HEALTHY CITY DESIGN INTERNATIONAL

RESEARCH • POLICY • PRACTICE

16-17 OCTOBER 2017
ROYAL COLLEGE OF PHYSICIANS, LONDON

FINAL PROGRAMME

UNLEASHING HEALTH BY DESIGN:
CREATING A CULTURE OF WELLNESS IN OUR CITIES

W: healthycitydesign2017.salus.global | E: info@salus.global

Organised by:

SALUS GLOBAL KNOWLEDGE EXCHANGE

In collaboration with

Royal College of Art
THE HELEN HAMLYN CENTRE FOR DESIGN

Supporting partners

THE ACADEMY OF URBANISM

C3 COLLABORATING FOR HEALTH

bre

IOM

CONSCIOUS CITIES

Design Council

CABE

UD/MH

tcpa

WORKTECH ACADEMY

CMHA City Mental Health Alliance

MHFA England

STREETGYM YOUR STREET. YOUR GYM.

MIKE NIGHTINGALE FELLOWSHIP

880cities

URBAN DESIGN GROUP

UKGBC

Silver partners

HLM

LLEWELYN DAVIES

Bronze partner

PERKINS+WILL

Knowledge partner

IBI Defining the cities of tomorrow

Journal partner

Cities HEALTH

Healthy Cities - The Movement, Greenwich

The Movement comprises a major regeneration scheme at the heart of Greenwich, London, the aim being to catalyse the local economy, creating value and growth in the local community. The total development comprises 180 affordable new homes, a 350 bed student village, associated employment space, 2 new hotels, a community centre extension, bike café, health & fitness club, convenience store, employment incubator units, parking, and an FM and Community Energy Centre.

A unique, quality and accessible public realm has been created in the centre of Greenwich, creating a legible and coherent urban design, linking in with the DLR and mainline station. This masterplan delivers a vibrant, inclusive and sustainable mixed-use community based upon cultural, social and economic diversity, whilst recognising the need to generate value. Ground breaking energy performance standards have been achieved through extensive use of HLM's Dynamic Simulation Modelling.

Dear colleagues,

Confronted with a crisis of human and planetary health,[1] cities are now the new battleground for rethinking approaches to sustainable development and building a healthier and health-creating society. Urban populations are growing rapidly, a trend which – when combined with an ageing society, rising chronic conditions, and the urgent need to respond to climate change – presents a powerful case for new thinking on how to design more sustainable, resilient cities that enhance health, wellbeing and social inclusion.

Organised by SALUS Global Knowledge Exchange in collaboration with the Helen Hamlyn Centre for Design, Royal College of Art, the inaugural Healthy City Design 2017 (HCD 2017) Congress seeks to share and stimulate new research, innovative practice and progressive policy ideas on how to design economically and ecologically sustainable cities that enhance citizen health and wellbeing.

A new interdisciplinary collaboration between public health and medical professionals, urban planners and designers, environmentalists, policymakers and citizens is required to create a whole-system approach that recognises the importance of preserving the earth's natural systems and resources to help develop a culture of wellness and health in our cities. This new vision should consider:

- new spatial strategies to support factors that positively influence health and wellbeing;
- better resilience planning to equip cities in the face of climate change, natural disasters and the rapid spread of infectious disease;
- transport and technologies that promote healthier and more ecologically supportive modes of travel;
- ways of working that improve work-life balance and enhance employee productivity and enjoyment;
- healthier homes and neighbourhoods that nurture family wellbeing and community interaction, and specialist housing for older people that supports independence, home care and social inclusion; and
- rethinking urban planning and design to create healthier and more sustainable ways of living.

Healthy City Design 2017 features two days of high-level, insightful, provocative and entertaining presentations. Each day will comprise three separate topic streams (six in total), and open and close with keynote plenary sessions. Day one will focus on citymaking, sustainable development and smarter cities, while day two will cover issues around urban planning, homes and neighbourhoods, and work and mobility.

The event will also host a poster gallery of innovative research and projects (pp22-23), a knowledge and ideas space, and an end-of-congress cocktail reception (p24). On the following day, 18 October, an exciting study tour (p25) will provide further insight into the themes explored at the Congress.

1. *The Rockefeller Foundation-Lancet Commission on Planetary Health: Safeguarding human health in the Anthropocene epoch. Lancet, 2015; 386: 1973-2028*

Prof Jeremy Myerson
Helen Hamlyn Chair of Design
The Helen Hamlyn Centre for Design,
Royal College of Art

Marc Sansom
Director
SALUS Global Knowledge
Exchange

LLEWELYN DAVIES

UCLH charity

#MiddlesexAnnexeSite

Social Architecture in the 21stCentury..... a 19thC listed derelict Workhouse (referenced by Dickens) and Nightingale Pavilion Wards in the heart of Fitzrovia.

Early 1830's, two massive waves of contagious disease, influenza and cholera, the latter born from contaminated water; an era of depression, high food prices and underfed poorer classes with inherently lower resistance to contagion. The Cleveland Street Workhouse, opposite a shop run by a 'Bill Sykes', focused on the core function of tending and caring for the sick and infirm, the key drivers for pauperism in Dickens London.

Forward 200, The Independent's headline, May 2017, "Poverty and low income 'making children sick', warn paediatricians" Food insecurity, housing problems or homelessness and financial stress are the key drivers for poor health in modern London today!"

Summer 2017: a development by UCLH Charity delivering 40 affordable and 10 private residential units, supported by commercial and medical uses within a conservation area and providing new public open and quality amenity space. The vision achieved by proactively working with Camden and realising a wholly viable and beneficial development for UCLH.

3rd Floor
3 - 5 Rathbone Place
London W1T 1HJ

T +44(0)20 7907 7900
E london@ldavies.com
W www.ldavies.com

visualite

Visualise your world

What is Visualite?

...Simply revolutionary. Powered by spectacular edge light technology and supplied with a vast array of stunning visuals, our new range of Visualite systems create an amazing lighting effect and ambience, incorporating the light source and bespoke image into one.

As well as choosing from any of our beautiful high definition images we can also incorporate your own images and artwork to provide the personalised product which you desire. Feel the warm embrace of daylight shining down from the ceiling with the magnificent blue-sky scene, or gaze across iconic landscapes no matter where you are. Years of continuous development now enable us to be ahead of the game, providing exciting simulations fit for any scenario.

The Visualite system can provide a pleasant and powerful impact in any of these environments:

- Hospitals and other medical environments
- Retail and leisure
- Car showrooms

- Commercial offices
- Education
- Sport stadiums

- Basements
- Boardrooms
- Homes

The list is endless, the only limit is your **imagination**.

your-visualite.co.uk | 0844 880 3656* | hello@your-visualite.co.uk

*Calls to 0844 numbers will be charged at 7p per minute from a Standard BT Line, calls from mobiles and other networks may vary.

Commercial offices often contain areas of dead space, such as wall breaks to reduce noise. Additionally poor lighting and restricted external views can reduce the efficiency amongst staff. Visualite systems can eradicate this, creating vibrant, energy efficient, well-lit offices, promoting a feel good factor amongst employees.

Create a relaxing ambience designed to calm anxiety and enhance the wellbeing of the patient with a magnificent daylight blue sky to open up a space.

MRI facilities with a Visualite Sky Ceiling installed, report reduced instances of claustrophobia and increased efficiency. Our systems also use non-ferrous fittings.

Add depth and warmth to your room by incorporating the systems LED edge light technology to create a greater sense of space. With sharp, high quality colour, it will transform any area. Accent and dimension that you have never seen before.

Lighting Solutions, designed by **visual**ite

THE ROYAL COLLEGE OF PHYSICIANS

The inaugural Healthy City Design International Congress, 16–17 October 2017, is being held at the prestigious headquarters of the Royal College of Physicians (RCP) in London.

Since its foundation in 1518, the RCP has had five headquarters in London. The current Grade 1 listed building in Regent's Park was designed by architect Sir Denys Lasdun and opened in 1964. Considered a modernist masterpiece, it's one of London's most important post-war buildings.

In 1992, Sir Lasdun was awarded the Royal Institute of British Architects' Trustee Medal in recognition of his work at the RCP, considered to be "the best architecture of its time anywhere in the world".

Sir Lasdun won the competition to design the new headquarters in 1959. He was surprised at being asked to design for such a traditional body, given his modernist philosophy, and he made it clear that he would not create a classical-style building. Ultimately, he responded to the challenge with a skilful integration of centuries-old traditions and his own vision.

As an award-winning and highly versatile venue for conferences, meetings, banquets, training and outdoor events, the building has an atmosphere of space and light, with stylish, modern architecture and a selection of both old and new styles to suit all tastes.

The venue offers:
- **A central London location** – overlooking Regent's Park, with good access to road, rail and tube.
- **Magnificent conference and banqueting facilities** – tiered auditoriums, exhibition space, event and dining facilities, including the stunning Council Chamber and the 'jewel in the crown' – the Dorchester Library.
- **An award-winning Grade 1 listed modern building** – an atmosphere of space and light with a contrasting mix of old and new facilities.
- **A rare heritage collection –** with over 500 years of history and more than 50,000 antiquarian books.
- **High-quality food and service –** eclectic cuisine, bespoke menus and first-class service.
- **A professional venue for international conferences** – a member of Unique Venues of London, International Association of Conference Centres, and London and Partners, to name a few.
- **A private 'Physic Garden' for events** – filled with rare plants and flowers from all over the world, suitable for barbecues, receptions and al fresco dining.
- **A professional and friendly events team –** dedicated event managers, catering experts and technicians. Full support is provided before, during and following events.
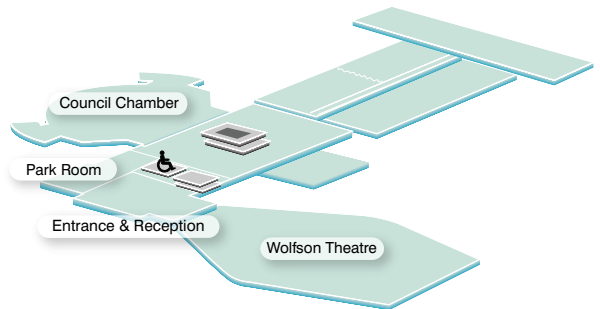
GROUND FLOOR

Wolfson Theatre
- Main conference plenary sessions, and breakout sessions (Streams 1 and 4)

Council Chamber
- Breakout sessions (Streams 2 and 5)

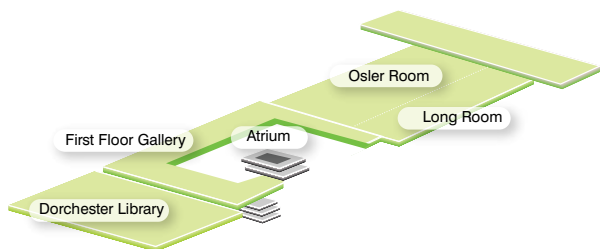**Park Room**
- Organisers' office

FIRST FLOOR

Dorchester Library
- Breakout sessions (Streams 3 and 6) and Cocktail reception

Long Room and Osler Room
- Lunch, Poster gallery and Knowledge space

| 08.00 | **REGISTRATION OPENS** |

Session 1: Opening keynotes: Healthy and sustainable cities
Chair: Jeremy Myerson, Chair of Design, Helen Hamlyn Centre for Design, Royal College of Art, UK

| 08.45 | **Welcome and introduction**
Jeremy Myerson, Royal College of Art, UK |

| 09.00 | **Healthy streets for London**
Valerie Shawcross, Deputy mayor of London for transport, UK |

| 09.15 | **The work of the Rockefeller Foundation-Lancet Commission on Planetary Health**
Sir Andy Haines, Professor of public health and primary care, London School of Hygiene & Tropical Medicine; chairman, Lancet Commission on Planetary Health, UK |

| 09.40 | **What makes cities, communities and citizens healthy and resilient?**
Dr David Pencheon, Director, Sustainable Development Unit, NHS England and Public Health England, UK |

| 10.05 | **Panel discussion** |

| 10.15– 10.45 | **COFFEE, POSTER GALLERY AND KNOWLEDGE SPACE** |

Session 2: Urban health equity in North America
Chair: John Zeisel, Hearthstone Alzheimer Care and the I'm Still Here Foundation, USA

| 10.45 | **The 8 80 City: how to create vibrant and healthy cities for all**
Guillermo Penalosa, MBA PhDhc CSP, Founder, 8 80 Cities, Canada |

| 11.15 | **Towards a healthy city: the transformative power of urban design**
Ken Greenberg, Principal, Greenberg Consultants, Canada |

| 11.45 | **The future of Atlanta: designing for equity, resilience and civic identity**
Ryan Gravel, Founder, Sixpitch, USA |

| 12.15 | **Panel discussion** |

| 12.30– 14.00 | **LUNCH, POSTER GALLERY AND KNOWLEDGE SPACE** |

Session 3: Evidence-based policy and practice in European city design
Chair: Hugh Barton, WHO Collaborating Centre for Healthy Urban Environments, UWE, UK

14.00	**From health evidence to practice: stories from Barcelona** **Carolyn Daher,** Co-ordinator, Urban Planning, Environment and Health Initiative, Air Pollution and Urban Environment, Barcelona Institute for Global Health, Spain
14.20	**Replanning Södra Skanstull** **Krister Lindstedt,** Partner and architect, urban planning, White Arkitekter, Sweden
14.40	**Health in local planning policy in Grenoble, France: from the margins to the mainstream** **Stéphane Sadoux,** Deputy director, Centre of Excellence in Architecture, Environment & Construction Cultures (LabEx AE&CC), Grenoble School of Architecture (ENSAG), Grenoble Alpes University, France
15.00	**Panel discussion**
15.30–16.00	**COFFEE, POSTER GALLERY AND KNOWLEDGE SPACE**

Session 4: Design paradigms for reimagining healthy communities
Chair: John Mathers, British Design Fund, UK

16.00	**Cities, communities and custodial health** **Chris Liddle,** Chairman, HLM, UK
16.20	**Salutogenic city design** **Kristen Whittle,** Director, architecture, Bates Smart, Australia
16.40–17.00	**Panel discussion**
	Session 5: Closing keynote address
17.00	**Hopeful cities – creating a life worth living for all citizens** **Dr John Zeisel,** President, Hearthstone Alzheimer Care and the I'm Still Here Foundation, USA
17.40	**Closing remarks**
17.45	**Close**

*Stream 2 begins at 10.45 in the Council Chamber, after the day's
opening plenary session (08.45–10.15).*

Session 6: Health and healthcare resilience in the future city
Chair: Ben Smith, AECOM, UK

10.45	**A blueprint for healthy and resilient cities** **Emily Loquidis,** Principal consultant, infrastructure and sustainability, buildings and places, AECOM, UK **Professor Kate Ardern,** Executive director, public health, Wigan Council, UK **Derek Clements-Croome,** Professor emeritus, construction management and engineering, University of Reading, UK **Dr Sotiris Vardoulakis,** Research director, Institute of Occupational Medicine, UK
11.35	**Designing for disaster: a conversation about resilient healthcare** **Jane McElroy,** Healthcare principal, NBBJ, UK
12.00	**Panel discussion**
12.30–14.00	**LUNCH, POSTER GALLERY AND KNOWLEDGE SPACE**

Session 7: Empowering citizens to build sustainable communities
Chair: Fiona Adshead, Independent expert advisor on wellbeing, sustainability and public health, UK

14.00	**Paradise found? Can one place work for all its citizens?** **Mike Nightingale,** Charity founder and trustee, The Mike Nightingale Fellowship; consultant, IBI, UK **Marcus Wilshere,** Architect and masterplanner, IBI Group, UK **Elizabeth Petrovitch,** Interior designer; architect, IBI Group, UK
14.20	**Denai Alam housing: a symbiotic relationship between human and natural environment** **Mustapha Kamal Bin Zulkarnain** Architect, Arkitek Mustapha Kamal, Malaysia
14.40	**Healthy cities: lessons from traditional cities of India** **Sumita Singha,** Chartered architect, Ecologic Architects, UK
15.00–15.30	**Panel discussion**
15.30	**COFFEE, POSTER GALLERY AND KNOWLEDGE SPACE**

Session 8: Integrating health and wellness with ecology and economy
Chair: Dr Jo-Anne Bichard, Helen Hamlyn Centre for Design, Royal College of Art, UK

16.00	**Healthy landscapes, healthy communities** **Andrew Tindsley,** Principal and director of landscape and urbanism, BDP, UK
16.20	**Cardinia Health Precinct: sustainability, self-sufficiency and wellness promotion in health precincts** **Robert Payne,** Director, Guildfords, Australia
16.40–17.00	**Panel discussion**

Stream 2 will be brought to a close at 17.00, whereupon delegates are invited to return to the Wolfson Theatre (17.00–17.45) for the day's closing plenary and keynote address.

W: healthycitydesign2017.salus.global

Supported by

Royal College of Art
THE HELEN HAMLYN
CENTRE FOR DESIGN

Stream 3 begins at 10.45 in the Dorchester Library, after the day's opening plenary session (08.45–10.15).

Session 9: Promoting health in the digital city
Chair: Sean Hughes, Philips, USA

10.45	**Technology and citizen health** **Mario Bozzo,** Director, IBI Group, UK
11.10	**"The measure of intelligence is the ability to change" – Einstein** **Gail Borthwick,** Principal, buildings, Stantec, Canada **Rod Schebesch,** Regional business leader – transportation, Stantec, Canada **Anu Sabherwal,** Senior associate project leader, Stantec, UK **Blake Jackson,** Sustainability design leader, associate, Stantec, USA
11.35	**Enabling wellness through intentional design** **Susanne Pini,** Principal/director of retail, mixed-use, and urban living, HDR, Australia **Kaia Nesbitt,** Associate vice-president, site design principal, HDR, USA
12.00	**Panel discussion**
12.30–14.00	**LUNCH, POSTER GALLERY AND KNOWLEDGE SPACE**

Session 10: Smarter cities are healthy cities
Chair: Katie Wood, Arup, UK

14.00	**Building a business case for smart urban environments** **Julie Alexander,** Director, urban development and smart cities, Siemens, UK
14.20	**Healthy Active by Design Tool** **Robina Crook,** Associate, planning, architecture, HASSELL, Australia
14.40	**Integrating public health and the built environment – contribution from WELL communities** **Ann Marie Aguilar,** Director of operations, International WELL Building Institute, UK **Anita Mitchell,** Head of sustainability – Europe, Lendlease, UK
15.00	**Panel discussion**
15.30– 16.00	**COFFEE, POSTER GALLERY AND KNOWLEDGE SPACE**

Session 11: Future cities: the impact of digital health and AI
Chair: Cathy Crawley, BRE, UK

16.00	**AI and machine learning: new methods to connect a city and citizens** **Michael Wilkinson,** Director, R&D, Inavya Ventures, UK
16.20	**Health and wellbeing: raising productivity through technology** **Steve Turner,** Associate, digital, Arup, UK
16.40– 17.00	**Panel discussion**

Stream 3 will be brought to a close at 17.00, whereupon delegates are invited to return to the Wolfson Theatre (17.00–17.45) for the day's closing plenary and keynote address.

Supported by

HLM

LLEWELYN DAVIES

08.00	**REGISTRATION OPENS**

Session 12: Opening keynotes: Health-creating societies and environments
Chair: Chris Liddle, HLM, UK

08.55	**Welcome** **Chris Liddle,** HLM, UK
09.00	**Designing a healthier and health-creating society** **Lord Nigel Crisp,** Independent crossbench member of the House of Lords; former chief executive of the NHS in England; former permanent secretary of the UK Department of Health, UK
09.25	**We are the environments we live in** **Lord Andrew Mawson OBE,** Executive chairman, Well North; director, Andrew Mawson Partnership, UK
09.50	**Panel discussion**
10.00–10.30	**COFFEE, POSTER GALLERY AND KNOWLEDGE SPACE**

Session 13: Ecological health and city planning
Chair: Prof Rachel Cooper OBE, Lancaster University, UK

10.30	**A systems approach to addressing planetary health in cities** **Dr Montira Pongsiri,** Senior research associate, Cornell University, USA **Dr Graham Alabaster,** Chief waste management and sanitation, Urban Basic Services Branch, United Nations Human Settlements Programme **Dr Robin Stott,** Member, Commission for Sustainable London; co-chair, BMJ Climate and Health Council; Sustainability advisor to Mayor of Lewisham, UK **Stephen Passmore,** Head of platform delivery, The Ecological Sequestration Trust, UK **Dr Lise Retat,** Research and development associate, UK Health Forum, UK
11.15	**The impact of the built environment on health: an evidence review** **Janet Ige,** Research associate in public health, health and social sciences, University of the West of England, UK **Paul Pilkington,** Senior lecturer in public health, health and social sciences, University of the West of England, UK
11.40	**Rewilding cities** **Tom Armour,** Director and global leader of landscape architecture, Arup, UK
12.05	**Panel discussion**
12.30–14.00	**LUNCH, POSTER GALLERY AND KNOWLEDGE SPACE**

Session 14: Barriers to improving urban health
Chair: Marcus Grant, Cities & Health, UK

14.00   **Land, power and wellbeing**
Hugh Barton, Emeritus professor of planning, health and sustainability, WHO Collaborating Centre for Healthy Urban Environments, University of the West of England, Bristol, UK

14.20   **Research protocols for planning healthy cities**
David Green, Principal, global practice leader, cities and sites, Perkins+Will, UK

14.40   **What stops built environment professionals creating healthier places?**
Rachel Toms, Insight and standards manager, Design Council, UK

15.00   **Panel discussion**

15.30– 16.00   COFFEE, POSTER GALLERY AND KNOWLEDGE SPACE

Session 15: River-based community design
Chair: Sunand Prasad, Penoyre & Prasad, UK

16.00   **Living bridges: healthy urban infrastructure as a multi-use economic asset**
Tye Farrow, Senior partner, architecture, Farrow Partners, Canada

16.20   **The tale of a whale: creating a space for designing wellbeing in Northern Ireland**
Jo-Anne Bichard, Senior research fellow, HHCD, Royal College of Art, UK
Jonathan West, Research fellow, HHCD, Royal College of Art, UK
Elizabeth Raby, Research associate, HHCD, Royal College of Art, UK
Ralf Alwani, Research associate, HHCD, Royal College of Art, UK

16.40– 17.00   **Panel discussion**

Session 16: Closing keynote address

17.00   **Population ageing and health in the urban age**
Sarah Harper, Director, Oxford Institute of Population Ageing, UK

17.40   **Closing remarks**
Jeremy Myerson, Royal College of Art, UK

17.45   **Close**

18.00– 21.00   COCKTAIL RECEPTION

Stream 5 begins at 10.30 in the Council Chamber, after the day's opening plenary session (08.55–10.00).

Session 17: The policy and practice of creating healthy communities
Chair: David Green, Perkins+Will, UK

10.30	**Healthy New Towns: delivering innovation at pace framework – policy implementation** **Sara McCafferty,** Senior strategy programme manager, Strategy Group, NHS England, UK **Danny McDonnell,** Strategy programme manager, NHS England, UK
10.55	**CHESS – engaging communities in designing healthy environments** **Christine Hancock,** Founder and director, C3 Collaborating for Health, UK
11.20	**Translating community perceptions of health and place into local planning policy and monitoring frameworks** **Simon Bevan,** Director of planning, Southwark Council, UK
11.45	**Voluntary evidence-informed health and wellbeing design: a public realm strategy for a key London masterplan** **Jamie Anderson,** Research associate, University of Sheffield; senior consultant, Department of Landscape, BuroHappold, UK
12.10	**Panel discussion**
12.30–14.00	**LUNCH, POSTER GALLERY AND KNOWLEDGE SPACE**

Session 18: Multi-generational community design and care
Chair: Janet Sutherland, The Academy of Urbanism, UK

14.00	**Carebnb – a concept for short-term light care in your own neighbourhood** **Femke Feenstra,** Board architect, de Jong Gortemaker Algra Architects, Netherlands **Aziza Aachiche,** Senior advisor, real estate, Twynstra Gudde, Netherlands
14.20	**The implementation of the Older People's External Residential Assessment Tool (OPERAT)** **Martin Hyde,** Associate professor, Centre for Innovative Ageing, Swansea University, UK
14.40	**Health warning: is too much safety bad for our children's health?** **Jennette Emery-Wallis,** Director, landscape architecture, landscape design, LUC, UK **Alison King,** Senior landscape architect, landscape design, LUC, UK
15.00	**Panel discussion**
15.30– 16.00	**COFFEE, POSTER GALLERY AND KNOWLEDGE SPACE**

Session 19: Planning neighbourhoods for active living
Chair: Christine Hancock, C3 Collaborating for Health, UK

16.00	**How 'prescribing planning' can help lead to healthier-weight communities** **Michael Chang,** Project and policy manager, Town and Country Planning Association, UK **Helen Horrocks,** Strategic lead for public health, Thurrock Council, UK
16.20	**Hypo-Park: an open-space pilot for at-risk urban communities** **Roger Sherman,** Design director, Lifestyle Studio, Gensler (Los Angeles), USA **Claudia Carol,** Planning and urban design, firm-wide leader, Gensler (Los Angeles)
16.40– 17.00	**Panel discussion**

Stream 5 will be brought to a close at 17.00, whereupon delegates are invited to return to the Wolfson Theatre (17.00–17.45) for the day's closing plenary and keynote address.

Stream 6 begins at 10.30 in the Dorchester Library, after the day's opening plenary session (08.55–10.00).

Session 20: Wellness in the workplace
Chair: Rama Gheerawo, Helen Hamlyn Centre for Design (HHCD), Royal College of Art, UK

10.30 **To what extent the physical environment influences wellbeing at work**
Bart van Roekel, Research graduate, Management and Economics, Wageningen University & Research; MSc student, YNNO, Netherlands

10.55 **Workplaces leading city-wide healthy places efforts**
Jane Ellery, Assistant professor of wellness management, Ball State University; Senior fellow, Project for Public Spaces, USA

11.20 **Healthy offices, healthy life@work**
Elizabeth Nelson, PhD candidate, biosensors and biomedical engineering, University of Twente, Netherlands

11.45 **WELL designed: the first project in Europe certified to the WELL Building Standard – a case study on how a commercial London office was designed and the policy changes required to promote occupant health and wellbeing**
Alan Fogarty, Partner, sustainability, Cundall, UK

12.10 **Panel discussion**

12.30–14.00 LUNCH, POSTER GALLERY AND KNOWLEDGE SPACE

Session 21: The future of active and sustainable travel
Chair: Clare Devine, Design Council, UK

14.00 **The impact of spatial-economic structure of cities on the potential for active travel**
Eime Tobari, Associate director, Space Syntax, UK

14.20 **Driverless futures: utopia or dystopia?**
Dan Phillips, Project manager, School of Design, HHCD, Royal College of Art, UK
Rama Gheerawo, Director, HHCD, Royal College of Art, UK
Professor Dale Harrow, Head of programme, vehicle design, School of Design, Royal College of Art, UK
Stephen Boyd Davis, Professor of design research, School of Design, Royal College of Art, UK

14.40   **The role of electric cycles in the healthy city**
Tim Jones, Reader, School of the Built Environment, Oxford Brookes University, UK

15.00   **Panel discussion**

15.30–   **COFFEE, POSTER GALLERY AND KNOWLEDGE SPACE**
16.00

Session 22: Experience-design of transit hubs and journeys
Chair: Susanne Pini, HDR, Australia

16.00   **Health through innovation in transit facility design – a study of MRTS,
Chennai, India**
Dr P Meenakumari, Associate professor, Department of Architecture,
Anna University, India
Ar. Amita Gupta, Consultant and visiting faculty, Department of Architecture,
Anna University, India

16.20   **Decisions, decisions: decision-making and its impact on passenger
experience and wellbeing**
Jonathan Leah, Principal, Woods Bagot, UK

16.40–   **Panel discussion**
17.00

*Stream 6 will be brought to a close at 17.00, whereupon delegates are invited to return to the
Wolfson Theatre (17.00–17.45) for the day's closing plenary and keynote address.*

P01 **Walking and healthy cities**
Susan Claris (UK)

P02 **Health by urban design – how addressing health in cities can help create better places to live, work and play**
Eike Sindlinger (UK)

P03 **Newtownabbey's 'Do it together' team**
Arthur Acheson (UK), Karen Tufts (UK)

P04 **A prescription for urban design**
Nels Nelson (USA)

P05 **Interior air quality and public health in Northern Ireland**
Arthur Acheson (UK)

P06 **A community hub providing integrated local care for elderly people**
Dr Peter Wilkinson (UK), Dr Liz Lawn (UK), Neil Selby (UK), Dr Radcliffe Lisk (UK)

P07 **Sustainable urban garden – a replicable model for health**
Dr Ellen Vincent (USA)

P08 **Becoming better neighbours: exploring the processes of engagement between non-profit hospitals, local communities and US cities**
Rebecca Ramsey (USA)

P09 **Designing healthy communities**
Marcus Wilshere (UK)

P10 **Multi-stakeholder collaboration to improve air quality in West Yorkshire – a critical reflection on progress**
Peter Roderick (UK), Yannish Naik (UK), Helen Christmas (UK), Sally Jones (UK), Mike Gent (UK)

P11 **Reimagining the hospital as a community hub creates health and wellness in our cities**
Burkhard Musselmann (UK), Velimira Drummer (UK), Michael Moxam (Canada)

P12 **The role of a hospital in repairing a city's urban fabric**
David Lewis (UK)

P13 **Culture, neuroscience and design**
Sally Augustin (USA)

P14 **Tranquil city**
Julie Godefroy (UK), Grant Waters (UK), Diana Sanchez (UK), Ben Warren (UK)

P15 **The case for healthy places: improving health outcomes through placemaking**
Jane Ellery (USA), Laura Torchio (USA)

P16 **Finding your way to wellbeing: point-of-decision design and 'nudge' architecture**
Upali Nanda (USA), Colin Boylan (UK)

P17 **Measuring how masterplan design improves health and wellbeing**
Chris Burgess (UK), Mitch Cooke (UK)

P18 **Encouraging active mobility through comic strips: an experiment in research dissemination**
Steven Saulnier-Sinan (France)

P19 **Urban Farm at Ryerson University at The Daphne Cockwell Health Sciences Centre, Church Street, Toronto, Ontario**
Yasin Visram (Canada)

P20 **Transforming neighbourhoods: placemaking, public realm and healthier living**
Georgia Butina Watson (UK)

P21 **Using illustrated characters to make Evelina London Children's Hospital a place where children belong**
Louisa Williams (UK), Peter Shenai (UK)

P22 **Healthy placemaking principles**
Fred London (UK)

P23 **The green connection: design as a strategy towards a healthier city**
Ingrid Mulder (Netherlands)

P24 **My journey – sustainable travel brand**
Julian Maynard (UK)

P25 **Our cities are alive but how healthy are they?**
Josh Artus (UK)

P26 **Salutogenic cities: evolution in thinking for healthcare and the urban environment**
Henry Chao (USA), William Kenworthey (USA)

P27 **Shifting from green to healthy buildings**
Emily Loquidis (UK)

P28 **Working well laboratory: social inclusion and public realm facilities as innovation tools for thinking differently about workplace health**
Liz Swinstead (UK)

P29 **Workplace wellbeing: applying research to enhance the wellbeing of our people**
Rebecca Milner (UK)

P30 **Wellbeing valuation for commercial built environments**
Dr Kelly Watson (UK)

P31 **Working well: being well – design as a catalyst**
Joyce Chan (UK)

P32 **Back to the future: rethinking the architectural education of placemakers**
Richard Reid (UK)

P33 **Sonic inclusion – charting the sonically inclusive principles of creative urban environments through the paradigm of 'aural diversity'**
Will Renel (UK)

P34 **GATEway – driverless futures**
Samuel Johnson (UK), Gabriele Meldaikyte (UK), Dan Quinlan (UK), Elizabeth Roberts (UK)

P35 **Future London Taxi – from concept to streetscape**
Samuel Johnson (UK), Dan Quinlan (UK), Elizabeth Roberts (UK)

P36 **Our Future Foyle – design to improve the experience of the River Foyle surroundings**
Elizabeth Raby (UK), Ralf Alwani (UK)

P37 **SLOWMO – digital support to improve wellbeing and thinking habits**
Gabriele Meldaikyte (UK), Anna Wojdecka (UK)

P38 **Workplace and wellbeing – designing work environments for individual needs**
Andrew Thomson (UK)

All the posters, along with their abstracts, will be published on the SALUS Global Knowledge Exchange soon after the Congress. To learn more, visit the SALUS stand in the Knowledge space and join our growing online community at www.salus.global

COCKTAIL RECEPTION

Held in the Dorchester Library on Tuesday 17 October, the end-of-congress cocktail reception is a great way to relax following two days of informative and inspirational presentations from leading speakers in the field of urban health and design.

Delegates who have bought a ticket for the reception as part of their registration will be able to enjoy a cocktail, canapés and street food, and network with other delegates and presenters in the prestigious library.

If any delegates wish to upgrade their ticket to encompass the cocktail reception, please speak to Nicki Roessler or a member of the SALUS team at the front desk.
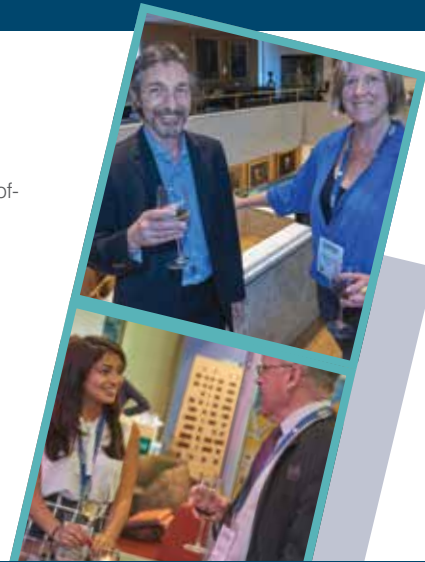
FREE ACTIVITY EVENTS

Monday 16 October

18.15–19.15: StreetGym walking tour

This one-hour early evening walking tour will offer a demonstration of how StreetGym supports people to stay physically and mentally fit without the need for expensive gyms by turning local architectural features, street furniture and gradients into bodyweight-based workstations. (Maximum 20 participants)

Tuesday 17 October

07.00–08.00: StreetGym urban fitness

Early risers have the opportunity to enjoy a 45-60 minute urban circuit training session, also organised by StreetGym. Along a circular route of between 1.5 and 2 miles, participants will stop to perform exercises at various iconic places before running on to the next spot. So, before the congress starts, freshen up your mind and energy levels on an urban adventure – running, jumping, crawling and weaving your way around the back streets and little known parts of the city of London. (Maximum 10 participants)

If you're interested in taking part in either or both events, please contact StreetGym founder John Allison on his stand at the Congress in the Knowledge space. For more details, visit streetgym.co.uk.

W: healthycitydesign2017.salus.global

STUDY TOUR

Participants in the Healthy City Design 2017 Congress will get the opportunity to join a fantastic study tour on 18 October featuring benchmark UK projects in sustainable design and human health and wellbeing. Places on the tour are limited, however, so please register early to avoid disappointment.

Wednesday 18 October

Study tour: East London, 10.00–17.00

The Crystal building and Olympic Park walking tour, including Tumbling Bay playground

The Crystal (pictured right, centre), a Sustainable Cities Initiative by Siemens, is one of the most sustainable buildings in the world. It operates as a sustainable events venue and as the world's largest exhibition on urban sustainability. The structure also serves as Siemens' Centre of Competence Cities, a technology and innovation centre bringing together political decision-makers, infrastructure experts and the general public in order to develop concepts for the future of cities and their infrastructures.

Britain's largest regeneration project, London's Olympic Park (pictured right, top) is a story of extraordinary change. Hear about the bid for the London 2012 Olympic and Paralympic Games, the architectural build, the greening of the landscape, and the post-games project to change health outcomes for one of London's poorest neighbourhoods.

Following the story of the Games, the tour includes iconic venues, such as the London Aquatics Centre, the Copper Box Arena and Lee Valley VeloPark. Participants will also get to see the Sir Ludwig Guttmann Health and Wellbeing Centre (pictured right, bottom) designed by Penoyre & Prasad, and Tumbling Bay, an award-winning expansive, landscape-embedded, fence-free play space. The play space caters for children of all ages and abilities, and presents an interesting case study in maximising play value and the acceptability of risk.

SALUS
GLOBAL KNOWLEDGE EXCHANGE
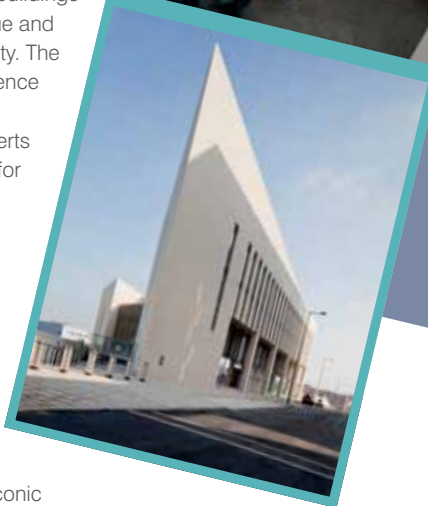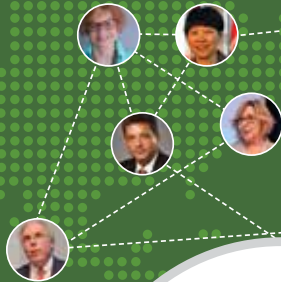
The knowledge community dedicated to designing a healthier society and a more sustainable planet

COMMUNITY
Create a profile; join discussion groups; post news; and build a global network.

MARKETPLACE
Find organisations, services and products helping to design a healthier society.

EVENTS
Learn and post about seminars, conferences and exhibitions around the world.

PROJECTS
Find and learn about healthy and sustainable built projects around the world.

JOURNAL
Read, watch and contribute articles, papers and videos on research, policy and practice.

Join today at:
www.salus.global

Valerie Shawcross (UK)
Deputy mayor of London for
transport

Healthy streets for London

Growing inactivity among city populations is a key concern, and statistics for London are striking. More than 40 per cent of Londoners aren't achieving the recommended 150 minutes of activity a week, and 28 per cent are active for less than 30 minutes a week.

Physical inactivity increases the risk of developing a range of chronic diseases, including diabetes, dementia, depression, heart disease and cancer. Consequently, we need to design physical activity back into our everyday lives. Active travel – in the form of walking, cycling and using public transport – is one of the simplest and most affordable ways for people to get more active and live healthier lives.

A 'Healthy streets' approach should ensure people and their health are put at the centre of decision-making, setting out how people can be encouraged to use cars less and walk, cycle and use public transport more. Adopting such an approach will also help improve air quality, reduce congestion, and make London's diverse communities greener, healthier and more attractive places in which to live, work and play.

Sir Andy Haines (UK)
Professor of public health and
primary care, London School of
Hygiene & Tropical Medicine;
chairman, Lancet Commission
on Planetary Health

The work of the Rockefeller Foundation-Lancet Commission on Planetary Health

The last century's advancements in public health, agriculture, industry, and technology have created the conditions for better health for billions of people. But this progress is taking a heavy toll on the Earth's natural systems. Relentless consumption of the planet's resources, along with population growth, are degrading nature in ways that are now undermining our wellbeing.

There is growing evidence that the planet's capacity to sustain the growing human population is declining. Degradation of our air, water, and land, combined with significant loss in biodiversity, have resulted in substantial health impacts.

Planetary health is a new field of study rooted in understanding the interdependencies of human and natural systems. In exploring the scientific basis for creating this new field – and to make policy recommendations – the Rockefeller Foundation and the medical journal *The Lancet* formed The Rockefeller Foundation-Lancet Commission on Planetary Health. In July 2015, the commission published a report that explored this scientific foundation. In this keynote, chair of the commission Sir Andy Haines will give delegates an overview of the report's findings and the commission's broader work programme.

What makes cities, communities and citizens healthy and resilient?

Cities are now home to more than half the world's population. Consequently, they should be considered the flagship for all places – urban and rural – in respect of how we live our lives in ways that bring prosperity, equity and quality of life to both current and future generations.

The UN's Sustainable Development Goal 11: 'make cities and human settlements inclusive, resilient, and sustainable by 2030' gives even more impetus to the ambition to link quality of life to living in cities.

This keynote address will highlight the systems thinking and actions needed to ensure we leave not only an infrastructural legacy in cities but also a human and cultural one – especially where the added social value of anchor institutions, such as the health system, moves beyond normal boundaries of a care and repair system. Issues such as air quality, good housing and access to the natural environment are increasingly seen as core to the health and prosperity of cities redeveloping around the world with sustainability in mind.

Dr David Pencheon (UK)
Director, Sustainable Development Unit, NHS England and Public Health, UK

Guillermo Penalosa
(Canada)
Founder, 8 80 Cities

The 8 80 City: how to create vibrant and healthy cities for all

How can we create vibrant and healthy cities for everyone, regardless of age or social status? What is the role of streets – the largest public space in any city? How can parks improve quality of life in a way that attracts people to, and retains them in, their communities? How is this related to equity and living our lives in the healthiest way possible?

Gil answers these questions while also explaining a simple and effective principle for inclusive city building: the safety and joy of children and older adults should be at the forefront of every decision we make in our cities.

Ken Greenberg
(Canada)
Principal, Greenberg Consultants

Towards a healthy city: the transformative power of urban design

We're living through one of the most remarkable transformations in urban history, as cities worldwide begin to redefine themselves.

New, more dynamic models for city building are emerging that focus on mix, overlap, shared space and flexibility, and integrating 'concepts' at the intersection of economy, community and environment, as identified by Jane Jacobs and others. This more 'ecological' understanding of connectedness favours solutions that bring together many kinds of skills and knowledge, challenging disciplinary silos, and generating new practices and tools.

Cities, at their best, provide much of what we seek in a place to call home: community; places of culture and business to which we can walk; mass transit; and a wealth of amenities that couldn't be supported without a city's density.

The mid-century drive to suburbanisation deprived us of these inherent advantages of urban living and with unintended negative consequences for our health. The realisation of this loss, in tandem with demographic shifts in user preferences, pressing recent concerns about energy scarcity, and global warming, has made us see cities with fresh eyes.

It's also prompting us to re-evaluate how we return to active transportation, how we mix land uses overcoming isolation and barriers, how we expand the commons to meet the needs of a heterogeneous and inclusive society, and how we integrate the urban in the natural world to achieve greater levels of sustainability.

The future of Atlanta: designing for equity, resilience and civic identity

The Atlanta Beltline was born in academia as a simple idea for a better way of life. Now, it's a $4 billion infrastructure project in the early stages of implementation. Its original author, Ryan Gravel, will describe how this catalyst project came to life, what it means, and why it matters.

Building on the title of his book, *Where We Want to Live*, Gravel will expand on these ideas, sharing how similarly transformative projects – from the Rail Park in Singapore to the concrete Los Angeles River – represent a new kind of cultural momentum that can produce healthier and more prosperous, equitable, and resilient places to live.

He'll conclude with his most current project – the Atlanta City Design – a daunting endeavour that digs deeper than the Beltline to discover the city's civic identity. By organising various plans, actions and investments around its identity, the city will ensure that its anticipated growth delivers the best possible future for Atlanta.

Ryan Gravel (USA)
Founder, Sixpitch

Carolyn Daher (Spain)
Co-ordinator, Urban Planning,
Environment and Health
Initiative, Air Pollution and Urban
Environment, Barcelona Institute
for Global Health

Mark J Nieuwenhuijsen
(Spain)
Research professor in
environmental epidemiology, Air
Pollution and Urban Environment,
Barcelona Institute for Global Health

From health evidence to practice: stories from Barcelona

A growing body of research links urban environmental exposures to health. This knowledge is crucial to inform city design, decision-making and evaluate interventions. However, evidence often fails to reach policymakers and other stakeholders in an accessible way.

Although knowledge translation (KT) was developed in the health sector to promote evidenced-based practice, it's also relevant to other disciplines. KT accelerates the benefits of global and local innovation through the synthesis, exchange and application of research-based knowledge. It entails a non-linear interactive process, multi-directional communication, and continuous interdisciplinary collaboration to ensure the impact of knowledge implementation. Using the KT model and Barcelona as a case study, we'll examine how to potentiate research for impact in policy and practice.

Description: Barcelona is one of Europe's most densely populated cities and embodies many urban challenges. We'll present how, through the creation of our initiative on urban planning, environment and health, we're connecting scientific knowledge with capacity building, policy and advocacy activities with government bodies and other stakeholders. Data from Barcelona will illustrate how urban environments influence health through physical activity, noise, heat island effects, green space, and air pollution. We'll describe how methods and tools can be used to help visualise and prioritise strategies and activities. We'll show how health impact assessments can be used at the technical level to model impacts of interventions across different sectors, providing concrete examples such as the Bicing bike share and Superblock. And we'll discuss how we've included policy and communication activities to increase the impact of our research.

Outcomes: Results from the first year of the initiative indicate broad interest and a need for increased collaboration and co-ordination across sectors. Co-benefits of health are relevant to other sectors. Research organisations should make active and continuous efforts to connect evidence with decision-makers in accessible ways. This requires time and developing communication and policy capacities. Understanding and working with political timelines and governance structures remain challenges to designing and implementing interventions.

Implications: This case study uses data and concrete examples to illustrate how researchers and cities can engage in multi-sectoral approaches that are key to achieving improved urban health outcomes.

Replanning Södra Skanstull

Replanning Södra Skanstull as a lively, vibrant and connected part of the city to offer healthy lifestyle choices requires systematic changes. Unmatched natural beauty in a geographical composition of islands and bridges, Stockholm is sometimes referred to as 'the Venice of the North'. With modern town planning, a topography of segregation is produced that risks denying the citizens of Stockholm safe and healthy lifestyle choices.

The presenters are working with the City of Stockholm in several projects to enlarge the city outwards from the inner islands and increase connectivity, with the vision to make Stockholm a more walkable and healthy city.

The Södra Skanstull project is located at an isthmus, creating opportunities to connect the inner and outer city. As a result, the area is dominated by obstructive overland infrastructure bridging the south of the city with the centre. In its current state, Södra Skanstull is cut off from city life, creating a hostile urban environment for pedestrians.

The scheme aims to improve street level connectivity and reappraise underused spaces. A new boulevard for pedestrians and cyclists improves public movement between the commercial areas and the waterfront between housing and schools. The design proposal introduces soft landscaping, and strategically positions new structures to minimise noise and pollutants, thereby improving the public realm.

The project builds on Södra Skanstull's identity by mapping, upgrading and enhancing the area's existing lakeshore park and recreational facilities. A recreational hub for the larger city is developed by Eriksdalsbad swimming centre, popular sports facilities and community allotments, which were identified as strong assets in White's dialogue with local residents and organisations.

This project shows how creating walkability (and cyclability) is at the heart of building a people-centred sustainable city of the future. In striving to be meeting places – and as positive centres for "people congestion" – cities have the principal problem of dealing with cars and the disproportional amount of public space that encroaches on more efficient, health-promoting means of transportation. We need to work for both radical systemic changes, as well as use each project in Stockholm as an opportunity for change.

Krister Lindstedt
(Sweden)
Partner and architect, urban planning, White Arkitekter

Stéphane Sadoux (France)
Deputy director, Centre of
Excellence in Architecture,
Environment & Construction
Cultures (LabEx AE&CC), Grenoble
School of Architecture (ENSAG),
Grenoble Alpes University

Gilles Novarina (France)
Professor of urban and regional
planning, Institut d'Urbanisme
de Grenoble, Grenoble Alpes
University

Susannah O'Carroll
(France)
Researcher, Centre of Excellence
in Architecture, Environment &
Construction Cultures (LabEx
AE&CC), Grenoble School of
Architecture, Grenoble Alpes
University

Jean-Louis Pépin (France)
Head, Clinic of Physiology, Sleep
and Exercise Department, Grenoble
Alpes University Hospital

Health in local planning policy in Grenoble, France: from the margins to the mainstream

This paper will focus on health in local planning policy in Grenoble over the past 20 years. It draws on findings of the LIFE project, supported by the French National Research Agency. People with multi-morbid chronic diseases (MCDs) account for more than half of adults aged 50 or older, and 80 per cent of health costs. MCD clusters evolve over time, defining temporal disease trajectories, often leading to cancer. The dynamics of MCD trajectories include factors such as sleep disturbances, dietary exposure to toxic agents, or hypoxia. However, several factors are driven by wider contexts – in particular, the built environment.

With a population of 160,000 (450,000 with its conurbation), Grenoble sits in a Y-shaped valley in the French Alps and is referred to as the "bowl" (cuvette). The surrounding mountain ranges have acted as natural greenbelts and the city has sprawled down the valleys, generating commuting, congestion and pollution.

As part of the LIFE project, attention is being paid to health in local policymaking in Grenoble, at municipal and city-regional levels. Grenoble's experience is of interest since it's the only large city in France to be led by a Green party mayor, Eric Piolle, elected in 2014 as a result of his campaign's focus on mobility – in particular, cycling – and pollution.

This paper relies on critical discourse analysis (Fairclough, 1992; 2003). The local health plan produced by the previous council in 2011 is compared to the updated version, which the current council adopted in 2016. Successive local plans are also compared and contrasted, as are the rationales underpinning flagship regeneration projects. The research is also based on interviews with key stakeholders involved in placemaking.

It's too early, of course, to assess the extent to which current actions will have a positive influence on the population's health in the long term. However, research shows a clear shift in discourse since the 2014 election. While policies and plans by previous councils did take health into account, they tended to focus on energy efficiency. Today, however, health *per se* appears to have become one of the explicit cornerstones of local planning policy.

Cities, communities and custodial health

The unique nature of a custodial community represents a village in every sense, where the need for health education, healthcare and healthy living are central elements in achieving rehabilitation in a civilising culture and society.

Objectives, guiding principles and lessons learned cut both ways, as we examine issues around parity and opportunity, which can offer benchmarks and contiguous linkage in achieving these worthy goals.

Chris Liddle (UK)
Chairman, HLM

Kristen Whittle (Australia)
Director, architecture, Bates Smart

Salutogenic city design

Over the past 10 years in Melbourne, the presenters have developed a body of built work focused on evidence and research-based design and healthcare. The firm's Royal Children's Hospital and Dandenong Mental Health projects have set new benchmarks for hospital design worldwide. The learnings found in these projects have led to a studio-wide policy on salutogenics, which has extended into sectors including aged care, infrastructure, workplace and large-scale hotels, and mixed-use residential developments. The research-based design methodology encompasses detailed studies in landscape and interior design, as well as urban design and architecture, leading to a comprehensive holistic architectural approach.

Australian cities such as Melbourne and Sydney are looking at exponential growth over the next 25 years, with the former forecast to double in size. Most of this growth is being taken up within the parameters of the inner-city boundary, which has led to renewed critique on the merits and pitfalls of high-density living, affordability, and to questions of how to create new urban spaces that are green and meaningful places. A new urban design ideology has evolved, which is critical in ensuring Melbourne continues to lead in liveability standards while growth is maintained.

The explorations and results embedded in our work have actualised the transformative capacity in architecture, seen as social art built to benefit people's lives. Our talk will focus on this thematic via the sharing of specific design case studies spanning multiple sectors.

Attendees will learn how:

- our tailored and localised site-specific design philosophy, developed across multiple property sectors, has helped engender civic pride, social interactivity, community participation and connections to nature;

- exterior and interior materiality and lighting (natural and artificial) effects, which provide layering, tactility and perceptual soft fascination, and aid mental restoration in architecture; and

- urban planning and residential planning guidelines evolved for healthy inner-city high-rise development, including studies in green energy production and waste recycling; solar access and tower shaping; natural ventilation and green amenity integration; podium neighbourhood integration and interconnectivity; provision of affordable housing integration; and inclusion of retail and community facilities.

Hopeful cities – creating a life worth living for all citizens

The answer to the question "what is a healthy city?" has continually shifted depending on the public narrative of the times. After the Industrial Revolution and the rapid growth of cities, slums were considered a blight that urban renewal could solve. But the solution didn't accommodate the 'slum dwellers', who instead were forced out.

Architects such as Mies van der Rohe embraced this approach. In Chicago, his clean and straight-lined Illinois Institute of Technology, which he designed and directed for many years, reflected such a 'healthful' urban cleansing. Planner Jane Jacobs passionately attacked such planning theory and practice because urban renewal often destroyed healthy urban neighbourhoods – often centres of cultural roots for immigrants and the upwardly mobile. Her movement to maintain and renew healthy urban neighbourhoods, which sociologist Herbert Gans called 'urban villages', changed the direction of urban planning towards a social definition of healthy cities rather than a purely physical environment one.

Architect Bertrand Goldberg promoted high-rise urban buildings, such as his Marina Towers, which, in addition to apartments, included day care centres, supermarkets, parks, and other urban neighbourhood amenities. But city planners at the time rejected his proposals for more mid- or high-rise 'urban villages' in an industrial river area in Chicago. Today, a new definition of healthy cities is emerging – what I call the 'engaging city'. The idea is built on fundamental neuroscience evidence, which not only points to exercise as an essential ingredient for our collective health but also the need for meaningful engagement or purpose.

This presentation elaborates two 'engaging city' programmes demonstrating how the city can engage and thus provide health, meaning and quality of life for persons with dementia. First, John will outline a programme called 'It Takes a Village', which uses underused urban resources to regularly engage persons living with dementia; second, he will discuss a cost-effective proposal to modify an urban park to be dementia-friendly – inviting those 'locked up' at home and in care facilities to take advantage of their right as citizens to enjoy their cities.

Dr John Zeisel (USA)
President, Hearthstone
Alzheimer Care and the I'm Still
Here Foundation

Emily Loquidis (UK)
Principal consultant PMP, LEED AP
BD+C, WELL AP infrastructure and
sustainability, buildings and places,
AECOM

Professor Kate Ardern (UK)
Executive director, public health,
Wigan Council

Derek Clements-Croome
(UK)
Professor emeritus, construction
management and engineering,
University of Reading

Dr Sotiris Vardoulakis (UK)
Research director, Institute of
Occupational Medicine

A blueprint for healthy and resilient cities

As cities grapple with the environmental and health issues
associated with population growth and urbanisation, there is
an increasing trend towards people-centric design, focused on
health and wellbeing. A healthy city should be a city for all its
citizens: inclusive, supportive, sensitive and responsive.

The paradigm shift to support a society of wellbeing requires a
blueprint for a healthy city that takes into consideration urban
resilience through government support, public health, building
design, and the intersection of technology as a tool for data
feedback and measurement. Greater Manchester – energised by
its devolution programme, the great work of its civil contingencies
and resilience unit, and the support of collaborators such as
UNISDR and 100 Resilient Cities – is one metropolitan area
working hard to integrate wellbeing, health and social care
to create sustainable, resilient neighbourhoods and a social
movement for change, driven by citizen empowerment.

The Healthy Polis, an international consortium for urban health and
sustainability, details new work around health challenges related to
air pollution and climate change in cities, by focusing on the wider
co-benefits and consequences of urban planning policies and
interventions. These co-benefits (or resilience dividends) are also
a primary focus for city actions being promoted through the 100
Resilient Cities programme.

In thinking about healthy cities, we need to address all scales –
from a holistic city strategic vision, through to neighbourhoods and
individual buildings. This paper will discuss the implementation of
the WELL building standard on one of the first projects in the UK,
and detail how sustainability and wellbeing goals were integrated
and executed alongside broader organisational wellbeing policy.
The criteria in new standards, such as WELL, have shifted the
definition of good practice, as well as occupants' expectations.
Research pursues the use of wearable technology and how this
data can feedback to inform the intelligent building design and the
healthy city of tomorrow.

The panel will discuss how the implications of their work can
be translated into the development of specific solutions for cities,
focusing on challenges around mobilisation, inclusive design,
and benchmarks for progress.

Designing for disaster: a conversation about resilient healthcare

The projected effects of climate change on the UK are severe, including increased risk for flooding and extreme temperatures. While the nation has begun to put in place initiatives to address resiliency and prepare for future weather events, uncertainty still surrounds what impact a changing climate will have on healthcare. In response, how should local healthcare institutions ensure they can protect their patients, safeguard their assets and conserve resources?

In this presentation, attendees will learn about two catastrophic weather events that hit healthcare systems in the United States: Hurricane Sandy in New York City and Hurricane Katrina in New Orleans. The presentation will outline how flood waters, high winds, power outages, inadequate supplies, staffing shortages, and extreme weather impaired each region's ability to provide care for citizens. In addition, the presentation will highlight the design of several new hospitals, clinics and care spaces that have been created to better withstand the impact of a changing climate. From designing "upside-down hospitals" that protect against rising sea levels, to creating better access to emergency services during both man-made and nature-caused disasters, to advocating for policies that require more from critical-care facilities, delegates will learn what healthcare systems can do locally and beyond to withstand the unknowns of a changing environment.

The presentation will end with key considerations for the UK, including design elements that could be incorporated into city and urban planning to ensure continuation of care in the midst of disaster, as well as specific design attributes that should be incorporated into healthcare facilities today to ensure viability regardless of the severity of climate change.

Jane McElroy (UK)
Healthcare principal, NBBJ

Mike Nightingale (UK)
Charity founder and trustee, The
Mike Nightingale Fellowship;
consultant, IBI Group UK

Marcus Wilshere (UK)
Architect and masterplanner, IBI
Group UK

Elizabeth Petrovitch (UK)
Interior designer; architect, IBI
Group UK

Paradise found? Can one place work for all its citizens?

Many cities struggle with chronic inequality and access to health and education. Can a grassroots approach be complementary to 'top-down' administration? Can it be an effective catalyst for a virtuous spiral wherein better skills lead to better jobs; better homes lead to a better community; and better healthcare starts to engender a shared sense of community? In short, how can a legacy of separation and isolation be transformed into a single place that works for all?

This paper discusses the importance of coupling grassroots networking with professional expertise to examine the fault lines in town planning, which result in a place that is idyllic for some but lacks inclusion of others. The paper will narrate the work undertaken, including local activism, networking and workshops.

Practical application: The paper will present the work of a charity with a vision to improve the lives of people living in Hout Bay, a suburb of Cape Town and a microcosm of the challenges facing South Africa. This beautiful hillside setting is home to three communities – wealthy white people, the informal settlement of Imizamo Yethu, and the coloured township of Hangberg. Goodwill abounds in Hout Bay but efforts too often focus on one community at a time.

Outcomes: Lessons from networking with these organisations have taught that incremental steps and careful listening yield the most effective results. The charity's work therefore focused on three themes:

1. Education to employment: effective after-school clubs link to improved opportunities.

2. Housing: ongoing development of new, innovative housing to be built on 'neutral' ground.

3. Health: after four years working with Western Cape Government, a new clinic provides an opportunity for better social cohesion.

Implications: To tie these initiatives into a coherent vision, the charity is now working with a local partnership to link together Hout Bay's communities through a sense of shared ownership of public spaces, providing an armature to integrate transport, schools and the new health centre, to serve the entire population.

Denal Alam housing: a symbiotic relationship between human and natural environment

Denai Alam is designed to develop a symbiotic relationship between the human and natural environment. Using the concept of 'denai' and 'kampung' architecture style, Denai Alam is a safe, walkable housing.

'Kampung' or village is a rural settlement sustained traditionally by subsistence activities and agricultural practices. Denai Alam uses a kampung-style layout with modifications and technology included. The 'denai' is a tropical approach, providing equitable open space of 30m in any development. A lush landscaped oasis for a quality lifestyle, with only eight units per acre, the 'denai' links residents with community facilities and other villages. Visually appealing trails, lined with planting strips, create a highly walkable neighbourhood.

Social interaction is maximised by the free-flowing, open and unobstructive public-private areas. Children can play safely anywhere in the house compounds and in the public areas. Parks, gathering areas, and bike and pedestrian trail systems within the 'denai' provide spaces for friends and family to visit. Its breathtaking, tranquil surroundings offer a mix of recreational preferences. Houses are joined by winding, free-flowing paths. The various villages connected by the extensive route of the 'denai' has promoted a better intra-neighbourhood and inter-neighbourhood relationship throughout the development. It's also a way to promote neighbourhood-to-neighbourhood social interaction.

Denai Alam is an innovatively planned development that incorporates the traditional 'denai' or footpath concept, which not only segregates pedestrians and motorised vehicles but also helps foster unity and harmony among its residents. The housing along the trails lends architectural interest and creates a sense of security.

Public demands for greater environmental responsibility have led the 'denai' to develop separate systems for potable water and new environmentally friendly methods of stormwater management. The threshold distance of 200 metres to any nearest 'denai' or open spaces has eliminated the need for the community to gain access to these areas by vehicle transport. As a result, there are far fewer unnecessary toxic fumes discharging into the atmosphere, which reduces air pollution.

The Denai Alam concept was awarded the '2003 Malaysian Institute of Planners' Planning Innovation Award'.

Mustapha Kamal Bin Zulkarnain (Malaysia)
Architect, Arkitek Mustapha Kamal

Sumita Singha (UK)
Chartered architect, Ecologic
Architects

Healthy cities: lessons from traditional cities of India

Health is not a modern construct. In many civilisations, health has been a key priority for its citizens in order that the city might function properly and defend itself. Food security was another motivation for a healthy and sustainable city. And, with cities being a focus for culture and religion, so cleanliness and sanitation were also important. Thus, healthy cities were an existential necessity – an unhealthy city was not a city at all.

City planning in eastern cultures embraced health under various guises, such as Vashtu Shashtra and Feng Shui; in the West, the Vitruvian concepts of 'robustness, utility and beauty' have influenced building design and city planning to this day. In the Middle East, the Babylonian, Assyrian and Egyptian cultures (and later, Islamic and Jewish cultures) reinforced the idea of healthy cities, where full temporal health was required in order to experience spirituality. Public health was also a way to control the general population and quell rebellion, while a sense of community and participatory planning supported city governance.

Jaisalmer and Bishnupur are two ancient cities of India, located in the west and east of the country, respectively. Although having contrasting climatic conditions and different political and cultural systems, these two cities made their citizens' health a priority and devised sustainable and innovative solutions to aid this goal. Some of these solutions used the natural landscape, and flora and fauna; some were man-made. Regardless of the source, human ingenuity played the deciding part in making the city sustainable and healthy.

Are the lessons from these older traditions of any use today in our world of technology and progress? As the world population continues to rise against a backdrop of scarce resources, it's important to draw on these ideas, which are tested by time and resources. The social, economic and environmental determinants of urban health influence the future economic and urban developments of a country. The reliability and replicability of traditional solutions, especially for the poor and vulnerable in many parts of the world, could help in addressing health inequality and make cities sustainable in a world where urban population is increasing exponentially.

Healthy landscapes, healthy communities

Four years ago, following the earthquakes that devastated Christchurch, New Zealand, I and some colleagues had the opportunity to work with the city and its community on a plan to rejuvenate the corridor of the Avon River. At one level, this project was about replacing tremor-damaged pavements and dislocated bridge structures, but at another, it was about working closely with the local Maori community in creating a healthy river, which, in turn, would help improve the health of everyone who lived or worked in its environs.

In rebuilding the city, the opportunity to recreate a river corridor with less road space for vehicles and more attractive routes for walking and cycling became a fundamental design principle. Like the UK, a large proportion of New Zealand population is obese, with resulting problems such as diabetes. While the reconstruction of Christchurch has some way to go, improvements are underway.

There are also excellent examples in the UK. In Lewisham, the borough has spent the last decade improving the corridor of the River Ravensbourne to provide its local communities with direct access to water and nature. The walkways and open spaces present opportunities for people to exercise but also provide places where they can meet their neighbours or enjoy a quiet moment surrounded by greenery and birdsong.

Lewisham is also home to Margaret McMillan Park, another urban space helping to bring the community together. The real point of interest here is the person after whom the park was named. Margaret McMillan was a well-known Victorian Christian Socialist, who recognised the benefits of outdoor play for poor kids working in the harsh conditions of industrial Britain. The project aimed to establish a health and wellbeing agenda and reflect some of her vision. At Mountsfield Park, the borough has also remodelled a local open space to create a community garden, where the local community has been involved in its design and construction.

Many exciting new ventures are afoot, such as proposals for 'The Green Spine' close to Church Street Market in Westminster, London. The project is about liveable streets and spaces – to see how green the 'public realm' of a densely populated urban environment can be.

Andrew Tindsley (UK)
Principal and director of landscape and urbanism, BDP

Robert Payne (Australia)
Director, Guildfords

Christon Batey-Smith
(Australia)
Director, architecture and urban
planning, Design Inc – Melbourne

Keith Davis (Australia)
Director, building services
consultants, Norman Disney &
Young

Alex Rodger (Australia)
Director, building services
consultants, Norman Disney &
Young

Cardinia Health Precinct: sustainability, self-sufficiency and wellness promotion in health precincts

The HealthCite integrated health precinct is a new multi-purpose health, community, aged care and affordable housing precinct in southeast Melbourne, Australia. The health precinct, being developed by Guildfords Funds Management, supports a global trend towards integrated care models. Consumers expect these efficiencies to occur as healthcare costs keep rising and emphasis is placed on the consolidation of traditionally fragmented sectors, such as primary health clinics, allied health centres, specialist medical centres, day hospitals and community care programmes.

The two-stage development of the precinct (Stage 1: Private hospital and day surgery; Stage 2: Medi-hotel, community health, aged care and healing forest) is suited to smaller vertically integrated land sites, so HealthCite can be efficiently replicated in regions where space is a premium. HealthCite is based in Cardinia Shire on a flat 10 hectare site to exemplify the major design benefits of medical facilities that possess infrastructure capable of delivering state-of-the-art clinical and community service care.

The healing forest in HealthCite Cardinia forms the conceptual framework for the precinct masterplan. We focus on ecology first, designing infrastructure to feed water and nutrients into landscaped communal services. This land area contains a number of functional spaces, including therapeutic, relaxation, active play, and food production services. These are designed to support inhabitants' wellbeing, while seeking to retain all the attributes of self-sufficiency and sustainability in design and resources.

By offering differential services, HealthCite has the opportunity to expand beyond the catchment area. An important aspect of the expansion is the association with public hospitals and GP clinics throughout the region. As such, HealthCite can become a hub for prevention of unnecessary disease and treatments, while offering efficiencies in providing localised therapeutic treatment.

To maintain this level of design and planning for a hospital, a large degree of flexibility must be factored in. HealthCite also considers aspects of smart and effective design, such as interconnectivity and interaction between buildings and traffic/people flow.

The surrounding residential development will provide affordable housing for employees in the precinct and community. Co-location of retirement villages and apartments within the vicinity of HealthCite provides a framework for an easier and less anxious transition to various housing options as people progress through the age cycle.

Technology and citizen health

This talk relates to case study work by IBI Group in support of NHS England's Healthy New Towns (HNT) Innovation Programme.

Framework: Rather than impose a template for what a healthy place will look like, NHS England has, through providing capability and resource support, empowered ten demonstrator sites to develop proposals that cut across several congress themes. A key aspect of its proposals is in the evolution of digitally enabled smart cities, in which digital technology supports citizens' health. This paper will describe how digital technology proposals improve healthcare outcomes through being:

- an enabler for the citizen (eg, to self-manage and self-monitor);

- an enabler across all care settings;

- an opportunity to 'design in' digital tools and enablement at the design and development stage of a HNT; and

- an opportunity to develop digital strategies and services for the operational/occupation phase of a HNT (eg, via joint-venture developer / local authority community interest companies).

Practical application: The paper will address considerations across three key digital components, including:

1. readiness – ensuring digital leadership and information governance is in place;

2. capabilities – developing tools to increase insights and intelligence, manage assets and resources, enabling behaviour change and enhancing customer experience; and

3. infrastructure – developing the underlying physical/ communications, virtual connectivity and system integration required.

In context to developing smart cities in relation to BSi Smart City standards, the paper will also discuss treatment of digital within home design, public realm design, and community facilities, along with describing an overall methodology for implementation.

Outcomes: The ultimate outcome is to harness smart city technology as an enabler for improving health outcomes.

Implications: As the programme moves into phase 2, the focus changes to how to spread learning and good practice to both potential Healthy New Towns, and how to impact and influence other national programmes.

Mario Bozzo (UK)
Director, IBI Group UK

Gail Borthwick (Canada)
Principal**,** buildings**,** Stantec

Rod Schebesch (Canada)
Regional business leader –
transportation, Stantec

Anu Sabherwal (UK)
Senior associate project leader,
Stantec

Blake Jackson (USA)
Sustainability design leader,
associate, Stantec

"The measure of intelligence is the ability to change" – Einstein

The growing shift towards a knowledge and technology economy are fuelling an 'urban boom'. The growing preference to live in walkable, mixed-use neighbourhoods, where amenities, convenience and sense of community are right on the door step, is redefining the design and culture of our cities today.

For cities to survive, they must be intelligent to respond to the constant change of demands in urban cores and continuously reinvest in pioneering technology and resources. Our approach includes the thoughtful use of big data analytics, innovative infrastructure technologies and policies, and the design of intelligent cities and buildings. Strategies for smart cities require integration of holistic and sustainable design strategies as a foundation. Emphasis on this strategy has multiple benefits for human health and the environment. We believe that smart grids, autonomous vehicles, and design guidelines, such as Envision and the WELL building standard, will play a large part in changing the cities of tomorrow.

Smart grids change the way in which we use electricity, creating a shared network that allows cost-efficient use and distribution of energy. Emerging smart grid solutions have spillover effects that create healthier cities, by the reduction of energy use and reduced CO_2 emissions and pollutants, cleaning the air, and improving the human experience.

Shared autonomous vehicles provide access to those who would otherwise not have access to typical city transit systems, thereby increasing mobility and improving the health of many individuals.

Envision is a holistic framework for planning, evaluating and rating community environmental and economic benefits of projects. It aims to design solutions that embrace sustainability today and in the future. The WELL building standard is the first building standard focused exclusively on human health and wellness. It marries best practices in design and construction with evidence-based medical and scientific research – harnessing the built environment as a vehicle to support human health and wellbeing.

We believe that cities are greater when the sum of their parts are working in unison. This also moves us towards achieving social equity, thus improving the human experience.

Enabling wellness through intentional design

The commonly accepted definition of 'wellness' encompasses physical health, emotional wellbeing, social connectedness, spirituality, intellectual and occupational satisfaction, environmental harmony and financial stability.

It's a prominent buzzword driving design at scales ranging from urban planning to site-specific developments. In tandem, consumers are demanding more of health and wellness experiences, organisations and facilities, constantly pushing for convenience, personalisation and integration. How, therefore, can architects, planners and community leaders create communities with 'wellness' foundations that are catalysts for increased physical activity, social interaction, inclusion, community spirit, and other socio-economic benefits intrinsic to sustainable, liveable communities?

It's important to challenge assumptions of what wellness means in the built environment and how wellness can be embodied in a more place-specific way, at many scales, purposefully addressing local communities' specific needs to enable the desired quality of life. Instead of asking 'how might we create a wellness space?', we ask 'how might we create a wellness network through the intersection of multiple, intentionally considered facets that lead to wellness?' The wellness network is expressed through new relationships and fusions of physical amenities and experiential placemaking ideas – breaking down familiar patterns and relationships to highlight unique lifestyle features, embody a community spirit, and be a safe haven for all. Place-specific wellness is not only about planning and architecture; it's about designing the in-between.

At Pena NEXT in Denver, Colorado, we learned that during the week residents approach health and wellness tasks as a box-checking exercise, but on weekends those tasks become adventures, around which their lives are built. So, when building this new community, we sought to invigorate the working week with a spirit of adventure, encouraging acts of wellness throughout each day. When designing a community centre for two neighbourhoods in Calgary, Alberta, the team found that people long for a spirited neighbourhood-hub, where equity drives design, and connectedness gives people access to services and resources that help them improve.

This presentation will explore how the same process for building a foundation of wellness has led to tailored solutions around the globe.

Susanne Pini (Australia)
Principal/director of retail, mixed-use, and urban living, HDR

Kaia Nesbitt (USA)
Associate vice-president, site design principal, HDR

Beth Zacherle (USA)
Strategic innovation designer, HDR

Julie Alexander (UK)
Director, urban development and
smart cities, Siemens

Building a business case for smart urban environments

This paper will explore the latest research on the business case for smart cities. A recent study summarises an 18-month research programme, carried out with the European cities of: London (Arc of Opportunity), UK; Aberdeen, UK; Brussels, Belgium; Alba Iulia, Romania; and Kartal, Turkey. Concentrating on six infrastructure sectors: energy, transport, buildings, harbours, security and connectivity, the study uses more than 350 data inputs to calculate their multiple benefits to the cities and their return on investment.

The study is based on the development of a smart cities methodology – put into practice across each of the five cities – that enables city policymakers and practitioners to build a business case for digitally enabled intelligent urban environments. It does so through a new approach called 'the digital value sphere', which takes a broad cross-stakeholder view.

City-specific data and other research statistics are fed into a model to calculate the technical, financial and indirect benefits from digital infrastructure. Cashflow graphs capture the results, and present a model of the investment and benefits annually over a 35-year period. Figures represent a mix of 'cash' and 'non-cash' elements, as both financial and socio-economic costs and benefits are considered.

The presentation will reflect the notion that a viable smart city business case needs to consider not only the direct monetary benefits, such as transport services and energy savings, but also other real and indirect benefits, such as public health improvements from better air quality, lower crime rates, etc.

Healthy Active by Design Tool

The Healthy Active by Design (HABD) Tool is the first online tool that enables the community, developers, planners and health professionals in Australia to design locally inspired healthy active communities. It's also supported by a collaborative implementation strategy to educate and inspire end users in the development of healthy active communities.

The tool is a collaboration between the Heart Foundation of Australia, the Centre for Built Environment and Health at the University of Western Australia, and private consultants, to develop a comprehensive, content-rich, inspiring online tool – www.healthyactivebydesign.com.au. The HABD tool provides a common understanding of complex planning processes, and enables professionals, community and developers to come together to create healthy active communities.

The tool demystifies the urban design principles required for a healthy active community. It provides a checklist of strategies, evidence summaries, and case studies highlighting the design features that research demonstrates are the key drivers to a healthy active community. Collaboration was key to the success of the 'healthy active' vision. During all phases of this project, input has been sought from state government agencies, local governments, professional institutions, the development industry, town planners and urban designers. The Planning Institute of Australia played a central role in providing a platform to showcase the tool across Australia. The Western Australian government's land development agencies, Metropolitan Redevelopment Authority and LandCorp, have also integrated the design features into current projects.

The original HABD was rolled out in 2014, since when the next stage of the project, the 'Healthy Built Food Environment', has been commissioned. This programme is calling on research from the UK and local Australian government practices to support improved access to fresh healthy food in our local urban environments. This project has the potential to disrupt the current planning practices across Australia. The vision is to develop an integrated approach to government policy where town planning policy supports the provision of healthy community outcomes.

Robina Crook (Australia)
Associate, planning, architecture, HASSELL

Ann Marie Aguilar (UK)
Director of operations, Europe,
International WELL Building Institute

Anita Mitchell (UK)
Head of sustainability – Europe,
Lendlease

Integrating public health and the built environment – contribution from WELL communities

In recent years, there has been renewed emphasis around the world on the importance of buildings and communities to public health. This presentation discusses the contribution of the WELL building standard (WELL) and the WELL community standard, performance-based systems for measuring, certifying and monitoring features of buildings and communities that impact the health and wellness of the people who live, work and learn in them. These holistic, evidence-based approaches can operate alongside policy measures to create healthy supportive buildings and communities, and address the wider determinants of health.

WELL is the first standard dedicated to improving health and wellbeing through the built environment. It was developed by integrating scientific and medical research, and literature on environmental health, behavioural factors, health outcomes and demographic risk factors that affect health, with leading practices in building design and management. Since WELL launched in 2014, more than 535 projects, encompassing more than 110 million square feet in 31 countries, have engaged with WELL. It's adaptable to local contexts and is driving market transformation through projects seeking certification.

A companion to the WELL building standard, the WELL community standard pilot is a district-scale rating system centred exclusively on human health and wellness. It aims to set a new precedent for planning, building and development by providing a thorough understanding of how communities can employ actionable strategies and interventions to support the health and wellbeing of residents across all aspects of community life.

The vision for a WELL community is inclusive, integrated and resilient, with a strong identity that fosters high levels of social interaction and engagement. The WELL community standard encourages effective, equitable and responsible use of resources – natural, human and technological – to meet the community's current and future needs and priorities. The new standard seeks to address the physical, organisational, and behavioural aspects of public health by incorporating features specific to urban scale developments across 10 concepts: air, water, nourishment, light, fitness, temperature, sound, materials, mind and community.

This presentation includes an overview of the WELL community standard. Lendlease will also discuss its approach to creating and supporting healthy communities, along with examples in its portfolio.

AI and machine learning: new methods to connect a city and citizens

Increasingly, city planners have sought to engage citizens directly to better inform public policy planning, and help square ever-rising demand for services and cost control. Such listening exercises range from occasional surveys to periodic planning meetings, supplemented with census and government data, but there is a lack of statistics related to citizen needs in time and place.

This paper will report on technology that aims to deliver significant value to two user groups: older citizens (frail and healthy) and public policymakers. Our research approach seeks to engage directly with groups of citizens and city planners, to inform the design, build and testing of the technology solution. This solution aims to connect healthy and frail older people in time and place to their city – linking the person to best-fit transport, housing, food, leisure, safety and human relationships in order to improve health and wellbeing outcomes, and reduce costs. This approach will also allow the city to identify where urban systems (street networks, public transport, land use, density) combine to create areas that are better or worse suited to the needs of elderly people – enabling prioritisation and planning of service delivery in the short and long term.

The main innovations of the solution relate to creating value through the dynamic and continuous recognition of complex perception patterns or situations, which can be performed using semantic technologies and AI methods, such as cognitive maps and heuristic search. Complex perception patterns will be represented as hierarchical compositions of simpler patterns and situation context, including service and person profiles.

Although the idea of profiling users to deliver better services is not new, the technology solution will take this concept further by enabling the creation of a multi-level user profile, including: static data (collected at registration) such as gender, age, place, interests, etc; and dynamic data, from analysis of connected sensor data (eg, wearable smart devices), as well as social network, behaviour, past activities and user feedback analysis.

This research aims to build a predictive model for user needs that incorporates social, personal and contextual factors. This will enable intelligent, informed, and proactive deployment of resources, where services are presented to the user.

Michael Wilkinson (UK)
Director, R&D, Inavya Ventures

Steve Turner (UK)
Associate, digital, Arup

Health and wellbeing: raising productivity through technology

Health and wellbeing are at the heart of the debate around increased competitiveness, as a healthy population is more likely to have higher productivity levels. While these are not the only factors that underpin productivity, they are fundamental. In Greater Manchester, 80 per cent of the public-sector budget is spent on 5 per cent of households, many of which suffer acute challenges around long-term health and wellbeing issues and where productivity levels remain 11-per-cent lower than those in London.

Purpose: To outline the potential role of digital technologies in raising productivity through improved health and wellbeing.

Methods: Analysis of findings from UK-based demonstration projects.

Results: Digital technologies can deliver improved outcomes to those in need of health and social care while, at the same time, stemming ever-spiralling costs of provision. Digital healthcare services can be categorised as follows:

Assisted living – sensors installed around the home can provide information about a person's movements, alerting to unusual behaviour. They can be managed remotely by a healthcare provider, social care provider or family member.

Remote healthcare – patients can consult with GPs remotely via a secure internet or mobile link. This could be achieved through smartphone apps, wearables or body-based sensors. Consultation could be made more realistic through virtual reality.

Preventative healthcare – typically, these are based on health monitoring via a connected mobile device, managed by a consumer-facing company rather than a healthcare provider. These can either be smartphone-based or encompass body area networks and wearables to gain more detailed data on vital signs and symptoms.

Conclusions: Digital health is a growing market, valued at £23 billion in 2014 and expected to double by 2018. Adopting digital health solutions is also a priority for the NHS, which is seeking to achieve greater efficiencies and address a £30bn healthcare funding gap anticipated by 2020. Accessing this market however, has a series of challenges, not least a complex data ownership landscape compounded by concerns around patient confidentiality and trust. The solution to this often lies in the ability of partners collaborating within a robust leadership and governance structure, addressing common issues around data standards.

Designing a healthier and health-creating society

The UK must develop a plan for building a health-creating society, but it will only be successful if it receives support and engagement across all industry sectors and the wider population. So says a manifesto conceived by keynote speaker Lord Nigel Crisp, co-chair of the All Party Parliamentary Group on Global Health, and Prof David Stuckler, from the Department of Sociology and Demography at Oxford University, with insight from Richard Horton, the *Lancet's* editor-in-chief.

The manifesto highlights examples of active local groups and social entrepreneurs who have stepped up to the table in taking action to develop healthy, resilient communities. One example is the St Paul's Way Transformation Project in East London, which has, along with local housing companies, invested millions in integrating housing, health, education and business development, to bring organisations in different sectors together with a view to addressing local community problems. It's this type of development that needs to be "underpinned by interdisciplinary research that embraces the social sciences, architecture, urban design, planning and much more", states the manifesto.

Lord Nigel Crisp (UK)
Independent crossbench member of the House of Lords; former chief executive of the NHS in England; former permanent secretary of the UK Department of Health

We are the environments we live in

Lord Mawson founded the internationally renowned Bromley-by-Bow Centre nearly three decades ago. Successive governments have used this, along with many other pathfinder projects developed by Lord Mawson, as national exemplars for successful community regeneration. His championing and development of an integrated working model – involving health, education, housing, business and enterprise – has received international recognition.

Lord Mawson believes in building strong, vibrant communities, and in the unique gifts of every individual in the community. Through his organisation, Andrew Mawson Partnerships, he acts as a social broker and placemaker to join the dots together.

Lord Andrew Mawson OBE (UK)
Executive chairman, Well North; director, Andrew Mawson Partnerships

Dr Montira Pongsiri (USA)
Senior research associate,
Cornell University

Dr Graham Alabaster (Intl)
Chief, waste management and
sanitation, United Nations Human
Settlements Programme

Dr Robin Stott (UK)
Member, Commission for
Sustainable London; co-chair, BMJ
Climate and Health Council

Stephen Passmore (UK)
Head of platform delivery, The
Ecological Sequestration Trust

Dr Lise Retat (UK)
Research and development
associate, UK Health Forum

A systems approach to addressing planetary health in cities

The Rockefeller Foundation-Lancet Commission launched planetary health as a new field of research to understand and address the ways human impacts to natural environments and ecosystems are leading to adverse human health consequences. Planetary health represents a new multidisciplinary approach to: understand the complex interconnections between the condition of natural systems and human health; and develop strategies to reduce and, perhaps, prevent risks to human health.

The Commission has published a report, which assessed the scale of the threats to human health and development posed by the multiple environmental changes occurring in the Anthropocene era (Whitmee et al, 2015). Its key message is that while we have made significant gains in health and development over the last 50 years, they're likely to be reversed by the unprecedented global environmental changes that humanity is driving. Importantly, there is agreement that these harms can be mitigated if attention to the drivers and consequences of global environmental changes are understood and reflected in policy and planning.

Human urban lifestyles degrade the natural systems, upon which our health and development depend. Cities consist of complex socio-environmental, economic interactions and feedbacks that can lead to positive or adverse health outcomes. These complex interactions require alternative approaches for assessing urban health risks and outcomes to better inform policies to anticipate, monitor and mitigate adverse human health impacts as part of achieving sustainability. Urban environments bring their own indicators, such as walkability, psychosocial wellbeing, public safety, reduced heat island effect, flood risk, and access to healthy foods.

A multidisciplinary set of speakers will present systems-based approaches, integrated tools and strategies that can be used to ensure that complex environmental, social and economic links are sustainably managed for urban health and wellbeing. Objectives are to: understand the complex interactions between changing urban environments and health; demonstrate tools for assessing the impact of urban environments on human health and wellbeing; suggest adaptive strategies to involve citizens in measuring and responding to health impacts of changing urban environments; and gather feedback on environmental change-related health risks, as well as positive ways to engage city leadership on these issues.

The impact of the built environment on health: an evidence review

As part of the Wellcome Trust-funded Upstream project, a systematic review compiled evidence investigating the impact on health and wellbeing of five thematic areas of urban environment design: transport, buildings, food, natural environment, and neighbourhood design. Findings provide the foundations for an evidence-based, economic valuation of health impacts related to different features of the built environment, which can be used to support decision-making.

Methodology: A total of 26,428 publications were identified from a structured search of eight electronic databases, combined with hand searching for grey literature across all five areas. Studies conducted between January 2000 and November 2016 were eligible, provided they reported on measurable associations between any of the five built environment domains and health outcomes. Quality appraisal was conducted using the Effective Public Health Practice Project (EPHPP).

Results: The review included 209 studies. Housing modifications were associated with numerous health outcomes, including respiratory outcomes, quality of life, falls reduction, and mental health. Living close to green space was associated with higher levels of physical activity and improved mental and physical wellbeing, while proximity to unhealthy food environment increased the risk of obesity and type II diabetes. Evidence on the positive effect of providing infrastructure for walking and cycling on physical activity and active transport was strong. We also found a strong link between exposure to traffic-related air pollutants and pre/post-menopausal breast cancer, respiratory diseases, cardiovascular diseases, leukaemia, and incidence of dementia. There were substantial gaps in evidence, particularly on global systems issues, such as flooding and overheating.

Conclusion: Growing evidence of how the urban environment affects human health and clear gaps in evidence, identified in this review, call both for more research to fill those gaps and to understand why healthy urban environments are not being created. This review provides a basis for further investigation of the barriers to healthy urban environments and lays the groundwork for developing a set of economic valuations, which can help move health 'upstream' in built environment planning and development.

Janet Ige (UK)
Research associate in public health, health and social sciences, University of the West of England

Paul Pilkington (UK)
Senior lecturer in public health, health and social sciences, University of the West of England

Daniel Black (UK)
Director, Daniel Black and Associates

Emily Prestwood (UK)
Research associate, Air Quality Management Resource Centre, Geography and Environmental Management, University of the West of England

Tom Armour (UK)
Director and global leader of
landscape architecture, Arup

Rewilding cities

Since the dawn of civilisation, settlements have directly related to the natural world and its resources. Furthermore, designing with nature has been well documented since the work of Ian McHarg and Nan Fairbrother, among others. Yet most cities are currently disconnected from the natural world.

Purpose: 'Rewilding', a word coined by conservationist Dave Foreman in 1990, is a concept that looks to restore natural processes and ecological dynamics. It can play an important role in green infrastructure and shaping healthy, resilient cities. It offers an opportunity to reverse the destruction of the natural world and reconnect cities with nature.

Methods: Rewilding cities should be a dynamic process of restoring ecosystem functionality rather than an aim of creating a wilderness. It can be carried out at a range of scales and in a gradated approach, where the goal is to give space to natural processes within the constraints of complex city environments, and interacting with social and cultural identities.

Results: This philosophy has the potential to reimagine the public realm and challenge preconceived assumptions, which often lead to urban landscapes that are predictable, heavily maintained, often privatised and one-dimensional. Rewilding could create dynamic, ecologically rich urban landscapes with a sense of time and seasonal change, reduced management costs, and increased social equality. Restoring natural processes would make our cities more resilient, reduce flood risk, improve air quality, and provide opportunities for people to embrace a sustainable, active and healthy lifestyle. Nature can be the cornerstone of healthy, sustainable communities, enhancing community spirit, bolstering civic pride and boosting local economies. Reconnecting people with nature is a self-sustaining process, as they become more educated, developing a stronger connection and a sense of stewardship to the natural world.

Conclusions and implications: The multifunctional benefits of rewilding cities need to be explored further, as the process has the potential to be the context for a culture of wellness and health in our cities, and a catalyst for environmental and socio-economic improvements. Rewilding has the potential to rejuvenate ecosystems' and people's health, and breathe new life into our cities.

Land, power and wellbeing

This presentation wrestles with the question of why human settlement planning and design is going awry, and what should be done to put it back on track. Three contrasting cities are described, each with different approaches to land planning and different outcomes for people. In two of the examples, unhealthy conditions are literally being built into human settlements. A brief review of issues of obesity, mental wellbeing, health equity and air quality reinforces this point. An underlying theme is spatial inequality in relation to housing, accessibility and income. The third city has tackled these problems in an integrated way, emphasising shared values and effective decision-making.

The analysis focuses on political philosophy and the nature of urban planning/design. Attitudes in the English-speaking West, exported to many countries, impede the achievement of healthier, more sustainable settlements. The most fundamental attitude concerns land rights. The dominant neo-liberal assumption is that the market should determine patterns of development, access to housing, and access to environmental goods. Cultural identity and individual or community needs can be side-lined yet are key to wellbeing. Recent studies suggest the only way to create places of wellbeing is for the local authority to buy up development land and manage its release on to the market so that healthy physical and social infrastructure is provided.

A second attitude concerns town planning. In the later 20th century, the concept was attacked from two directions: Thatcherite neo-liberals tried to lift the bureaucratic burden of planning on people and business; while the Marxist left castigated planning as the tool of market interests. Both arguments had some truth, but the result was that planners lost confidence in their ability to design towns and neighbourhoods. The task became defined as one of facilitating debate and enabling collaboration, but the problem, then, is that the most powerful interests determine outcomes.

Current research findings demonstrate that there are good strategies, good processes of change, good quality designs – as well as bad. There is a firm empirical base on which to build. Equally, best practice is about collaboration. But a pre-requisite for healthy outcomes is that the powerful agencies that control land must accept responsibility to foster healthy environments.

Hugh Barton (UK)
Emeritus professor of planning, health and sustainability, WHO Collaborating Centre for Healthy Urban Environments, University of the West of England

David Green (UK)
Principal, global practice leader,
cities and sites, Perkins+Will

Research protocols for planning healthy cities

There are few protocols for tying the performance of urban and planning regulations to outcomes, and little testing of regulations to ensure the outcomes align with their intentions. This presentation makes the case that regulations have a significant impact on the relationship between public health and the methods through which we regulate our built environment, and that their implementation and adoption should be tied to basic research and testing. Further, there should be legal and scientific mechanisms in place to monitor the efficacy of adopted regulations and to modify them based on alignment with stated intentions.

There is growing concern that the form of districts within cities may have a profound effect on public health: chronic diseases related to obesity, heart disease, and asthma, among many others. But in general, councils are making decisions about their development in the absence of critical data and analysis that provides direction for these actions. There is a clear need to establish research that provides a scientific basis for rationalising city planning and urban design. This is an opportunity to use the protocols driving research to inform the methodology of urban and city design.

At its core, the planning profession is charged with creating rules and guidelines for the development of urban and suburban places through constitutional police powers: to provide for the health, safety and welfare of the general public. Effectiveness of planning means, such as zoning, can and should be measured, but the planning profession seems unwilling to address the fact that planning is only as good as its ability to positively affect the health, safety and welfare of the people in places it impacts. If our impacts aren't positive, we're obligated, by law, to improve our regulations.

Because of the significant impact that the built environment has on the health, safety and wellbeing of the general population, it seems logical that the profession would adopt scientific research protocols. To avoid doing this would be analogous to the pharmaceutical industry, in the absence of the Food and Drug Administration, releasing new drugs to the public without trials, and turning a blind eye to potentially negative outcomes.

This presentation will examine several cases across the globe that articulate the issues outlined above and provide suggested methodologies for framing a scientific method for planning and urban design.

What stops built environment professionals creating healthier places?

In development projects across the UK, places are often created or transformed in ways that work against good health outcomes. This paper presents a research project that aims to explore this problem to support building an evidence-base for tackling preventable disease by shaping the built environment in a way that promotes opportunities for healthy activities and experiences integral to people's everyday lives.

Purpose: The research sets out to answer the question: 'Why do built environment professionals – architects, urban designers, highway engineers, town planners, and others – create places that contribute to preventable disease and early death, despite the evidence?' This will identify the barriers to be tackled to make healthy placemaking standard in the UK.

Methods: More than 300 built environment professionals from a wide range of disciplines have participated in a survey, distributed through our networks and the trade press. The survey asks questions about:

• how often professionals build the components of healthy places into their projects, programmes and policies;

• what stops professionals from going further to create healthy places; and

• professionals' field of work, level of seniority, and location.

Additionally, more than 20 telephone interviews have been carried out with built environment professionals to gain greater insight into their understanding of healthy placemaking, the actions they take, and the barriers they face.

Results: The survey and interviews ran until early May, with results analysed, both statistically and quantitatively. Interim findings suggest that built environment professionals: are aware of the importance of healthy placemaking; cite insufficient funding and restrictions by developers as the biggest barriers to creating healthier places; and act differently in relation to creating healthy places according to their seniority.

Conclusions and implications: Our intention is that the conclusions of the research project will help influencers, decision-makers and professionals take steps to fundamentally change the role that the built environment plays in protecting and improving the nation's health.

Rachel Toms (UK)
Insight and standards manager, Design Council

Ammar Mesari (UK)
Senior social researcher, Social Change UK

Tye Farrow (Canada)
Senior partner, architecture,
Farrow Partners

Living bridges: healthy urban infrastructure as a multi-use economic asset

Worldwide, cities with a high quality of life are rapidly becoming unaffordable to those people who are essential to the future of thriving, resilient and healthy communities.

Infrastructure has traditionally been viewed as an ongoing maintenance expense, which is chronically underfunded. Bridges, for example, are in a perpetual state of disrepair, but what if they were designed as long-term, multi-use, revenue-producing assets rather than single-function liabilities?

Building multi-functional infrastructure in cities was conceived long before car-centric planning norms dominated our thinking about urban bridges. The Rialto Bridge in Venice and the Ponte Vecchio Bridge in Florence combine infrastructure with human-scale, walkable mixed-use urban assets. Beginning in the 15th century, shops were built along the sides of the Rialto Bridge so as to generate rental income for the State Treasury, and to generate revenues to help maintain the bridge.

Could we similarly build on the structurally over-designed foundations of our existing bridges? We still think of infrastructure and buildings in the same way we did in the 1900s. Our approach to meeting the increasingly complex demands of urban life hasn't changed with the times. The future of accessible, affordable housing and multi-use infrastructure will be built with lighter, more flexible, less expensive and more resource-efficient construction materials and methods. A game-changing bonding and building system, Grip Metal has opened new possibilities for innovation.

By marrying this transformational technology with the need for affordable, vibrant housing and the infrastructure of our existing bridges, we have the ability to transform these passive structures. They will spark new life, animated with diverse activities, including new technology-enabled lightweight housing and services. We have the ability to bridge our weak urban links between neighbourhoods to forge stronger community connections in urban centres.

At a time when governments are wrestling with big decisions about infrastructure spending, economic stimulation and promoting a more inclusive society with healthy housing options, we can't use the same thinking or we will get the same tired outcomes. Instead, we must take advantage of new approaches to create cities that are affordable to people who are essential to the future of resilient, healthy communities; cities that promote density, inclusiveness, wellbeing, affordability, and which – above all – thrive.

The tale of a whale: creating a space for designing wellbeing in Northern Ireland

This paper outlines a two-year active design research project co-ordinated in collaboration with Public Health Northern Ireland and set in the city of Derry/Londonderry. The research focuses on the waterfront of the River Foyle and how a design-led approach might challenge negative associations with the area. In the last decade, the waterfront has become synonymous with mental health crisis and suicide. This project seeks to undertake community-led design of wellbeing spaces around the bridges and banks of the river, which draw people to the area as a place of celebration and life-affirming activities.

In a region where peace is relatively new, our research found tensions remained regarding access to shared resources. This division not only required careful organisation to avoid separate research enquiries with each community but also to draw on the neutrality of the river as a symbol of the shared home of the city.

A story emerged that told of an Orca's visit to the city at the height of 'the troubles' in the 1970s. The whale, which was seen in the river for nearly a week, was given the name 'Dopey Dick'. Many people visited the River Foyle to witness the unusual guest, and for many children, it was their first experience of meeting others from across the river.

This encounter was a shared community memory that conjured a positive recollection of a period previously linked to destruction and violence. The tale of 'Dopey Dick' provided the impetus for the design of an architectural intervention as shared research space. Created in collaboration with community activists and creatives in Derry/Londonderry, the structure of a whale was designed and built as a space for the communities to come together. The team organised interactive activities to begin the process of exploring how wellbeing is perceived and how suicide prevention might be understood and tackled. 'Dopey' became a major attraction at two city events.

This paper will show how this shared history opened a space of design-led navigation of the city's response to wellbeing, the design initiatives and briefs that have emerged from these engagements, and how this might offer key learnings on how the design of the built environment may afford positive mental health opportunities.

Jo-Anne Bichard (UK)
Senior research fellow, Helen Hamlyn Centre for Design, Royal College of Art

Jonathan West (UK)
Research fellow, Helen Hamlyn Centre for Design, Royal College of Art

Elizabeth Raby (UK)
Research associate, Helen Hamlyn Centre for Design, Royal College of Art

Ralf Alwani (UK)
Research associate, Helen Hamlyn Centre for Design, Royal College of Art

Sarah Harper (UK)
Director, Oxford Institute
of Population Ageing

Population ageing and health in the urban age

As we look to reform ageing and old age in the light of extreme longevity, it's essential that we look to the institutions that currently define ageing and old age – not only to reflect the experiences and realities of a growing proportion of our populations but also to ensure that our societies continue to distribute resources fairly across the life course.

We also need to recognise that 21st century living is structured by 20th century institutions, which may not be effective for the today's dynamics. Our education systems, patterns of work, healthcare, legal systems, and even marriage and families were built during a very different demographic.

There are also deep stereotypes and preconceptions around the contribution and burden of older adults that are not supported by robust evidence, and these need to be revisited. That's partly because many of them lead to unjust behaviour towards older people, such as ageism, but also because these institutions and perceptions influence the behaviour of older people themselves. It's these institutions and public perceptions that influence the behaviour of individuals in our societies, and it's these that need to be reformed.

A professor of gerontology at the University of Oxford, Sarah was appointed to the Prime Minister's Council for Science and Technology in 2014. She has chaired the UK government's Foresight Review on Ageing Populations, and the European Ageing Index Panel for the UNECE Population Unit. Her research was recognised by the 2011 Royal Society for Public Health: Arts and Health Research Award. She is a fellow of the Royal Anthropology Institute and the Royal Society of Arts.

Healthy New Towns: delivering innovation at pace framework: policy implementation

The Healthy New Towns (HNT) programme was launched in July 2015 to work with new housing developments. Its aim is to explore how delivery of new care models can be accelerated alongside reshaping planning decisions to encourage better environments for health promotion.

Application: The programme has 10 'demonstrator' sites, announced in March 2016, which are being supported to take a first-principles approach to designing how health and wellbeing should be promoted and services delivered – from rethinking the physical design of infrastructure to encouraging the deep integration of health, housing and other public services.

A package of support is being delivered by NHS England and key partners, including: specific technical support from a multi-disciplinary design, architecture and planning company; access to other cross government expertise; and resource to fund local capacity to engage with the programme.

Outcomes: Extracting learning effectively and creating shareable insights are key objectives of the programme, which aims to spread ideas and practices in three layers: between local partners in each demonstrator site; between the ten sites; and beyond at a national level. Understanding how these aims can be brought to fruition in different contexts, and understanding how different professions and communities need to work together to make that happen, are key goals of the HNT programme.

Outputs will include economic analysis of discrete interventions, synthesis of international evidence, and in-depth case studies. The specific metrics and data, which will be used to evaluate contemporaneous and long-term outcomes, are still being scoped across sites.

Implications: Outcomes are expected to influence government policy on health, housing and NHS land. The programme is currently in its first year of delivery, we expect that the implications of HNT will include the shaping of new neighbourhoods and communities to promote health and wellbeing, prevent illness, and keep people independent. We also expect the programme to produce learning on innovative models for delivering health and care services, and that the learning will inform future developments and policy.

Sara McCafferty (UK)
Senior strategy programme manager, strategy group, NHS England

Danny McDonnell (UK)
Strategy programme manager, NHS England

Dan Northam-Jones (UK)
Senior strategy programme manager, NHS England

Christine Hancock (UK)
Founder and director, C3
Collaborating for Health

Denise Stevens (USA)
President, MATRIX Public
Health Solutions

CHESS – engaging communities in designing healthy environments

CHESS (Community Health Engagement Survey Solutions) is a process to engage community members in an investigation about their health in relationship to the built environment. The process involves using the CHESS application (downloadable for Android tablets) with community members collecting quantitative data on local assets, such as spaces for physical activity and places for food shopping or eating, which make an area conducive to good health (or not). The data collected is then discussed at an insight session, where community members think about what interventions they want to see locally to make it easier to be healthy. The quantitative data collected using the application, together with the qualitative information from the insight session, can be put to local decision-makers by the community as an argument for change.

CHESS emerged out of an international research project in India, China, Mexico and the United States, where the built environment in impoverished communities was examined. The researchers realised that involving local residents in collecting data on the built environment in their neighbourhood was a way to ask them questions about what makes an area healthy or not, why some areas experience worse health than others, and what might be done to change that. It gives community members the opportunity to discover for themselves that access or not to healthy foods, physical activity opportunities, tobacco and alcohol really matters. It encourages them to think critically about what the health implications are of the built environment in their area and take action to improve it. In this way, CHESS addresses not only the causes of chronic disease but also issues around social justice and equity.

Since the international research project, CHESS has been used with several communities in the northeastern United States to engage young people with healthy food options and in the UK to engage two communities around healthy eating and physical activity.

The session will cover the development of CHESS, learnings from projects and examples of interventions, as well as the importance of engagement processes that empower community members and involve them in co-production of local solutions. In combining community engagement and mobile technology, CHESS has implications for redesigning cities and communities globally with the aim to make the healthy option the easy option.

Translating community perceptions of health and place into local planning policy and monitoring frameworks

Southwark and Lambeth Councils received funding from Guy's & St Thomas' Charity to use intensive quantitative and qualitative social research methods to generate robust, location-specific findings across three key health themes: social interaction and isolation, obesity and inactivity, and health service provision/access. The research focused on two key regeneration areas where significant growth is planned. The councils commissioned an academic literature review to inform the research methods. The research was undertaken externally and involved: face-to-face in-home surveys (453 residents); two resident workshops on social isolation; one focus group with mothers on social interaction; six focus groups with school children on healthy eating and walking; one focus group about health services; and five in-depth interviews with primary care health professionals.

Application: The social research findings were summarised in a final report. Key findings included residents' perceptions of: lack of safety in certain areas at night; traffic safety concerns; need for local affordable amenities, including leisure facilities; issues with affordability of locally available fresh food and high number of fast-food outlets; provision of green space; and interest in a community facility combining health services with other offers, such as leisure or training. Several specific built environment characteristics were highlighted as impacting physical activity and social interaction.

Outcomes: This research project facilitated a far more representative and thorough analysis of health and place than can be achieved through typical community engagement activities. Participatory mapping was identified in the literature review, and was included in some focus groups. However, the maps were not meaningfully annotated and, as a result, some of the research findings were difficult to contextualise spatially and transfer to policy. It was also noted that interview questions should allow for regional or national benchmarking where possible.

Implications: The residents' perceptions are now being used to inform a review of local planning policies. This new local knowledge will also inform the selection of indicators to monitor the success of local policies in improving the built environment for health over time. This work is ongoing and may include exposure-based indicators (such as access to green space) and effect-based indicators (such as prevalence of obesity).

Simon Bevan (UK)
Director of planning,
Southwark Council

Helen Pineo (UK)
Associate director, cities
research and innovation,
Building Research
Establishment

Andrew Ruck (UK)
Planning policy officer,
Southwark Council

Clizia Deidda (UK)
Public health policy officer,
Southwark Council

Jamie Anderson (UK)
Research associate, University of Sheffield; senior consultant, BuroHappold

Trevor Keeling (UK)
Senior engineer, sustainability, BuroHappold

Duncan Price (UK)
Director, sustainability, BuroHappold

Voluntary evidence-informed health and wellbeing design: a public realm strategy for a key London masterplan

The presenters were commissioned by a developer to undertake a health and wellbeing (HWB) public realm strategy for a £2.3bn commercial and residential scheme in London, UK. The project was selected by the International Wellbeing Institute (IWBI) as a vanguard pilot for the development of a WELL communities standard.

Drawing on the work of Weiss (2013) and Bache (2015), a 'knowledge-driven' and 'interactive problem-solving' approach was applied, achieving balance between scientific and urban design evidence, and the values and aspirations of the client and stakeholders.

Description: The strategy involved co-production of a vision, core principles, contextual analysis, five design briefs, and 'place-keeping' standards. The approach was led by post-doctoral HWB practitioners, whom drew on a local evidence base, stakeholder consultation, and liaison with leading landscape architects. The project was supported, in part, by an EPSRC Knowledge Transfer Fellowship supervised jointly by University of Cambridge and the presenters.

The strategy was developed alongside, or ahead of, a series of planning applications, supporting the selection of permanent and pilot design features to be implemented before 2025. In particular, the strategy embraced an outcome-driven approach, focusing on the Five-Ways to Wellbeing (Connect, Be Active, Take Notice, Keep Learning and Give), and 'working' and 'eating' well.

Outcomes: Future work will involve testing the effectiveness of the strategy for the targeted HWB outcomes. Key lessons from this authorship of an evidence-informed public realm HWB translation into practice include: using plain language at all stages; achieving a consensus when deciding what constitutes sufficient evidence to prioritise action; addressing the challenges in prioritising among a wide variety of HWB inequalities and determinants of inequality; and demonstrating short and longer-term commercial gain from HWB benefits between office and residential buildings.

Implications: Work continues on the development of this largely voluntary approach with private and public-sector partners. A key component of the strategy involves using the public realm as a laboratory, offering robust insights that may inform both space management and wider investment decisions.

Carebnb – a concept for short-term light-care in your own neighbourhood

The Dutch government has delegated part of the care system to the municipality. Under this new policy, it is envisaged that people stay in their own home as long as possible while receiving care. Fewer people are entitled to stay in professional care facilities.

Owing to limited professional assistance, people are increasingly reliant on their own social networks. However, when this also proves inadequate, there is an increased risk of loneliness and isolation, which, in turn, may result in an increasing need for care.

Carebnb provides short-term light-care, demand for which concentrates mainly around elderly people, but can be suitable for other cases where there is a need for a temporal alternate caregiver. Carebnb aims at filling the void in our care system for people who are discharged from hospital and for people for whom care at home is not possible. A new cost-efficient care formula, it is based on rooming-in with somebody else, saving on expensive professionals.

Carebnb is a platform for people who offer short-term accommodation in their own home for people in need of care – small in scale and maximising autonomy. In other words: a guesthouse for short-term stay for people to receive alternate attendant care.

The project started with case-study research to evaluate the typologies of the current housing stock according to the needs of a Carebnb. The most important criteria were: privacy, accessibility and facilities.

Not all houses are compliant with the needs of a care-receiver. In these cases, the house will need to be adapted. To reduce this impact, 'Carecubes' are designed to upgrade the existing facilities. If, for example, there is no bathroom available, a prefab 'care bath cube' can be placed in an existing situation, providing the basic needs for a care-receiver.

The next step is to implement the concept in real pilot projects, which will validate it and expose points of improvements. These pilots will be conducted in collaboration with several municipalities and volunteer networks. The concept was born in response to an open call from Creative Industries Fund NL.

Femke Feenstra
(Netherlands)
Board architect, de Jong
Gortemaker Algra Architects

Aziza Aachiche
(Netherlands)
Senior adviser real estate,
Twynstra Gudde

Martin Hyde (UK)
Associate professor, Centre
for Innovative Ageing,
Swansea University

Vanessa Burholt (UK)
Professor of gerontology; director,
Centre for Innovative Ageing /
Centre for Ageing and Dementia
Research, Swansea University

Charles Musselwhite (UK)
Associate professor, Centre for
Innovative Ageing, Swansea
University

The implementation of the Older People's External Residential Assessment Tool (OPERAT)

The potential for environmental interventions to improve health and wellbeing has assumed particular importance in the face of unprecedented population ageing. However, to date, most observational environmental assessment tools are unsuitable for 'all ages'.

This case study describes implementation of the Older People's External Residential Assessment Tool (OPERAT). Previously, OPERAT was co-produced with older people. Potential items were identified through review and consultation with an expert advisory group. Items were ranked according to the importance ascribed to them by older people who responded to a survey (n=545). Forty highly ranked items were selected for the OPERAT pilot.

An observational assessment was conducted in 405 postcodes in Wales. Items validated with data from a survey of older residents (n=500) in the postcode areas were selected for statistical modelling. Data reduction techniques identified a four-factor model as the best fit to the data. The domains were named as: natural elements; incivilities and nuisance; navigation and mobility; and territorial functioning. Statistical tests demonstrated good internal consistency, convergent validity, utility and inter-rater reliability.

This case study describes how OPERAT has been used by older people through the Ageing Well in Wales programme and as part of the Cymru Older People's Alliance initiative 'Making Wales a nation of age-friendly communities'. Older people trained as peer-educators have trained other older people to assess their local environment across Wales. OPERAT assessments have been conducted across pilot sites in Wales.

Outcomes: The process of implementation identified the need to capture assessment data collected by older people (and others) to identify areas where the four domains are less than optimum. Subsequently, we designed an interactive online map for 'postcode'-level assessments to be uploaded.

Implications: OPERAT can be used to assess the suitability of external residential environments for older people with different physical and cognitive capacities. Data aggregation can help target interventions and the data has commercial potential, particularly for older adults in planning visits or residential moves to an area. The four-factor model is likely to provide a good fit to data in developed countries. A mobile application is currently being co-produced with an older person's campaigning group in New Zealand.

Health warning: is too much safety bad for our children's health?

As landscape architects, we feel a responsibility to address the growing crisis of physical inactivity in our children. Understandably, parents seek to keep their children safe from the 'big bad world', but can an overprotective response substitute confinement for safety? Is keeping our children 'safe' indoors actually the most dangerous thing we can do to them?

Non-prescriptive natural play develops a child mentally and physically; our neural pathways and musculoskeletal systems are both strengthened through movement and physical activity. Is the prevailing cultural aversion to risk, where playgrounds are built with fences, clear sightlines and wrap-around safety surfaces limiting development and damaging the health of our children?

This paper is a descriptive presentation and analysis of two of our London play projects: Camden Active Spaces, and Tumbling Bay. The London Borough of Camden has one of the worst childhood obesity rates in London. Camden Active Spaces saw designers engage in interactive workshops to deliver challenging active spaces to seven schools in north London with the specific goal of increasing pupils' physical activity levels. This initiative was a groundbreaking collaboration between the NHS Camden Clinical Commissioning Group, London Sport, Pro-Camden Active, Sport England and CSP Network.

Tumbling Bay is an award-winning expansive, landscape-embedded, fence-free play space in the new Olympic Park in Stratford, London. It caters for children of all ages and abilities and presents an interesting case study in maximising play value and the acceptability of risk. Camden Active Spaces included a research project that monitored pupil activity levels before and after installation, providing hard data to aid understanding of the drivers for physical activity among less-active children, and how these can be prompted by design.

Preliminary results show that the newly designed play spaces have resulted in increased movement. Observational studies indicate increased collaboration among children, fewer children remaining in the classroom at break time, and a reduction in accidents.

We need more interdisciplinary collaborations producing hard data linking the availability of high-value play to increased health and wellbeing in children, and we need to continue to educate our clients to accept risk as a central element of play.

Jennette Emery-Wallis (UK)
Director landscape architecture, landscape design, LUC

Alison King (UK)
Senior landscape architect, landscape design, LUC

Michael Chang (UK)
Project and policy manager, Town
and Country Planning Association

Helen Horrocks (UK)
Strategic lead for public health,
Thurrock Council

How 'prescribing planning' can help lead to healthier-weight communities

Almost one-third of English children are either overweight or obese. Reducing childhood obesity is a priority for UK health authorities and was given greater prominence in the Childhood Obesity Action Plan. The causes of increased obesity are complex, but the influence of the environment where people live is a key factor, as the Foresight obesity report concludes. Obesity is a normal response by normal people to an abnormal environment. The physical environment influences how easy or difficult it is to maintain a healthy weight. Local authority planners have a key role to play in shaping places that support people's ability to achieve and maintain a healthy weight.

Description: Planners and public health practitioners require a robust framework, and housebuilders require a set of guidelines when designing masterplans. While there is no one-size-fits-all response, following extensive evidence analysis and multi-disciplinary consultation, a planning healthy-weight environments framework was devised to use planning and development to tackle the obesity crisis. Initial application of this framework was conducted through workshops in 21 local areas, in collaboration with city planners and public health officers.

Outcomes: The dominant professions attending these workshops were planning, public health, and transport planning; but overall, there was a spread of expertise from regeneration, diet and sport. The weaknesses relate to how obesity levels could be impacted on by the application of this healthy-weight planning framework without a proper evaluation system put in place. The long-term development timescales also made it difficult to consider beyond short-term pragmatic and political constraints in local government.

Implications: There are opportunities to raise the elements of a healthy-weight environment with developers before they submit a planning application, and to better understand how developers could be incentivised to provide these interventions. Rural and urban areas face different challenges when considering the healthy-weight environment but current practice continues to be biased towards cities. There are implications as the agenda continues to evolve and mature, within the context of a wider body of evidence and initiatives undertaken by government.

Hypo-Park: an open-space pilot for at-risk urban communities

Parks and recreation are no longer synonymous. Passive softscapes of grass and trees are, in practice, ill-suited for cities, where land is scarce and maintenance budgets tight or non-existent. This is especially so in neighbourhoods where per capita open space is low, obesity rates are highest and safety is a concern.

Concept: Hypo-Park, a new prototype of recreation-oriented, use-intensive public space, addresses this conundrum. Half building, half park, it's comprised of a densely packed mix of urban sports/game venues, health café, newsstand/kiosk, and bike rental/repair shop. Its extroverted urban presence signifies and instigates community health: physiologically, culturally and economically. Its average calorie-burning quotient per square foot of investment is three times greater than that of a conventional park. A landscape requiring no water, its attraction lies not in nature but in (our) second nature – athletics not as fitness, but as fun and a form of public performance – no better exemplified than at nearby Venice's famed Muscle Beach.

Innovation: Hypo-Park represents an alternative business model and image of urban open space. It requires half the land of an equivalent amount of a conventional park, enabling it to be located in urban areas with a shortage of per capita open space and high obesity rates. Compact and contained, it's also easily supervised, enabling it to act as a social hub, which can be open after school hours and evenings.

Scalability: The business and operating plan for Hypo-Park is implementable according to three scenarios: a) a public-private partnership, with surplus land donated by a public agency, and construction and maintenance/operation provided by an area healthcare provider; b) private sponsorship and operation of a public open space required of all private developments in the City of LA, per "Quimby" legislation mandating the setting aside of funds to build open space serving the area in which the development occurs; and c) a publicly funded model of land acquisition and construction, with monies collected through the same above legislation, and with operations managed by a local community non-profit (eg, business improvement district, trust for public land, etc).

Roger Sherman (USA)
Design director, lifestyle studio, Gensler (Los Angeles)

Claudia Carol (USA)
Planning and urban design, firm-wide leader, Gensler (Los Angeles)

Bart van Roekel
(Netherlands)
Research graduate, Management
and Economics, Wageningen
University & Research; MSc
student, YNNO

Myrthe Heijnen
(Netherlands)
Workplace consultant,
workplace, YNNO

Evelien Plijter (Netherlands)
Workplace consultant and
strategist, workplace, YNNO

Wellbeing at workplaces: quantitative and qualitative research to investigate how elements of a workplace influence the perceived wellbeing of its occupants

In the 21st century, the average employee spends at least a quarter to a third of their waking life at work. The physical workplace environment also has a major influence on employees' health, wellbeing and productivity.

The objective of this study is to help improve the wellbeing of office workplace occupants by investigating to what extent wellbeing at work is influenced by the perceived elements of their work environment.

The empirical research has been executed by using a quantitative (a survey) and qualitative (interviews) research method. The survey was distributed among six organisations in the Netherlands and a response rate of 25 per cent (n=322) was achieved. Factor analysis shows that five components influence wellbeing at work: (1) emotional comfort, (2) personalisation, (3) indoor climate, (4) lighting, and (5) window view.

A multiple regression analysis shows that the perception of a workplace influences wellbeing at work (31.6 per cent). Additionally, the percentage of explained variance can increase up to 41.8 per cent by including occupants' personality. Wellbeing at work is most influenced by the ability of occupants to choose and create their own workplace (personalisation) and by soft emotional elements of the workplace (emotional comfort). The qualitative results also validate that the components of personalisation and emotional comfort score highest in relation to wellbeing at work.

Keywords: perception; physical office environment; wellbeing at work; workplace

Workplaces leading city-wide healthy places efforts

Employer groups have the potential to be key drivers of community wellbeing. Employees are not only the workers for the businesses but they are also the citizens in the communities; the parents, friends, neighbours, volunteers, and parishioners (to name a few). As such, they become key partners in co-producing the community in which they want to live. For years, employer-focused awards have been used to reward company efforts. This presentation will highlight how a community-wide overlay and inventory tool helped bring employers and community organisations together in their work to improve community wellbeing.

Description: Employer-focused awards programmes are well recognised. They range from Great Places to Work, through LEED and FitWel certifications, to Healthy Employers. The purpose of this initiative was to combine an existing employer recognition programme (AchieveWell through the Indiana State Chamber of Commerce) with a community-wide tool (Indiana Healthy Community) to encourage collective action among diverse groups.

Outcomes: As a result of the community-level overlay and inventory, multiple local coalitions are working toward community-wide change with local employers driving the change. Each city actively pursuing or considering the designation has a different configuration of businesses and community organisations assuming the leadership role. In one community, an informal coalition and the local Chamber of Commerce are the drivers. In another, it's the regional health system. In yet another, it's the mayor and the city government leading the charge. This presentation will highlight the processes involved in the award structure and share the experience of the community, where the informal coalition and local Chamber of Commerce were the drivers.

Implications: For cities to engage in meaningful change, collectively moving towards achieving a valued distinction may be a useful process to follow.

Jane Ellery (USA)
Assistant professor of wellness management, Ball State University; Senior fellow, Project for Public Spaces

Elizabeth Nelson
(Netherlands)
PhD candidate, biosensors and
biomedical engineering, University
of Twente, Netherlands

Wouter Oosting
(Netherlands)
Senior director, advisory
and transaction services;
occupier, CBRE

Healthy offices, healthy life@work

Despite the seemingly never-ending quest for work-life balance, burnout rates are increasing and physical health is declining.

According to a research report on wellness in the workplace, 79 per cent of employee respondents said balancing private and professional commitments was a cause of stress, while 80 per cent said wellness programmes would be crucial to attracting and keeping them in their jobs for the next 10 years. In 2013, a World Health Organisation report highlighted that while most countries had minimum standards for workplace safety and health, few are focused on the mental health aspects of working conditions. The office has always been looked at from a health risk perspective, but never as a rewarding place that can help enhance performance by focusing on the wellbeing of employees.

In collaboration with Elizabeth Nelson, a researcher from the University of Twente, we explored opportunities for boosting worker potential by focusing on a holistic approach to health in the workspace. During this seven-month research project, a healthier office environment was designed for employees, who were tested on their mental effort and energy levels on a daily basis, comparing them with a control group whose environment remained the same.

The research involved 120-plus participants, split into a test group and control group to demonstrate the influence of healthy changes. We collected more than 11,000 data points, using five research methods: experiments, interviews, surveys, data and daily analysis.

After a two-month baseline measurement, we began changing employees' environments with a different focus each month, including adding plants to workspaces, changing the office lighting, offering nutritious snacks instead of sugar and caffeine, as well as encouraging walking, yoga, meditation and massage. Adding plants to environments, for example, has been shown to improve headaches, depression, concentration, self-discipline and physiological stress, according to Nelson's research. All changes were designed to enhance employees' quality of life, which helped them become more engaged, focused and better at their jobs.

A healthy office is a win-win for employees and companies, with better employee retainment, less worker burnout, and more effective staff output. We're currently planning the next stage of this research and application in other offices and client workplace situations.

WELL designed: the first project in Europe certified to the WELL building standard – how a commercial London office was designed and the policy changes required to promote occupant health and wellbeing

Alan Fogarty (UK)
Partner, sustainability, Cundall

Promoting health and wellbeing in workplaces has become a business imperative. The fit-out of Cundall's London office has been designed to achieve a Gold level – the first in Europe – under the WELL building standard. This has proved to be a learning process, where design issues that impact on occupant health and wellbeing have been investigated in great detail. The process has been very demanding as unlike other rating systems, it's the end objective that is tested for delivery not the evidence trail to get there. This was demonstrated during the verification process, where the assessors spent three days in the office and uncovered a range of issues that could have derailed the process despite evidence to the contrary.

The process also spurred the development of the IEQube system, which allows the business to monitor the environmental quality of their office accommodation. The system allows continuous monitoring of comfort levels and air quality, which has identified that certification alone, no matter how demanding, is no guarantee of a healthy environment.

Results have been well received by the occupants, clearly demonstrated by the buzz in the office, the feedback from post-occupancy surveys and, more importantly, reduction in absenteeism. This presentation identifies the impact the standard had on the fit-out design, some of the processes that the tenant had to change, the biophilic features that have had a positive impact on occupants, the costs of implementation, and the cost savings. By achieving certifications of BREEAM Excellent and SKA Gold, the project also demonstrates that sustainability is not mutually exclusive to health and wellbeing.

Eime Tobari (UK)
Associate director, Space Syntax

Ioanna Kolovou (UK)
Senior consultant, Space Syntax

Ward Alsafi (UK)
Senior consultant, Space Syntax

Ed Parham (UK)
Director, Space Syntax

The impact of spatial-economic structure of cities on the potential for active travel

One of the keys to creating an urban environment conducive to a healthy lifestyle is to promote active modes of transport, which leads to better air quality and increased physical activity levels.

At local scales, a good public realm design, such as better lighting, benches and cycle lanes, is proven to positively impact levels of walking and cycling. However, it's often overlooked how the spatial-economic structure of cities influences people's choice of transport modes in their day-to-day journeys. The majority of those journeys are generated by certain land uses, such as workplaces, grocery stores, GPs and schools. Access to these is supported or restricted by a combination of street and transport networks and land-use distributions, namely the spatial-economic structure of places. Understanding such structures is important to assess the potential of places to promote active travel in relation to those journeys that are made every day.

The study aims to assess such potential using three case studies: Leeds, Milton Keynes and the Royal Borough of Greenwich. Integrated urban models for these places and their wider context were built by combining street network, public transport systems, land use, and demographic data. The models were used to describe spatial-economic structures by calculating the catchment population for key destinations in various transport modes. The quality and capacity of those destinations were also incorporated. The fine-scale catchment analysis uses a street segment between intersections as a unit, allowing a purely spatial analysis, free from administrative boundaries.

The analysis highlights place-specific issues that can be addressed by certain urban planning and design interventions to promote active travel. For example, in Milton Keynes a large proportion of its population commutes in private vehicles owing to the town's mono-centric structure, insufficient public transport and relatively low population density. Overall, Greenwich has higher potential for active travel, reflecting higher population, service and street network densities. However, the analysis reveals spatial disparity, highlighting disadvantaged areas in active travel potential. The analysis also described regional inter-dependency in Leeds and its region, identifying needs for infrastructure support to promote active travel in certain areas.

Driverless futures: utopia or dystopia?

Autonomous vehicles present the most significant change in urban transport since the transition from horse-drawn carriages to motorised vehicles. These vehicles will be on public roads from 2020 and ubiquitous from 2050. This transition will have significant implications on the design of vehicles, mobility services and urban infrastructure and, consequently, on people's health, wellbeing and prosperity.

Purpose: This paper presents the real-life hopes and fears of the public, together with visions of the future for the adoption and design of autonomous vehicles.

Methods: The methods used included public workshops and an interactive exhibition at the London Transport Museum. We met over 100 Londoners with diverse backgrounds and used empathic and inclusive techniques to better understand people's needs and aspirations, as well as their hopes and fears around autonomous vehicles. We captured these through illustrations, film and photography, and used these as raw material for more detailed design explorations. We used peoples' hopes to imagine a positive future – safer, cleaner and more inclusive; and their fears to describe a dystopian one – isolated, mechanistic, driven by profit and exclusivity.

Results: At the start of the workshops, 75 per cent of participants were positive about the technology, 24 per cent were unsure, and 1 per cent were concerned. By the end of the activities, the number of positives had increased to 87 per cent, with only 13 per cent still unsure. More detailed attitudes to driverless vehicles were also generally 'positive', with nearly everyone agreeing they would be better for the environment.

Conclusions: Hidden within these attitudes are fundamental hopes for a safer, more inclusive, cleaner and calmer city, where streets and places are designed for people rather than for vehicles and the supporting infrastructure that currently dominates their design. The activities that people imagined doing in these vehicles mainly reflected current behaviours on public transport, and included reading, watching media, chatting with friends, or having a nap. Some expressed a desire to watch the world go by, explore new places, or chat with fellow passengers. Designing with these activities in mind rather than simply designing vehicles as a transport utility might open up opportunities for new services and social patterns, and different types of economic activity.

Dan Phillips (UK)
Project manager, School of Design, Helen Hamlyn Centre for Design, Royal College of Art

Rama Gheerawo (UK)
Director, Helen Hamlyn Centre for Design, Royal College of Art

Professor Dale Harrow (UK)
Head of programme, vehicle design, School of Design, Royal College of Art

Stephen Boyd Davis (UK)
Professor of design research, School of Design, Royal College of Art

Tim Jones (UK)
Reader, School of the
Built Environment, Oxford
Brookes University

Ben Spencer (UK)
Research fellow, School
of the Built Environment,
Oxford Brookes University

The role of electric cycles in the healthy city

A significant contemporary phenomenon that may have a profound impact on mobility is the emergence of the electrically assisted pedal cycle or what is more commonly known as the 'e-bike'.

The term 'e-bike' is generic and includes a combination of different electrically powered two-wheelers, some of which function by simply turning a throttle. The focus of this talk will be the pedal-assisted variety of e-bike (or 'pedelec'), which only functions on condition that the rider also pedals. Pedelecs are the most common variety of e-bike in Europe and are regulated at 250 Watts maximum continuous rated power output and a maximum speed up to 25 kilometres an hour. They are permitted on cycle paths and other infrastructure specifically designed for pedal cycling.

The e-bike could play an increasingly significant role in policies to promote low-carbon transport and healthy cities. E-biking could substitute journeys by car that are deemed too challenging for conventional pedal cycling; for example, because of distance and topography. E-biking could also make an important contribution to promoting health through everyday exercise, and promoting wellbeing through enhancing independence and social connectedness. Despite this potential, there is limited engagement by policymakers on the important role that e-bikes could play in healthy city design and dissonance as to whether e-biking constitutes healthy mobility.

This talk will present findings from two studies that collected data on the experience of new and established e-bikes users in the UK and the Netherlands to demonstrate the therapeutic benefits of e-cycling. Key issues will be highlighted that prevent e-biking reaching its full potential. Recommendations will be provided on how policies and measures could support e-biking and realise its role as part of healthy city design, particularly in the context of climate change and an ageing and increasingly obese society.

Health through innovation in transit facility design – a study of MRTS, Chennai, India

The Mass Rail Transit System (MRTS) in Chennai, the capital of Tamil Nadu, southern India, was built to provide holistic public transport for people of the city, along with the suburban rail and local bus. Twenty years since the commission, the MRTS remains underutilised at 2 per cent (CAG '06) of planned capacity, and the huge station buildings lie empty with only 9 per cent (CAG '06) of the floor area used and the remaining being misused or locked. The introduction of a new Metro rail to cater to the need for fast, safe and reliable public transport has also raised more questions rather than providing solutions.

The paper reviews the old MRTS, along with new Metro rail and other existing public transport in two stages. The first stage considers underlying reasons for the first unsuccessful attempt at providing a mass public transport system in the city by discussing macro issues, such as harmony between various modes of public transport, their interdependencies and uniqueness. In the second stage, the review focuses on micro issues (including safety, accessibility, last mile connectivity, feeder bus system, etc) and opportunities for placemaking at transit stations, keeping in mind the climatic comfort and sociocultural aspects, to ensure a convenient system. This is an attempt to encourage the people to embrace public transport as a primary mode of travel.

The paper also provides a study of five out of the 18 MRTS stations, with data collection, surveys, visits and photographic evidences to trace the behaviour of the system and the people. The aim is to unearth grassroot-level concerns and arrive at recommendations to revitalise the underused MRTS stations into active urban catalysts. This is unprecedented as far as Indian public transport systems are concerned, where stations are just a point in transit.

The paper concludes by recommending policy-level guidelines and micro-level suggestions for improving transit facilities and network connectivity in order to provide a workable public transport as an alternative to private vehicles, thus improving the health quotient of the city and its people.

Dr P Meenakumari (India)
Associate professor,
Department of Architecture,
Anna University

Ar Amita Gupta (India)
Consultant and visiting faculty,
Department of Architecture,
Anna University

Jonathan Leah (UK)
Principal, Woods Bagot

Decisions, decisions: decision-making and its impact on passenger experience and wellbeing

Journeying underground and navigating through narrow portals and passageways are natural triggers for feelings of discomfort and disorientation. Defying subconscious human instinct to remain above ground and therefore out of harm's way can significantly contribute to stress levels, especially during train travel. The pressures associated with delays, human congestion, overcrowding, and the invasion of personal space are compounded by the need to make regular decisions at intervals along the journey – such as direction and route changes, identifying the right gate or platform, and ticket purchases.

Operators often try to assist with this process by providing more information. However, poor signage and confusing or contradictory information, against a backdrop of distracting advertising, can lead to cognitive overload, confusion and disorientation.

An evolution is taking place in the attitudes of operators towards travellers; in the UK's transition towards an 'experience economy', passengers are now considered 'guests' and journeys are being streamlined to provide comfortable, high-quality experiences.

Designers are using computer simulations that model passenger flows to provide the optimum check-in, security and boarding experience, while spatial design and clever lighting ensure stressful wayfinding decisions are reduced to simple intuition. These include: maximised openings at entrances to reveal daylight; clear, unimpaired sightlines next to key touch points; visual connections between spaces, such as glazed facades, to allow the length of journeys to be seen; bold lighting to identify key touch points; low-level, diffused lighting in areas of movement/relaxation; reassuring language on signage and over public address systems; and comprehensive, succinct signage delivering relevant information.

Full automation of passage and processes through a transport facility is also considered detrimental to the passenger experience. Removing personal connections and replacing them with technology can heighten stress levels if the technology defaults. Consequently, more staff are now being deployed to provide information and help with decision-making at key touch points.

Striking a balance between the right kind and right amount of information and signage can make the difference between a stressful and enjoyable passenger experience. Careful design of space can play an integral role in this process.

Cities & Health (Official journal partner)

The new Routledge academic journal *Cities & Health* is offering presenters at Healthy City Design the opportunity, post-conference, to submit scholarly articles for publication.

Cities & Health has an editorial board who are passionate about bridging the academic-practitioner gap and promoting city impact. Hence, we're pleased to partner with SALUS Global Knowledge Exchange for Healthy City Design 2017.

Cities & Health provides an innovative new international locus for consolidating academic research and know-how for city development to support human health. The journal is committed to developing a shared evidence base, encouraging better cross-disciplinary understanding and supporting critical trans-disciplinary practices. The journal will publish papers and commentary from researchers and practitioners working to build a new wisdom for supporting healthier cities.

Cities & Health explores the drivers of urban change through the lenses of health and health equity. The journal invites contributions from a broad range of disciplines, including but not limited to: urban design, planning, architecture, transport, landscape, and city governance.

The journal will cover a wide range of topics but public health and health equity will be at the heart of the discourse.

Contact:
Marcus Grant, editor-in-chief

W: www.tandfonline.com
E: marcusxgrant@citieshealth.world

Research Design Connections

Research Design Connections is an important research-based resource for practising designers. It reports on findings from studies conducted by social and physical scientists that designers can apply in their work. Subscribers are architects, interior designers, landscape architects, industrial designers, urban designers/planners, and others interested in how our experiences in the physical world influence how we think and behave.

Findings from trustworthy, unbiased sources are shared in everyday language. Insights derived from studies in recent peer-reviewed publications, etc, are integrated with classic, still relevant findings in concise, powerful articles. Topics covered range from the cognitive, emotional, and physiological implications of sensory and other physical experiences to the alignment of culture, personality and design, among others.

Information is shared in a monthly subscription newsletter, an archive of thousands of previously published articles, and a free daily blog.

Contact:
Sally Augustin, PhD, editor

W: researchdesignconnections.com
E: sallyaugustin@researchdesign
   connections.com

LID Publishing

Contact:
Alexandra Boudreault-Manos,
business development executive

W: lidpublishing.com
E: alexandrab.manos@
   lidpublishing.com

LID Publishing specialises in working with business authors and organisations to help them develop content to promote their brand, message and expertise.

Founded in 1993, LID has more than 1700 authors and continues to add approximately 120 new titles each year, around one-third in English and the rest in Spanish and other languages. LID also publishes academic and professional journals, such as *Dialogue*.

LID books have been translated into more than a dozen languages and distributed worldwide. LID is spread across nine offices in seven countries: United States, United Kingdom, China, Spain, Mexico, Colombia and Argentina. It ranks number one in the world in business history and business dictionaries, and is the leading publisher of business books in the Spanish-speaking countries. LID is a founding member of Business Publishers Roundtable.

Stable Media

Contact:
Leslie de Hoog, national sales manager

W: www.stable-media.co.uk
E: leslie@stable-media.co.uk

The sea change needed to tackle inactivity in both adults and children through regular exercise means that the leisure, sports and play sector is undergoing an unprecedented transformation. With this come challenges in innovation, design, development, delivery, engagement and funding of this new 'physical landscape'.

To meet this need, Stable Publishing has launched *Physical Activity Facilities* magazine to reflect this shift and much broader scope of the sector.

Another exciting magazine is *Leisure Design & Build*, aimed at key stakeholders, specifiers and decision-makers involved in the planning, design and construction of commercial leisure buildings. Published six times a year, each issue is packed with topical case studies and comment on key areas of design, as well as the most innovative use of materials and technology across all types of commercial leisure schemes.

Covering the many sectors of the leisure industry, regular themes include hotels, spas, leisure centres, sports and stadia, mixed-use schemes, swimming pools, heritage, museums and attractions. We cover both the internal and external environment, providing a valuable insight into design and specification.

8 80 Cities

Contact:
Ryan O'Connor, interim
executive director

W: www.880cities.org
E: roconnor@@880cities.org

8 80 Cities is a non-profit organisation based in Toronto, Canada. We aim to improve the quality of life for people in cities by bringing citizens together to enhance public space and mobility so that, together, we can create more vibrant, healthy, and equitable communities.

We are experts in analysing the benefits and importance of public investment in age-friendly public spaces and sustainable mobility options, as well as identifying systemic barriers to inclusive policies and places. We have a knack for changing the way people think about cities.

We have worked on diverse projects in more than 200 different cities across Canada, the United States, Latin America, Europe, Asia, Australia, and New Zealand.

The Academy of Urbanism

Contact:
Janet Sutherland, director

W: www.academyofurbanism.
org.uk
E: info@academyofurbanism.
org.uk

The Academy is an active, not-for-profit, politically independent membership organisation founded to expand our collective understanding of placemaking and share best practice. We recognise, encourage and celebrate great places across the UK, Europe and beyond, and the people and organisations that create and sustain them.

Bringing together urban leaders, thinkers and practitioners, we embrace city management and policymaking, academic research and teaching, development planning and design, and community leadership and urban change-making.

We use the evidence we gather to promote better understanding of how development and management of the urban realm can provide a better quality of living for all. Creating places that promote health and resilience is at the heart of our mission.

BRE

Contact:
Cathy Crawley, research and
advisory director

W: www.bregroup.com
E: enquiries@bre.co.uk

BRE is an international, multi-disciplinary, building science organisation with a mission to improve buildings and infrastructure through research and knowledge generation, and their application.

Owned by a charity called the BRE Trust, BRE employs more than 600 people in the UK, China, India, the Middle East and the USA, and our products, services, standards and qualifications are applied in more than 80 countries.

BRE's Innovation Park Network features full-scale demonstration buildings, which inform sustainable development and stimulate innovation in the built environment. With parks established in the UK and China, and further facilities being developed in Brazil and Canada, the network is unique in its approach, global reach and impact.

C3 Collaborating for Health

Contact:
Christine Hancock, director and founder

W: www.c3health.org

C3 believes that preventing non-communicable diseases (NCDs) requires collaboration between all sections of society and a focus on the three risk factors: unhealthy eating and drinking; lack of physical activity; and tobacco use. This includes addressing both the individual and environmental barriers to leading a healthier life.

Our expert staff know that only through collaboration can society hope to overcome this public health crisis. We are known for the breadth of our work and openness to engagement with all sectors, which is evident by our past and current partners and funders. We also specialise in projects with businesses, communities, workplace health and health professionals.

Centre for Urban Design and Mental Health (UD/MH)

Contact:
Layla McCay, director

W: www.urbandesignmental
health.com
E: layla@urbandesignmental
health.com

The Centre for Urban Design and Mental Health (UD/MH) is an international think tank focused on how to design better mental health into our cities?

Population mental health is essential for a thriving, resilient, sustainable city. Yet, planners and designers are only just starting to understand the huge opportunities for impact and value in designing for good mental health.

UD/MH launched in 2015 in response to the need for increasing global knowledge at the nexus of urban design and mental health. With fellows and associates around the world, UD/MH brings together diverse evidence, promotes strategic research, catalyses conversations, and develops practical guidelines to inspire and empower policymakers, planners and designers to systematically integrate public mental health into their work.

City Mental Health Alliance

Contact:
Nancy Benn

W: citymha.org.uk
E: cmha@citymha.org.uk

Everyone has mental health in the same way as everyone has physical health, and therefore the focus is on supporting all City workers to achieve their full potential.

The City Mental Health Alliance's vision is to help people at all levels in the City of London talk about mental health without fear of stigma. Its aim is that mental health is recognised as a boardroom issue and considered essential to maximise business performance, critical to managing business risk, and vital to safeguarding organisations' people responsibilities.

A collaborative venture founded by City businesses, the Alliance is business-led and expert-guided. It aims to create a culture of good mental health for City workers, share best practice and increase mental health understanding.

Conscious Cities

Conscious Cities

Contact:
Itai Palti, founder

W: www.ccities.org
E: mail@ccities.org

Conscious Cities is a new field of research and practice focusing on people-centric environments that are aware and responsive – using data analysis, AI, technology, and cognitive science in design.

While a smart city focuses on improving efficiency of services, a conscious city applies new technology and behavioural insight into improving an experience and its mental and physiological effects. It's thought that conscious cities could alleviate ailments such as stress, anxiety and boredom by being sensitive to the pervading moods and personalities of people in different parts of the city.

The concept emerged out of 'A Manifesto for Conscious Cities', co-written by architect Itai Palti and neuroscientist Professor Moshe Bar in 2015. It was quickly followed by the first conscious cities conference in London, organised by the Museum of Architecture and The Cube.

Our events and publications aim to encourage novel methods of observation, drivers for design, methodologies for the production of space, and changes in policy and governance.

Design Council

Contact:
Clare Devine, director of architecture and the built environment

W: www.designcouncil.org
E: clare.devine@design council.org.uk

The Design Council champions great design: design that improves lives and makes things better, improving our built environment and tackling complex social issues.

As an enterprising charity, our work places design at the heart of creating value by stimulating innovation in business and public services. We inspire new design thinking, encourage public debate and inform government policy to improve everyday life and help meet tomorrow's challenges today.

Institute of Occupational Medicine (IOM)

Contact:
Sotiris Vardoulakis, research director

W: www.iom-world.org
E: info@iom-world.org

The Institute of Occupational Medicine (IOM) is a leading provider of workplace and environmental health research, and consultancy services.

IOM helps deliver safer working environments and healthier lives for thousands of organisations around the world. Our UK base is in Scotland, and we have three regional offices (Edinburgh, Stafford and Chesterfield) serving clients across six continents. We also opened IOM Singapore in 2012.

With origins in occupational health research, our remit today extends into areas of environment and public health, and to the provision of consultancy and scientific services. The main focus of our work is associated with understanding and, where possible, reducing the risks to health from hazards in the workplace and in the wider environment.

Mental Health First Aid (MHFA) England

Contact:
Poppy Jaman, chief executive officer

W: mhfaengland.org
E: pa@mhfaengland.org

Mental Health First Aid (MHFA) England is a community interest company, which was established in 2009 after a successful pilot in the Department of Health. MHFA England provides mental health awareness training and consultancy for a variety of organisations, businesses and communities – with the aim of increasing the population's mental health literacy and reducing the stigma associated with mental ill health.

The company delivers several mental health first-aid courses, which teach the mental health equivalent of physical first aid, tailored to the particular audience. Our mental health first-aiders are taught how to provide help and reassurance on a first-aid basis and effectively guide the person towards the right support services. To date, more than 194,000 people in England are MHFA-trained.

The Mike Nightingale Fellowship

Contact:
Nigel Draper

W: www.mikenightingale
fellowship.org
E: nigel.draper@mikenightingale
fellowship.org

Established in 2012, the Mike Nightingale Fellowship is a registered UK charity, which aims to change lives through sustainable development. Currently, it's active in South Africa, principally in Hout Bay, where it's leading or contributing to myriad projects.

The charity sees its role as one of enabling improvements by providing resources and skills that bridge critical gaps. Applied judiciously in the right place and the right time, even small amounts of resources can help people with limited opportunities develop their skills and capacities to improve their lives, and those of their families and communities.

The Fellowship supports change that meets the needs of the present without compromising the ability of future generations to meet their own needs.

StreetGym

Contact:
John Allison, founder

W: streetgym.co.uk

StreetGym is a form of urban circuit training, where we turn architectural features, street furniture and gradients into bodyweight-based workstations. Along a circular route of between 1.5 and 2 miles, participants stop to perform exercises at various iconic places before running on to the next spot.

Founded by Army veteran John Allison, StreetGym is all about teamwork, improvisation and overcoming obstacles. StreetGym is not only about physical fitness; it's also about stimulating the mind. We take you on an urban adventure – running, jumping, crawling and weaving your way around the back streets of the city.

Because we're constantly on the move, the senses are bombarded with welcome distractions that alleviate stress.

Town and Country Planning Association (TCPA)

The TCPA campaigns for the reform of the UK planning system to make it more responsive to the needs and aspirations of all people. The independent charity, which was formed over a century ago by Ebenezer Howard, founder of the garden city movement, challenges legislation that intensifies social, environmental and health inequality.

As part of its Reuniting Health with Planning initiative, the TCPA is working to improve the knowledge of practitioners, planners and non-planners to inspire better integration between the health and planning disciplines.

Contact:
Michael Chang, project and policy manager

W: www.tcpa.org.uk
E: Michael.chang@tcpa.org.uk

UK-GBC

UK-GBC is an industry-led network with a mission to radically improve the sustainability of the built environment. A charity with more than 400 member organisations, we represent the voice of the industry's leaders, who are striving for transformational change.

We help our members identify and adopt the most sustainable, viable solutions. We also engage members in advocating a progressive message to government, informing and influencing policy.

Contact:
Elinor Huggett, sustainability advisor

W: www.ukgbc.org
E: Elinor.huggett@ukgbc.org

Urban Design Group

The Urban Design Group (UDG) is an international membership charity devoted to improving life in cities, towns and villages through better design. The UDG believes that good urban design depends on successful collaboration between all who shape the built environment.

The Group aims to promote high standards of performance and inter-professional co-operation in planning, urban design and architecture, landscape design, and all other aspects of the built environment; and to educate in matters relating to urban design. We foster an increased appreciation of the value of quality in the public realm through our events programme, newsletter and journal *Urban Design*.

Contact:
Robert Huxford, director

W: www.udg.org.uk
E: administration@udg.org.uk

WorkTech Academy

The WorkTech Academy aims to capture the inspiration and evidence emanating from its global faculty of speakers, experts and partners – and build knowledge and best practice across a global community.

With content curated across six streams – people, place, technology culture, innovation, architecture, and design – the WorkTech Academy provides comprehensive coverage of the changing world of work. By combining an interactive online platform with live events, the Academy offers access to best practice in the field, with opportunities for peer learning, study, networking, analysis and joint research.

Contact:
Jeremy Myerson, director

W: www.worktechacademy.com
E: jeremy.myerson@
   worktechacademy.com

HLM

The HLM Group works internationally as one, sharing best practice, knowledge and experience across the globe. The group comprises four independent architectural and interior design practices: HLM, Llewelyn Davies, Sidell Gibson and 33 Interiors.

The HLM brand combines design skills from four integrated elements of our business: HLM Architects, HLM Landscape & Urban Design, HLM Interiors and HLM Environment. We believe that successful urban communities are created through a placemaking approach with the community at the heart of the process. Our approach focuses on understanding the context, history, culture, patterns and forms of cities, towns and neighbourhoods. We are committed to delivering a sustainable built environment that aspires to achieve inclusive communities and economic viability for a healthier, safer future and a cohesive environment for all.

Contact:
Chris Liddle, chair

W: www.hlmarchitects.com

✦ SILVER PARTNER

IBI Group

IBI Group is a globally integrated architecture, planning, engineering and technology firm with more than 2600 professionals around the world. For more than 40 years, we've helped clients create liveable, sustainable and advanced urban environments. We believe that cities must be designed with intelligent systems, sustainable buildings, efficient infrastructure, and a human touch.

Healthcare shouldn't be understood as only care in hospitals. From technologically enabled solutions that allow patients to receive care at home to influencing healthier behaviour through well-planned urban spaces, IBI Group is leading a global paradigm shift towards wellness.

As the pressure on our global health services increases and our cities grow, we believe that health must be designed into our homes, streets and communities. At IBI Group, we're defining the cities of tomorrow.

IBI — Defining the cities of tomorrow

Contact:
Katie Endicott, business development manager

W: www.ibithink.com
E: katie.endicott@ibigroup.com

✦ KNOWLEDGE PARTNER

Llewelyn Davies

The original partnership of Llewelyn-Davies Weeks was founded in 1960 by (Lord) Richard Llewelyn-Davies and John Weeks, both innovators in the design of flexible, highly serviced environments.

Llewelyn Davies has since pioneered new thinking in the planning and design of health and science buildings, delivering more than 250 health projects in 75 countries, by employing an adaptive, intelligent approach to create high-value solutions for complex building types.

Llewelyn Davies is also one of the UK's leading masterplanners. From Milton Keynes to the urban renaissance agenda of the 21st century, through policy guidelines and development strategies, the company has influenced the UK Government's vision for planning and design.

LLEWELYN DAVIES

Contact:
Steve Featherstone, director

W: www.ldavies.com

✦ SILVER PARTNER

PERKINS + WILL

Contact:
David Green, principal, global
practice leader, cities and sites,
Perkins+Will, UK

W: www.perkinswill.com

BRONZE PARTNER

Perkins+Will

Perkins+Will is an interdisciplinary architecture and design firm, which believes that design can transform lives and enhance communities. We have over 2000 professionals across more than 20 global offices, including some of the brightest minds in urban design, architecture, interior design, branded environments and landscape architecture.

We bring design experience and sensibility to the form of cities, fabric of urban life, process of engagement, and policies of implementation. Our work enriches lives through the design of extraordinary places. Successful regeneration and creation of healthy cities demand subtle cultural, environmental, and economic responses. Informed by our expertise and experience, we craft thoughtful, multi-layered urban designs that have shaped cities around the world.

Art in Site

Contact:
Louisa Williams, director

W: www.artinsite.co.uk
E: louisa@artinsite.co.uk

KNOWLEDGE SPACE

Art in Site

We're artists, designers and consultants who create specialist art and design schemes across service environments, including airports, healthcare, mental health centres, and education. We focus on using art to promote the wellbeing of users and staff. Recent work includes: an app that helps reduce fear and anxiety in child patients; user-friendly wayfinding schemes for dementia sufferers; and environmental design that allows a mixed-faith community to use the same space for prayer.

KWICKSCREEN
MAKING SPACES

Contact:
Michael Korn, inventor

W: www.kwickscreen.com
E: michael@kwickscreen.com

KNOWLEDGE SPACE

KwickScreen

KwickScreen designs, manufactures and distributes the world's most portable retractable room divider and a range of innovative printed interior products. Our award-winning portable partitions enable open-plan spaces to be reconfigured easily. Our graphic design team and printing capabilities deliver bespoke wall, ceiling and lighting-art solutions to improve the wellbeing qualities and sustainability of any building. At HCD2017, we'll be showcasing new concepts in flexible partitioning, magnetic wall art, printed whiteboards and signage.

---

visualite
Visualise your world

Contact:
Steve Nelson

W: www.your-visualite.co.uk
E: hello@your-visualite.co.uk

KNOWLEDGE SPACE

Visualite

Created in 2015, Visualite is a unique lighting system that incorporates a light source and bespoke image into one, creating a relaxing ambience designed to calm anxiety and enhance wellbeing. Ceiling and wall installations are reported to have been a great distraction, helping reduce instances of claustrophobia and stress for occupants, while turning very sterile environments into fun and colourful places.

SALUS Global Knowledge Exchange

SALUS (Science, Architecture, Lifestyle, Urbanism, Sustainability) is a global media, publishing, research, events and training organisation with a vision to improve human and planetary health by design.

Our mission is to create, share and disseminate knowledge concerning the relationship between human health and the natural, built and social environment. We believe that the two great challenges of our age – the need to maintain and improve human health in the face of ageing populations and an epidemic of chronic disease, and addressing climate change through a more sustainable management of the earth's finite resources – are inextricably linked. Healthy people require a healthy planet.

As well as Healthy City Design, SALUS organises the European Healthcare Design (EHD) Congress in collaboration with Architects for Health. Held annually at the Royal College of Physicians, EHD is now in its fourth year and has established itself as one of the leading healthcare design events in the world. EHD 2018 will take place on 11-13 June 2018.

SALUS has also created an online knowledge-sharing environment dedicated to the design of healthy and sustainable communities at www.salus.global. This groundbreaking knowledge resource features videos of the talks, posters and full papers from our conferences, a daily online journal, and a fully searchable map of healthy and sustainable built projects, alongside a variety of innovative community features. We invite you to join at www.salus.global to participate and contribute to the community and a global knowledge exchange.

Contact:
Marc Sansom, director

W: www.salus.global
W: europeanhealthcaredesign.eu
W: healthycitydesign2017.salus.global

The team:
Director
Marc Sansom
E: marc@salus.global

Consultant advisor
Dr Liz Paslawsky

Commercial director
Nicola Howard
E: nicola@salus.global

Editorial director
Andrew Sansom
E: andrewsansom@salus.global

Executive associate
Nicki Roessler
E: nicki@salus.global

The Helen Hamlyn Centre for Design, Royal College of Art

The Helen Hamlyn Centre for Design in London is the Royal College of Art's largest and longest-running centre for design research. It's an international leader in people-centred and inclusive design – the process of designing products, services and systems for ease of use by the maximum number of people.

Founded in 1991 and endowed by the Helen Hamlyn Trust, our purpose is to conduct design research and projects with industry that will contribute to improving people's lives. Our interdisciplinary approach is based around a series of interlocking research activities related to design for ageing, health, work, mobility and cities. We have developed empathic and innovative research methods, working in partnership with a wide range of business, industry, government, academic and third-sector partners.

Our expertise in healthcare has extended from design policy and information, to the development of systems, services and products. Our projects include a total redesign of the interior space of the emergency ambulance.

Contacts:
Prof Jeremy Myerson, Helen Hamlyn chair of design

Rama Gheerawo, director

Dr Chris McGinley, age & diversity research leader

Dr Jak Spencer, social & global research leader

Jonathan West, healthcare research leader

W: www.hhcd.rca.uk

IDEAS + BUILDINGS
# THAT HONOR THE
BROADER GOALS
OF SOCIETY

District Planning and the creation of healthy cities is a significant component of Perkins+Will's mission to enhance the health and wellness of communities through design.

We bring design experience and sensibility to the form of cities, the fabric of urban life, the process of engagement and the policies of implementation. Our work enriches lives through the design of extraordinary places, focusing on the best qualities of urban life.

We work closely with our clients to identify strategies, projects, and partnerships that address the unique health challenges faced by each community and deliver socio-economic benefits.

CONTRIBUTING FACTORS TO A STATE OF HEALTH

10%   CLINICAL CARE

20%   GENETICS

20%   ENVIRONMENT

50%   HEALTHY BEHAVIOURS
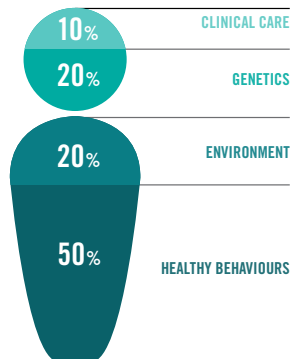
Source - Bipartisan Policy Center, June 2012.

PERKINS+WILL