



## DECADE: Building for wellbeing and health. Are we designing equally well?

Our concept of health has changed. Health used to be seen simply as the absence of physical illness, and medicine was aimed at removing the problems – the bacteria, the virus, the cause. But with many of us living longer, and with long-term physical and mental conditions, health is now about helping us to improve and maintain our own feeling of wellbeing throughout our lives.

In parallel, how we look at the health – the wellness – of our built environments is also changing. Just 20 years ago, we needed legislation to tell us to design buildings to give access to people who did not fit into the narrow ergonomic norms used at that point. At the same time, we discovered 'sick-building syndrome' – we were designing buildings that made us ill!

In the last decade, the principle of designing for physical access has become mainstream, although the practice of doing that well is still evolving. Other barriers to access such as those faced by people with sensory impairments or cognitive impairments, like dementia, have started to be tackled. As with medicine, we've been looking at removing the problems.

But the designed environment, both building and landscape, can do much more: it can support our health and help our feeling of wellbeing.

Schools designed for children with special educational needs are crafted to create spaces that enliven the experience of the hypo-sensitive, and calm the experience of the hyper-sensitive; techniques we could transfer to areas where people may be anxious or confused.

*< Children from Cassiltoun Stables Nursery enjoying a forest kindergarten session in the woods of Castlemilk Park.*

In this event, we explored the idea that what we design, and how we engage people in the process, can improve health and our feeling of wellbeing – from reducing asthma through the building fabric, through promoting exercise and movement, to communities taking back stewardship of sites and using them for social interaction and exercise, improving mental and physical wellbeing.

A&DS will continue to share the experiences of communities and practitioners to ensure that we put health at the heart of our considerations, and that we truly build for a society to be equally well.

Heather Chapple,  
Head of Design Forum and Health Programme, A&DS

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# The right to healthy buildings

by Sam Foster, Sam Foster Architects

Here are some interesting statistics:

- Over five million people in the UK are receiving treatment for asthma, and the NHS spends around £1billion every year treating and caring for asthma<sup>1</sup>.
- Indoor air in a typical home contains over 500 chemicals, more than 100 of which cannot be identified<sup>2</sup>.
- Indoor air is typically 2–5 times more polluted than outdoor air<sup>3</sup> and we spend about 90% of our time indoors.
- In 2003 research indicated over 12% of the US population was affected with severe Multiple Chemical Sensitivity, a condition linked to very low levels of chemicals in common building materials<sup>4</sup>.
- Between 1950 and 2000, the number of building materials available increased from around 50 to over 50,000<sup>5</sup>.

It is fair to assume that **buildings have a direct impact on the health of occupants**<sup>6</sup>.

Construction industry professionals – especially architects – have managed to ignore this for over fifty years<sup>7</sup>.

We routinely design poorly orientated, complicated buildings with low ceilings, inadequate ventilation, minimal insulation and draughtproofing, specifying a variety of low quality and toxic materials that trap moisture. And then we allow them to be built badly.

Relative humidity in buildings should be between 40–60% for good health. Due to lack of ventilation, poor construction and non-porous internal finishes, this

typically swings between 10–90% in most buildings – causing dryness and irritation, viruses and dust mite activity (which then causes asthma), as well as dampness and mould spores (more asthma).

Volatile Organic Compounds – VOCs – routinely off-gas for years from paints, floor and wall finishes and furnishings. Effects include nausea, dizziness, headaches, cancer, birth defects and mutations. Despite some materials having their own specific emissions rate (which may be very low), scientists still have no idea what effect the emissions of lots of materials have on our health. Low ventilation rates and low ceilings reduce how effectively moisture and VOCs are diluted and removed

Designing an attractive, healthy, properly ventilated, well-insulated and draughtproof building isn't that difficult; there are lots of good examples across the UK. But why are they the minority? Why do we still pay more attention to a building covered in fancy facing brick and solar panels than to one that improves the quality of its occupants' breathing?

There are many reasons for this, from flawed design training and price-led procurement methods to clever product marketing and sheer laziness. But we have very effective tools at our disposal. Material safety data sheets (MSDSs) exist for virtually every single material and product, setting out their ingredients. Resources like [www.chem-tox.com](http://www.chem-tox.com) tell us what effects these ingredients have.

Today we have a bigger choice of how to build, and from what components, than ever before and this will

undoubtedly continue to increase. But with choice comes responsibility ...

We need to make good buildings from good materials a right for everyone.

1. Allergy UK
2. WebMD
3. United States Environmental Protection Agency
4. Caress, S. and Steinemann, A. (2003) More than 12% of Population Reports Extreme Sensitivity to Low Levels of Common Chemicals. Published in Environmental Health Perspectives (EHP), the journal of the National Institute of Environmental Health Sciences
5. Halliday, S. (2008) Sustainable Construction. Butterworth Heinemann
6. Singh, Dr.J. (undated) Building Related Illness [report], Environmental Building Solutions Ltd
7. Rachel Carson, in her 1962 book Silent Spring, was one of the first to set out clearly the health effects of a variety of common chemicals.

## About the author:

SAM FOSTER founded Sam Foster Architects in 2011 – a practice specialising in ecological design. Sam was formerly an Associate and Project Architect at Gaia Architects, Edinburgh, where he worked on a number of cutting-edge, award-winning ecological design projects. He is a certified Passivhaus Designer.

# Designs to keep us fit

by Ian McKenzie, McKenzie Sports Architecture

An accessible and inclusive environment is fundamental to the concept of equity. *Are we building 'equally well'?* is a wide subject, but this event focused on delivering buildings and environments that promote participation in sport and physical activity. Wherever possible, sports provision and activities should be integrated rather than being provided separately.

The provision of a suitable sports environment requires an integrated approach, involving sound planning, good design, positive management and ongoing investment. The availability and accessibility of facilities directly influence participation rates in sport, as does their quality.

Sports facilities strategies have been developed at national, regional and local levels and these help to inform decisions on investment priorities. The National Audit of Scotland's Sports Facilities, carried out by **sportscotland**, highlighted the poor quality of many of our swimming pools, sports halls and grass pitches.

Over the last decade, there has been an increased emphasis on developing facilities strategies, improving the quality of new facilities, maximising the use of school facilities and increasing the use of performance management. Many new and refurbished schools, therefore, have been designed to accommodate use by both the school and the community. There are also examples of new projects incorporating sports facilities such as swimming pools, libraries and other cultural functions.

There is an increased awareness of the importance of planning, designing and managing facilities to create

a sustainable and inclusive environment. And this involves more than just providing access. Facilities and equipment are being developed so that everyone has the opportunity to take part in sport as a participant/official/spectator. The range of sports or their derivatives has increased, and a network of facilities is required to provide opportunities to participate at recreation level, develop talent and compete at elite level.

Despite all the published guidance, better awareness and availability of advice, there are still too many barriers. An accessible and inclusive environment relies on a consistent approach to design and implementation to ensure the provision of barrier-free buildings and external spaces. It also requires the following through of the 'whole journey', as facilities and services can be inaccessible because of a missing link in the accessibility pathway.

Major sports events can help develop awareness of diversity and the needs of disabled people, as well as showcase skills and talents. In the Commonwealth Games, events for parasport athletes are integrated into the main programme rather than being held separately, as in the Olympic and Paralympic Games.

Both have their merits: the Commonwealth Games focuses on integration but has a limited number of events; while the Paralympic Games has a much larger programme of events for elite parasport athletes. Elite athletes can be role models and an inspiration to others irrespective of their ability.

There is growing recognition that sport and physical activity can help meet our physical, social and emotional needs. By designing imaginative, sustainable and cost-effective buildings and activity spaces, architects can help to promote participation and enhance wellbeing.

## About the author:

IAN MCKENZIE is an architect and the director of McKenzie Sports Architecture. He was Head of Venue and Village Development and Integration at Glasgow 2014 Ltd, the Organising Company for the XX Commonwealth Games. Prior to this, Ian was Head of Facilities Development at sportscotland.

# Grounds for health – Cuningar Loop

by Hugh McNish, Forestry Commission Scotland

There is a growing body of evidence that links greenspace use to a number of positive health outcomes, including mental health benefits, mood improvement, reduced stress and enhanced immune function. Four types of interaction with nature have been shown to be beneficial to health: viewing nature, being in nature (interacting with plants and gardens) and observing or encountering animals.

A good source of new and emerging research is the Centre for Research on Environment, Society and Health (CRESH) – [www.cresh.org.uk](http://www.cresh.org.uk). And a recent review in *Frontiers Psychology* – *How might contact with nature promote human health ...?* by Ming Kuo – concluded that greenspaces that promote health should have a variety of elements, including spaces for recreation, walking and quiet contemplation. Alongside this they should incorporate trees, soil and water and should be designed to induce feelings of relaxation and awe. These spaces should be developed in areas with poor health statistics to help address health inequalities.

Cuningar Loop is a flagship Legacy 2014 project that has developed 15 hectares of vacant and derelict land opposite the former athletes' village into a multi-functional woodland park. Previously, Cuningar had been a reservoir supplying clean water to Glasgow, a mine, a quarry and, latterly, a landfill.

The 2014 Commonwealth Games was the catalyst for the physical, social and economic transformation of the east end of Glasgow led by Clyde Gateway. The regeneration is not just about revitalising buildings and businesses; it's also, more importantly, about revitalising a community. And part of this is providing good quality greenspace.

Forestry Commission Scotland was able to utilise its expertise gained from developing other vacant and derelict land sites, and dealing with issues of historical contamination, to help create this particular greenspace. There have been over 15,000 trees planted on the Cuningar site, with as wide a range as possible to introduce visitors to a variety of species.

Community engagement has been central throughout the development and construction of the site. Community groups of all ages have been involved with events and activities, including archeological digs, stone carving workshops, welding workshops and the design of the activity zones.

The site includes a 400-metre boardwalk along the Clyde, 2.5km of paths, open greenspace, a trim trail, an outdoor classroom and three unique activity zones for cycling, bouldering and playing. A bridge will span the Clyde, connecting with the Clyde Walkway and providing access for the new residents of the athletes' village and the surrounding area.

Over the course of three open weekends in August and September 2015, more than 3,500 people visited the site, highlighting the interest and demand from local people wanting to access it.

This new woodland park will provide a place for people to relax, be active and get close to nature right on their doorstep.

## About the author:

HUGH MCNISH oversees the health, education and engagement programmes at the Forestry Commission Scotland. He led the Commonwealth Woods, a Legacy 2014 project, which brought together a network of 14 woodland sites to encourage people to Get Involved, Get Active and Be Inspired.

# Castlemilk Woods

by Richard Bolton, Cassiltoun Housing Association

The woods of Castlemilk Park run through the heart of Castlemilk, a place that is in the top five percent of the most deprived areas in Scotland. Over the past five years, through a community-led, multi-partner project, the woods have been transformed from a no-go area to a community asset.

In 2010 Cassiltoun Housing Association formed the Castlemilk Park Steering Group. Members included Glasgow City Council, who own and manage the park, Forestry Commission Scotland, Jeely Piece PlayZone, Ardenglen Housing Association, Glasgow Housing Association and Cassiltoun. One of the recommendations of the feasibility study that was undertaken was to employ a community woodland officer. And, in May 2011, Cassiltoun Housing Association did just that (with Forestry Commission Scotland partly funding the role).

One of the key challenges at this time was to 'break the spiral of decline' and break both physical and perceived barriers to accessing the woodland. The first year was about getting the basics right and working with the local authority and other key partners to improve the woods and the path network.

An extensive programme of community events and activities has been delivered in the woods of Castlemilk Park. These free events are designed to cater for the whole community and promote the woodland and its path network for informal recreation. To date, over 800 events have taken place, involving over 10,000 people, and include outdoor theatre performances, guided walks, foraging, health walks and photography and history clubs. The woods of Castlemilk Park are a

Commonwealth Wood and, as such, many of the events are linked to the Commonwealth, for example, our Fairies of the Commonwealth event.

In 2012 funding was secured to create an employability project. During each eight-week block, five local unemployed people will spend around 3½ days a week carrying out practical improvements to the park and 1½ days training and working towards qualifications – for example, CSCS card and SCQF Level 4 in horticulture. Now in its fourth year, the physical improvement to the paths has resulted in a well-managed and well-maintained path network. Enhancing the accessibility of the woods has expanded the types of events and activities that can be delivered.

The improvement to the woodland has resulted in more educational opportunities for local schools and nurseries. Cassiltoun Stables Nursery provides Forest Kindergarten in the woods, and the schools have played a part in the management and regeneration of this woodland.

Activities such as health walks, Cup of Tea in the Park (a walk where we brew up under the canopy) and our Photo Walking Club have helped to improve people's physical and mental health. Working with Forestry Commission Scotland, we also deliver Branching Out in the woods of Castlemilk Park, an innovative mental health programme for clients of mental health services.

The transformation over the past five years from a no-go area to a well-maintained and well-managed woodland has had a positive impact on people's lives, improved their wellbeing and enhanced their educational opportunities and employability.

## About the author:

RICHARD BOLTON has over twenty years' experience within the environmental sector, predominately working in urban woodlands and greenspace, and working closely with surrounding communities. Since 2011 Richard has been Cassiltoun Housing Association's Community Woodland Officer.