources and fossil fuels, and, at the same time, offering a rich engagement in life, meaningful work, local healthy food, and plenty of "incidental" physical activity. From the top down we must develop policies that incentivise smart buildings and smart communities, and disincentivise plans and construction that threaten our national wellbeing and survival.

Ryan Gravel, AICP LEED AP

Senior associate, and senior urban designer, Perkins+Will, USA

The Atlanta Beltline: A catalyst infrastructure for a healthier way of life

Spurred by the ambition of combating urban sprawl and creating healthy, sustainable communities where people actually want to live, citizens around the world are taking matters into their own hands. One-way communities can re-envision their future through strategic investment in innovative, non-partisan, popular public-works projects, which not only begin the necessary physical transformation but also act as a catalyst for a cultural shift in thinking about what kinds of policies and infrastructure we should be investing in.

By themselves, these projects cannot resolve the dramatic deficiencies of the sprawling metropolis, but they do demonstrate strategies that can be applied to other areas, and, over time, make comprehensive changes more politically palatable. There is a growing number of these catalyst projects popping up around the world. Whether district-scale projects or complex regional proposals, they not only transform the physical form of their cities but they also change our cultural expectations for how we want to live and how our physical environment should be built.

It is perhaps appropriate that one of the most innovative and comprehensive proposals of this type can be found in one of the least-salutogenic metropolitan growth machines in North America. The Atlanta Beltline started life as the presenter's joint graduate thesis in architecture and city planning, at Georgia Tech in 1999; it is now a $2.8 billion public-private project. It transforms a 35km loop of old railroads into a linear park with transit, bicycle and pedestrian trails connecting more than 40 diverse neighbourhoods, as well as city schools, historic and cultural sites, shopping districts, and public parks. It organises more than 1,600 hectares of adjacent urban land for transit-oriented development, expands transit service within the urban core, and connects various parts of an emerging regional trail system.

What started as a kernel of an idea has come to life through a community-driven movement that was essential in gaining the attention of other elected officials, civic leaders, and regional planners. Supported by a health impact assessment, the salutogenic benefits have already become obvious, with record-breaking use even in the very early stages of implementation. With every new section of trail, and with transit coming soon, the physical investment reinforces changing cultural preferences, which further empowers leaders to improve public policy and will, ultimately, impact a much larger area than the project itself.

Keywords: Community, Infrastructure, Lifestyle

Glenn Miller FCIP, RPP

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Ageing in place: Retrofitting Canada's suburbs

Canada's legacy of 65 years of suburban growth has left its cities with low-density, car-dependent housing, distant from amenities and hard to serve with transit. The resulting challenges of mobility and social isolation are particularly acute for seniors. Such issues, seen in the light of demographic change, is leading to new thinking on how the built environment should address these challenges.

The Canadian Urban Institute's (CUI) research on age-friendly communities (AFC) looked into the following questions: Do we have to retrofit our suburbs so that seniors can "age in place" in their neighbourhoods? Can we incorporate age-friendly community design into urban-planning practice in our suburban areas? Why is it important to build stronger bridges between public-health officials and those responsible for designing and managing the built environment of our cities? What are the risks to Canadians of not acting now?

This session will summarise the findings of this research by:

- looking at the fiscal implications facing governments as the population base shifts to older citizens who require more government services, but with proportionately fewer people of working age paying for those services;
- exploring why, despite strong discourse within social development and public health circles, the concept of AFC has seen limited take-up by municipal planning departments;
- comparing and contrasting AFC with other planning models, such as smart growth, healthy communities, new urbanism, universal design, and Leadership in Energy and Environmental Design for Neighbourhood Development (LEED-ND), among others;
- framing the eight dimensions of AFC design: transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information, community support and health services, and outdoor spaces and buildings; and
- suggesting ways to advance innovation, collaboration and alignment of efforts, including how to create stronger linkages between the health and built-environment silos.

The session concludes by recommending five pathways that can now be pursued by policymakers to advance AFC as a mainstream planning model and begin moving ideas into action.

Keywords: Suburbs, Health, Ageing

David Sisam OAA LEED AP, FRAIC

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The space between: Health, built form, and the design of non-programmed spaces in buildings and cities

Objectives

The objective of this paper is to highlight the significance of 'the space between': in buildings, the non-programmed or gross-up areas; in cities, the streets, squares and other public spaces; and in the environment, its wealth, health and sustainability. Corridors, as part of a functional ethos, are considered as simply a means of getting somewhere as opposed to being somewhere, rather like collector roads in suburbs. Programming, which classifies circulation, along with duct shafts and wall thicknesses, as gross-up, encourages this limiting approach.

This paper advocates a more holistic view that reflects a rich interior public realm, transcending the low expectations set out in the quantitative notion of gross-up. Too often, public streets and squares have become one-dimensional spaces in service of the car and to the detriment of pedestrians, cyclists or public-transit users. This paper illustrates how the success and ultimate wealth, health and sustainability of the city fabric are governed by how each act of building goes beyond the internal programme requirements of a particular structure to enhance, and make more inclusive, the public realm of the city.

Methodology

This paper will examine precedents past and present, which clearly illustrate buildings and urban conditions that either embrace the value of 'the space between' or choose to ignore its value. Buildings as diverse as Christopher Wren's Royal Chelsea Hospital, the TB Sanitoria of the early 20th century, and several modern-day buildings will be discussed to illustrate the significance of 'the space between.' Examples of the congruence between urbanism, environmentalism and issues of public health demanding a more holistic, collaborative and thoughtful approach, such as the concept of 'complete streets', will be illustrated; while more troubling issues, such as those revealed by the Diabetes Atlas of Toronto, will also be examined.

Conclusion

As urbanisation increases and densities grow, the character of our buildings, the shape of our cities, and their support of a healthy environment will evolve. Similar to the circulation system in our bodies providing life blood, so it is with the corridors, lobbies and public spaces within buildings, streets, squares and public space in the urban context. This paper suggests a paradigm shift to more fully recognise the significant role 'the space between' plays in creating and sustaining a necessarily healthy environment – both within buildings and within the urban context.

Keywords: Reciprocity, Multivalence, Sense of Place

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Toronto – A healthy city? Design's role in creating health and wellness in times of rapid change

Background

In 2007, the City of Toronto launched an urban design review panel with the intent of elevating discourse and action focused on high-quality design as an essential element of "a city of choice" for people to live, work and play. In the ensuing seven years Toronto has experienced a significant increase in development and resulting density of population, placing serious strain on the city's social, financial and environmental infrastructure. The panel has witnessed this remarkable transformation, and the projects reviewed, discussions held, input provided, and votes cast represent a valuable record that charts and critiques the good, bad and ugly of this change. Of increasing concern to the panel are the health and wellbeing of communities impacted by transformation, and the state of the city's public realm.

Objectives

The objective is to provide an overview of the panel's activities since 2007, mapping and connecting those efforts relative to the transformation that the city has experienced during this period. Through HOK's global experience and additional research, trends in urban development will be highlighted from a community health and wellbeing perspective. Action will also be proposed in order to maintain health and wellness as prime drivers throughout urban transformation.

Methods

Strengths, weaknesses, opportunities and threats will be mapped, and concepts for action outlined. Interviews with urban design panels in other cities will be shared. Information gained from HOK's global experience, as well as other worldwide sources and trends, will also feed into the process. Interviews with key HOK team members will be shared, and the firm's social network connectivity will be used to engage a broad demographic of city dwellers for input. Healthcare-related professionals will also be engaged.

Results

Preliminary results from the multitude of meetings held and strategies formed since the panel's inception will be structured and formalised for the presentation. Interviews and social network connections will be completed and assessed, with final results processed and related concepts formed.

Conclusions

Conference attendees will be able to benefit from a "local … global" perspective on this pressing health and wellness issue. The broader picture from this worldwide research will provide comparison and a window into the challenges and solutions in other cities; and, perhaps, how they could be applied locally.

Tye Farrow BArch, MArchUD

Senior partner, Farrow Partnership Architects, Canada

Can the design and architecture of public spaces cause health?

What are the causes of health? How can architects place themselves in a pivotal role in response to this urgent global question? Owing to the unsustainable costs of ill health and environmental degradation, pressure is mounting for fundamental change from a public-health perspective. This concern is bigger than conventional notions of green design and healthcare. By focusing on salutogenic design, architects have an opportunity to improve health and prosperity dramatically. Examples of this sea change in thinking will be drawn from the firm's global projects.

Every kind of business must now look beyond delivering conventional goods and services, and instead transform what customers want to become. Applied to architecture, this means working with clients to define and deliver on higher aspirations, so that all stakeholders can thrive economically, culturally and physically.

Our culture has developed an unbalanced focus on illness rather than health. Architects can change the definition of health so that it is no longer centred on illness and prevention (pathogenesis). The concept of salutogenesis (health-causing) recognises that merely coping with, or sustaining, an environment is setting the bar too low. The architectural profession can now assume a greater leadership role in minimising the burden of illness on society.

No local or federal government can hope to build a strong economy under the weight of productivity-draining chronic diseases, which cost the Canadian system more than $90 billion every year in treatments and lost productivity. By extension, health-related costs linked to deficiencies in the built environment are threatening our universal healthcare system.

Architects can help identify factors in the built environment that can be seen as causes of health. These factors can then be integrated into the design of a more healthful built environment. This approach imagines a future in which a large portion of the billions of dollars spent on traditional healthcare delivery methods every year is directed to architects who create salutogenic projects.

Learning outcomes

These will include:

• defining the difference between a salutogenic and pathogenic view of health;
• identifying how the salutogenic perspective can be a powerful means to raise the public's expectations for their physical environment;
• evaluating ways we all can contribute to this shift in thinking while benefiting from the salutogenic approach to design; and
• assessing a range of recent projects and methodologies that have set a bigger agenda for design.

Tarek El-Khatib BArch, OAA, MRAIC

Senior partner, Zeidler Partnership Architects, Canada

Can a wellness centre be a library? Reconstructing the village ecology

The post-war planning of cities relied on the premise of separation – between housing, work, traffic, recreation, open space, industry, natural resources and food systems. Today, separated planning is no longer sustainable. It takes a village to raise a child but, as a society, we have lost the vital social connections between children, youths, adults and seniors. To reconnect systems and recreate the 'village', healthcare providers and designers must build places of interaction.

Objectives

The built environment plays a key role in shaping connection that results in a community's physical and emotional wellness. The new goal of healthcare organisations is to build a healthy, sustainable community from the extended urban design to interior design: one that responds to a variety of needs, including walkability, urban agriculture, transit, and universal design in an economically sound, sustainable, mixed-use centre.

Methods

Through an in-depth investigation of the design of a large community wellness hub, it was discovered how to balance the forces that create a home for healthcare while concurrently creating a small city. The project examines the relationship between innovative healthcare delivery models, city planning and policies for community health, and urban design and architecture.

Results

This paper presents one architectural solution that physically facilitates social interaction in natural places: the landscape, open space and interiors. This interaction builds upon itself, and, in conjunction with the clinical spaces, creates villages of optimised relationships between healthcare provider and community; and between children, youths and seniors. It also creates a place for sharing wisdom about healthy living. The design seamlessly transitions from a landscape full of piazzas and meeting points into a city life that reveals itself along internal boulevards with street vendors, food sharing, demonstration kitchens, and marketplaces. The framing of interaction gives form to a multi-dimensional Venn diagram: a mapping of how people arrive, how they walk through spaces, and how they find services. This project also demonstrates how to optimise the complexities of the public-private delivery process to create a place that is a hub for life.

Conclusions

The paper will share and generate ideas on how healthcare hubs can be designed more holistically to encourage active living, reconnect communities with health and, conversely, reconnect places for wellness with the community. This interaction results in an open dialogue that invokes change.

Keywords: Urban Design, Salutogenic Design, City Life, Community, Healthy Lifestyles

Kelly Pollard

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Improving patient and staff experience in A&E

Violence and aggression towards hospital staff costs the NHS in excess of £69 million each year with more than 55,000 physical assaults reported. Violence is particularly prevalent in emergency departments, where patients are in pain and emotionally distressed. Attempts to address violence have typically concentrated on increasing security measures and creating barriers, thereby exacerbating the problem.

Objectives

Rather than trying to contain levels of violence and aggression, 'A Better A&E' looks to improve both the staff and patient experience of the service. Design solutions were required to be affordable, flexible, effective, easily implementable and retrofittable into any department.

Methods

More than 300 hours of ethnographic research revealed a commonality between many of the issues experienced by NHS trust sites, which led to the initial design brief. The design team, led by PearsonLloyd, included a consortium of specialists from the medical, psychological and social design fields. The team worked closely with three partner NHS trusts across the UK to ensure the design solutions addressed the appropriate issues and would create a positive impact. Fieldwork and observations enabled the team to gain first-hand insights and create solutions tailored to the different needs of staff and patients.

Results

A pair of cost-effective design solutions has been created: the Guidance Solution and the People Solution. The Guidance Solution is targeted at patients to communicate basic information about the department, such as where they are, what happens next, and why they're waiting. This includes a process map displayed in the waiting room, a series of panels through the department, a leaflet, and a digital information stream. The People Solution works with frontline staff through a reflective programme, which provides a forum for them to consider – without blame – factors that influence their interactions with frustrated, aggressive and sometimes violent patients. The goal is to identify factors that impact the collective mood and work to remove the root causes, so as to prevent them from occurring in future.

Conclusions

A robust evaluation study conducted by ESRO and Frontier Economics assessed the impact of the designs on violence and aggression levels at two trial sites and two control sites. The solutions were found to improve the patient experience, with 88% saying the signage clarified the A&E process and 75% saying the signage made the wait less frustrating. The solutions reduced hostility and non-physical aggression by 50% and proved to be cost effective, with a £3 return for every £1 invested.

Keywords: Creating a Positive Experience

Stéphane Vermeulen MArch

Director of healthcare, VK Architecture & Engineering, Belgium

Living Charleroi: the new GHdC hospital

The GHdC hospital project is situated in a context of urban revitalisation. A city with a glorious industrial past, Charleroi has, like other European cities, become stricken in recent decades. Today, as part of a new coherent and sustainable metropolitan vision, a number of emblematic projects are contributing to the city's rebirth.

Site and landscape

The coal tips, artificial hills typical of the Samber and Meuse valley, have long been perceived as black spots on the landscape. Today, however, the coal tips have become green pyramids that contribute to the creation of a powerful landscape heritage.

Approach

The ambition for the GHdC project is to convey new values, moving from the idea of healing to the idea of prevention, where all sorts of therapy promote wellbeing. The creation of high-quality spaces is given priority in this holistic approach. Today, the hospital differentiates itself through its open spaces with landscape and environmental qualities, oriented at the physical, emotional and mental wellbeing of all end-users. Ultimately, the GHdC will evolve into a place of predilection and health promotion.

Methodology

The laureate of the design competition met the client's two requirements: applying the 'layers' method; and integrating the new medical project. In separating certain functions and regrouping them by functional typology, the disposal of specific architectural approaches can take place, allowing the optimisation of structural functionality and spatial use while improving infrastructure. This solution takes into account the care organisation of the medical project, in whatever manner it is arranged.

Architecture

Following a logic that combines economics and real-estate management, the architectural concept proposed an ambitious hospital project that reinterprets the 'layers' method. The concept was a block integrated in the landscape, as well as being compact, flexible and on a human scale. This concept leaves the traditional hospital monolith behind to conceive a project that, discretely and intimately, starts a dialogue between the GHdC site and its surroundings. The result is an urban plateau with pleasant green areas where daylight, materials, colours and textures coincide with tomorrow's new hospital concepts of prevention and wellbeing.

Sharon E Woodworth BSN, MArch

American Institute of Architects Academy of Architecture for Health (AIAAAH); American College of Healthcare Architects (ACHA), USA

Population-based design: A salutogenic approach for designing healthcare environments

Objectives

When designing healthcare spaces with a salutogenic approach it is crucial to first understand the particular patient illness being served and then determine the fundamental needs for that patient population. This process, referred to as population-based design, aims to create a universal process for salutogenic design in healthcare settings.

Method

The method used in population-based design begins with an assessment matrix outlining the four fields of: illness definition; clinical presentation; environmental goals; and environmental features; which are then cross-referenced with the specific patient illness being served. The matrix is a generic tool that generates specific results for any patient population, thereby ensuring its generalisability.

Results and conclusions

Population-based design has been successfully employed in a range of completed facilities, serving specific patient populations as diverse as rehab and dementia-care settings. This paper presents, for the first time, the use of population-based design in an outpatient setting, reinforcing its validity for a salutogenic approach to healthcare design.

Case study

The case presented is a newly constructed translational medicine facility, combining research labs with clinics that serve patients with severe neurological and psychiatric diseases. The workplace environment features a six-storey connection; open stairs and roof-top gardens encourage active living; and a novel shortcut through the building reinforces the urban plan, with the three-storey atrium a stimulating connector for the campus' city life. An innovative remote process delivered the project across two countries; and, most importantly, the medical leadership focused on brain health over brain disease, resulting in a benchmark facility of what a healthy built environment can be.

Materials

Participants will receive a copy of the matrix and how to use this tool as a template for practical importance with global applications.

Keywords: Population-based Design, Neuroscience Environment, Salutogenic Universal Benchmarks

Ragnhild Aslaksen

Chief architect, Helsebygg Midt Norge; Associate Professor, Faculty of Architecture and Fine Arts, Norwegian University of Science and Technology, Norway

The innovative design of St Olavs Hospital in Trondheim – from vision to reality

St Olavs Hospital and the Faculty of Medicine comprise the University Hospital in Trondheim. The hospital is providing the 680,000 inhabitants of Mid Norway with a facility designed with the provision of patient-centred care as its guiding principle. St Olavs Hospital is located close to the city centre of Trondheim and has a total area of 220,000m^2. About 50,000m^2 is allocated to university and college purposes, and about 40,000m^2 of the total area is refurbished hospital buildings. Since 2002, the project has gradually replaced the old hospital with a new one at the same site while remaining fully operative.

Both the organisation and the layout of the new hospital are focused on integrating its key activities: patient treatment, research, and teaching. The university function has been housing medical students from day one. The overall idea of the organ-based centre model is to optimise elective treatment by providing specialised centres of excellence, where patients receive examination and treatment – and recover – in the same building. There are seven clinical centres including the acute centre, a laboratory centre, and a supply center. A patient hotel and a commune hospital are integrated in the hospital structure to take care of patients and visitors in the way in and out of the hospital.

The building pattern comprises an open urban block pattern where the various clinical centres are tied together by bridges in one or two levels around a central plaza. All centers have the same section, and are connected to ensure effective transportation and flexibility. Outpatient clinics are on the ground floor; first floor is hot: x-ray and theatres; the third floor is university/technical; and upper floors are wards and offices. All acute treatments are located in one building and centralised around a vertical axis.

The principle of "normality" is applied to all design levels, from the city plan to the detailing of rooms and spaces, to ensure basic architectural qualities prevail, such as daylight, views, nature, privacy, orientation and beauty.

Walt Vernon MBA

President, Mazzetti, USA

Reverse innovation: New ideas for US healthcare buildings

This session will present case studies from facilities designed to serve low-resourced parts of the developing world. Healthcare practitioners in these circumstances must use great ingenuity to stretch the resources they have to provide quality healthcare. The idea of reverse innovation is that we in the developed world can learn better ways to do things by paying attention to the innovations of these ingenious people. This understanding is being applied globally by healthcare providers and medical-device manufacturers. As building designers strive to find ways to do more with less, we can apply the same lessons.

Project 1 will be the Health City, Cayman Islands, being developed by Dr Shetty and Ascension. This hospital brings innovations from the best cardiac care in the world, serving the poorest patients in the world. The design includes many features that blend the sensibilities of the Americas with the innovations of India.

Project 2 will be a series of innovations from Mass Design in Africa and Haiti. A major focus of this work is the use of the project to develop community, and, increasingly, to serve as a generator of clean water in places where it is not otherwise available.

Project 3 will be a series of projects being undertaken at various facilities being staffed by Project Hope.

While we in the developed world think we understand "green", these projects show we have much to learn from people forced to deliver healthcare with no resources.

Objectives

The objectives are as follows:

• to explore, through examples, medical planning precepts from hospitals in the developing world that illustrate new ways to organise healthcare delivery in the US;
• to explore, through examples, the ways in which hospitals sustain local communities in the developing world, and how these models can inform operations for US hospitals;
• to explore, through examples, infrastructure systems used in healthcare facilities in the developing world, and how these models can improve the resilience of US facilities; and
• to learn how the principles of reverse innovation have been embedded in the WHO publication, 'Healthcare in the green economy', and ways in which these lessons might apply to improve the resilience of US healthcare facilities.

Keywords: Reverse Innovation, Low-resourced Health Facilities, Sustainable Design

Kenneth Schwarz

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Public-Private Partnerships for healthcare: Global examples yield new models that achieve markedly better results

As the P3 process for healthcare spreads globally, there have emerged significant differences in the way it is applied and marked differences in the results achieved. All approaches strive to engage the expertise and capital of the private sector to help governments expand their healthcare offering, while achieving value for money and transfer of risk. All have outlined bidding processes aimed at enabling the public sector to define its objectives and guide the private sector in bidding competitively to fulfil them.

It is at the bidding level where regional differences are most apparent, leading to variations in what is, ultimately, the most important objective: the achievement of innovative, sustainable, salutogenic environments for the long-term delivery of wellness and healthcare. By examining regional differences in the bidding process and the results achieved, lessons can be drawn that can inform changes to ongoing P3 programmes and influence emerging ones. Lessons will be drawn from experience of healthcare P3 in the UK, southern Europe, Australia, South America and Canada. Analysis will include many of the latest and most ambitious projects yet undertaken in size and innovation. In each case key aspects of bidding methods will be linked to outcomes. Particular focus will be on: the public sector's approach to more- versus less-proscriptive bidding requirements; the relative length of the bidding process and the degree of interaction between the public and private sectors during thie period it is live; and the weight given to design excellence, innovation and the achievement of efficient, salutogenic environments among often competing financial and commercial considerations.

In each case there are trade-offs between the encouragement of private-sector vitality and innovation, against the public sector's need for control and accountability within what is often a highly politicised environment surrounding the procurement of major public works. Furthermore, socio-economic and cultural factors often influence what is possible and what is not in a given region. Some processes have nevertheless repeatedly led to more successful results than others, and it is important to note these and to learn from them. While recognising the limitations of a report such as this and the boundaries of regional imperatives, important lessons can be drawn to inform the further evolution of P3 – an increasingly important enabler for infrastructure that directly affects social, mental, spiritual and physical wellbeing.

Keywords: New P3, Salutogenic

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The evolving PPP delivery model – A study of contemporary projects in three countries

Background

The Public-Private Partnership (PPP) model has been used for the delivery of major healthcare projects around the world for more than 20 years. A model that merges the differing drivers of the public and private sector in the provision of a community service, it has seen significant innovation in the approach adopted by individual countries and states, with variances ranging from the bidding process through to its operation.

Objectives

Focusing on developments across Germany, Canada and Australia, this paper will evaluate the PPP model from the perspective of the health architect. It will be broad-based and examine variances and innovative strategies across the PPP model, including:

- the bid process, consortium proponent number, the relevance of the reference design, the nature of the interaction with state representatives and users, specified architectural deliverables, assessment criteria, and the evaluation process;
- PPP outcomes, including the nature and efficiency of the clinical environment created, the quality of the patient environment, the broader architectural design outcomes, operational efficiencies, work environment, and the response to defined clinical service models, etc;
- value-for-money outcomes across the process from bid to built product; and
- identification of critical factors in ensuring improved outcomes from the delivery model, across a range of service considerations.

Methodology

A specific framework with determined parameters and profiling will be developed for the study and be standardised across the three countries. Identified PPP projects across the study area will be evaluated against the identified parameters and filtered through an evaluation matrix. The findings will be evaluated against a standardised analysis procedure, providing for comparison across the national and international examples. The issues will be both qualitative and directly measurable where feasible. Specific guidelines will be established for the analysis and interrogation of the data.

Results and conclusions

The study will provide a comparative evaluation of the collected data. It will allow for the evaluation of context-specific influences and factors impacting on successful outcomes.

Keywords: Architecture, Evolving, Process

A Ray Pentecost III DrPH, FAIA, FACHA

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Establishing a research agenda

The salutogenic approach to design is gaining momentum worldwide, and with that momentum comes the pressure to act wisely in establishing a salutogenic design research agenda. Setting the parameters that define investigative pursuits is as much art as it is science, and is often driven by forces unrelated to academic interests. Nevertheless, the salutogenic design leadership must speak out for the development of a thoughtful and strategic research agenda and begin to suggest ways in which the research might do the design community, and all who are touched by it, the greatest good. So what factors should shape the salutogenic design research agenda and which should not?

Research structure

- Focusing on basic research to discover the environmental factors that influence human health, or on translational research that seeks to quantify those impacts under different conditions?
- Addressing more fundamental matters of reproducibility of findings, reliability of salutogenic research instruments, and the external validity of research findings thus far derived from a limited number of settings?
- Analysing as case studies those projects and places acclaimed as being salutogenic, and deconstructing them to understand what are their most influential and beneficial components?

Building type

- Undertaking research in the building types where people are most likely to be and where they might have the greatest exposure to salutogenic influences?
- Pursuing research with results that might be relevant to the greatest number of design professionals, and therefore the most likely to make their way into actual designs?

Financial

- Looking at return on investment, identifying the amount of "health" one can buy with a certain amount of salutogenic design?

Lifestyle

- Studying the population's role in a salutogenic lifestyle and the relationship of design to health?

Alliances

- Aligning with allied professionals, such as builders and developers, to identify reasons why they should care about salutogenic design, other than the lofty intangible of "doing the right thing?"
- Collaborating with health professionals – clinicians and insurance professionals – to establish linkages between salutogenic design and good health?

Codes and Standards

- Evaluating the potential for research findings to influence and shape public policy and/or building codes and standards?

In this presentation a variety of issues will be explored for their potential influence on the development of a salutogenic research agenda.

Massoud Shaker PhD

Senior advisor, Ministry of Health South Africa

Integrated health facilities maintenance plans and initiatives in National Health Insurance Districts in South Africa

There are 872 health facilities in the 11 designated National Health Insurance (NHI) districts in all the nine provinces of South Africa, constituting 20.5%, of 4127, the total health facilities in the country. Of 872 health facilities in the 11 NHI Districts, 831 are part of primary healthcare facilities that are the focal points of all the NHI activities. The existing fixed asset portfolio of these facilities is in "fair" condition (3 out of the scale of 5) which requires backlog maintenance, over and above preventive one. However, the budgetary allocation for facilities maintenance is not sufficient to stop further deterioration.

Every health facility is unique, and requires a detailed asset management and maintenance plan. A preliminary assessments per province indicate that in total, provincial health departments have asset management and maintenance plan in place for only 31% of hospitals, 35% of Community Health Centres (CHC) and 28% of clinics. The existing capacity to manage maintenance is limited in many provinces, as demonstrated by under expenditure on the budgetary allocation, year after year. The strategic goal of the National Department of Health is to keep the health facilities in fair condition and over time improve the average condition, especially in NHI districts. Thus the objectives to achieve this goal are, increase the portion of the annual infrastructure budget allocated to routine and backlog maintenance, improve the maintenance system to use the budget more efficiently and effectively, and to increase the capacity at provincial level for maintenance planning, work and monitoring to improve maintenance performance and compliance.

While a "Health Facilities Maintenance Frame works" has been compiled, Health facilities Maintenance Strategy and then Plan are being developed (both to be completed by Dec. 2014- are at 2nd draft stage). In terms of the aforementioned maintenance frame works, and interim strategy document, an Integrated Maintenance Plan has been prepared for the health facilities in the NHI districts, which will cover both, the Reactive Maintenance (Backlog) and Proactive Maintenance (Routine Maintenance).

This plan is based on the following major program of activities:

- Detailed status assessment up to room data sheet bases of all NHI health facilities - to be completed by the end of March 2015.
- Development of Ten Year Infrastructure Plan, highlighting the required, service packages, space and condition of the existing and proposed health facilities in terms of, where? (Strategically correct locality) to what extent (new or upgrade, add revitalize or maintain etc.), at what cost (For the recommended extent) and why (Justification)? And with what priority? A professional service provider has been appointed and the project is planned be completed by the end of December 2014;
- Appointment of three to five term contractors in various disciplines per NHI district to undertake the actual maintenance works:
- The new concept of "labour contracting" in a "labour intensive work environment" will be introduced to curb the 25% unemployment rate of the country.
- The recently developed Guidelines for Health Infrastructure Norms and Standards will be applied in all these processes.

Melinda Lehman AIA

Director, Building Healthcare for Humanity, USA

Gerald Puchlik AIA, ACHA

Principal and trusted advisor, Puchlik Design Associates, USA

Designing a salutogenic teaching hospital in Ethiopia

Child mortality rates in Ethiopia are some of the highest in the world – with the probability of dying before the age of five nearly ten times the US average. The challenge was to develop a design for a new teaching hospital with more than 200 beds. Although minimal scientific research had been carried out in the areas of demographics and disease profiles when the programme changed from a university to a teaching hospital, the client had assembled a draft brief and concept layout.

Objectives

The aims were: to develop a progressive self-sustaining teaching hospital that raises the bar of healthcare in Ethiopia; and to design and build a healthy progressive hospital that incorporates proper infection control and is sensitive to and suitable for the local culture.

Methodology

Incorporating best practices, client workshops were conducted to confirm goals, expectations and challenges. In the absence of user-group input, needs assessment data, a business plan, and research data, it was necessary to network with other resources and organisations; to this end, a tour of several existing healthcare facilities in Addis and the project area was undertaken. Working with a local architect, design revisions were developed, which led to the introduction of a new building to house surgery and imaging.

Results

The findings will cover the following:

1. Background and current status of the project;
2. Challenges encountered during the redesign and how these were addressed; what worked and what didn't; and
3. The creation of a new charitable foundation, 'Building Healthcare for Humanity', whose mission is to change the face of healthcare in developing areas by empowering local populations through education, innovation and practical and technological assistance.

Conclusions

Lessons learned will form much of how we proceed, including the importance of:

- addressing cultural differences in communication and business protocols;
- aligning progressive design and construction techniques with local capabilities and economic/political considerations;
- the need for phasing the masterplan and hospital services to align with the realities of funding and ability to secure expertise in critical programme areas; and
- the need to develop a methodology for ongoing development of the physical plant as well as administrative and operational issues, curriculum, funding, training, etc.

Keywords: Salutogenic, Ethiopia Teaching Hospital

Ahmed Sherif PhD

Professor of Architecture, The American University in Cairo, Egypt

Enhancement of daylighting and external view as means for achieving a salutogenic hospital: Results of a simulation-based research on patient-room layouts

Many publications have confirmed the positive effect of daylight and access to external view on patients and staff. Their enhancement of human health and wellbeing can positively contribute to the achievement of a successful salutogenic hospital.

A number of publications has addressed the formation of patient-room layouts to improve exposure to external view, while considering nurses' access to patients. A very small number of publications has addressed the effectiveness of these configurations on the provision of natural daylight and external view, but research addressing these parameters in the desert environments of countries like Egypt is almost non-existent.

This paper reports on research that used the latest simulation techniques to identify the most effective patient-room configurations. Daylighting and external-view simulations of different room layouts were conducted. The paper focuses on the achievement of proper light distribution and visual comfort, while maximising external view as a means to achieve a successful salutogenic hospital. The research addresses these factors in the desert climate of Cairo, Egypt, which is characterised by year-round, sunny, clear skies.

Method

Daylighting simulations were conducted using the Diva-for-Rhino, a plug-in for Rhinoceros modelling software, which is used to interface Radiance and Daysim. The software allows for annual simulation and illuminance computation, as well as measurement of vertical illuminance and glare phenomena. Analysis was conducted using the Daylight Dynamic Performance Metrics (DDPMs). The objective was to arrive at the solutions that provide a balance between the above parameters and maximisation of view.

Results

The results are in the form of alternative patient-room configurations in desert locations. These configurations provide the most efficient daylight with minimum disturbance to patients and staff, while maximising the external view. The paper draws useful conclusions for architects, hospital planners and interior designers on the most appropriate patient-room shapes that could be implemented in different orientations. These are especially suited to desert climates, but the methodology adopted could be implemented in other locations where an approach aimed at delivering salutogenic hospitals is sought.

Keywords: Daylight, Patient Rooms, View

Clare Cooper-Marcus PhD

Professor Emerita, Depts. of Architecture and Landscape Architecture,
University of California, Berkeley, USA

The salutogenic city

In order to foster healthy citizens, we must look beyond healthcare sites and the treatment of illness to the promotion of health and wellbeing in the city at large. A large proportion of people's lives is spent at work, at school and in the public realm, so it is essential that these places support healthy lives.

It is rewarding to see that some hospitals are opening their outdoor spaces to the general public to use as parks. Notable examples are Good Samaritan Hospital in Portland, Oregon, and Lake Beauty Park in Orlando, Florida. Another trend is for public parks and botanical gardens to incorporate special areas that serve as restorative outdoor settings. Several parks in the Seattle area include reflexology walking paths used by Southeast Asian immigrants; Golden Gate Park in San Francisco is the location of the National AIDS Memorial Grove; and the Chicago Botanical Garden includes a demonstration garden to educate people with physical disabilities on the benefits of gardening.

Public parks have long been seen as important to the physical and mental health of city dwellers. A recent trend sees a greater emphasis on trails, greenways and linear parks as a response to the need for exercise and to address obesity.

In parallel with the promotion of access to nature in healthcare is the Greening the Schoolyard movement. It is recognised that children benefit physically, emotionally and cognitively from access to gardens and areas of wild nature, and that this is particularly true for those with ADHD or Autism Spectrum Disorder. Also essential to children's health is access to green space close to home, to encourage exercise. The creation of more co-housing and medium-density developments with shared, semi-private, green space adjacent to the dwellings is another encouraging trend.

Healthy eating is being recognised through hospitals that host farmers' markets, some of which grow food for consumption by patients and staff. It is also recognised through the support of community farmers' markets, and by the waiting lists for plots on community gardens where people can grow their own food.

These trends and more signal a positive change towards seeing components of the city at large as essential to a salutogenic lifestyle.

Keywords: Salutogenic Planning, Access to Nature, Healthy Lifestyle

Stephen Verderber ArchD, NCARB

Professor and architect, John H Daniels Faculty of Architecture, Landscape and Design, and the Dalla Lana School of Public Health, University of Toronto, Canada

Transforming dead and dying malls into health-promoting community assets: US and Canadian case studies

Sprawl's demographic, economic, health-related and socio-cultural consequences are profound and far-reaching. In the US and in Canada, suburban expansion has been the norm for many decades, resulting in diffusion, disconnection and an increasing sense of social isolation. Unmitigated sprawl is increasingly linked to unhealthy lifestyles and a diminished quality of life, and its unhealthful consequences, in particular, warrant reassessment. Auto-dependency, anti-pedestrianism, and placelessness are increasingly linked with sprawl's consequences. Its deleterious health outcomes include increased rates of non-communicable diseases: chronic heart disease, diabetes and obesity, as well as mental health disorders. Public health organisations have only relatively recently formally acknowledged the critical role of community health policies in fostering healthier lifestyles though proactive environmental planning and design interventions. Interdisciplinary teams comprising architects, designers, urbanists, engineers and public policymakers in the governmental and non-governmental sectors, working together with healthcare-provider organisations, are beginning to collaborate with equanimity in reappraising the built environment in relation to public health.

Carbon-neutral urban infrastructure, architecture and landscape architecture will be examined relative to the challenges of transfusing dead and dying malls. A 20th and early-21st century chronology is presented that documents key events, trends and countertrends associated with the origins and evolution of suburban mall typologies. A comparative analysis of case studies from the US and Canada will then be conducted; the case-study projects have been planned and re-built premised on the amelioration of the counter-salutogenic effects of dead or dying malls, using a compendium of 75 community-based planning and architectural design precepts.

This compendium is presented as a metric to aid in reconceptualising these case studies relative to their sprawl-machine contexts. Pedestrianism, urban agrarianism, densification, landscape, and health promotion are specifically discussed via this set of design considerations – relative to suburban transfusion methodologies – to aid in the remediation of "diseased" and frayed tissue within diffuse, low-density sprawl contexts. This discussion will contribute to the knowledge base of individuals and organisations committed to innovative solutions to combat the myriad challenges associated with repurposing dead and dying malls into genuinely health-promoting community assets.

Debajyoti Pati PhD

Rockwell professor, College of Human Sciences, Texas Tech University, USA

Neural correlates of nature stimuli

Does nature activate the human brain in unique ways? What are the neural correlates of the salutogenic effects of nature? That most forms of nature exposure have a positive effects on humans is well documented in published literature (eg Diette, Lechtzin, Haponik, Devrotes, and Rubin, 2003; Ulrich, 1984). The academic community has explained this benefit in terms of various theoretical frameworks, including restoration theory (Kaplan and Kaplan, 1989), biophilic/evolutionary theory (Ulrich and Gilpin, 2003), and emotional congruence theory (Bower, 1981). Traditionally, psychological, behavioural and physiological measures guided studies on the topic, and development of salutogenic strategies for environmental design. Advances in neural imaging technology and methods are offering novel ways of capturing brain activation when exposed to different types of visual stimuli. Such methods promise greater granularity in our understanding of the effects of different design responses, thereby enabling a stronger foundation (as well as a new set of data for triangulation) for comparative effectiveness studies involving physical design.

Study question

The study involved mapping brain activities in healthy adults while they were exposed to positive, negative and neutral images. The positive images included two classes: nature images and other general positive images people come across in their everyday experiences. This paper focuses exclusively on comparisons between the two sets of positive images, and between the nature image and one type of neutral image.

Keywords: fMRI, Neuro-architecture, Nature Stimuli, Positive Distraction, Physical Environment

Dominic Pote

Dominic Pote Fine-Art Photography, UK

Nature, art and memory: How artwork can reinforce the salutogenic theory in healthcare design

There is significant research evidence supporting the role of art in the creation of psycho-socially supportive environments that help patients recover and heal, and support and motivate staff in the care-giving process. But more research is needed to demonstrate how art programmes impact on the recovery and wellbeing of patients, and why particular styles or genres might be more or less impactful on different patient groups and staff.

Objectives

This paper explores how the salutogenic model reinforces research on the role of nature and landscape artwork in connecting patients and staff to their experiences and memories – provoking positive distraction and contemplation, and offering a sense of beauty that reduces levels of stress and anxiety by improving an individual's sense of coherence, according to Antonovsky's theory. Two UK hospital cases studies of art in health programmes, with a focus on fine-art photography, will be used to demonstrate the case.

Case 1: The Queen Elizabeth Hospital, Birmingham, UK

Following staff and patient consultation, a collection of winter landscapes were created for the corridors of a burns centre, which treats between 70 and 90 patients a month, with inpatients staying from 24 hours to 120 days.

Case 2: The St Giles Palliative Care Hospice, Whittington, Staffordshire, UK

'Unique People, Unique Identities' is a creative artwork project at the 27-bed Compassus Centre – a busy day hospice. The project was completed in May 2014 when the artworks were installed and a book was published.

Methodology

Using qualitative and quantitative data from each project, this paper uses the salutogenic model to evaluate the effectiveness of these projects. Feedback is gathered through staff and patient surveys, and face-to-face discussions with those involved. Evaluation data will be obtained through the resident psychologist at the Queen Elizabeth Hospital.

Results

In addition to the calming qualities of nature and landscapes, it is hypothesised that the case studies will demonstrate the role of landscape and nature art in supporting a strong sense of coherence by providing inspiration for patients and staff, encouraging them to discover places for themselves, and promoting rehabilitation and a healthy lifestyle. Creative workshops and other interventions also helped provide a daily structure for patients while also developing their artistic and sensory skills and abilities.

Keywords: Salutogenic Design, Nature and Art, Memory

William Reichman MD

President and chief executive officer, Baycrest Health Sciences, Canada

The innovation imperative in residential care

The world is undergoing a demographic shift with a significant ageing of the population. By 2050, people aged 65 years or older will account for 20 per cent of the world's population. This change has been accompanied by an increase in the number of people living longer with chronic illnesses, including age-related brain disorders such as dementia.

The greying of our population is creating an unprecedented need for innovations in senior care. Governments and corporations are seeking the expertise to develop cost-effective, sustainable solutions that can help meet the complex demands of older adults, and replace obsolete health system models built around acute care. The importance of independent living, assisted living, and nursing care will continue to grow yet, traditionally, research and innovation have not focused on residential care. As we age, seniors will spend the majority of their time in residential settings but these environments have not benefited from the scale of research investment that has been seen in cancer or cardiac care.

Innovation should be focused on next practices of care, new service delivery models, and product development and validation. Organisations will be required to make innovation a priority, be willing to fail, and be rewarded for successful risk-taking. We cannot, however, expect all senior-care organisations to be a hub for innovation, and should therefore encourage and reward partnerships with academic centres.

Baycrest Health Sciences, in Toronto, Canada, is a hospital, nursing home, and residential and community-care provider that is taking advantage of its 95 years of senior-care experience to create new models that dramatically improve the entire healthcare delivery system. It hopes to achieve this by combining clinical and research strengths in cognition and mental health, with an understanding of health and wellness, networks of social, cultural and spiritual support, and meaningful life engagement.

Dr William Reichman will argue there is a growing need for innovation in residential settings. He will explain how innovations being developed in labs and at client bedsides can help create a new version of old age through a pioneering, dynamic approach to geriatric care: a vision that emphasises vitality of mind and body while being adaptable, scalable and truly transformative for senior-care organisations at a local, national or world level.

Keywords: Ageing, Transformation, Translational Research

Deb Bryson BSc

Alzheimer Knowledge Exchange, Design and Dementia Community of Practice, Canada

Frances Morton-Chang PhD candidate

Alzheimer Knowledge Exchange, Design and Dementia Community of Practice, Canada

Optimal environment design for people with dementia

A supportive environment (physical, social, emotional and spiritual) is a key social determinant of health and is identified as a key component to full engagement within one's community. While good environmental design is vital to a person's wellbeing, it is often underrated or compromised in many care settings.

Many elements affect a person's ability to manage and interpret their environment. As a person ages there is a number of "normal" age-related changes that may be anticipated and adapted for; however, when these are combined with problem-solving and perceptual difficulties associated with a dementia, persons living with the condition need appropriate and supportive design interventions to assist with positive perceptions and interpretations of their environment.

The Alzheimer Knowledge Exchange (AKE) Design and Dementia Community of Practice (CoP) has developed a series of knowledge translation tools that provide evidence-based (and tacit knowledge) recommendations for dementia and senior-friendly environmental design – primarily physical and social aspects. These knowledge translation tools include recommendations related to doorways, lighting, noise, wayfinding and outdoor environments.

The goal of the CoP is to promote the autonomy and wellbeing of persons living with dementia both in the community and in more institutional settings. The presentation will provide an overview of an evidence-based best practice series of 'Dementia-friendly design knowledge-to-practice recommendations' that highlight important physical and social design elements, which promote the autonomy and wellbeing of persons living with dementia both in the community and in more institutional settings. These recommendations provide rationales and strategies to better facilitate the process of persons with dementia and their care partners, to make sense of their environment and improve wellbeing. The result is a positive effect on mood and responsive behaviours.

Participants will be able to provide feedback and contribute to these living design documents during the presentation, and receive an invitation for future discussions with the AKE Design and Dementia Community of Practice.

Keywords: Dementia-friendly, Design, Knowledge Transfer

Lynne Wilson Orr BID, MArch, OAA, MRAIC, ARIDO, IDC, NCARB, EDAC

Principal, Parkin Architects

Robert Hofmann BTech (ArchSc)

Senior project manager, ErinoakKids Centre

P3s: The influence of the compliance architect on the salutogenic design of a children's treatment centre

The P3 process is well established in Ontario for the provision of new infrastructure projects, such as roads and healthcare, but is now being adapted for the design and construction of new children's treatment centres. The objective of this presentation will be to demonstrate how the planning, design and compliance (PDC) team sets criteria that bidders must meet, and how its influence on the design will impact the degree to which the facility provides a salutogenic environment. ErinoakKids Centre for Treatment and Development consists of three children's treatment centres west of Toronto for which Parkin Architects are the PDC architects working with Infrastructure Ontario (IO) and ErinoakKids (EOK). Parkin was retained by IO and EOK to be the PDC team and to create compliance documents for three bidding teams.

The clientele ranges in age from infants to 19-year-olds who receive speech language pathology, occupational therapy, physiotherapy and behavioural counselling services, and a spectrum of services for children with autism. EOK has a holistic approach to services and wanted its new facilities to reflect the concept of 'normalisation of therapy', as well as integrating care across multiple disciplines. Staff will assess and provide treatment to clients using aspects of the building's design as part of treatment modalities. Components such as 'truth' windows, elevator controls, and climbing walls will be used by the therapists to assess children's potential and challenges, and to assist in their treatment. The PDC team was challenged to convey this philosophy to the bidders and to develop criteria requiring them to creatively incorporate these concepts into their building designs, while maintaining a competitive environment that would ensure the projects met the government's budget criteria, scheduling requirements, and procurement procedures. All three buildings are required to meet LEED Silver criteria.

Many architects create a design for the facility and then write criteria that fit the design. In this case, the architects chose to step back and first develop compliance criteria that encouraged bidders to incorporate principles of salutogenesis into the design of the facilities and their sites. Test schemes were developed to 'prove' the criteria could be achieved economically, and documents were organised to explain the rationale behind the criteria and provide a scorecard for proponents.

The presentation will include some of the generic criteria that were developed and examples of some of the innovations required of the bidders.

Keywords: Salutogenic, Children, Criteria

Elaine Biddiss MASc, PhD

Bloorview Research Institute, Holland Bloorview Kids Rehabilitation Hospital
Institute of Biomaterials & Biomedical Engineering, University of Toronto

Interactive media reduces waiting anxiety at a paediatric rehabilitation hospital

Waiting for medical procedures can be an anxiety-provoking experience for children and parents in paediatric hospitals. Traditional toys provide important opportunities for distraction, but are not always accessible to children with disabilities. They also have contact surfaces that may facilitate the transfer of infections. In response, we designed an interactive media experience, ScreenPlay, which enables children to create beautiful projections on a wall-sized screen via their presence on the floor in front of it. ScreenPlay was created via an iterative and participatory design process that engaged key stakeholders in the identification and prioritisation of design criteria, assessment of prototypes, and eventual deployment and evaluation in a clinic setting.

Objectives
To investigate the impact of ScreenPlay on state anxiety in an outpatient waiting room at an urban children's rehabilitation hospital.

Methods
We conducted a clustered, parallel, randomised controlled trial with 234 young people (aged five to 19 years) to investigate the impact of ScreenPlay on waiting anxiety. Three waiting conditions were presented: control (no media), passive media (silent nature video), and interactive media (ScreenPlay). Waiting anxiety was measured via the gold standard in self-report measures, the State Trait Anxiety Scale, at three time points: on arrival, following 10 minutes of waiting, and post-appointment. State anxiety scores were compared between conditions via repeated measures analysis (ANOVA).

Results
A statistically significant reduction in state anxiety was observed for young people in the ScreenPlay condition following a 10-minute exposure to the interactive media. No change in state anxiety was observed in either the control or passive-media conditions. No difference in arrival or post-appointment state anxiety was observed between groups.

Conclusions
Interactive media that are both inclusive and safe for young people with and without disabilities may be an effective means for managing state anxiety in outpatient paediatric clinics. The design of ScreenPlay was an interdisciplinary initiative engaging designers, engineers, health professionals, management, and families. This study presents an evidence-based model for the design and evaluation of interactive media installations for hospital settings.

Keywords: Evidence Based, Healthy Built Environments, Hospital Design

Catherine Zahn MSc, MD, MHSc, FRCPC

President and chief executive officer,
CAMH (Centre for Additction and Mental Health), Canada

Challenges and Innovation in Mental Health

A decade ago, the Centre for Addiction and Mental Health (CAMH) created a plan for redevelopment of its urban campus. The plan was predicated on principles of recovery based care for people with mental illness. There was early recognition of a need to address concerns and sensibilities of the local community, a rapidly gentrifying neighbourhood.

In the early days of planning, architecture critic John Bentley Mays expressed trepidation, saying: "The CAMH project is a bold experiment that will surely have strong impacts… on the city, the life of its immediate community, and the lives of patients. The neighbours and patients have every right and reason to be concerned, especially now, when the precise future of the hospital is uncertain."

This presentation will provide an overview of the vision, values and principles underpinning the CAMH redevelopment; discuss the community engagement strategies employed in the undertaking; review project outcomes and outline future opportunities.

Jan Golembiewski PhD

Associate Partner, Medical Architecture, Australia

The built environment and schizophrenia, a new perspective: Is a high incidence the product of poor behaviour-setting design?

The urban locality is the highest known single risk factor for schizophrenia, but nobody knows why. The incidence of schizophrenia, for instance, may vary as much as 900% from one London borough to the next. Demographics can account for about 23% of the difference, but there is something in the built environment that exerts a psychologically powerful influence over a lifetime.

The built environment triggers behaviour. Most adults have a great deal of autonomy regardless, but people with hypofrontality (a clinical feature of schizophrenia, bipolar disorder, developmental disorders, some organic damage, and the dementias) have a reduced capacity for self-determination. This is the basis for claims of diminished responsibility for actions that would otherwise be considered criminal.

The behavioural demands embedded in the built environment increase with the decline of frontal brain function. To what extent is a high mental health toll the product of the poor design of behaviour settings? Does considered design of behaviour settings control or nurture a population?

A coherent and novel hypothesis is presented along with practical guidance on how to alter the environment to foster creativity, independence and frontal brain functionality. Other interactions apparently have the opposite effect, suggesting that certain repeated human and/or built-environment interactions may increase the incidence of schizophrenia, bipolar disorder, and other disorders, also.

Mary Potter Forbes PhD candidate

Australian Institute for Health Innovation, UNSW, Australia

Ian Forbes

Faculty of Design Architecture & Building, University of Technology Sydney, Australia

Designing positive and supportive mental health spaces

Objectives

This paper describes environment-behaviour research into mental health facility design, conducted by a joint research team at the University of New South Wales and the University of Technology Sydney.

In recent years concerns have been expressed that mental health facilities create unsafe and unsupportive environments that prevent the development of trust between staff and residents. This project sought to determine whether physical interventions made to an acute inpatient mental health unit, located at the Prince of Wales Hospital in Randwick NSW, could influence and reduce the aberrant behaviour of residents. This particular unit had an extensive history of high seclusion rates and numerous crisis interventions. It was recognised that the physical environment was contributing to the poor outcomes. This project sought to provide qualitative research evidence that making changes to the physical environment would have a positive effect on both staff and resident behaviour.

Methodology

This was a pre-test/post-test environmental behaviour research project developed with a case-study methodology. The local health district provided some limited funds to make some immediate modifications to the unit. These included soundproofing to seclusion rooms, adding sound-reduction material to ceilings, renewed accessible landscaping, and two artist-drawn murals in secure courtyards created following consultation with residents. Colours were added to interior spaces. The recorded data of the activities on the unit were examined before and after the work was completed. Changes in behaviour were assessed against a timeline of interventions, and in-depth interviews with clinical and nursing staff were conducted to determine the basis for changes observed in residents.

Results

The results show that considerable reduction in aggressive behaviour and reduction in seclusions were observed during the building activities, especially following the introduction of acoustical treatment. The basis for these changes has been examined, and the outcomes support the criteria for the introduction of salutogenic environments in creating positive relationships and improved communications between staff and residents. The research also shows that even limited physical changes can have a positive effect.

Conclusion

The paper describes an evidence-based behavioural research study that supports the belief that properly designed mental health spaces have the potential to build a positive, trusting and supportive holistic environment in mental health facilities.

Guela Solow-Ruda BArch

Director, Architects + Research + Knowledge, Canada

Inpatient, outpatient, outreach: Three downtown hospitals, three mental health facilities, three guiding principles

The presentation will use case studies of three downtown Toronto hospital projects addressing mental healthcare in three different capacities – inpatient, outpatient and outreach – to illustrate key design considerations when designing for mental health.

In healthcare design, the patients, their families and the healthcare workers are the three primary users who need to be considered. Creating balance between the principles of stress reduction, inclusion and safety, and the needs of each user, is integral to successful design for healthcare. Each of these principles is demonstrated by the following case studies: Princess Margaret Hospital Department of Psychosocial Oncology; CAMH Village Family Health Team; and Mount Sinai Hospital Kwong Centre for Mental Health and Wellness.

Stress reduction

In any health facility, reducing stress of patients and workers is beneficial. In a mental healthcare environment, it is absolutely essential. Passive and active wayfinding, a clear hierarchy of spaces, and strategic use of transparency and views increase intuitive orientation, reduce patient confusion, and contribute to patients' independence. Positive interactions between patients and healthcare workers are facilitated through a calm environment for patients and an efficient environment for staff.

Inclusion

At the CAMH Family Health Team, inclusion was a key client strategy for providing both better primary care for the whole patient population and destigmatising mental health issues. A key tenet of inclusion is to design in such a way that no user is singled out as 'other' by the way that they must use the space. Flexibility and choice in ways to use a space mean that there is not just one 'normal' way to use the space. Barrier-free design should be fully incorporated into the design, not tacked on as an afterthought. Entry, reception and waiting-area design in each of the three case-study projects provide examples of how this can be achieved.

Safety

Providing safety both for staff and patients is critical in mental health facilities. The presentation will outline how to approach degrees of access and security within the facility, and how to customise and apply the 'levels of safety' methodology used by American VA hospitals. Addressing these issues, as well as exit strategies and infection control, in a non-stigmatising manner, is critical to the success of the facility.

Keywords: Stress Reduction, Inclusion, Safety

Whitney Austin Gray PhD, LEED AP

Director of research and innovation, Cannon Design
Adjunct assistant professor, Georgetown University, USA

Timothy M Rommel AIA, MRAIC

Principal, Cannon Design, USA

Health-centred design: Changing the paradigm for behavioural health

Some consider behavioural-health patients our "canaries" in the environment – alert to environmental stressors, threats, and potential disruptions before everyone else. They also offer insight into the person-environment connection, and an opportunity to re-conceptualise one of the most powerful tools for health design. The goal of this session will be to introduce a health-centred design model and provide findings from three behavioural-health facility case studies. Attendees will learn how to use the health-centred design model to inform the design process, and how to determine key measurable constructs when planning behavioural-health facilities projects.

Case study 1: UnityPoint Robert Young Center Crisis Stabilization Unit
Faced with the challenge of designing a behavioural healthcare setting in the emergency department at UnityPoint Health: Robert Young Center – Trinity in Rock Island, IL, the design and clinical team hypothesised that the creation of a dedicated space for de-escalation, group therapy, and counselling would provide a healing environment that would reduce both the stress on patients and staff, and benefit fiscally the quality, safety and legal complications of behavioural-health patients. A multi-year, mixed-methods research study, which started in 2013, will develop and test a behavioural-health synergy model to determine how both structural changes alongside procedural changes impact patient and staff satisfaction, quality of care, safety, and legal and financial targets.

Case study 2: University of Arizona Medical Center – Behavioral Health Pavilion and Crisis Response Center
The Community Partnership of Southern Arizona's Crisis Response Center (CRC) opened in August 2011 and is the hub of a co-ordinated crisis-care network. The CRC offers a range of recovery-focused services for adults and children experiencing a mental-health or substance-use crisis – from assessment and triage to peer support, stabilisation, and brief stays for acute care. Thus, it considers how whole-person health is achieved from the beginning to end of therapy.

Case study 3: The Margaret and Charles Juravinski Centre for Integrated Healthcare
This new 304-bed, 850,000 sq ft behavioural hospital is an inclusive inpatient and outpatient mental health facility with outpatient medical clinics, behavioural-health education and research, and community-centric programmes. The facility embraces the concept of a therapeutic platform incorporating interior/exterior environments in a normalised approach to care within a secure setting.

Keywords: Health-centred Design, Behavioural Health, Therapeutic Platform

Gayle Nicoll BTech, MArch, PhD, OAA

Professor and dean, Faculty of Design, OCAD University, Toronto

Active design: Development of a global design practice addressing environment and chronic disease

Non-communicable diseases, such as heart disease, strokes, diabetes and cancers, are now the leading causes of death globally and responsible for 36 million deaths annually. Four-fifths of these deaths are attributable to four leading preventable risk factors: tobacco use, physical inactivity, unhealthy eating, and inappropriate intake of alcohol. For physical activity, expert health committees such as the US Community Preventive Services Task Force, have concluded that there is now sufficient and strong evidence that built-environment factors, such as land-use planning and policies, and access to physical-activity amenities, play important roles. Built-environment design in our public and building realms can either promote or create barriers to opportunities for individuals to engage in active living. As a response to these issues, "active design", an environmental design practice, has been developing over the past seven years to integrate strategies into the design of our physical environments, to promote physical activity opportunities in daily life.

This paper examines the development of active design and its activities and progress to become a widespread design movement. Active design has its origins in the City of New York where collaborative efforts among key government agencies – such as the city health department, public works, and transportation and city-planning departments; non-government design organisations, such as the American Institute of Architects New York Chapter; and academic researchers – sparked the development of the Active Design Guidelines (ADG), published in 2010. Since their development, the ADG have generated widespread interest, with more than 15,000 copies disseminated through downloads and hard copies to professionals in more than 80 countries. In addition, the NYC Health Department and its partners have developed training for municipal staff, workshops for design professionals, and mentoring activities with other municipalities. While there has been widespread interest in active design, hurdles posed by potential challenges, including competing priorities, safety and liability concerns, as well as costs, have needed to be addressed by innovative research and policies. The paper concludes with thoughts on next steps in the evolution of active design into a commonly used design practice.

Keywords: Environment and Health, Design Practice, Chronic Disease Prevention

Alisdair McGregor PhD

Principal and Arup fellow, Arup, USA

Raj Daswani MSc

Principal, Arup, USA

Large, public and going LEED Gold: UCSF Medical Center harnesses IPD and BIM

Objective

This paper will analyse the challenges, best practices, lessons learned, and benefits or metrics of the procurement method used for the University of California, San Francisco Medical Center at Mission Bay.

The challenge

The project team, including UCSF Medical Center, Stantec and the design team, DPR Construction and the subcontractors, was challenged to drive $100 million out of the project construction costs without reducing scope, while maintaining the project schedule for the 878,000 sq ft children's, women's and cancer complex. Targeting LEED Gold certification, UCSF is slated to be the first hospital in California to achieve this standard. UCSF Medical Center's vision is for the new hospitals to embody sustainability and green design – both inside these buildings, for patient healing and the wellbeing of visitors and staff, and outside of the buildings, for the health of local and global communities.

Methods

Focused on improving efficiency, reducing costs and optimising outcomes, UCSF Medical Center adopted an integrated project delivery (IPD) model. The team implemented tools and technologies, such as target value design, BIM and lean, to help optimise cost and schedule while maintaining scope, quality and performance. In 2009, the Integrated Center for Design and Construction was set up, co-locating more than 100 people from 19 companies, enhancing collaboration but also minimising latency in decision-making.

Results

Currently nearing completion, the project is yielding the following breakthrough results:

- project plan completion in excess of 85%;
- RFI turnaround time average four days or less;
- approval of 94% of first-round submittals;
- accurate and first-time installation of 99% of the 150,000 MEP hanger inserts in decks, using coordinated models;
- insert productivity at 300 per person per day, compared with 75 per person per day using a traditional layout process; and
- the team was able to drive more than $100 million out of the project construction costs without reducing scope through this process.

Conclusions

The paper will identify challenges and lessons learned from an IPD approach on a complex and sustainable hospital project.

Keywords: Integrated Project Delivery, LEED, BIM

Bruce Raber MAIBC, MRAIC

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Stantec Architecture, Canada

Ray Pradinuk MAIBC

Principal, leader healthcare research and innovation
Stantec Architecture, Canada

Collaborative user engagement: The Nanaimo Regional General Hospital

Objective

The design goals, objectives, and sustainability strategies were to achieve a LEED Gold solution around the following four values: timely, respectful, quality of care, and a place people would want to come to work. The project was sparked by the challenge to create an "environment that staff would want to come to, even on their day off".

Methods

The design team and medical staff examined current practices and processes for ways to improve patient access and flow. Together they created innovative design concepts based on research and evidence, sustainability, and lessons learned from European hospitals; while demonstrating, at every stage of design, the cost-benefit of increased daylighting on overall productivity gain. The most important design considerations were improved patient flow, functionality, privacy/confidentiality, safety, and quality of the environment. Six within-care area courtyards were introduced, bringing beauty and calm to these high-stress environments; all staff workstations, and all patient waiting areas overlook courtyards. The two psychiatric treatment areas open out to secure courtyard gardens with waterfalls.

Results

The result is a highly functional facility with extraordinary indoor environmental quality. This LEED Gold project includes extensive use of wood, displacement ventilation, a thermal labyrinth, and natural ventilation. Through computer modelling and cost-benefit analysis, capital costs of the courtyards were weighed against the potential operational savings on staff costs, medical errors and improved clinical performance. Data from its first year in operation show they are achieving these benefits and savings.

Conclusions

The Nanaimo project is living evidence to support the claim that the quality of the built environment plays a highly important role in our health and wellbeing. This presentation will tell the complete story from start to finish, including video interviews with the clinical leaders, outlining how the vision was established and the collaborative user engagement process, and sharing many of the new clinical processes undertaken to improve patient access/flow, and staff satisfaction and performance. The presentation will also address the question of whether the hospital is, in fact, "a place that cares for its community and a place where people want to work".

Keywords: Courtyards, Evidence, Healthy

Angela Bourne MSc, MEd

Texas Tech University, USA

Designing for adults with intellectual development diversities: An integrated design approach

There are an estimated 4.3 million Americans of all ages with intellectual and developmental disabilities (I/DD). For people with I/DD, who may have sensory sensitivities and differentiated neurological processing, the design of the environments they use are particularly important for their overall wellbeing.

This research embraced a culturally sensitive approach to design and adopted an ecological perspective for healthy living that emphasised the needs of the person. Through a transactional world view, the interactions between people with I/DD and the physical environments where they lived, worked and socialised were examined. This grounded theory research focused on the adult lives of people with I/DD as they aged in place. Particular attention was paid to how this group used their minds and senses to comprehend their physical surroundings to perform tasks of daily living. Data were collected at five intentional communities (places where people with I/DD live, learn, work and socialise) throughout the United States over a two-year period. Physical-environmental audits were conducted and analysed environmental design perspectives to build on a limited body of knowledge in designing for this vulnerable population. Observations of the daily lives of 58 adults with I/DD and their support staff were recorded. Interviews with these residents, 13 administrators and 26 staff were also conducted, as was a broad survey of service providers who worked in other settings.

This holistic inquiry confirmed that the physical environment has an impact on the ability of a person with I/DD to have control over their life. New evidence revealed that various sectors within the population have different environmental needs. To accommodate these differences a salutogenic approach to wellbeing was developed. Six environmental design themes were formulated and incorporated into a neuro–considerate environmental design model that suggests guidelines for the design of residential, work and cultural spaces for the population. The model was tested in a design charrette and suggested interventions, such as designing to accommodate diverse sensory needs, spatial preferences, and clarity for cognitive processing were implemented in design concepts by the charrette participants. This proved an effective and responsible way to bridge the gap between theory and practice, and helped validate the effectiveness of the proposed model to support socially responsible design.

Keywords: Special Populations, Non-pharmaceutical Design, Neuro-considerate Communities

Thomas Harvey FAIA, MPH, FACHA

Principal and Academic Healthcare Practice Leader, HKS Architects, USA

Where research meets design: Using parametric modelling to optimise walking distances and enhance workflow

Objectives

There is a growing body of evidence on the impact of design on human health and wellbeing, and applying this in innovative ways can aid the design process, making it more efficient, precise and predictive of desired outcomes. This presentation will share how parametric modelling is used as a tool to create healthy workplaces for nurses in inpatient units by optimising walking distances and workflows. It will also share a specific case study comparing decentralised and centralised nursing units, and demonstrate how plan analytics can serve as a valuable research tool.

Methods

Evidence-based knowledge related to walking distance has been implemented to derive parameters for optimising future healthcare facilities. First, a path-finding algorithm has been developed in Grasshopper and a Rhino plug-in, in order to simulate travel distances for a nurse over his/her working shift. As a pilot study, this algorithm has been tested in three different scenarios defined for nurses using decentralised versus centralised nursing stations in an identical inpatient unit. Second, a parametric model using a genetic algorithm has been implemented to optimise the number of rooms and their locations for developing future bed-unit configurations.

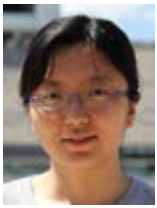
Results

The generated parametric model in Grasshopper and the Rhino plug-in enables the project team to precisely analyse and evaluate design options earlier and faster in the process. It also allows optimisation of design configurations using parameters derived from available evidence related to healthy workplaces in hospitals. The finding from the pilot study shows that travel distances decrease by approximately 20-25% for nurses working from decentralised versus centralised nursing stations.

Conclusion

Translating evidence into tools that can be used by architects is imperative for the progress of the industry. Clear identification of key parameters that impact outcomes, and the use of parametric modelling techniques to allow intentional manipulation of these parameters to achieve desired outcomes, allows the client and design team to see the consequences of design decisions prior to construction. The client and design team may then translate these consequences into fiscal terms, and save on project costs while enhancing the overall value.

Keywords: Healthy Workplaces, Parametric Modelling; Optimisation



Mardelle McCuskey Shepley DArch, FAIA

Professor, Texas A&M University, USA

Yilin Song BArch, MArch

Texas A&M University, USA

Research-informed design and the globalisation of healthcare environments

Objectives

The challenge for international health design practice is to provide culturally appropriate architecture and research as a tool for obtaining information about cultural environmental needs. This study sought to investigate the status of design research in a variety of international settings, by posing the question: "How pervasive is healthcare design research outside of the developed countries?"

Method

In order to examine the role of research in the global development of healthcare environments, a literature review was conducted of more than 400 studies and conference proceedings, which were filtered according to their global applicability. Information was separated into two categories: healthcare design research by geographic region, and research on culture and spatial behaviour.

A team of seven research assistants searched multiple databases comparing approximately 16 keywords to geographic location. Some of those keywords included "evidence-based design", "salutogenic design", "design research", "healthcare environment", "spatial behaviour" and "proxemics". The research assistants were international in composition and included individuals who were either native speakers or had reading knowledge of Mandarin, Arabic, Farsi, English, French, Spanish, Portuguese and Italian. Additional articles were gathered by contacting prominent researchers in individual countries and regions (eg Africa, Australia, China, Germany, India, Iran, Korea and Singapore) and asking for their personal assessment of the local health-design research literature.

Results

The study found that most design research studies: focus on the needs of populations in developed countries; and generate guidelines that have significant cost and cultural implications that prohibit their implementation in developing countries. Additionally, the study found that the body of literature discussing the role of culture in the creation of healthcare environments was extremely limited, and that design research in many parts of the world is rarely addressed.

Conclusion

Design researchers must address the cultural implications of their studies, and expand their research objectives to address healthcare design in countries that have not been previously considered. This paper concludes with a proposal for a global research agenda.

Keywords: Research-informed Design, Proxemics, Culturally Appropriate Design

Cheryl Atkinson OAA, MRAIC

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Architectural metrics: Developing comparative graphic language to synthesise and facilitate analysis for design

Objectives

This paper describes the logic behind the development of a graphic methodology to document and measure differences in architectural design elements across three facilities under comparison in a multi-site, multi-method evaluation of a complex continuing-care and rehabilitation facility. The overall pre-and post-occupancy evaluation of Bridgepoint Active Healthcare in Toronto, Canada assesses the impact of architectural design on the psychosocial wellbeing and health of patients and staff across its pre-existing, new and comparison facility. The purpose of the documentation is to compare and analyse the quantitative and qualitative differences between the facilities under comparison.

Methods

These drawings, diagrams and graphs were developed in order to more objectively identify, isolate, compare and summarise the environmental variables that distinguish this facility from its former facility for the same patient and staff population, against a comparison facility. This information will be used as a clear and consistent visual template, against which the social scientists engaged in this study can position their ongoing findings against specific environmental and designed conditions.

Results

Key design objectives compared between the pre-construction, post-construction, and "control" facilities include:

- improved framing of exterior views;
- better programme augmentation;
- improved daylighting;
- enhanced programme organisation; and
- better relationship to site.

Conclusions

The visualised documentation and comparative analysis are intended to create substantive clarity in observed differences in outcomes, related to differences in design. This template can be used to summarise visually the macro-scale architectural components, concepts, statistics, data, and criteria that distinguish different projects, as part of ongoing post-occupancy evaluations. The same data presentation system has been identified for its potential to streamline the evaluation process for designers and programmers. The visual organisation and presentation of the concepts is critical to understand the full social, health and economic impacts of this new salutogenic design paradigm for complex continuing-care and rehabilitation facilities.

Keywords: Architectural Metrics, Healthcare Facility Design, Informational Graphics

Gelun

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General Director Medical Architecture Research Center, MARC,
Member of Health-care Facility Construction Expert Group of Health Ministry, China

Developing SHAPE as a tool, guidelines and evaluation method for healthcare facilities in China

Background and Problem

Many general hospitals have been built in China with more than 1000 beds, constituting a huge investment in the past 10 years. However, none of these hospitals have been evaluated to identify if they are meeting the needs of the country and international standards.

Objective

China's health authorities are demanding that lessons are learned to avoid past mistakes and develop new ideas through research-based evaluation to improve the standard of healthcare facilities in China. This requirement has been discussed in recent years during several workshops and conferences underlining the need for a relevant method and tool to be used in order to evaluate design process and as a Post Occupancy Evaluation (POE) tool for healthcare facilities.

The Method

After a review of the literature and analysing the method of Post Occupancy Evaluation (POE) that has been developed by Wolfgang F E Preiser in 1980, our research center decided to develop own method based on the specific cultural context and experiences of China and the needs of the country. Therefore the author and our research center at Beijing Architecture University developed a tool of evaluation called "SHAPE", which has been developed through evidence-based research and following the investigation of more than 20 hospitals in China. This has resulted in the establishment of certain criteria in SHAPE, based on the interdisciplinary approach and requirements of the users. SHAPE has three stages:

Step 1: SHAPE starts with an initial framework to gather data according to the results of research and experiences of the past in terms of establishing criteria.

Step 2: SHAPE provides enough data to quantify the needs and design quality standards required by establishing criteria for each project in terms of quantity and quality.

Step 3: SHAPE builds up the contents of guidelines of detail criteria to guide the planner and developers through the entire planning process.

Expectation Result

The method SHAPE has been validated through the application as a tool for POE and now is ready for use in China. SHAPE provides a guideline tool for the design and construction of healthcare facilities, and has a promising application for use in quality control for healthcare facilities in China.

Keywords: Healthcare in China, Evaluation tool, SHAPE as POE

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Lessons learned from a pre-occupancy evaluation of a new mental health facility in Canada

Objectives

The objective is to compare and assess several methodologies for evaluating mental health settings, in order to inform the formulation of international benchmarks in design and health, using the results from the 'pre' phase of a pre- and post-occupancy evaluation of the redevelopment of the region's largest mental health facility. Healthcare services at St Joseph's Healthcare Hamilton's (SJHH) West 5th campus had been housed in several buildings that were between 50 and 150 years old. Early in 2014, services were moved into an integrated academic healthcare facility. The vision for the new facility was to improve the quality and safety of care, provide a healthy working and learning environment, and fundamentally shift perceptions of mental health.

Methods

Pre- and post-occupancy evaluations were developed to determine whether the facility design realised this vision across three themes: facility users' wellbeing; safety and security; and in-patients' sleep quality. A mixed-method approach was used, drawing on survey, qualitative, observational, biometric and administrative data. This case study of a built environment provides an opportunity to appraise these methodologies in order to assess their effectiveness in evaluating mental health facility design.

Results

The survey, observational, qualitative and chart data align to create an overall picture that will be an effective baseline measure, against which the new facility can be compared.

Conclusions

Apart from the commonly used ward atmosphere scale, mental health facility evaluations use few methodologies, which is limiting for both those selecting the best measures for evaluations and for decision-makers and designers to make informed and evidence-based decisions about mental health facility design. This presentation demonstrates that, taken together, an effective and efficient collection of methods serve to create a comprehensive evaluation of the impact of the built environment on world-class mental health services.

Peter Jones PhD

Associate professor, OCAD University, Canada

Form follows function: Improving health-service architecture discussion

Healthcare policy in North America has recently addressed several root-cause issues of increasing care costs, resulting in new reimbursement models, readmission disincentives, universal health records, and flexible care models such as the ACO and PCMH. While these policies have achieved some rapid notable success, guidelines have yet to address the roles and workflows of clinical and management staff, whose salaries still retain the highest proportion of operational facility expenses. As new facilities contemplate new business models for optimising operations to policy goals, new service models must also be considered. However, the goals of patient-centred care and service innovation conflict with the cost, risk and efficiency drivers of conventional healthcare management. The staffing and workflow models of clinical care are typically transferred as whole organisational routines in new facilities. The outcomes of efficiency optimisation and over-reliance on information technology may put patients at risk in these evolving business models. Clinical care delivery can be coordinated as a cognitive work function that follows the patient conditions and community values.

Based on research in service systems science, a human-centred service model is articulated for coordinating clinical care as a service system, for the accountable care business model. Service systems are essentially sociotechnical systems – dynamic configurations of resources, people, information and technology in a coordinated organisation. Service systems enable management of more dynamic clinical and staff roles in the flexible configurations required for complex and chronic care, community primary care, and staged iterative care cycles. A service system design model aligns the functions of patient-centred care and population health to a modular healthcare service system. A design guideline recommends adapting appropriate staff and distributed facilities to the patient, clinical and management interfaces necessary to coordinate sequential, iterative and complex care across facilities within an ACO system.

Future facility form should follow the services, the work architecture necessary to coordinate multiple modes of care across distributed locations. Healthcare services that demonstrate these capabilities are found in ACO and value-based care organisations in North America. The cases and guidelines provide ways to manage the foreseeable chronic and ageing demographic patient crisis. It attempts to provide a human-centric decision model for defining appropriate services for care modes by community, acuity and clinical function. While descriptive and preliminary in its current stage of research, the service system model establishes a framework for design and decision-making based on sociotechnical systems.

Keywords: Service Systems, Service Design, Distributed Healthcare

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Poster Gallery A | Thursday 10 July, 2014, 12.45pm

Timothy Fishking BSArch

Principal, NBBJ

P01: Healthy built environments through a lean and integrated process

The OhioHealth Riverside Hospital Neuroscience Institute represents a unique approach to care: by fostering collaboration and integration between neuroscience, vascular and heart care, it increases convenience and provides better healing environments. When completed, the facility will be one of a few comprehensive neuroscience institutes with all inpatient, outpatient, diagnostic and treatment services under one roof.

With 224 new private bedrooms, the design of the bed-tower unit was focused on collaboration in the delivery of care to the clients. The open core-unit planning model is an operationally lean environment that provides a close visual and physical connection between clients, nurses and physicians. The distributed caregiver and physician workstations, immediately adjacent to the client rooms, provide line of sight and keep the staff nearby. The open core allows for reduced travel distances for nurses and physicians, and enhances the relationship between caregivers through proximity and visibility. Same-handed, acuity-adaptable client rooms simplify staff movement within the room and enhance safety and wellbeing of the clients.

Design and construction of the facility have been a process of fostering collaboration between all stakeholders involved in the project. The design and construction team was co-located from the early development of the masterplan, through completion of all construction documents. The design and delivery process followed lean work protocols to drive efficiency and quality, which have carried through into construction. The hospital's administrators, physicians and staff were fully engaged in the design process, through rapid-prototyping mock-ups of key spaces and clinical event simulations, to ensure delivery of an efficient and effective healing environment.

For two years designers, engineers and the constructors worked side by side in the office of NBBJ in a wholly integrated team, from masterplanning through all construction documents. Establishing lean working protocols from design through construction, the team has redefined collaboration between designers and constructors.

Drawing on methodologies and lessons learned from previously designing Miami Valley Hospital, the design team advanced this process to increase the amount of prefabricated components. This aspect of the process was solely focused on improved quality of healing, savings in cost, and reduction in schedule for OhioHealth.

OhioHealth has recognised numerous benefits from this relationship between the designers and constructors. As a result of the collaborative care environment, the clients of OhioHealth will be better cared for and heal faster.

Keywords: Lean, Collaborative, Integrated

Poster Gallery A | Thursday 10 July, 2014, 13.10pm

Dennis Vonasek AIA, ACHA, CID

Vice-president/principal, HGA Architects and Engineers

Christine Guzzo Vickery CID, EDAC

Vice-president/senior interior designer, HGA Architects and Engineers

P02: Medical tourism: Redefining global perspectives on healthcare delivery

As healthcare consumers become more discerning, healthcare providers are becoming increasingly competitive in attracting patients. Rising costs, new technology, shifting demographics, and new legislation all play into the way healthcare providers deliver care globally – and how patients choose to receive care.

Medical tourism, until recently a niche industry, is gaining prominence as patients seek more cost-effective healthcare services in a destination setting. While travelling for healthcare is not necessarily new – well-healed patients from less-developed countries have, traditionally, travelled to more developed countries for healthcare, while international organisations such as doctors without borders have travelled within underdeveloped countries to deliver services – medical tourism today is redefining international healthcare. Taking cues from the hospitality and luxury-resort industries, destination medical centres are combining world-class resort amenities with world-class healthcare – and usually at a lower cost than patients find in their home country.

Designing an internationally focused destination medical centre is often a challenge in multicultural immersion. Healthcare owners are seeking operationally efficient facilities that attract patients and the best-trained doctors in the world. Doctors are looking for state-of-the-art technology and optimal working conditions. And patients and family members are looking for a "resort" while receiving treatment.

This presentation will look at challenges and lessons learned in designing a destination medical centre that serves a multicultural patient base. It will look at the history and development of medical tourism, outline reasons why people choose to travel for care, and identify key growth markets – from the United States to Southeast Asia.

It will then focus on the Women and Children's Center under construction at Bumrungrad International Hospital in Bangkok, Thailand, as a case study to illustrate trends and innovations in medical tourism. As the largest private hospital in Southeast Asia, Bumrungrad offers state-of-the-art diagnostic, therapeutic and intensive-care facilities in a one-stop medical centre, with the luxury amenities of a five-star hotel serving approximately 400,000 patients from 190 countries annually. The 220-bed Women and Children's Center includes a full range of clinical inpatient and outpatient services, a panoramic sky garden with food service, as well as a dining room, conference facilities, roof-top play area, and 450-stall parking garage.

From the outset, the owner requested traditional Thai hospitality with an international perspective. In showing how this was delivered, attendees will gain a greater understanding of the innovations impacting the design, operation and marketing of multicultural destination medical centres.

Keywords: Healthcare, Globalisation, Multicultural

Poster Gallery A | Thursday 10 July, 2014, 13.35pm

Gordon Stratford MRAIC, LEED AP, BD+C

Design principal, HOK

Kevin Katigbak

Senior leader, Consulting group, HOK

P03: Edmonton Clinic Health Academy – Leading by example

The University of Alberta's new Edmonton Clinic Health Academy (ECHA) is a ground-breaking research and learning centre. Driven by the university's Health Sciences Council, the approximately 600,000 sq ft facility brings key health sciences faculties, schools and departments together under a single roof with the goal of transforming the way health and wellness are taught, explored and provided. ECHA's new home "walks the talk", with key design features including a "stair culture/walkable" environment, strategically located social/work hubs, ready access to natural light and views, and large floor-plate team connectivity. The focus is on nurturing highly interdisciplinary and transformative collaboration. HOK is the prime architectural consultant and lead designer of the ECHA. As a worldwide, interdisciplinary creative enterprise its work encompasses a broad array of building types, including healthcare and higher education.

Objectives

The main objective is to provide an overview of the design features of the project, and the process and drivers that were followed throughout. A second goal is to assess the impact that the facility's design has had in helping ECHA attain its goals. Along the way, HOK's visions of "global perspective. . . local focus" and "design to improve people's lives" will be highlighted, identifying broad-based health and wellbeing trends in work/learn/live environments.

Methods

An overview will be provided through our design/process records and experience specific to the ECHA project process and design outcomes. Assessment of impact will be addressed through user interface, gathering information, analysing data, and synthesising these into results. Trends will be provided based on HOK's global design expertise and related ongoing data-gathering and research.

Results

Design and process results already exist – in part, through key presentations delivered to the academic and design professions at major Society of College and University Planning conventions, and other related conferences. Impact assessment has been partially completed to a high level, with more detailed assessment (and results) to be completed prior to the WCDH 2014 conference. Design trends information already exists in the form of HOK's ongoing project-based research, and further information will be gathered leading up to the conference.

Conclusions

Since ECHA opened, the facility has been actively used and positively received by the University of Alberta and its constituents. This presentation aims to dig deeper to obtain more detailed feedback on pros and cons, and share results and lessons learned. Conference attendees will be able to benefit from a "whole life" account of an advanced educational/research facility created on the principles of health and wellbeing – from early drivers through design process to actual design, resulting built environment, feedback from users, and resulting lessons learned.

Poster Gallery A | Thursday 10 July, 2014, 14.10pm

Ben Embir MArch, OAA
HOK Architects

Magda Warshawski MArch, OAA
HOK Architects

P04: Maintaining design quality in healthcare P3/PPP delivery model

Objectives
Drawing on the lessons learned from HOK's past P3 healthcare projects, this presentation explores what available methods are proven to be effective in maintaining design quality of healthcare projects in a P3/PPP delivery model.

Methods
An output specification can address many design requirements, but opportunities for improvement include:
1. How do you articulate, measure and evaluate operational efficiency? What role does lean simulation and modelling have in the AFP process?
2. How do you collect user-group feedback when many users are coming from a broken current state condition?
3. Output specifications rely on a combination of prescriptive and performance specifications. In which situations is it better to prescribe solutions? Under what circumstance is it more appropriate to be exemplar versus illustrative?
4. How much time is appropriate to develop output specifications?
5. Who has the primary responsibility for ensuring design quality: the PDC consultant or designer of record?

Results and case study
A recent trend has seen the introduction, earlier than is typical, of the planning and design compliance (PDC) consultant at the pre-transaction project phase. At Humber River Hospital, HOK introduced the concept of "Portals of Care" as a strategy for delivering care and organising the building and clinical processes. Earlier involvement of the PDC team in the AFP process would have allowed these innovative approaches to be considered.

When a hospital is looking to benefit from lean analysis, often the best approach is to perform lean simulation modelling, develop evidence-based floor layouts and processes, and then prescribe those in the output specifications. Alternatively, a hospital may choose to develop a set of lean modelling criteria, and require each proponent team to report on the performance of their design based on this criteria.

In relation to the overall cost of managing the transaction phase of a project, some consideration must be given to whether more time be spent in the early stages of the project to develop more comprehensive operational readiness plans, ICT, and materials management strategies.

Conclusion
The most meaningful opportunities to maintain design quality in the AFP process are in the early pre-transaction phase, when more time can be spent in understanding operational models, exploring alternative ideas, and deciding which part of a design will be fully prescribed under the control of the client. In some cases it is in the best interest of the hospital to develop a comprehensive solution to a design problem and prescribe it in the output specifications. The RFP open period also maintains the opportunity to introduce lean simulation modelling, provided an appropriate set of modelling criteria can be established and written into the RFP documentation.

Keywords: P3/PPP, Design Quality, Lean

Poster Gallery A | Friday 11 July, 2014, 10.35am

Edward Applebaum BArch, OAA, MRAIC

Principal, Montgomery Sisam Architects

Terry Montgomery BArch, OAA, FRAIC

Principal, Montgomery Sisam Architects

P05: Places to learn, to heal and to grow

Objectives

A major challenge we continually face is promoting the health of our children and, in particular, those with special needs. In order to address these needs, our design objectives must focus around three primary goals:

- integration – promoting opportunities to connect children with the community to combat isolation and promote socialisation;
- creating choices – respecting the need to promote children's abilities to make choices within settings that are often overly limited; and
- normalisation – the overarching need to destigmatise those with special needs by creating familiar, normalised settings within which they can heal and grow.

As architects, we must examine what role design can play in positively effecting children's health.

Methodology

This paper will employ a case-study approach to focus on how specific projects create healthy supportive environments for children, their families and caregivers. While all the projects have children as their major focus group, their individual programmes are widely diverse, including clinical and non-clinical programmes, eg children's rehabilitation, addictions and treatment, and education centres. Beyond programmatic influences, the manner in which each project draws common inspiration from a wide range of universal design principles and precedents will also be presented.

The case studies will include the following local Ontario projects: Ronald McDonald House Toronto, Holland Bloorview Kids Rehab Hospital, Sister Margaret Smith Treatment Centre, and the McMaster Children's Health Centre. Greenwood College School and York School will also be included. All the case studies are projects that have been recently completed by Montgomery Sisam Architects.

Conclusions

This presentation is intended to demonstrate the wide range of influences that drive the innovative design of children's environments. We believe that breaking down the barriers between strict clinically focused design and more community-focused design precedents is critical to reducing stigma and creating healthy supportive environments. This cross-fertilisation of design ideas is significantly enriched by the infusion of relevant cultural and age-appropriate references within each design. The presentation will also demonstrate the significance of many universal design principles, including accessibility, intuitive circulation and wayfinding, integration of interior and exterior space, and the provision of abundant natural light and views. These principles cannot be abandoned but, rather, must be overlaid on principles of clinical efficiency and lean design. Ultimately, each case study will demonstrate the creation of healthy spaces for kids to learn, to heal and to grow.

Poster Gallery A | Friday 11 July, 2014, 12.45pm

Jill Joseph MBA, ECAD, IIDA

Healthcare A+D consultant, Herman Miller

Kim Montague AIA, EDAC

Healthcare A+D consultant, Herman Miller

Janet Zeigler RN MN MBA EDAC

Director of healthcare consulting, Herman Miller

P06: Continuous improvement in the healthcare environment – A simulation workshop

Objectives

This workshop briefly reviews the attributes of the Toyota Production System, which necessitates experiential learning. The objective is to help participants understand, through applied exercises and participation, how these concepts directly relate to our built environment and how that environment can support or hinder continuous improvement in everything we do – healing, working, learning and living.

Methods

Attendees will immerse themselves in a culture-change process, which can't be taught didactically in a classroom. Experience interactive, hands-on exercises, led by trained lean facilitators, to simulate the development of a continuous-improvement environment using an ambulatory clinic as a model. Understand the different aspects of lean applications, including the move from batches to single-piece flow; how to measure takt time; the use of A3s; and the impact of conveyance on waste reduction. Safety and quality in healing environments will be emphasised throughout, and patient-centred approaches examined. Class size will be limited to 48 participants.

Results

Attendees will complete this two-hour session with an understanding of how these lean concepts can apply to their work, their clients and their lives. With the intent to amplify that continuous improvement is a journey, and not an event, participants will begin to understand the necessity for constant vigilance and attention to minimise barriers and allow for inclusiveness in the workplace.

Conclusions

Continuous improvement in our healthcare environments is necessary for us to thrive in everything we do: work, heal, learn and live.

Keywords: Lean, Continuous Improvement, Innovation

Poster Gallery A | Friday 11 July, 2014, 13.10pm

Angela Dosis
OCADU Ontario College of Art and Design University/Princess Margaret Cancer Centre

Gayle Nicoll BTech, MArch, PhD, OAA
OCADU Ontario College of Art and Design University

P07: A framework for analysing and designing inclusive online health communities

Although online health communities have a growing importance in communicating health information regarding non-communicable diseases (NCDs), they are often designed primarily for clinical purposes. This overlooks that members of chronic-care communities have more diverse and complex interests in their health and wellbeing than the symptoms and treatments for the latent and long-term effects of specific NCD conditions. These online communities should be considered an extension of their community environment, enabling support and influence of patient wellbeing both through information sharing and social interaction. Unfortunately, these online communities often fail to deliver a functional design that is inclusive of all user needs. Online health communities need to be inclusively designed both to address the limitations across a community and to develop efficiency and effectiveness in support of user satisfaction and, in turn, the salutogenesis of participants.

This paper presents a framework for inclusive design of online communities (IDOCF) that addresses the online elements necessary to support the notion of wellbeing in these chronic-care communities. The three key factors of the IDOCF framework include the online health community, sociability and accessibility. The purpose and perspective of the online health community influences whether the online environment will focus narrowly on the specific NCD or, more widely, on overall health and wellbeing. The important factor of sociability centres on the development of social interactions in the form of information exchange and social networking by members of a particular health population. Accessibility to and within the online community is an imperative factor if the online community is to perform as an extension of both the patient care and wellbeing environment, in order to support the physician and peer interactions and influence positive health.

This article reports on a study examining specifically the role of inclusive design to address accessibility, using digital design accessibility and usability heuristics to examine the efficacy of the IDOCF framework of NCD online communities. The framework was applied to the top-five NCD sites in Canada, whose national agencies provide online health communities as an extension of their wellness initiatives. The study identified the performance of these online communities in relation to inclusion criteria, assessing their effectiveness in supporting sociability and community support for marginalised individuals. The findings of the study provided recommendations for the inclusive design of online NCD communities to better support a salutogenic approach to health for those also living with chronic health issues.

Keywords: Community, Salutogenesis, Inclusive Design

Poster Gallery A | Friday 11 July, 2014, 13.35pm

Elizabeth Rack AIA, ACHA
Principal, Cannon Design

Andrew King MRAIC
Design principal, Cannon Design

P08: The creation of the CHUM: The synergistic co-existence of planning, design and the urban fabric

Hospitals are for the users. As such, patients, employees, workers and professionals have similar hopes for a new contemporary, leading hospital complex. The Centre Hospitalier de l'Université de Montréal (CHUM) is not only responsible for embodying the aspirations of Montreal's history, culture and pride, but also for committing itself to the healthcare community. This is the role of the architecture – creating an iconic series of forms and spaces, where centres of excellence, particular programmes and defined spaces, are easily identifiable for users.

Situated over two city blocks, the CHUM represents the fusion of three hospitals, connected to the public metro subway and adjacent research complex, and the city beyond. This healthcare campus is the physical link between Montreal's downtown and historic Old Montreal – surrounded by four distinct urban streets, and sloping two building levels within its two city blocks, while taking full advantage of its spectacular site. The project is a hospital community of adequately sized, functionally distinct buildings, each optimised according to their own parameters of excellence and sophistication. The strategic definition of hospital, ambulatory, office, public and supporting buildings allows much more efficient and appropriate architectural and spatial solutions to be developed for each individual building, as well as tectonic detail, cladding, public space, art, wayfinding, and construction strategies.

The creation of clearly defined, powerful public – as well as green – spaces provides the important qualities of orientation, sunlight, moments of repose, and views at all scales. They refer to, and link, the organisational "circulation spines" along the buildings' perimeter, providing refreshing and surprising moments during the healing and care process. These public circulation routes are oriented toward the "Caurfours de Science" with views to the historic St Denis and the entry courtyard healing garden.

On completion, the CHUM will be one of the largest academic medical centres in North America, spanning more than 330,000 square metres. The new CHUM is emblematic of Montreal's aspirations, merging patient-led design with architectural excellence. Its flexible medical planning strategy, open platforms, and organisational framework results in a presence and an identity – broad and powerful, yet sublime – contextually embracing the location, regional and supra-regional scope of its services.

Keywords: Transformative, Contextural, Healing Culture

Poster Gallery A | Friday 11 July, 2014, 16.10pm

Jason Harper AIA, LEED AP

Associate principal and senior medical planner, Perkins+Will

P09: Community design for human health

It is increasingly recognised that sprawl patterns of community development are a factor in the rise of social isolation, unhealthy lifestyles, lack of opportunities for active exercise, and the rise of obesity and chronic disease in our communities. This session will demonstrate how salutogenic design practices can improve human health through block and neighbourhood design.

Utilising effective means to improve human health through quality neighbourhood design is increasingly recognised as an important driver of community planning that is attractive and desirable to those seeking an alternative to suburban sprawl. A growing body of knowledge and design techniques can be demonstrated to improve human health. Experts in urban design, community organisation, and healthcare planning have come together through the Congress for the New Urbanism's Health Districts Initiative to develop and organise knowledge and research regarding how urban design can be used to create neighbourhoods that contribute to human health. Integrating and improving the interface between healthcare facilities and their surrounding communities can be demonstrated as important factors in the creation of sustainable, resilient and healthy communities. The role of complete street design in encouraging pedestrian activity and bicycle use, increasing neighbourhood vitality through the creation of retail destinations, the integration of neighbourhood agriculture, the use of street trees, parks and green infrastructure for biophilic satisfaction, and the careful use of block size, scale and urban character are all factors that can be scientifically demonstrated to improve community quality and human health. This approach can also be demonstrated to support community resilience, disaster preparedness and sustainability at multiple scales.

Methods to implement community design techniques that support and improve human health will be discussed in a detailed presentation format, followed by a facilitated round-table discussion, involving the audience and the presenting panel of urban design and heathcare planning experts. International case studies and examples of community design that support human health and which integrate healthcare facilities in healthy district planning will be presented and discussed. The practical methods and techniques that can be utilised to improve human health through urban design will also be discussed.

Poster Gallery A | Saturday 12 July, 2014, 10.35am

Eve Edelstein MArch, PhD (Neuro), EDAC, AssocAIA, F-AAA

College of Architecture, Planning + Landscape Architecture, University of Arizona

P10: International benchmarks for design and health

Objectives

Recent research and statistics reveal the vital need for development of international guidelines that demonstrate the impact of design on health and wellbeing. The integration of rigorous research findings from an interdisciplinary database of human, ecological and economic sciences will serve design practitioners, policymakers and students of urban planning and design. In turn, the incorporation of such data and methods into a practical matrix will guide new curricula and educational programmes that will become standard for those involved in creating healthy spaces.

Methods

Using comprehensive search strategies, findings from a broad range of disciplines reveal rigorous peer-reviewed studies relating to design and health. These include the impact of architecture, landscape, and urban contexts in terms of the biological, sociological, psychological and clinical sciences. A matrix using the scientific method as its conceptual framework provides a practical process for applying knowledge of the built and physical world to measurable human responses and ecological outcomes.

Results

The outcome of this study provides a detailed matrix that translates research findings into a rating system that guides the design of built settings. This is done by correlating specific environmental qualities to quantifiable measures associated with reduction of chronic diseases and an increase in healthy behaviours. The influence of physical settings on the brain's sensory, perceptual, motor, emotional and cognitive responses is related in terms of individual behaviour and public-health measures. This neuro-architectural approach expands salutogenic and universal design objectives so they can be applied across all peoples and places.

Conclusions

In addition to articulation of current knowledge from a broad range of rigorous studies, it is important that research data can be readily translated into practice guidelines using quantifiable metrics. These metrics relate the value of design to human, environmental and economic outcomes.

Keywords: International Benchmarks, Healthy Environments, Chronic Disease, Healthy Behaviour, Design and Health

Poster Gallery A | Saturday 12 July, 2014, 12.45pm

Robert Lewis Bostwick AIA

President and director of design, Bostwick Design Partnership

P11: Improving project delivery for complex medical buildings through team development

Healthcare construction is facing a crisis. Traditional project delivery methods are inefficient, frequently contentious, and often unsuccessful. With complex, highly technical medical buildings, this can lead to critical, expensive failures. Moreover, healthcare is facing profound economic pressures while it must also transform its focus toward preventive care and sustained wellness. The design profession is also in a time of transformation and the architect has the opportunity to lead change in the hospital construction industry.

This poster will demonstrate the value of team development and provide a clearly detailed methodology of group collaboration. It will show how team development skills enhance both conventional and alternative project delivery methods for medical buildings, and effectively align the team with the hospital's mission and goals. This poster will illustrate the process and tools needed to successfully implement innovative service models. It will also share specific project examples to show how team collaboration helped manage risks and increase financial success, while enhancing the quality of the design.

This poster will focus on team development: an innovative process of building collaboration that emphasises commitment, purpose and communication. Team development provides a model for structuring the project team members and engaging them in the goals of the hospital. This process establishes a new approach to professional service that will have a lasting effect on the practice of architecture and the building industry overall. Case study examples will be used to show how the architect can drive accountability and transparency in a project team of engineers, construction managers, contractors, physicians and hospital administrators. This poster will demonstrate how team coaching increases innovation among the project participants and aligns their goals with the mission and purpose of the healthcare institution. It will show project examples that have significantly improved outcomes as measured by schedule, cost control, patient satisfaction, physician efficiency, and other criteria.

The poster concludes that the misalignment of goals, lack of effective communication, job-site conflict and stifled innovation are all contributing factors to the construction industry's failure to keep pace with the productivity gains of other industries. It will show how team development methods address the fundamental source of this failure. More effective project delivery will both lower the cost of capital projects for hospitals and help ensure these projects better serve their strategic goals.

Keywords: Procurement, Collaboration, Innovation

Poster Gallery A | Saturday 12 July, 2014, 13.10pm

Saleh Kalantari MIArch, PhD candidate
Texas A&M University

P12: Post-occupancy evaluation: A step toward effective design process

Sustainable design concepts should be monitored at all stages of a project – from the design process to the occupancy period. This research will examine how facility management plays a role in building performance. This study aims to understand facility management challenges and provide a systematic recommendation for better integration of facility managers (FMs) in the design process of architectural firms.

The methodology of the study will be mixed method, which combines qualitative approaches, including focus groups and interviews, as well as quantitative techniques, including questionnaires. Two different projects in a company will be analysed by a focus group to determine the current state of facility management and to generate the interview questions. The research will continue with structured interviews with a number of international facility managers of three archetypal architectural projects on international sites.

In the final phase, based on the results of the qualitative study, 120 surveys will be completed by design team members of ten international architectural companies. In addition, 120 surveys will be filled out by facility managers from ten FM organisations, focusing on these international projects. This research can help the architecture and facility management professions improve their processes and interactions based on respondents' assessments of current problems, and identification of ideas. The results from this study will provide a practical checklist for designers and leaders of the architectural and FM firms, in support of better building performance.

Keywords: Post-occupancy Evaluation, Design Process, Building Performance

Poster Gallery A | Saturday 12 July, 2014, 13.35pm

Ellen Ziegler MArch candidate
University of British Columbia, School of Architecture and Landscape Architecture

P13: Application of a salutogenic model on the architecture of low-income housing

Objectives
A strong correlation exists between inadequate housing and stress, and between stress and health. Families and individuals living in low-income housing often suffer from ill health more than those living in market housing.

Salutogenesis, a concept developed by Aaron Antonovsky, focuses on what causes health over what causes illness, and links health with the ability to comprehend, manage and apply meaning to stress. This ability is called a sense of coherence. The higher the sense of coherence, the less negative the impact of stress will have on mental and physical health. It has been shown that residents in low-income housing often have a lower sense of coherence, yet they are confronted with multiple social, physical, emotional and financial stressors. In this regard, low-income residents share a similarity with hospital patients in that they face an abnormally high amount of stress and may be in situations that have lowered their sense of coherence.

Architecture and design can either intensify or mitigate the effects of stress on health. In recent years, salutogenic principles have been applied to the architectural design of healthcare facilities, long-term care facilities, and workplaces; however, they have not yet been applied to low-income housing. With more than 8% of the Canadian population living in low-income housing, addressing the effects of this type of housing design is critical. This paper examines the salutogenic design principles that are applied to healthcare facilities and long-term care facilities and assesses their application to low-income housing.

Methods
This paper aims to assess the effects of applying a salutogenic model to the architectural design of low-income housing by: establishing the relationship between low-income housing and health; viewing poverty as a stressor that is analogous to disease; comparing the effects of stressors placed on low-income residents to those placed on patients; analysing the success factors in salutogenic healthcare design; showing the importance of a high sense of coherence in low-income residents; and establishing the important connection between an individual's health and a healthy community.

Results and conclusions
By using a salutogenic model to guide the architectural design of low-income housing, residents will have a similar experience to patients in salutogenic healthcare facilities – in that they will gain a stronger sense of coherence, leading to increased personal health and contributing, in turn, to the health of their communities.

Keywords: Salutogenics, Low-income Housing, Stress

Poster Gallery A

Paul Dolan DPhil Econ
London School of Economics

Chloe Foy
London School of Economics

P14: Designing stimulating environments – the SALIENCE checklist

Behavioural science teaches us that what we do and how we feel are heavily influenced by our environment, and often in ways in which we are simply unaware. We have gathered together the elements of the design of the physical environment to create the mnemonic SALIENCE. Acting as a checklist for use across all sectors, SALIENCE keeps the design process simple and efficient.

Here is a summary of the elements, for which we provide robust causal evidence:

Sound – Unpredictable and attention-seeking sounds have a negative effect;
Air – Drawing in air from the outside without causing a draft;
Light – High colour temperatures (closer to daylight);
Image – Unambiguous and familiar;
Ergonomics – Furniture and equipment that are adapted to people, rather than people adapting to them;
Nature – Drawing conscious and unconscious attention to plants and nature;
Colour – Green-blue and colours in low contrast; and
Evidence – Through measuring and testing.

The benefits of a checklist are substantial and have been shown to literally save lives. They are used in clinical surgery, aircraft operations, software engineering, and investment processes. Checklists bring us back from our "inattentional blindness", whereby we focus on narrow aspects of a decision and ignore the bigger picture. They bring common sense to the fore.

We have developed robust ways of measuring wellbeing that show the full impact of interventions, as designed for and used by the Office of National Statistics (using a scale of 0 – 10). These questions go directly to the heart of the workplace experience, such as how worthwhile people find what they do in life. We use these questions and modify them to more directly measure the impact of the physical environment on how people feel right now. We are now able to estimate monetary values for the wellbeing impact of design-based decisions. And while many organisations may not view subjective wellbeing as the final consequence, it also promotes productivity, happiness, creativity, health and job satisfaction.

Poster Gallery B | Thursday 10 July, 2014, 12.45pm

Guela Solow-Ruda BArch
Partner, ARK

P15: A framework for analysing and designing inclusive online communities

Cancer treatment and fertility medicine, while different clinical protocols, can be mirrored experiences for the patient. Each can be a long journey and, at a deep level, cause the patient to confront issues of life and death. While medical and technical mandates are critical to patient care, this presentation proposes a different lens for viewing the patient experience: through narrative-based design, organised around the patient journey both through treatment and through space.

Two comparative case studies in the design of environments for cancer treatment and fertility medicine will explore critical parameters based on the idea of the patient experience as a journey. The journey as a conceptual model for design will be evaluated from the following perspectives:

Itinerary
While each patient is unique, the journey tends to be one of escalating intervention, making the patient's understanding of their journey one of hope and frustration. Spatially, this is mirrored as critical turning points in treatment and often signal a change in location, whether it is from simple ultrasounds to full IVF procedures, or from counselling to palliative care.

Orientation and exploration
Although the clinical setting is familiar for healthcare professionals, for patients it can seem foreign and confusing. A self-evident route impacts the stress related to the care the patient receives, and their ability to heal with that care. In addition, design can be used to create a sense of continuity of experience, so that while treatments and spaces may be new as care shifts in location, the environment still feels familiar. This supports a patient's sense of confidence. With fewer negative distractions, stresses and unknowns, they can take greater agency in their own care.

Returning
The end of the patient journey in the case of both fertility and cancer treatment signals either an end or a new beginning. Palliative treatment or discontinuing fertility treatments can both be devastating for the patient and their families. The role of architecture is not to negate the gravity of the experience but to minimise environmental intrusions and stresses, and, where possible, to uplift.

How we think about design informs the spatial experience. As medicine and healthcare delivery changes, so should our models for design. Viewing the patient experience through an alternate lens sheds light on different aspects of the experience and results in design that is able to address these aspects.

Keywords: Itinerary, Orientation and Exploration, Returning

Poster Gallery B | Thursday 10 July, 2014, 13.10pm

Ben Embir MArch, OAA
HOK Architects

Magdalena Warshawski MArch, OAA
HOK Architects

P16: Co-locating specialised mental health, physical medicine and rehabilitation and complex continuing-care patients through the planning, design and compliance role: a case study in Kingston, Ontario

Objectives
The redevelopment of Providence Care Hospital in Kingston, Ontario will include the physical amalgamation of two separate sites – Providence Care Mental Health Services, and St Mary's of the Lake – resulting in a unique combination of patient populations: specialised mental health (SMH) including geriatric and forensic psychiatry; physical medicine and rehabilitation (PM&R); and complex continuing care (CCC). As planning, design and compliance (PDC) architects, the challenge existed in developing output specifications for a facility that co-locates and intermingles these different patient populations, while ensuring that all patient and staff needs are met in support of the project design objectives.

Methods
The hospital's operational model, along with extensive user-group feedback, formed the basis for the development of the output specifications for the new facility. Based on the hospital's risk assessments, addressing security concerns and alternative approaches to mental health focusing on heightened community interaction, a framework was established for collecting and incorporating individual departmental needs within an integrated hospital setting.

Results
The greatest challenge in extrapolating user needs was the decision-making process on a facility-wide level. In order to provide a normalised healing environment, the output specifications aimed at standardising many requirements across all departments resulting in the extensive resolution of requirements that were appropriate for SMH, PM&R and CCC patients alike. Various examples addressing issues such as flexibility and adaptability, safety and security, accessibility, equality, and design excellence will be presented. Examples include: the development of exterior therapy spaces that meet safety and security requirements, while providing a de-stigmatising and normalised environment for all patient groups; the advantages and disadvantages of the standardised location of the inpatient unit porches; or addressing security concerns for main public zones and common clinical spaces.

Conclusions
This case study of Providence Care Hospital highlights the challenges faced in integrating differing patient population groups in a holistic hospital environment focused on providing care that supports recovery and transition, normalisation and de-stigmatisation. In order to achieve the unique project design objectives, a level of critical understanding and compromise across all departments was necessary in developing the requirements for a successfully integrated hospital. The presentation will outline challenges faced in amalgamating the differing programmes and how portions of the output specifications were developed. Furthermore, it will highlight issues and/or successes associated with the process, and discuss lessons learned and potential outcomes.

Keywords: P3, PDC, Mental Health

Poster Gallery B | Thursday 10 July, 2014, 13.35pm

Stephen McCoullough
Managing director, Donald Cant Watts Corke

P17: Modern healthcare facilities – Can we afford them? A comparison of two hospital developments 20 years apart

In 1990, Donald Cant Watts Corke was appointed quantity surveyors and cost managers for the redevelopment of the Royal Melbourne Hospital. Stage 1B of the redevelopment comprised the clinical-services building, housing emergency, medical imaging, coronary care, and operating theatres. This stage was completed in 1995.
In 2005, Donald Cant Watts Corke was appointed quantity surveyors and cost managers for the redevelopment of the Box Hill Hospital. The main stage of the redevelopment started construction in 2012 and comprised emergency, ICU, operating theatres, maternity, and medical and surgical wards. The project is due for completion in 2014.

Objectives
The objectives are:
• to review, assess and compare differences in two major hospital redevelopments some 20 years apart, in order to determine whether changes in healthcare design over that period of time have led to significant changes in the costs of major healthcare facilities;
• to review, assess and compare, in particular, the differences in the make-up of the costs of the two redevelopments, and where costs may have moved over time; and
• to review, assess and compare key differences in the common departments of emergency and operating theatres in areas such as design, patient flows, areas of rooms and spaces, and functional costs, and how the changes in health planning over time have impacted the cost of the facilities.

Methods
The methodology involves the quantification, analysis and comparison of a number of project elements, such as:
- overall building footprint;
- functional layouts, room sizes and building efficiency;
- overall project costs; and
- detailed functional and elemental costs.

Results and conclusion
The analysis is yet to be completed; it is anticipated, however, that the results are likely to show the following:
- an overall increase in costs in the procurement of modern major health facilities;
- cost efficiencies have been obtained through improvements in productivity, construction techniques and construction materials;
- changes in models of care, hospital procedures, and infection control have led to an increase in the cost of fitout and engineering services; and
- significant increases in the cost of ITC.

Keywords: Hospital Development Costs, Healthcare Design, Benchmarks

Poster Gallery B | Thursday 10 July, 2014, 14.10pm

Christine Chadwick

AECOM healthcare market leader, Canada

Mark Henderson BArch

AECOM healthcare market leader, Americas

P18: Does "design" really matter in the Public-Private Partnerships process?

Objectives

- Rethinking how we think as architects, builders and operators;
- How to define and share risk as a team;
- Fundamentals of a successful process;
- Key participants of an integrated team; and
- The value of design thinking and the impact on performance outcomes.

We want to challenge the notion that design should take a back seat in the P3 delivery model. Architecture in healthcare is evolving. The need for the designers to adapt to the new genre of P3 is a global transition, not only for now but also for future generations of architects who are considering healthcare as a specialty.

In a delivery model where the architect is subservient to a contractor, and where the overall project cost (by squeezing the building area and schedule) determines if you win or lose the project, does design matter? We suggest yes – provided the architect can shift the mindset of what represents good design. If good design is represented only as an iconic image and the solution is only about the building, deferring to form alone, then the concept of design probably doesn't fit, at least in the P3 world. But if design follows, say, the philosophy of the late Steve Jobs, who said "great design is not about how something looks, but how it works", then it is absolutely essential to achieving a successful P3 project.

So what does this mean in the practical world of competing on time and price? It means rethinking the traditional design process, forgetting about hierarchy, and truly "partnering" with builder and operator. It means establishing trust as the underlying premise to creating collaborative design that surpasses the indicative or exemplar "contract documents" to increase the predictability of operational performance, construction cost, and long-term "change" cost at every step of the process. Thus, outcomes can be significantly improved by creating spaces that are healing and affordable, improving the efficiency of the care delivery model, and implementing building system strategies that minimise future renovation costs.

Keywords: Design, Collaboration and Performance

Poster Gallery B | Friday 11 July, 2014, 10.35am

Dennis Vonasek AIA, ACHA, CID
Vice-president/principal, HGA Architects and Engineers

Christine Guzzo Vickery CID, EDAC
Vice-president/senior interior designer, HGA Architects and Engineers

P19: Defining the patient experience in an outpatient setting

The US healthcare industry is in the midst of change. Cost containment, new technology, shifting demographics, and new legislation are impacting how providers deliver care, and how patients choose care. National healthcare discussion is placing a greater emphasis on preventive care, wellness, and managing chronic diseases.

With the recent Affordable Care Act providing increased access to health insurance, more patients will be visiting clinics and outpatient facilities in the future. As such, patients and caregivers are beginning to think differently about how they use outpatient services. For healthcare owners, this means thinking strategically about space planning. If healthcare owners can save costs by re-envisioning the traditional clinic module and refocusing on the patient experience, they can improve the healthcare delivery process. Flexibility, efficiency, technology and patient experience are the new operative words in outpatient clinic design today.

This session will look at the changing face of the traditional clinic, with a renewed emphasis on the patient experience in an outpatient setting. It will examine how the needs of three primary users group – the patient, the caregiver and the healthcare organisation – play into the design of a successful clinic. It will then examine how emerging delivery models – from team-based medical home to remote mobile-based consultation – are driving patient care. From here, the "patient experience" will be defined within this evolving healthcare paradigm to trace a positive patient experience within a clinic – from the entry drive and front door to the registration desk, waiting room, interior corridors, exam rooms, and checkout.

The session will look at several US case studies to explore strategies for well-planned spaces. It will also take a global perspective, presenting diagrams of a new women and children's centre, currently in design development, at Bumrungrad International Hospital in Bangkok, Thailand, to illustrate how lessons learned in the US transfer to an international healthcare market.

The goal is to develop solutions that simultaneously satisfy the three client bases of patient, caregiver and healthcare organisation, while evaluating how changes in healthcare delivery continue to influence clinic design. Throughout this presentation, it will be shown how clinic design can make healthcare services more efficient and contribute to a successful patient experience.

Keywords: Outpatient, Clinic, Design

Poster Gallery B | Friday 11 July, 2014, 12.45pm

Randy Guillot AIA

Design principal, Cannon Design

P20: The Brain Building: The journey to salutogenic design at the Indiana University Health Neuroscience Center of Excellence

Perhaps there is no stronger relationship than that between the principles of salutogenic design and the patients accommodated in a neuroscience centre. This discussion will take you on the journey of one project – from concept to completion – and its evolution as a flagship centre in the treatment of brain disorders through the connection of design, health and deeply embedded notions of beauty and environment.

Neuroscience has been evolving in a salutogenic direction, towards a more holistic model integrating health, wellness and interconnectivity. Brain studies have revealed that physical and emotional wellbeing are linked. Relaxation triggers the brain's reward and anti-pain pathways; natural and biomimetic imagery is known to aid relaxation; natural light positively affects mood; both aesthetic and somatogenic perception – the capacity to attend to one's own bodily and emotional needs – are moderated, suggesting that "connection" to surroundings is closely linked to bodily awareness and overall health.

Coherence and manageability and meaning are of crucial importance to patients receiving treatment for neurological disorders. In addition to physical discomfort and impairment, neurological disorders can impair cognition and diminish emotional stability and resilience, increasing the difficulty of navigating the healthcare environment, making patients more susceptible to feeling overwhelmed mentally and emotionally. The 270,000 sq ft project focuses on how to bring symbols and pattern language into the built environment to support high levels of human-function building along both the salutogenic and the biophilic approach.

The ever-expanding science of the brain and the treatment of its disorders offer a platform for exploration of imagery and formal manipulations of the project. Using scale and memory, the project seeks to build an architectural language that translates these building blocks and graphic conventions of neuroscience into built form. The need for beauty is closely related to somatogenic perception. This area of perception is responsible for seeing to emotional needs – creating an environment that would provide positive distractions for the patient – inhibiting the negative emotions of fear, loss of control, objectification, and confusion that patients experience throughout a healthcare journey.

Keywords: Salutogenic Design, Neuroscience, Ambulatory Care

Poster Gallery B | Friday 11 July, 2014, 13.10pm

Sheila F Cahnman AIA, ACHA, LEED AP
Healthcare market sector leader, AECOM

P21: Enhancing patient satisfaction through the built environment

Objectives

- Learn elements proven to enhance patient and family satisfaction;
- Explore current research on how the physical environment affects the patient experience across generations;
- Review physical improvements that most cost-effectively raise patient satisfaction; and
- Identify key services that designers can provide to improve patient experience.

In a recent study, nearly 84% of top-level US healthcare executives said patient experience is among their top three priorities, and 24% said it is their top priority. Studies have shown that even where the standard of clinical care is almost identical, patient satisfaction is perceived as higher when care is delivered in a new facility.

Healthcare facility design can support operational and environmental changes translating into higher patient-satisfaction scores and increased hospital revenues, with the least capital costs. The following key elements directly improve patient experience:

Reducing noise/increasing patient privacy
Reduced noise levels improve sleep, mood and pain tolerance. Studies show that patients are more satisfied in a setting that respects their privacy and control over the environment. But there is a continuing dichotomy between visibility for caregivers and acoustical/visual privacy.

Staff communication/improving the discharge process
A patient's and family's perceptions of clinical care are greatly affected by interactions with staff, especially when they are discharged. This process can be enhanced by the creation of comfortable spaces where instructions can be easily transmitted.

Efficient rounding/support staff responsiveness
Regular, scheduled rounding improves outcomes and perceived staff responsiveness – an important factor in patient satisfaction. Decentralised work areas and other strategies can bring caregivers closer to their patients to allow this to occur.

Effective pain management/stress reduction
Research has quantified that natural light and views of nature, even in the form of virtual reality, can reduce the perception of pain. The hospital experience is often one of stress, anxiety and increasing confusion. These feelings can be mitigated by clear, coherent wayfinding.

Design process innovation
Healthcare organisations such the Mayo Clinic and Kaiser Permanente have initiatives creating facility and service elements as brand differentiators, responding to the voice of the patient. Designers, teamed with progressive clients, are using experience mapping: visually illustrating prototypical patient and caregiver processes, needs and perceptions to create the most suitable setting. This information forms the basis of the facility design.

Keywords: Patient Experience, Research

Poster Gallery B | Friday 11 July, 2014, 13.35pm

Bruce Crook
Director, Silver Thomas Hanley

P22: Integrated cancer centres – A salutogenic design approach: Design drivers, operational principles and "the patient journey"

The design of healing environments and the integration of complex medical technology and research have become imperative in multi-modality cancer treatment centres. This presentation will review examples of design excellence, completed or in progress, and offer key drivers to inform the development of cancer centres, large and small.

Objectives
The objective of this presentation is to identify and articulate the key drivers and principles that apply to the design, development and operation of integrated cancer centres. A core premise is the provision of health and wellness through a salutogenic approach with high-quality architecture and interior design, to instill a sense of control for patients, and to support and promote healthy living. Advanced screening techniques, diagnosis and treatment result in an increase in ambulatory management. Innovation in management is critical and, as such, contemporary facility design can respond. It is acknowledged that in different regions and situations there will be phasing, simplification and tailoring of facilities to meet local development parameters.

Methodology
The following principles will be reviewed:
- the "patient journey" and model of care and integration into a facility;
- integration of complex technologies into a healing environment;
- spaces and design (benchmarks and standards);
- phasing and staging to permit planned growth, funding and technology increases;
- technology obsolescence and future-proofing – pharmaceutical developments,
- radiation therapy, proton therapy, carbon therapy, and medical interventions; and
- staff sustainability, research, education, and clinical trials as fundamental components of a facility – translational research results from encouraging interaction between clinicians, researchers and patients.

Case studies will examine the following projects:
1. Victorian Comprehensive Cancer Centre, Melbourne, Australia;
2. Walker Family Cancer Centre at the St Catharine's Site, Ontario, Canada; and
3. Abbotsford l Cancer Centre, Abbotsford, BC, Canada.

Conclusion
The provision of cancer centres and treatment facilities can be undertaken as a tertiary integrated facility, supporting "hub and spoke" models of care, or a staged smaller or standalone facility with future provision of additional modalities. A salutogenic design approach can enhance and promote therapeutic healing with: evidence-based design principles in place; clear wayfinding strategies through innovative functional planning; and appropriate block and stacking to minimise patient travel and create "one-stop shops". An environment that promotes good design principles will ultimately reduce the stress of the patient and encourage improved clinical consultation and improved research outcomes.

Keywords: Cancer Centre Design Case Studies, Salutogenic Design Principles, Innovation in Health Facility Design

Poster Gallery B | Friday 11 July, 2014, 16.10pm

Cameron Shantz BArch, OAA, AIA
Parkin Architects

P23: A case study of the healing environment in a forensic mental health facility

Summary
Mental health facilities have traditionally been the forgotten part of the healthcare system, with many simply not supportive of the healing needs of clients need. This case study will explore a brand-new healing environment for forensic mental health that promotes patient recovery, delivered under a P3 model.

Objectives
The objectives of this paper are to: describe how a building environment can support the psycho-social rehabilitation (PSR) model of care for mental health patients; use a case study of a recently opened facility to describe key environmental initiatives to support patient healing and recovery; and to discuss the process of delivering this facility as a P3 project.

St Joseph's Healthcare is committed to a recovery model of care for their mental health patients. Working in a PSR model, the care providers assist patients in their personal journey, helping them move beyond the stigma and limitations of illness and towards recovery. The overarching goal of the recovery philosophy of care is grounded in a treatment programme that focuses on helping each patient live a full and meaningful life. For its new building, St Joseph's was intent on creating a healing facility that supported its care model in its philosophical realisation, as well as in the physical environment.

The building was designed to include three components: a "house", "neighbourhood" and "downtown", all of which symbolise patients' transition towards recovery. The inpatient units were developed as home areas with individual bedrooms as well as smaller interaction spaces, such as lounges, activity spaces and dining rooms, creating a more intimate homelike environment. The neighbourhood accommodates larger social spaces, such as group rooms, ADL kitchens, and consultation spaces. The downtown area has major public and social interaction spaces, such as the gym, chapel, music room, shops, and cafeteria. The architectural design supporting this philosophy of health promotion for mental illness included a significant amount of natural light penetrating the entire facility, views to the exterior throughout, dedicated exterior courtyards, a skylit downtown street, extensive glazing, and a seamless security system based on patient privilege. This paper will use the Southwest Centre for Forensic Mental Health project to explore how each one of these environmental design initiatives supported a healthy environment and patient recovery.

This building was delivered as a P3 project and shows the success that can be achieved when the client group, architectural design team, and project company work collaboratively to create a healing environment that supports patient recovery.

Keywords: Healing Mental Health Environment

Poster Gallery B | Saturday 12 July, 2014, 10.35am

Albert Wimmer Arch DI Dipl TP

CEO, Albert Wimmer ZT

P24: Vienna North Hospital: High tech meets high touch

Vienna North Hospital is an important step in reconstructing the Viennese hospital landscape. The hospital, which is in large parts already completed, will be one of seven specialised hospitals in Vienna. Establishing a partly new set of priorities in these other hospitals, while also shifting existing hospitals and departments from their present location to the Vienna North Hospital, is helping improving the healthcare services significantly.

The new hospital provides a light-flooded atmosphere as well as an optimal solution for the workflow and organisational processes, with the design combining the advantages of a pavilion-type hospital with those of a central hospital. The invitingly shaped foyer area, featuring a spacious piazza, connects the hospital with the urban space while, at the same time, providing optimal protection against noise.

Rooms are designed exclusively as single and twin rooms, which reflect the high standard finish of the inpatient wards. Light-flooded atriums, roof gardens, and extensive green spaces combine to make the hospital an oasis of wellbeing for patients and employees alike. The landscape design unites the ideas of wellbeing, healing, growth and recovery in a holistic overall concept – one which provides clarity, optimal functional processes, a clear organisation, short distances for the nursing staff to access patients, and complex networks. The 800-bed hospital will unite state-of-the-art standards with as much comfort as possible.

Poster Gallery B | Saturday 12 July, 2014, 12.45pm

Uthayan Thurairajah BASc (Hons), MSc, MIES, PEng

Senior electrical engineer and associate, MMM Group/Lecturer, Ryerson University, Toronto

P25: Lighting design and health: A source, modifier and receiver-model approach for salutogenic design to promote health, wellbeing and quality of life in built environments

Objectives

The objective of this paper is to select accurate lighting sources and mounting arrangements, choosing modifier, and protecting users, or any combination of these. These solutions are based on their application in order to promote human health and wellbeing as well as quality of life through healthy environmental design.

Methods

Non-image forming optical radiation affects human health and wellbeing. It can be solved by a new method, using source, modifier and receiver-level approaches, or any combination, for any indoor or outdoor built environment.

I. The following source-level method will help integrate non image-forming optical radiation into the lighting design:
1. presenting a new method to calculate the retinal illuminance by optical radiation;
2. establishing the required threshold values based on human biological experiments;
3. establishing a method of classifying luminaires based on non image-forming optical radiation; and
4. integrating non image-forming optical radiation into the whole lighting design.

II. The following modifier-level method will help integrate non image-forming optical radiation into the lighting design:
1. identifying the places that human inhabit during the hours of darkness;
2. choosing the modifiers that block the non image-forming signal at night; and
3. installing the luminaire in such a way as to receive indirect light exposure.

III. The following user-level method will help integrate non image-forming optical radiation into the lighting design:
1. identifying the places that humans inhabit during the hours of darkness; and
2. choosing the filter/blocker/shield that blocks the non image-forming signal at night.

Results and conclusion

Human eye sensitivity to light varies based on age, alertness, a person's physical and mental conditions, as well as light intensity, quantity, distribution, direction, colour, time, and duration, etc. These factors play a major role in the visual and circadian systems. This proposal considers a new method to achieve a light indoor and outdoor built environment, which accommodates human health and wellbeing. Non image-forming optical radiation affects human physiology and behaviour. Its direct effects include melatonin suppression, elevated cortisol production, increased core body temperature, etc. Indirect effects include the resetting of the body's internal circadian clock. Optical radiation impacts the visual, circadian, neuroendocrine and neurobehavioural responses. The existing measurement is based on the photopic luminous efficiency function method, which is not adequate to characterise non image-forming optical radiation. The presentation will also focus on the non image-forming photoreceptor melanopsin and its role in future lighting design. Most of the research on non image-forming optical radiation has been completed in the lab environment, and insufficient documentation exists on typical exposures to nocturnal optical radiation in field applications. Therefore, a new method is proposed to calculate non-image forming optical radiation, as well as new approaches for future lighting design.

Keywords: Salutogenic Design, Environments, Health

Poster Gallery B | Saturday 12 July, 2014, 13.10pm

Tom Harvey FAIA, MPH, FACHA

Principal/shareholder and senior vice-president | president of CADRE, HKS

P26: Best-practice benchmarking: What is the role of post-occupancy evaluations in design?

Post-occupancy evaluations (POEs) have taken on different variations and forms, including functional performance evaluations, building audits, environmental design audits, etc. (Shepley, 2011). A functional performance evaluation (FPE) evaluates the current operations in a healthcare facility, and in its individual departments, after the facility has been in full operation for at least one year.

In this presentation, the structure and findings from FPEs conducted over a period of eight years will be shared. The FPE uses a series of tools to collect data in the form of operational statistics, staff surveys, interviews and roundtable discussions with the senior leadership of a facility, as well as objective data gained from site audit and environmental information, including sound levels, illumination levels, travel distances, and Isovist analysis. The surveys and interviews focus on understanding the staff perception of a space and its functionality, while the site audit and specific studies provide environmental data for the perception of space to be compared against.

The findings of the FPE are entered into a database organised by room type, department and facility. The information is further classified by a series of functional issues that impact space design, such as patient safety, workflow, technology, accommodation, etc. Data from each of the key metrics tracked is coded and entered into the database to allow triangulation of the data, identification of trends, and benchmarking of best practices in healthcare design. The database provides a valuable means of disseminating collective experience and knowledge to healthcare design professionals, as well as serving as a resource for the design industry, healthcare systems, and the healthcare industry as a whole.

The design industry benefits from an understanding of the consequences of their decisions with the opportunity to identify and test specific design strategies and solutions that can become part of organisational knowledge. The healthcare system participating in an FPE gains an understanding of the impact of design decisions on a range of issues, such as customer satisfaction, organisational performance and staff satisfaction, data to inform future projects, and insight into ways to improve and optimise operations through facility design. At a healthcare-industry level, the information recorded in the database allows the profession to continuously improve based on benchmarked best practices and lessons learned, and provides knowledge for the continuing development of design guides and regulatory processes.

Poster Gallery B | Saturday 12 July, 2014, 13.35pm

Bruce Crook
Director, Silver Thomas Hanley

P27: PPP procurement: Innovation, benefits and best practice for major hospital projects

The St Catharines Hospital in Niagara, Ontario, Canada, was one of the first of the new Alternate Financing Projects (AFPs) for the Province of Ontario. It followed similar projects delivered in British Colombia. The Alternate Financing & Procurement (APP) and Private-Public Partnership (PPP) processes have been the subject of much political, operational and community discussion. The inherent capability of these procurement models to enable innovation and challenge has often been questioned compared with other more traditional procurement processes. This presentation will review positive outcomes and also "lessons learnt" from recent AFP and PPP construction projects.

Objectives
The objective of the presentation is to identify factors in the AFP/PPP processes that permit innovation and a collegiate responsibility to achieving an outcome that responds to more than the illustrative or output specifications. The interaction of the province, the health systems, the project company, and the design team will be explored to analyse the factors that create change, innovation and, more importantly, a wider salutogenic approach.

Methodology
Specific projects will be considered in case studies with references to:

- co-operation and discussion on illustrative and output specifications to achieve best practice;
- balancing design and building-programme imperatives;
- a focus on community involvement;
- introducing innovation and change in the PPP process; and
- OASIS principles (operational, accessibility, security, infection control, sustainability).

Case studies will include: New St Catharines Hospital, Niagara, Ontario, Canada; and Abbotsford Regional Hospital, Abbotsford, British Columbia, Canada.

Conclusion
Alternate procurement processes can promote innovation and a more salutogenic approach.

Keywords: Alternate Financing and Procurement (AFP) Hospital Projects,
Private-Public Partnerships (PPP) Hospital Projects, Innovation in Hospital Design

Poster Gallery B

Lynda Canell
Chief operating officer, Fortius Sport & Health

Julie Sless
Vice-president healthcare, Herman Miller Canada

P28: Human-centred design to optimise human performance and client experience

Fortius Sport & Health is said to be the first fully-integrated sport medicine, science and training venture in Canada. The organisation builds on the world-class amenities of the $61m 148,000 sq ft Fortius Athlete Development Centre and the Fortius Institute's internationally recognised practitioner team based in Burnaby, British Columbia. Members of the integrated team of sport medicine and exercise science practitioners include: physicians, therapists, chiropractors, dietitians, psychologists, sport scientists and kinesiologists.

The centre creates an environment in which athletes and coaches gain access to the full range of sport medical, science and training expertise under one roof. But its larger purpose is to create a hub for programmes and services designed to help clients of all ages and levels of ability remain healthy and active throughout their lives.

The facility's design is bright, modern and sophisticated with a blend of contemporary and classic elements. Staff work areas are open concept, highlighting the different modes of collaborative work such as impromptu interaction, co-creation and sharing of information. Highlights include The Lodge @ Fortius and the gymnasium, which are open both to athletes and the local community, and a laboratory featuring state-of-the-art force, time, motion and muscle activity measurement technologies to analyse human performance.

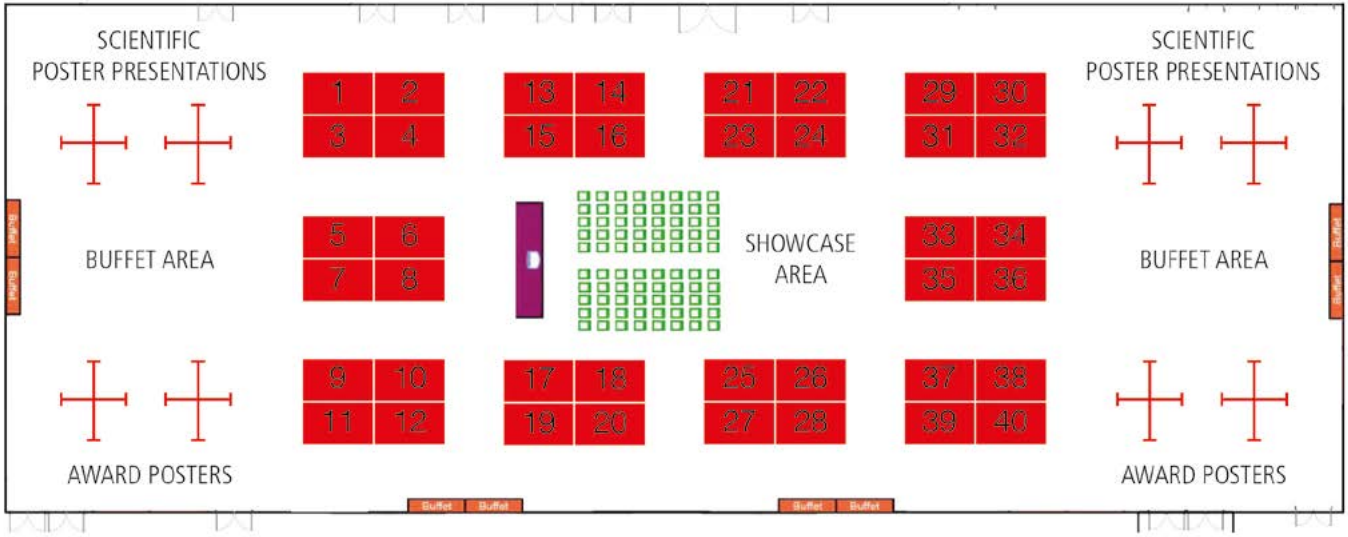
This case study will illustrate how Fortius created an inspirational, human-centred design to promote working, healing and healthy living.

Exhibition Hall and Poster Gallery Floorplan

Our unique combination of an industry exhibition of the latest design and product innovations and solutions, an awards gallery displaying the shortlisted winners of this year's Design & Health International Academy Awards 2014 (see pp42-55), as well as a gallery of scientific research posters (see pp15-17) ensures that the learning experience of the congress continues outside of the conference hall, at the same time as providing a platform for networking with colleagues and clients to develop business and marketing opportunities. Please also take the opportunity to enjoy our special showcase presentations (see pp19-35), which will take place in the central area of the exhibition hall.

Opening Times

Thursday	10.00 - 18.00
Friday	10.00 - 18.00
Saturday	10.00 - 18.00



International Academy Awards Poster Gallery			
Health Project (Over 40,000)		Mental Health Design	
A1	Sint Antonius Hospital	A14	Glenside Health Services
A2	Bridgepoint Healthcare Active	A15	The Southdown Institute
A3	St Olavs Hospital	A16	Southwest Centre for Forensic Mental Healthcare
Health Project (Under 40,000)		Art in the Patient Environment	
A4	National Heart Centre Singapore	A17	Royal Children's Hospital Melbourne
A5	Sir Ludwig Guttman Health Centre	A18	St Mary's Hospital
A6	Knowledge Centre, St Olavs Hospital	A19	St Olavs Hospital
Salutogenic Design		Product Design for Healthcare Application	
A7	Deheng Clinic, Beijing	A20	Interactive Installation, St Olavs Hospital
A8	St Olavs Hospital	A21	Mobile Cabinet for Vienna North Hospital
Sustainable Design		Interior Design	
A9	St Mary's Hospital	A22	Deheng Clinic, Beijing
A10	Knowledge Centre, St Olavs Hospital	A23	Chris O'Brien Lifehouse
Future Design		A24	Mount Sinai Hospital
A11	Gualv New City Hospital	A25	Knowledge Centre, St Olavs
A12	The Greater Accra Regional Hospital		
A13	Private Academic Medical Center, Uttar Pradesh, India		
P1-25	Scientific Poster Gallery (see p15-17 for the poster content)		

Exhibitors			
1	AECOM	21	GLOBAL
2	AECOM	22	GLOBAL
3	Britplas	23	GLOBAL
4	Britplas	24	GLOBAL
5	Stevens Company	25	SWIPE Design
6	Stevens Company	26	SWIPE Design
7	Altro	27	IADH
8	Construction Specialties	28	World Health Design
9	Ontario Association of Architects	29	Amico Corporation
10	Canadian Urban Institute	30	Amico Corporation
11	Canadian Facility Management & Design and Canadian Healthcare Facilities	31	Carpenters District Council of Ontario
12	Architecture Canada I RAIC	32	Carpenters District Council of Ontario
13	Zeidler Partnership Architects	33	Kaizen FoodService Planning & Design
14	Zeidler Partnership Architects	34	Dominic Pote
15	Zeidler Partnership Architects	35	Dunleavy
16	Zeidler Partnership Architects	36	ARK
17	Herman Miller Healthcare	37	Arup
18	Herman Miller Healthcare	38	Arup
19	Herman Miller Healthcare Space	39	Montgomery Sisam Architects
20	Herman Miller Healthcare	40	Sherwood Windows

American Society of Interior Designers

Contact: Kevin Mulvaney, Vice-president, Industry Engagement
www.asid.org

The American Society of Interior Designers (ASID) believes that design transforms lives. ASID serves the full range of the interior design profession and practice through the Society's programmes, networks and advocacy. We thrive on the strength of cross-functional and interdisciplinary relationships among designers of all specialties, including workplace, healthcare, retail and hospitality, education, institutional and residential. We lead interior designers in shared conversations around topics that matter: from evidenced-based and human-centric design to social responsibility, wellbeing and sustainability. We showcase the impact of design on the human experience and the value interior designers provide. ASID was founded nearly 40 years ago when two organisations became one – an anniversary we will recognise in 2015 – but its legacy dates back to the early 1930s. As we celebrate nearly 85 years of industry leadership, we are poised to lead the future of interior design, continuing to integrate the advantages of local connections with national reach, of small firms with big, and of the places in which we live with the places in which we work, play and heal.

AZURE

Contact: Sergio Sgaramella, Publisher
www.azuremagazine.com

See the design world with an international perspective! AZURE is an award-winning magazine with a focus on contemporary architecture and design. Since its launch in 1985, it has earned a global reputation for excellence. Its international perspective and multidisciplinary coverage – which puts architecture, interiors, products, landscapes and urbanism together in real-world scenarios – make it distinct from any other publication available on newsstands. In eight visually stunning issues per year, AZURE explores inventive projects, emerging trends and design issues that relate to our changing society.

Building magazine

Contact: Tom Arkell, Senior Publisher
www.building.ca

Building magazine is Canada's national property development and management industry publication. Building reaches real-estate developers, builders, owners, property managers, investors, architects, engineers, and government personnel overseeing development legislation. As the longest published magazine of its kind, Building magazine's respected and trusted editorial has been serving this important industry since 1952. Distributed six times a year to more than 10,000 subscribers, each copy of Building magazine is read on average by nearly 30,000 people, when you take into account pass-along readers, guaranteeing your message is reaching virtually the entire industry. Our website, Building.ca, offers visitors up-to-the-minute news, features and stories critical to the development industry. We also provide an online product directory, job boards, event calendar, and industry links. Building also reaches out digitally via our weekly e-newsletter.

Canadian Architect

Many magazines claim to reach architects, but these influential professionals receive and read one publication more than any other – Canadian Architect! Published monthly since 1955, we are the journal of record for Architecture Canada | RAIC, Canada's national association of architects. Our editorial is written and edited by architects, for architects. Featuring the top projects in the country, by the country's best architects, Canadian Architect guarantees advertisers they are reaching and being seen by all architects in Canada. With more than 13,800 subscribers, including more than 10,000 registered architects, Canadian Architect has the largest independently audited circulation of any publication serving the architecture community in Canada. With more than 83% of all of our subscribers having requested the magazine in writing, advertisers can be confident they are spending their money on ads that will be read by the specifiers of their products. No other publication in Canada even comes close to this kind of reader commitment.

Contact: Tom Arkell, Senior Publisher
www.canadianarchitect.com

Canadian Consulting Engineer

Canadian Consulting Engineer is for professional engineers who act as consultants on buildings, infrastructure and environmental projects. The 10,000+ readership comprises civil, structural, mechanical and electrical engineers across Canada. As the country's only national engineering publication devoted exclusively to the interests of consulting and specifying engineers, CCE magazine provides and informs consulting engineers about innovative engineering approaches and issues affecting their business. It also provides technical, specification and management information to help these professional engineers function profitably and effectively.

Contact: Maureen Levy, Senior Publisher
www.canadianconsultingengineer.com

Canadian Facility Management & Design

Canadian Facility Management & Design is Canada's national trade publication for the facility management community and those who work closely with this market. The magazine is published seven times yearly and provides readers with timely information on improving productivity, reducing costs, and optimising overall building operations; it also highlights the latest developments in workplace design. Our editorial expertise provides leading-edge insight into optimising the design and operation of corporate, public and institutional buildings. In addition to the special themes listed below, regular coverage includes columns and feature articles on topics such as: acoustics, architecture, communications, design and drafting, ergonomics, HVAC, interior design, lighting and security.

Contact: Kevin Brown, President
www.reminetwork.com

Canadian Healthcare Facilities

Contact: Steve McLinden, Publisher
www.ches.org

Canadian Healthcare Facilities (CHF) is the official publication of the Canadian Healthcare Engineering Society (CHES) and is a vital information source for 2,500 readers who are actively involved in healthcare facility operation and management.

Canadian Interiors

Contact: Martin Spreer, Publisher
www.canadianinteriors.com

Canadian Interiors is the only magazine in Canada that can guarantee 100% coverage of interior designers, decorators and most large architectural firms, and it is the official magazine of Interior Designers of Canada, the country's national association of interior designers. This year marks our 50th anniversary, and since its launch in 1964 the magazine has been a must-read for Canadian interior designers. Published eight times a year, with a circulation of 12,372 and a pass-along readership of 39,590, CI can give you access to the audience that will specify your products. Canadian Interiors draws its reader into the aesthetics and functionality of interior design, interior architecture, space management, and product and furniture design and CI is constantly researching and publishing new products as a resource for professionals. The magazine also updates A&D professionals on association policy and membership issues. There are many consumer design magazines in Canada, but only Canadian Interiors can guarantee you access to all interior design professionals across the country with billions of dollars in specifying power.

Canadian Urban Institute

Contact: Peter Halsall, President
www.canurb.org

CUI is Canada's applied urban-policy institute. Our mandate is: build wisdom to inspire leadership for healthy urban development. Broadly, CUI's activities involve generating connections, understanding and inspiration towards decisions that sustain thriving, resilient communities. We do this by providing:

- Research: global practices and outcomes in urban leadership;
- Analysis: trends and relationships in data and ideas;
- Communication: convert concepts and opportunities incorporating the results of the research and analysis into engaging learning and inspiration; and
- Consultation: stakeholder collaboration and community engagement.

The areas of work include economic and cultural development, infrastructure investment, asset mapping, education/capacity building, and engagement consulting. We usually work in partnership with members of our extensive networks in the private, public, academic and civil society. Our international work is currently active in Asia.

idc
interior designers of canada
designers d'intérieur du canada

Contact: Julia Salerno,
Manager, Communications
www.idcanada.org

Interior Designers of Canada (IDC)

Interior Designers of Canada (IDC) is the professional association for interior designers in Canada. As the national advocacy body, IDC represents more than 4,000 members, including fully qualified interior designers, interns (who have yet to pass their exams), students, educators and retired members. In addition we have as members more than 300 manufacturers and suppliers who provide the products and services for interior design projects. IDC, with the support of its nine provincial association members, provides a forum for the unified voice of Canadian interior designers, so that the profession continues to grow and receive recognition locally, nationally and internationally, from government, industry and the public. Interior Designers of Canada serves its membership through advocacy with government and the public, and by providing continuing education opportunities and business support services for members.

Contact: Kyler Queen,
Managing Director of Marketing
Communications & Brand
www.iida.org

International Interior Design Association

IIDA is the leading commercial interior design association with a global reach. We support design professionals, industry affiliates, educators, students, firms, and their clients through our network of 13,000+ members across 50 countries. We advocate for education, legislation, leadership, accreditation and community outreach to increase the value and understanding of interior design as a profession that enhances business value and positively impacts health and wellbeing.

Ontario

www.ontario.ca/ministry-research-innovation

Ministry of Research & Innovation

Created in 2013, the Ministry of Research and Innovation Ontario supports world-class research, commercialization and innovation taking place across Ontario through a range of programs and services like the Ontario Research Fund, Innovation Demonstration Fund and Ontario Venture Capital Fund. The Ministry has 602 employees and a total budget (operating and capital) of CA$911m.

OCAD University

OCAD University (OCAD U) is Canada's "university of the imagination." Established in 1876 by the Ontario Society of Artists, the university was originally known as the Ontario School of Art, and was incorporated as the Ontario College of Art in 1912. OCAD U was the first school in Canada dedicated exclusively to the education of professional artists in fine and commercial art. In 1996, it was renamed the Ontario College of Art & Design, and in 2010, the name changed to OCAD University, reflecting the institution's university status. Today, OCAD University is the third largest of the approximately 40 professional art and design universities in North America.

Contact: Dr Gayle Nicoll, Dean, Faculty of Design
www.ocadu.ca

Ontario Association of Architects

The Ontario Association of Architects is a self-regulating organisation governed by the Architects Act, which is a statute of the Government of Ontario. The association is dedicated to promoting and increasing the knowledge, skill and proficiency of its members, and administering the Architects Act, in order that the public interest may be served and protected. To be licensed as an architect, an individual must meet the education requirement, gain a minimum of two years' practical experience, pass extensive examinations, and attend the OAA admission course. Following licensure all architects must participate in the OAA Continuing Education Program. There are currently 3,389 architects, 1411 intern architects, and 642 in other membership categories, making a total of more than 5,000 people. There are 1,584 architectural practices in Ontario.

Contact: Tamara King, Administrator, Website and Communications
www.oaa.on.ca

Ontario Professional Planners Institute

OPPI is the recognised voice of the province's planning profession. Our 4,000+ members work in government, private practice, universities, and not-for-profit agencies, in the fields of urban and rural development, community design, environmental planning, transportation, health, social services, heritage conservation, housing, and economic development. Members meet quality practice requirements and are accountable to OPPI and the public to practice ethically and to abide by a professional code of practice. Only full members are authorised by the Ontario Professional Planners Institute Act, 1994, to use the title "Registered Professional Planner" (or "RPP").

www.ontarioplanners.ca

RAIC | IRAC
Architecture Canada

Contact: Maria Cook,
Manager, Communications
and Advocacy
www.raic.org

The Royal Architectural Institute of Canada

The Royal Architectural Institute of Canada is a voluntary national association established in 1907 as the voice for architecture and the profession in Canada. Representing about 4,800 members, the RAIC advocates for a high-quality built environment and supports architects in achieving excellence. It champions sustainable lifestyles and seeks to demonstrate how design enhances the quality of life, while addressing important issues of society through responsible architecture.

UNIVERSITY OF TORONTO
JOHN H. DANIELS FACULTY OF
ARCHITECTURE, LANDSCAPE, AND DESIGN

Contact:
Dr Stephen Verderber
www.daniels.utoronto.ca

University of Toronto

The Daniels Faculty at the University of Toronto is one of the leading schools of architecture, landscape and design in North America, with a global footprint. Based in the largest city in Canada, and one of the most dynamic urban centres in North America, it offers comprehensive programmes of study for the emerging architect, landscape architect, urban designer, artist, or curator, and is a leader of research and innovation in these fields. The four disciplines joined at Daniels – architecture, landscape architecture, urban design, and visual studies – each have a unique role to play in creating more beautiful, ecologically-sound, healthy, and socially-enriching environments. Last year, the faculty unveiled its ambitious plans to relocate and expand the school at One Spadina Crescent, one of Toronto's most iconic sites. Once complete, the new complex will be a showcase for both the university and the city, and a world-leading venue for studying, conducting research, and advocating for architecture, landscape, design, and sustainable urbanisation.

WORLD HEALTH DESIGN
ARCHITECTURE | CULTURE | TECHNOLOGY

Contact: Marc Sansom,
Editorial Director
www.worldhealthdesign.com

World Health Design

World Health Design is the first international journal dedicated to connecting researchers and practitioners in interdisciplinary fields who share a common goal to improve global human health, wellbeing and quality of life through better design, technology and architecture. World Health Design is published in print and online four times a year by the International Academy for Design & Health. We also publish special reports on topics such as healthy city design and sustainable healthcare design. Please visit our website for a diverse range of professional articles, market reports, comment, anlaysis and scientific papers.

Contact: John Hicks, Director – Global Health (program, cost, consultancy)
www.aecom.com

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AECOM is a global provider of professional technical and management support services for a broad range of markets, including transportation, facilities, environmental, energy, water and government. With approximately 45,000 employees around the world, AECOM is a leader in all of the key markets that it serves. The firm provides a blend of global reach, local knowledge, innovation, and technical excellence in delivering solutions that create, enhance and sustain the world's built, natural and social environments. A Fortune 500 company, AECOM serves clients in more than 140 countries and had revenue of $8.2 billion during the 12 months ended 30 June, 2013.

Contact: Richard Finnegan, Marketing Manager
www.altro.com

Altro

Altro safety flooring takes pride of place in any care home or hospital design scheme. It offers a watertight, impervious system, making it ideal for wet rooms, including bathrooms, barrier-free shower rooms, and catering areas. Altro has developed a range of resilient safety flooring to live up to your sense of style, without compromising on performance. It is ideal for areas such as receptions, foyers, visiting areas, patient treatment rooms, corridors, communal rooms and bedrooms in care homes; areas where the need for slip resistance, hygiene, durability, and comfort is paramount. The Altro safety flooring range offers a superior combination of these features, compared with that provided by carpets or smooth floors. With a specialist range of 2-4mm safety flooring, you can choose a design varying from the traditional to the modern, and from the regular to the homely. Furthermore, you can rest assured that you will satisfy your duty of care and meet your standards for hygiene, with flooring designed for ease of cleaning and maintenance.

Contact: Nina Sobhy, Sales and Marketing
www.amico.com

Amico

Amico Corporation, founded in 1974, designs, manufactures and markets a broad range of products for virtually every department in the healthcare facility. These products are manufactured in our four locations in the US and Canada, which occupy more than 250,000 square feet. Among our range of products are air and vacuum systems, which deliver gas through our pipeline products to the patient. In relation to the patient room, we manufacture the headwall, clinical products, the bed, furniture, lights, and the equipment-mounting products.

ARK

Contact: Guela Solow-Ruda, Partner
www.arkinc.ca

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The ARK studio, with a specific focus on the non-profit sector, is sister firm to Petroff Partnership Architects, sharing resources of more than 150 design professionals while dedicating a close-knit team of young Canadian designers to explore and challenge the boundaries of architecture. Beyond traditional disciplines of architecture, urban and interior design, the ARK team has expanded the limits of design to integrate a wide range of related services, including branding, wayfinding and graphic design. Licensed to practise across Canada, the ARK team has demonstrated design leadership in healthcare and sustainable design, and universal accessibility. Building consensus among complex stakeholder groups, engaging patients, healthcare professionals, community, and municipal/regional authorities are notable fields of excellence. ARK has also received numerous accolades, including Design & Health International Academy Awards (2013, 2011); Ontario Association of Architects Award of Excellence (2011, 2006, 2004); and the National Post Design Exchange Award (2004).

Arup

Contact: Katie Wood, Principal / Healthcare Lead
www.arup.com

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Arup is an independent firm of designers, planners, engineers, consultants and technical specialists offering a broad range of professional services. With 90 offices in 38 countries and more than 11,000 staff, we have been operational in Canada for more than 14 years. Our world-class expertise, which includes more than 3,000 healthcare facility projects globally, as well as our track record of innovation and global P3 procurement, allows us to address the needs of healthcare design in the 21st century. We create caring environments that are models for today and ready for tomorrow. New technologies, medical advances and changing demographics are driving massive change in models of care. At Arup, a sustainable approach to healthcare means designing solutions that anticipate future needs and support strong long-term development for public- and private-sector providers. We work in partnership with healthcare providers, funders, clinicians, architects and contractors to deliver world-class facilities and transformative-change programmes.

Britplas

Contact: Kevin Gorman, Chairman
www.britplas.com

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Britplas has a reputation as an innovator, inventor and manufacturer of high-quality, engineered products, including specialist windows, security fencing, curtain walling, and door systems. Our product solutions are designed to make buildings and their surroundings safer places with enhanced security. Patients, visitors and staff deserve the very best from their surroundings, and the promotion of health and recovery can be greatly improved if buildings are designed in an enlightened, intelligent manner that puts the needs of individuals first. The concept of a building as a place of both practical purpose and positive enrichment lies behind all we do at Britplas and, as such, we produce product solutions that address a building's sustainability, lifecycle and energy performance, with a real focus on adding value for end users. Britplas' patented Safevent window is gaining global recognition for meeting the intense demands of today's mental health units and, as such, is widely specified by private healthcare groups, hospitals, and the UK's National Health Service in their mental health facilities.

BVN

Contact: James Grose,
National Director
www.bvn.com.au

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With more than 80 years' experience, BVN Architecture is widely acknowledged for creative, award-winning design and sound professional expertise. Included in its portfolio are buildings of all types from workplace, defence and airports through to major hospital projects. These include: St Vincents in Sydney; the Mater in Brisbane; Robina on the Sunshine Coast; and Sydney's Royal North Shore Hospital, which is the biggest public-health project undertaken in the history of New South Wales. More than 200 prizes have been presented to BVN designs in the last decade. These include prestigious architecture honours, such as the 2010 World Architecture Festival award for the world's 'Best health building', which was given to BVN for the Brain and Mind Research Institute (BMRI) in Sydney.

Carpenters District Council of Ontario

Contact: Mike Yorke,
President
www.thecarpentersunion.ca

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Carpenters District Council of Ontario has a proud history since 1982 of contributing to the building of Ontario, in all sectors. A progressive labour organisation that represents more than 22,000 women and men working across the province in a variety of skilled trades, including carpentry, drywall and resilient flooring. With locals in the GTA, Ottawa, Windsor, London, Kingston, Hamilton, Sudbury, Cambridge, Thunder Bay, Sarnia, Port Hope, and Goderich, the Carpenters are a true provincial organisation whose members contribute to the economic, social, and community wellbeing right across Ontario. As an organisation, the Carpenters have made and continue to make significant investments in Ontario's working men and women. By operating state-of-the-art training facilities, the Carpenters ensure that Ontario has a continuous supply of highly skilled, properly trained workers, who are knowledgeable not only in the best practices of their trades but also in health and safety, and other important occupational requirements.

Construction Specialties

Contact: Jonathan Morris,
Product Consultant
www.c-sgroup.com

For more than 66 years C/S Construction Specialties has been a leader in the development of architectural and engineered products for the global construction market. Starting with the C/S louvre, the company has continued to lead the way with innovative products such as sun controls in 1956, Acrovyn Wall Protection in 1969, Pedimat and Pedigrid in 1972, right up to today with products such as Acrovyn Doors, Floorometry, and Acrovyn 4000. In recent years sustainability has been at the forefront of C/S Construction Specialties' vision, which can be seen throughout all its products in various ways, such as: low VOC powder-coat finishes, recycled steel and rubber components, and the first completely pvc- and pbt-free wall-protection product line in North America. With operations in markets across the world, including the UK, France, Poland, China, Australia and the UAE, C/S has become a globally recognised name for architectural specialties. Located in Mississauga, Ontario, C/S Canada has provided the Canadian architectural and construction market with its full range of products, devoting special care to meeting local, provincial and national building code requirements.

Contact: Gunther De Graeve,
Managing Director
www.destravis.com

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Destravis Group

Destravis was established to provide strategic planning and design advice for the early phases of capital projects in the health sector. Our team are experts at delivering quality solutions in this specialised area. We have vast experience working in the public and private sectors, and hold a reputation for quality and timely delivery. We understand that health service outcomes are underpinned by efficiency and productivity. This requires defining client and project objectives, gaining commitment and buy-in from stakeholders, efficient planning, and careful management of the project progress to ensure client objectives are protected. Among the services we provide are: project creation and definition; functional design briefs; strategic infrastructure assessment; masterplanning; project definition plans; technical advisory services; project director, client representative, or principal consultant roles; stakeholder management and engagement; and peer reviews. We understand the crucial role that health facilities play in the wider community and how their operating performance is the ultimate measure.

Contact: Dominic Pote,
Fine-art Photographer
www.dominicpote.co.uk

Dominic Pote

Dominic Pote is a fine-art photographer with more than 12 years' experience of making unique photographic artworks to commission, with a particular focus on healthcare projects. His large-scale landscape artworks, rooted in community consultation and workshops, bring the positive restorative quality of nature into the healing environment and also embrace the notion of memory, encouraging positive dialogue both in the creation of artwork projects and in the long-term experience of an artwork within the healthcare setting. Dominic has twice received UK arts council funding for the development of his work and has been commissioned and collected by organisations such as the British Council and Barclays Bank. UK healthcare commissioners include The Gloucester Royal Hospital, The Queen Elizabeth Hospital Birmingham, and St Giles Palliative Care Centres.

Contact: Bill Kahansky,
President
www.dunleavycordun.com

Dunleavy Cordun

Established in 1981, Dunleavy Cordun is one of the most respected and innovative companies in Canada, facilitating the introduction of new ideas, products and services in the architectural and design industry for more than 33 years. The innovative products we have introduced to this market, from glass blocks to universal design products to compact laminates, have enhanced many projects across North America. Our industrial design ideas, combined with the brilliance of many architects and interior designers, are a testament to the benefits our firm's solutions bring to society. We firmly believe a building, new or existing, can benefit from wonderful design. To this end, the products and services Dunleavy Cordun provides will enhance, endure and sustain for many decades to come.

Farrow Partnership Architects Inc.

Contact: Tye Farrow,
Senior Partner
www.farrowpartnership.com

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Farrow Partnership Architects

Farrow Partnership Architects is a world leader in creating architecture that lifts the human spirit while achieving clients' most challenging project goals. Farrow has initiated a global 'Cause health' movement to accelerate demand for places where people can thrive physically, mentally, culturally and economically. Working individually or in joint venture, Farrow has designed and delivered projects valued at more than $3 billion, across Canada and around the world, under a variety of procurement methods, including stipulated sum, design-build, build-finance, design-build-finance, and construction management. Farrow offers a full range of services in architecture, interior design, and masterplanning, via a team that includes architects, interior designers, strategic visioning specialists, planners, group process facilitators, and researchers. Combined with the firm's recognised design and technical capabilities, this varied expertise provides clients with the necessary depth of talent to achieve their aspirations. Key to the firm's success is its ability to apply the research of globally recognised leaders in the fields of group decision-making and the co-creation process.

GLOBAL

Contact: Deborah Bachly,
Director of Business
Development GLOBALcare
www.globaltotaloffice.com

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Global

The Global Group of Companies is the fifth largest multinational manufacturer, marketer and distributor of office furniture and related products – with more than 4 million square feet of manufacturing space and more than 5,000 employees. The goal of GLOBALcare, a division of the Global Group of Companies, is to provide product solutions that meet and exceed our clients' expectations in both the acute-care and long-term care markets. The GLOBALcare product development team uses evidence-based product research and focus-group evaluation processes to ensure products are developed with the patient/resident, caregiver and application in mind. During every stage of product development, consideration of all stakeholder needs are incorporated into the design and finish elements – from housekeeping, infection control, and patient and staff safety, to pricing and planning. By listening to our client needs and expectations, and incorporating these findings into the design of the final product, Global is able to create 'the right solution' for the intended use – all while remaining environmentally responsible.

HDR

Contact: Ron Hicks, Principal
www.hdrricedaubney.com
www.hdrinc.com

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HDR Architecture

HDR is an employee-owned architectural, engineering and consulting firm recognised for providing elegant design solutions for technically complex projects, working out of more than 180 offices around the globe. For more than 50 years, HDR has delivered award-winning integrated healthcare planning and design for some of the world's foremost medical centres and health systems. The firm's success for clients such as the Johns Hopkins School of Medicine, the Mayo Clinic, and the Cleveland Clinic, has been informed by a single core philosophy: to embrace the kind of forward-thinking leadership and expertise necessary to deliver facilities that are innovative, flexible, efficient and that support a healing, sensitive environment for patients, their families and healthcare staff. HDR has been named the world's leading healthcare design firm by Building Design magazine's "World Architecture 100" survey for three years, and the number-one healthcare design firm in the US by Modern Healthcare magazine for 10 consecutive years. HDR is also the world's most comprehensive science + technology design firm specialising in translational health-science facilities.

HermanMiller

Contact: Julie Sless,
Vice-President, Healthcare
www.hermanmiller.com/healthcare

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Herman Miller Healthcare

Herman Miller Healthcare, a subsidiary of industry leader Herman Miller, design and manufacture the broadest range of interior solutions across the entire care continuum. With more than 40 years' experience in the healthcare industry, its deep understanding of these environments helps clients think strategically about their spaces. Combining rich insight with ongoing research, they provide caregivers, patients and families with adaptive healthcare solutions that meet their needs today, and can be changed to support evolving care patterns. Collaborating with healthcare facilities, they transform physical spaces, from patient rooms to emergency rooms to administrative spaces, into holistic, productive and efficient healing and working spaces. Herman Miller Healthcare is a chartered member of the Health Facility Institute, a Pebble Partner with the Center for Health Design, and an industry partner of the American Academy of Healthcare Interior Design. The company is also a member of the Planetree Visionary Design Network (PVDN), and is the first manufacturer to be awarded this distinction.

KAIZEN
FOODSERVICE PLANNING & DESIGN INC.

Contact: Paul Cumpstey,
Principal
www.kaizenfood.com

KAIZEN

KAIZEN Foodservice Planning & Design specialises in healthcare-support department planning and design. The firm consists of a multi-talented team with a variety of operational and planning backgrounds. We pride ourselves on being the firm of choice when it comes to complicated planning challenges and have provided such service for clients across four continents. Experience, seasoned by 150+ planning engagements and our affiliation with outstanding consulting firms, allows us to formulate realistic and implementable solutions, even in the most complex and dynamic healthcare environment. Our collaboration provides clients with one team that can offer full support-service planning and design with expertise in the following areas:

- foodservices;
- laundry;
- housekeeping;
- waste management;
- materials management / handling;
- environmental services;
- central sterilisation;
- pharmacy;
- biomedical; and
- engineering and maintenance.

MontgomerySisam

Contact: Alice Liang, Principal
www.montgomerysisam.com

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Montgomery Sisam

Montgomery Sisam Architects is committed to design quality that is rooted in the belief that buildings and their environments must play a dignified and lasting role for their occupants and the surrounding community. Montgomery Sisam strives to create places that make a positive contribution to the occupants' physical and mental wellbeing. This effort has been applied to the design of mental health, addictions treatment, rehabilitation, children's treatment, complex continuing care, and long-term care facilities. The firm's award-winning projects demonstrate a considered, intellectual and highly collaborative approach to design. This approach has been recognised with more than 65 awards across Canada and abroad, including three International Academy of Design and Health Awards for healthcare design for: the Holland Bloorview Kids Rehabilitation Hospital; Phase 1A of the Centre for Addiction and Mental Health; and the Sister Margaret Smith Addictions Treatment Centre.

NBBJ

Contact: Richard Dallam, Partner
www.nbbj.com

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NBBJ is a leading architecture, design and planning practice with offices in Beijing, Dubai, London, Shanghai and the United States. The firm has more than 60 years' experience designing healthcare facilities and is consistently ranked among the largest healthcare design practices by BD World Architecture. NBBJ has designed some of the world's most progressive institutions, including: the North Bristol NHS Trust; Cleveland Clinic; Harvard Medical School Dubai Centre; National Health Research Institute in Taiwan; Moscow Medical Center; Massachusetts General Hospital; and Kaiser Permanente.

NOA (Ngonyama Okpanum Associates)

Contact: Innocent Okpanum, Founder and Managing Director
www.ngonyamaokpanum.co.za

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"Space design, functional suitability, and spatial relationship for buildings to improve the experience and quality of life of those who occupy them." This principle has guided the firm since its inception in 1993. NOA provides a full range of in-house services, such as architecture, project management, and interior and urban design. With eight offices in South Africa and an international office in Abuja, Nigeria, we are able to compete locally and in the wider African continent. Our fields of expertise include office buildings, hospitality and healthcare developments, commercial, residential, and industrial projects. A member of the Green Building Council, NOA has received commendation for its sustainable design of the University of Fort Hare's teaching complex. Our approach to excellent service delivery offers our clients and the community access to a resource network of specialists in their respective fields.

Perkins+Will

Contact: Robin Guenther, Sustainable Healthcare Design Lead
www.perkinswill.com

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We believe healthcare can act as a catalyst to improve human and ecological health by redefining the role of the built environment in relation to its occupants and surroundings, and support the primary principle of medicine: "first, do no harm." For more than 65 years, our vision has helped shape some of the most progressive academic medical centres, research institutions, community hospitals, and clinics – a portfolio that places us among the leading healthcare firms in the world. We bring experts in user experience, operations, evidence-based design, and project delivery to engage clients in customised work plans particular to their cultures and institutional missions. We lead the industry in research and awareness of material health and regenerative design, while our sustainability specialists have reframed and advanced the conversation on sustainable practices for healthcare.

Stantec Architecture

Contact: Michael Moxam, Vice-President
www.stantec.com

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Stantec Architecture has established an award-winning reputation in the design and retrofit of healthcare facilities, combining complex programmatic requirements while creating functional and healing environments that are patient and staff-focused. We take a holistic approach that integrates evidence-based design, complex technical issues, cost management, and functional considerations with the needs of patients and staff. No matter the size of a project, we can bring the multidiscipline depth and breadth of the Stantec organisation to every client, combining global experience and skills in management, planning, design and implementation.

Stevens Company

Contact: Robert Marshall,
Regional Sales Manager
www.stevens.ca

The Stevens Company is the largest privately owned medical supply company in the country. For more than 180 years the Stevens family (with the sixth generation now entering the business) takes its commitment to the Canadian healthcare market seriously. From humble beginnings in 1830, the Stevens family has grown its presence in the marketplace and now serves its hospital, long-term care and physician customers from six distribution centres countrywide. With more sales representatives than any other distributor, we approach our customers as consultants and partners in their mission to provide care for Canadian families. Stevens represents more than 650 manufacturers worldwide and is proud to have introduced many of the products commonly found in offices across the country. From Xylocaine anaesthetics and Welch Allyn diagnostics to Coloplast skin and wound-care products, the Stevens company has always sought to bring innovative products from the world's leading manufacturers to clinicians across the country. We seek always to be trusted partners with our customers to deliver products that support the best care for Canadians in every part of our country.

Swipe Design

Contact: Kellie Hadjidimitriou,
Manager
www.swipe.com

Swipe Design is an independent bookstore boasting the city's largest selection of books and journals on architecture and urban issues, from theoretical and technical reference works to beautiful monographs on leading local and international practices. We also carry a selection of well-designed products for adults and kids. While aesthetic appeal is critical to us when choosing products, functionality is never overlooked.

VK Studio

Contact: Stephane Vermeulen,
Healthcare Director
www.vkgroup.be

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Each hospital is a unique ultra-functional entity, where acute care and architecture meet to promote health and wellbeing. With more than 60 years of experience as a hospital designer, VK Architects & Engineers combines all A&E disciplines (masterplanning, programming, architecture, structural engineering, building services, interior architecture, and landscaping) with the know-how, experience and approach of each hospital board of management. Our integrated design approach results in an attractive, safe and efficient building. Some stakeholders, though, seem to ignore the role that architects and engineers can play in optimising their hospital plan. Let's start looking for the profits that can be achieved by a hospital during its life cycle, instead of overstating the importance of the construction cost! VK's experts will stand by you to simulate life-cycle analysis and assess all scenarios for your hospital.

Zeidler Partnership Architects

Contact: Tarek El-Khatib,
Senior Partner
www.zeidler.com

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Zeidler Partnership Architects is a leading Canadian architectural firm that brings decades of innovative design experience for healthcare, education and research facilities. The firm works closely with healthcare providers in Canada and abroad to design sustainable, patient-centred environments that support health and recovery. Zeidler Partnership Architects seeks to deliver quality spaces and better value that responds to changing healthcare requirements. Our work is rooted in social context and discovery; these projects consistently provide communities with better access to high-quality, modern care.

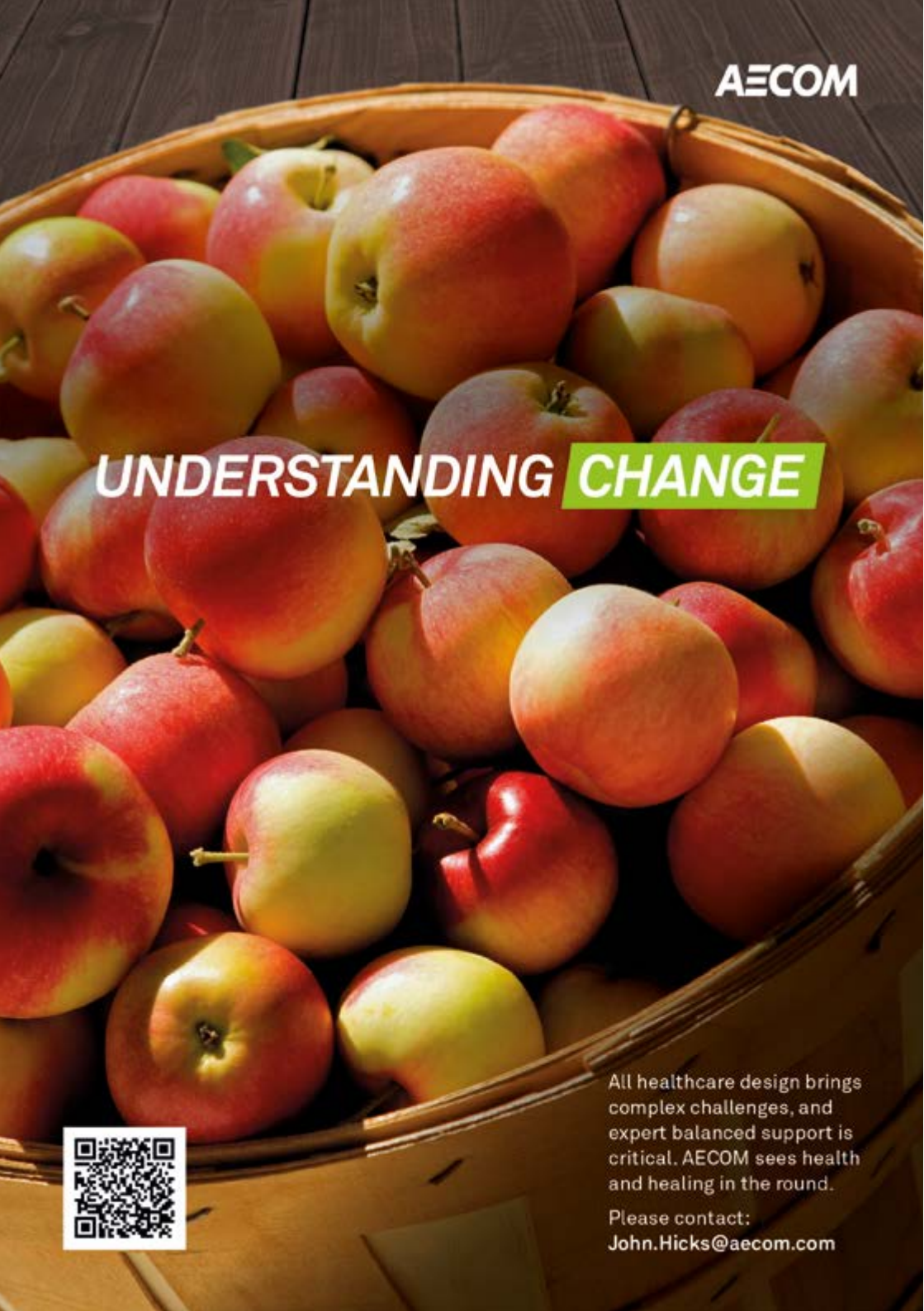
The Carpenters District Council of Ontario

welcomes delegates to the
Design and Health World Congress 2014.
We are proud to contribute our skills to building Ontario's
crucial healthcare infrastructure.
Thanks for designing great projects that require great skills!

Proud to host the Carpenters National Apprenticeship Contest
at Roundhouse Park on August 23, 2014
Join us August 23 - 8:00 am - 4:00 pm
Free admission

222 Rowntree Dairy Rd, Woodbrige, ON L4L 9T2 T: 905-652-4140 F: 905-652-4139

Email: organizing@thecarpentersunion.ca www.carpenterslocal27.ca www.natac.ca/nac


AECOM
UNDERSTANDING CHANGE
All healthcare design brings complex challenges, and expert balanced support is critical. AECOM sees health and healing in the round.
Please contact:
John.Hicks@aecom.com