CLAD mag

2015 ISSUE 1
CLADGLOBAL.COM
@CLADGLOBAL

FOR LEISURE ARCHITECTS, DESIGNERS, INVESTORS & DEVELOPERS

Rich Weissmann
Why KSL is investing in spa

UNStudio's
Ben van Berkel

PROFILE

Earl Santee
Populous

Bombay Sapphire + Heatherwick Studios
Creating a ground-breaking attraction

SERENBE
The leisure community that's outperforming the market

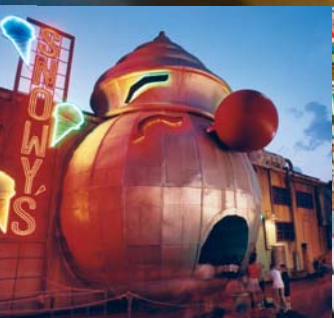
ON THE COVER

Rising star

Joyce Wang
on her award-winning projects

COVER PHOTO: EDMON LEONG

Partnering with architects for over 25 years to plan, design and realize memorable visitor experiences around the world.



museum + brand + entertainment + sport

JRA

www.jackrouse.com

REGISTER NOW AND SAVE 40%

mipim® japan 日本

THE JAPANESE FORUM FOR GLOBAL PROPERTY INNOVATION

20-21 MAY 2015
THE PRINCE PARK TOWER HOTEL, TOKYO, JAPAN

INNOVATION COLLABORATION OPPORTUNITY

Connect with all of Japan's leading property companies. The door for investment and business opportunities is wide open.

- **1,000 m² SHOWCASE AREA**
- **2,000 PARTICIPANTS**
- **20+ EXPERT-LED CONFERENCES**
  4 topics: The Olympics, Inbound and outbound investments, Innovative cities and Tourism.

CONFIRMED SPONSORS

LOCAL AUTHORITIES: MINISTRY OF LAND, INFRASTRUCTURE, TRANSPORT AND TOURISM ▪ TOKYO METROPOLITAN GOVERNMENT ▪ URBAN RENAISSANCE AGENCY ▪ CITY OF YOKOHAMA ▪ CITY OF NAGOYA ▪ CITY OF OSAKA ▪ UMEDA ▪ FUKUOKA CITY

PLATINUM SPONSORS: DAIWA HOUSE INDUSTRY CO., LTD. ▪ GROSVENOR ▪ EAST JAPAN RAILWAY COMPANY ▪ KUME SEKKEI ▪ MITSUBISHI ESTATE CO., LTD. ▪ MITSUI FUDOSAN CO., LTD. ▪ MORI BUILDING CO., LTD. ▪ MORI TRUST CO., LTD. ▪ NIHON SEKKEI, INC. ▪ NIKKEN SEKKEI LTD. ▪ NIPPON STEEL KOWA ▪ NOMURA REAL ESTATE DEVELOPMENT CO., LTD. ▪ NTT FACILITIES, INC. ▪ NTT URBAN DEVELOPMENT CORPORATION ▪ ODAKYU ELECTRIC RAILWAY CO., LTD. ▪ ORIX REAL ESTATE CORPORATION ▪ THE SANKEI BUILDING CO., LTD. ▪ SEIBU PROPERTIES INC. ▪ SEKISUI HOUSE, LTD ▪ TOKYO TATEMONO CO., LTD. ▪ TOKYU GROUP ▪ YAMASHITA SEKKEI INC.

ASSOCIATE SPONSORS: CRE FINANCE COUNCIL ▪ CUSHMAN & WAKEFIELD

WWW.MIPIMJAPAN.COM

> From small beginnings, leisure has grown to be the biggest area of consumer expenditure and a huge creator of wealth

Adding value

Leisure is emerging as a powerful anchor for residential and retail developments, as well as adding significant bottom line value to a wide range of other development types.

In this issue of *CLADmag* we talk to Steve and Marie Nygren about Serenbe, their development near Atlanta, US (page 114). Serenbe is a growing community based around humanscale living, with leisure and lifestyle built in.

As they prepare to extend Serenbe with the addition of a new spa and wellness-focused development, the Nygrens report they're achieving a premium of five to 10 times the typical sq ft value of real estate at Serenbe when compared with other property in the local market.

And this value-added effect extends into many other sectors. Talking to *CLADmag* recently, Paul Scialla, CEO of Delos Living, a company backed by Bill Clinton and Leonard DiCaprio, explained how his company's Well Building Standard™ has led to the creation of Stay Well rooms for hotels with a range of wellness features such as air purification and electro-magnetic shielding built in.

Delos says the MGM Grand hotel in Las Vegas broke even in only six weeks on the cost of adding 17 Stay Well features to rooms as part of a pilot. As a result, the company has turned an entire floor over to bedrooms fitted out this way. Delos says MGM Grand's Stay Well rooms command a 30 per cent room rate premium.

Elsewhere, retail owners are looking to leisure for solutions when they need to take up slack space created as a result of the shrinkage in retail caused by internet shopping. Existing retail areas are welcoming leisure, and new developments will be fully integrated with it to increase footfall and create more of an experience for shoppers.

Examples are BIG's Europa City development just outside Paris (page 13) – the most advanced integrated leisure and retail scheme ever conceived, London's Olympicopolis development (page 23) which looks likely to be the location for the first Smithsonian outside the US, and Park 21 (page 22) which would bring a vast leisure, retail and greenspace development to a location near Schiphol airport in the Netherlands. Others include Paradise Sega Sammy (page 12), a US$1.7bn resort development in South Korea – also integrated with an airport and designed by global practices including WATG and Hirsch Bedner.

Every leisure element is being deployed in these developments, from sport to spa, hotel to theme park and theatre to health club and across public and private sectors, giving a clear view of how the future success of all is becoming intertwined.

Liz Terry, Editor, CLAD @elizterry

+44 (0)1462 431385 CLADGLOBAL.COM @CLADGLOBAL FACEBOOK.COM/CLADGLOBAL

CONTENTS

Biomimicry: Neri Oxman helped develop the Silk Pavilion p50

The challenges of building the Refuge du Gouter on Mount Blanc p70

The first Virgin Hotel opens in Chicago, with design by Rockwell p16

5 Editor's Letter
Leisure can add significantly to the value of residential and retail schemes says Liz Terry

12 CLAD update
CLAD news from around the globe

26 CLAD people
Designer Joyce Wang, HOK buys 360 Architecture, 1Rebel launches, Daan Roosegaarde's rainbows, Stufish and an eco resort for Mexico

38 Dutch master
UNStudio's Ben van Berkel shares what he's learned from projects including the Mercedes-Benz Museum and the Theatre de Stoep

50 Learning from nature
Bionic leaves, breathable metals and self-growing bricks... Biomimicry in architecture has come a long way. Christopher DeWolf takes a look at the latest advances

56 Michael Pawlyn
From climate change to resource scarcity, Exploration Architecture uses biomimicry to address some of the world's major challenges. Its founder tells us how

62 Rich Weissmann
After becoming majority shareholders of US spa Miraval, KSL Capital Partners are preparing to roll out the brand. KSL partner Rich Weissmann gives us the inside scoop

70 Aiming high
Designing a climbers' refuge on Mont Blanc was anything but straightforward, but for Groupe H's Nikolai Bersenev the challenges were what made the project so memorable

76 Earl Santee
A well-designed sports stadium can completely transform a community, but it's vital to ensure it feels authentic, says Populous principal Earl Santee

82 Moving Kiruna
White Arkitekter's Monica von Schmalensee on how culture and leisure are central to plans to move the Swedish town of Kiruna to stop it being swallowed by its mine

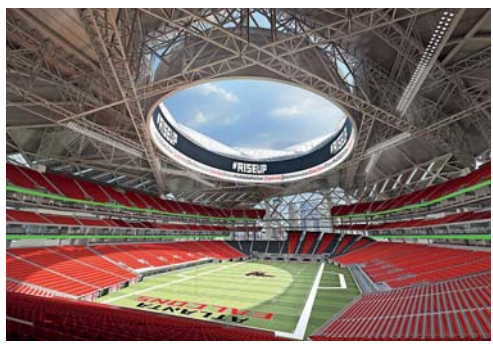
Kerry Hill designs Aman's first urban property in Tokyo p18

KSL Capital Partners' Rich Weissmann p62

PHOTO: PAULINA HOLMGREN

Celebrating 25 years of the Icehotel with a design focus p88

PHOTO: HOK



The Atlanta Falcons' unique stadium design from 360 Architecture/HOK p20

88 Icy reception
As the original Icehotel near Kiruna celebrates its 25th birthday, we take a look at some of this year's stunning rooms

92 Bombay Sapphire Distillery
With a long-standing relationship, Thomas Heatherwick and Bombay Sapphire had a shared vision for the gin maker's new attraction. We find out how they worked together to create this unique project

104 Going to the source
How Portugal's biggest brewer enlisted the help of one of the country's best known architects to turn two historic nature parks into thermal spa and nature destinations

114 Steve & Marie Nygren
Eco community Serenbe was launched in the heart of the Giorgia countryside to provide an alternative to the traditional American suburb. As work starts on a new wellness hamlet, we speak to the founders

122 West Kowloon Cultural District
It's an ambitious experiment for Hong Kong, but will the West Kowloon Cultural District turn out to be a white elephant or a new model for development in the city?

128 CLAD kit
A revolutionary lift system and a product that makes curved rendering easy... a round up of exciting new products

PHOTO: EDMON LEONG

On the cover: Hong Kong-based Joyce Wang on her award winning interiors, p26

Creating places for sport & leisure through innovative social and commercial partnerships

FAULKNERBROWNS ARCHITECTS

Dobson House, Northumbrian Way, Killingworth, Newcastle Upon Tyne, NE12 6QW
T +44 (0)191 268 3007 · email@faulknerbrowns.co.uk · www.faulknerbrowns.co.uk

Above: Dax Polé Commercial

Den Haag Zuiderpark

Lyon Carre de Soie

Derby Arena

Omnisportcentrum Apeldoorn

@FaulknerBrowns

CLAD

Community of Leisure Architects & Designers

About CLAD The Community of Leisure Architects & Designers unites people who contribute to the success of leisure and the built environment, to enable them to do business.

CLADglobal, the organisation behind CLAD, is a media business creating magazines, books, websites and digital feeds to enable CLAD professionals to share news, opinions and best practice. Find out more about the CLAD portfolio at CLADglobal.com

Leisure – a definition CLAD's definition of leisure includes all aspects of out-of-home activity: arts & culture, museums & heritage, hotels & hospitality, bars & restaurants, sport & recreation, spa & wellness, health & fitness, attractions, theme parks & entertainment, greenspace, regeneration and retail.

It's the biggest area of consumer expenditure in the developed world and the biggest driver of growth in the developing world.

Meet the CLADmag team

EDITOR
Liz Terry
+44 (0)1462 431385

MANAGING EDITOR
Magali Robathan
+44 (0)117 9723101

PUBLISHER
Paul Thorman
+44 (0)1462 471904

CONTRIBUTING EDITOR
Alice Davis
+44 (0)1462 471918

PRODUCT EDITOR
Jason Holland
+44 (0)1462 471922

CONTRIBUTORS
Tom Walker
+44 (0)1462 471934
Kate Cracknell
+44 (0)1462 471906

SUBSCRIPTIONS
Denise Adams
+44 (0)1462 471930
Online: leisuresubs.com

CIRCULATION
Michael Emmerson
+44 (0)1462 471932

NEWSDESK
Jak Phillips
+44 (0)1462 471938
Tom Anstey
+44 (0)1462 471916
Helen Andrews
+44 (0)1462 471902

ADVERTISING SALES
Julie Badrick
+44 (0)1462 471919
Chris Barnard
+44 (0)1462 471907
John Challinor
+44 (0)1202 742968
Astrid Ros
+44 (0)1462 471911
Jan Williams
+44 (0)1462 471909

RESEARCH
Katie Buckley
+44 (0)1462 471936

ADVERTISING & ARTWORK
Ed Gallagher
+44 (0)1905 20198

WEB TEAM
Dean Fox
+44 (0)1462 471900
Emma Harris
+44 (0)1462 471921
Tim Nash
+44 (0)1462 471917
Michael Paramore
+44 (0)1462 471926

DESIGN
Andy Bundy
+44 (0)1462 471924

FINANCE
Denise Adams
+44 (0)1462 471930

CREDIT CONTROL
Rebekah Scott
+44 (0)1462 733477

email: contact's full name @CLADglobal.com

CLADmag is published four times a year by The Leisure Media Co Ltd, Portmill House, Portmill Lane, Hitchin, Herts SG5 1DJ, UK. The views expressed in this publication are those of the author and do not necessarily represent those of the publisher The Leisure Media Co Ltd. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by means, electronic, mechanical, photocopying, recorded or otherwise, without the prior permission of the copyright holder, Cybertrek Ltd 2015. Printed by The Manson Group Limited. Distributed by Total Mail Ltd globally and Royal Mail Group Ltd and Whistl Ltd in the UK. ©Cybertrek Ltd 2015 ISSN print edition 2058-3338, online edition 2058-3346. To subscribe to CLADmag log on to www.leisuresubs.com or email: subs@leisuremedia.com or call +44 1462 471930. Annual subscription rate is £100.

Choose how you read CLADmag

PRINT

CLADmag is available in print on subscription. Sign up at leisuresubs.com

DIGITAL

Read CLADmag on Digital Turning Pages and enjoy extra links and searchability

PDF

The magazine is also available as a PDF edition for readers who want to read offline or on tablet

ONLINE

Read CLADmag online at CLADglobal.com and get access to the entire back catalogue

More from CLAD...

CLADmag

CLADmag is the glossy quarterly magazine which talks to the people making things happen in leisure architecture and design, investment and development. CLADmag uses storytelling and great photography to bring the content alive. It's available on subscription in print and free of charge on Digital Turning Pages and PDF, so you can choose how you read it.

CLADbook

The annual CLADbook celebrates the best of CLAD. Contents include the CLAD Foresight™ trends report, Development Pipeline, Movers & Shakers, research and analysis. CLADbook is available in print, on Digital Turning Pages and as a PDF and is distributed to all CLADmag subscribers, as well as being available for sale as a standalone publication.

CLADweek

CLADweek is the news magazine for professionals working in the CLAD community. The magazine draws news content from the CLADglobal online feeds and renders it in magazine format with bonus photography to bring you a weekly snapshot of headline news. CLADweek is available on ezine, Digital Turning Pages, PDF and online.

CLADglobal

CLADglobal.com is updated around the clock with the latest news, interviews, analysis, research and features. From here you can access all CLAD's print and digital publications and news feeds free of charge and subscribe to print editions. CLADglobal.com also has a profile section where you can set up both personal and company profiles to share your work with the industry.

CLADzine

CLADzine is distributed weekly for professionals who enjoy getting concise news to their inbox each week in ezine format. From the latest developments to breaking news about mergers and acquisitions, CLAD tracks news round the clock, with reporters writing dedicated content specifially for CLAD. Sign up for the CLADzine free of charge at CLADglobal.com

CLADkit

CLAD-kit.net is the online search engine for products. Updated daily, it gives access to all the latest product launches and specifications for architects, designers and experience designers, as well as full contact details for suppliers. If you're a supplier, your new product details are welcome – contact CLAD Product Editor, Jason Holland, jasonholland@CLADglobal.com

CLAD UPDATE

Launch date set for South Korea's US$1.7bn resort

Work has started on South Korea's first integrated resort – Paradise City in Incheon – which is scheduled open next to Incheon International Airport in the first half of 2017.

A number of the industry's leading architecture and design practices have been working on the US$1.7bn (£1.4bn, £1.1bn) casino, hotel, spa and theme park project, including WATG, GA Design International, Hirsch Bedner Associates, Hawkins Brown, Lifescapes International and Gansam Architects.

A joint venture between Japanese entertainment company Sega Sammy Holdings and Korean casino operator Paradise Group, the resort will cater for both local visitors and tourists. It will have a five-star hotel, a foreigner-only casino, an indoor theme park, restaurants and a healing spa where overseas tourists will be able to experience a Korean public bathhouse or 'jjimjilbang'. Paradise City will also include retail and a convention centre.

Paradise City – a tourism driver for South Korea

The development will be a 10 minute walk from the airport – one of Asia's main hubs – which welcomes 41.6 million people a year.

The 711-bed hotel will also have pool and a fitness centre and will house the casino – the largest in South Korea – with VIPs given access to a private casino on the top floor. A 103-bed boutique hotel is also planned.

K-Plaza – housing multiple visitor attractions – will include a theme park using 3D hologram technology, a museum dedicated to South Korean culture, Korean restaurants and an art gallery. A total of 330,000sq m (3.5m sq ft) of land for the project is being leased from the airport for 50 years, with Paradise and Sega Sammy holding a 55 per cent and 45 per cent stake in the venture respectively.

Studio Libeskind reveals Vilnius' wintersports ambition

The city of Vilnius in Lithuania is stepping up its push into the European ski market with the announcement it will build a new cultural/sports venue – the Vilnius Beacon – with design by Studio Libeskind. This is the first ski resort by the practice.

The development is backed by the City of Vilnius, the State Trade Co and Start Vilnius Co, which took over responsibility for the location – the Liepkalnis Ski Hill area – in 2012, with plans to upgrade it. Studio Libeskind founder and principal, Daniel Libeskind, said: "The Beacon will become an epicentre of entertainment, leisure and culture for the city."

The area is already a tourist hotspot and the Beacon will add a new space for winter and summer sports, creating a multi-purpose destination offering a combined programme of recreation, sport, culture and entertainment.

Design features include a central plaza for events, with a surrounding undercover pathway, retail and public amenities, as well as two restaurants, one offering fine dining on the third floor with panoramic views of the city and the other more casual, bistro-style.

©STUDIO LIBESKIND

The new Vilnius Beacon is set to become an international tourist destination

The ground floor will be a flexible year-round event space. Completion is expected by 2016. @daniellibeskind

Every type of leisure is represented, from spa and indoor snow to restaurants, theatres and an urban farm, and from theme parks to greenspace

Leisure defines Bjarke Ingels' Europa City masterplan

Bjarke Ingels, head of architecture practice BIG, has been explaining his masterplan for Europa City in a newly-released video. The scheme will be one of the largest leisure developments in Europe over the next five years.

Developer, Alliages, will begin construction in 2017 and the city will open in 2020. The development is 16km (10m) from Paris.

Ingels says the scheme will combine "authentic, lively, dense urban environments and streetscapes with open landscapes which let in the sun and have long views, to create a new and interesting urban hybrid."

The project will be split into quarters: the 'pop' area – with a theme park; the 'zen' area – which will have an urban farm; the 'sun' area – with waterpark and hotel; the 'xtrm' area – to include a snow park and adventure park; the 'showbiz' area – with theatres and restaurants – and the 'hype' zone with department stores, an exhibition hall and cultural zones. All will be linked to the main transport hub and grouped around a central plaza. The roof will be developed as greenspace with cuttings through to the buildings and streets below.

PHOTO: STEPHEN VOSS

Bjarke Ingels: creating a new urban hybrid

Leisure Development Partners (LDP) has been defining the entertainment programme and providing feasibility analysis for the scheme, as well as identifying potential operators and partners. "Europa City is the largest mixed-use leisure, retail and entertainment project curently planned in Europe, with an exciting mix of attractions and accommodation," LDP senior partner and co-founder Michael Collins told *CLADmag*.

"The project team recognises the increasing importance of leisure as an anchor for retail and mixed-use schemes, with plans for cutting-edge attractions, which are capable of driving visitors to the project from outside the typical retail catchments and delivering strong image, employment and economic impacts," he said. @bjarkeingels

● Watch the video: CLADglobal.com/europacity

World Bank funds Mecanoo-designed cycle route

A 17.6km (10.9mile) long cycleway will be built in Jiaozhou, China, designed by architecture and design firm Mecanoo. The Golden Ribbon cycling route will be funded by the World Bank and is the result of research on 'innovation in mobility' by the University of Shandong.

The cycleway has been designed for "connectivity, comfort and experience", while encouraging the use of bikes to improve public health, air quality and the environment.

The aim is to connect the city of Jiaozhou with the mountains and the route has been laid out to ensure minimal impact on the environment. It follows a derelict canal that will be renovated and passes through two public parks.

The Golden Ribbon will have facilities for cyclists, including nine pavilions which – depending on their size – will have amenities such as restaurants, showers, bike rental and a cycling association clubhouse.

Mecanoo's design takes its inspiration from the local yellow rain tree. Stretches of the route will be planted with the tree and the perforated steel surrounding the path will be patterned with its flowers. @mecanoo

MECANOO

Mecanoo's cycle path for Jiaozhou, China, will bring together nature, urbanism and culture

Museum of Fine Arts reveals US$450m masterplan

STEVEN HOLL ARCHITECTS

The Museum of Fine Arts, Houston, Texas, has unveiled its US$450m (E381m, £297m) expansion plan to carry it through to 2019.

The masterplan – by Steven Holl Architects – will see a redevelopment of the 14-acre (56,600sq m) campus to include new buildings, gardens and a top floor restaurant. Plans include a 164,000sq ft (15,200sq m) gallery to showcase the museum's collection of 20th and 21st century art, as well as a new building to house a school of art. In addition, San Antonio-based Lake/Flato Architects has designed a conservation centre to sit on top of an underground parking structure. Work on the development is expected to start later in 2015.

Called The Fayez S Sarofim Campus, in recognition of the financier's US$70m (E59.3, £46.1m) contribution, it will be a pedestrian-friendly urban oasis. The two-floor Nancy and Rich Kinder Building will include 54,000sq ft (5,000sq m) of exhibition space, a 202-seat theatre, café, restaurant and meeting rooms.

US$330m (E280m, £217.3m) has already been raised towards the US$450m capital and endowment fundraising goal. @MFAH

The Museum of Fine Arts, Houston, still needs to raise US$120m to bring its plans to fruition

CONDADO VANDERBILT HOTEL

The historic Condado Vanderbilt was threatened with demolition, but has now been restored and extended by International Hospitality Enterprises

Wilson Associates reimagines Condado Vanderbilt

The Condado Vanderbilt Hotel in San Juan, Puerto Rico has reached the completion of the second stage of its revival, including the addition of luxury guestrooms and a spa.

The US$200m (£149m, £118m) revitalisation of the five-star property, built in 1919 by Frederick William Vanderbilt, has taken 10 years. The hotel was originally designed by Warren and Wetmore, the architectural firm known for Grand Central Station and the New York Biltmore Hotel. The 319 guestrooms and two newly-constructed suite towers have been reimagined by Wilson Associates.

The hotel's 10,000sq ft (929sq m) Vanderbilt Spa was created by Alison Howland of Spa Success Consultants, working with interior designer Jorge Rossello. The spa has seven treatment rooms and the only hammam in Puerto Rico – built with imported marble.

The hotel has seven bars and restaurants, including the award winning 19Nineteen.

Development was by International Hospitality Enterprises, which also manages the property. The company runs seven hotels and two casinos in Puerto Rico via subsidiary, International Hospitality Group, including La Concha and Condado Palm. @thevanderbiltsj

Surf park for Melbourne from Damian Rogers and Arup

Damian Rogers Architecture, in partnership with Arup, has unveiled a concept for a beach and surf park for Melbourne's Central Pier, Australia. The development would be based on a floating wave pool, with filtered water from Victoria Harbour, and a sandy beachfront.

Offering surfers a chance to catch waves between 1-1.8m (3-6ft) high, the heated wave pool would be one of several attractions in the 16,000sq m (172,222sq ft) development. Others include swimming, kayaking and beach soccer facilities. A grassy bank and a pavilion will provide retail and F&B space.

Arup's Phil Carter said: "This would enhance the Docklands and attract people, events and businesses." The development, if approved by Melbourne City Council and Places Victoria, would cost AU$8m (US$6.45m, E5.4m, £4.2m) and be privately funded. @arupgroup

ARUP AND DAMIAN ROGERS ARCHITECTURE

The water filling the heated pool will be taken and filtered from the harbour around it

Some of the building's original features remain intact – a 1920s Cigar Bar serves as the hotel's front desk. (Right) Free wifi is available everywhere

Rockwell has created a private members' club vibe. Bedrooms (right) have a two-chamber layout and patent pending, ergonomic beds

Virgin opens Chicago hotel with design by Rockwell

The first Virgin-branded hotel has opened in Chicago's Loop district in the 26-storey Old Dearborn Bank Building, originally designed by architecture firm Rapp and Rapp.

The Art Deco building, a Chicago landmark, has 250 guestrooms, including 40 one-bedroom suites and two Penthouse Suites. There are four restaurants – three of which are scheduled to open between February and April of this year. The hotel's spa will open in Q2 and "will be a wellness lounge, designed with beauty, comfort and mingling in mind."

Virgin founder, Richard Branson, said: "It's been a long-held dream to start beautiful, comfortable, fun hotels for guests and give them what they want and need while being gentle on their wallets."

Rockwell Group Europe were responsible for the design and have created a playful vibe with social spaces. Bedrooms are divided in two by sliding doors, complete with peephole and Virgin Hotels is in the process of patenting its ergonomic bed which features a built-in corner snug and comfy headboard.

At the heart of the hotel, the 11,000sq ft Commons Club is divided into four zones – The Commons Bar, The Shag Room, The Funny Library and The Kitchen, which will serve breakfast, lunch and dinner to guests at the bar, the communal tables and in booths.

The feel is of a private members' club without the fees. The aim is to remove hassles, with free wifi and no fees for early check-in or late check-out, room service, delivery charges, business centre transactions, or other services that cause frustration for travellers.

Virgin Hotels will open in Nashville in Q3 2016 and New York City in Q4 2017. The aim is 20 locations by 2025. @virginhotels

The Commons Club, at the heart of Virgin Hotels Chicago, is a vibrant space where guests can dine, drink, work and mingle. The two-storey space was the bank floor and has the original coffered plaster ceiling

Aman is known for its commitment to celebrating local architectural styles wherever it builds and Aman Tokyo is faithful to the Japanese aesthetic

Kerry Hill Architects designs first Aman in Japan

The hotel has views over Tokyo and the Imperial Palace Gardens

Kerry Hill has created Aman's first urban property in Tokyo's central business district

Aman Resorts, known for its high-end hotels in exotic locations, has opened its first urban property, an 84-bedroom hotel in Tokyo's financial district. The Aman Tokyo is the company's first Japanese venture and occupies the top six floors of The Otemachi Tower.

Kerry Hill Architects was in charge of the interior design, which mirrors local cultures and traditions, with shoji paper sliding doors and a Japanese engawa porch.

Two floors – around 2,500sq m (26,910sqft) – have been given over to the hotel's Aman Spa, which has floor-to-ceiling windows overlooking the city and the Imperial Palace Gardens.

The spa has eight double treatment rooms – each with its own dressing room, treatment area, steam shower and bathroom.

In addition to private relaxation rooms, there's also a 30m (98ft) black basalt-lined pool. Views of the city are possible right down to water level, so all that can be seen while swimming is the sky. Changing rooms have steamrooms, traditional Japanese and western showers and hot Japanese baths. The hotel also has a gym with kit by Technogym, Life Fitness and TRX, a yoga and pilates studio, a wine cellar, cigar lounge, restaurant, private dining, business centre and a Café by Aman which will open this spring.

The hotel is owned by investor Vladislav Doronin's Aman Resorts Group. @amanresorts

World's largest eco-theme park coming to Indonesia

Work is underway on what is being billed as "the world's largest eco-theme park" – a US$240m (E202.2m, £158.5m) development – called Funtasy Island – which will be located on Indonesia's Riau Islands, near Singapore.

Set to open in late 2015, eight key "eco-zones" are currently under construction in the 3sq km (1.2sq m) development, including a multi-sensory rainforest. There will also be land- and river-based safaris, snorkel and scuba zones, an interactive dolphin habitat and an aquarium where guests will be able to swim with whale sharks.

The attraction – designed by WOW Design Studio – will also be home to a limited number of private villas in addition to a hotel and spa. Apartments, 1,200 holiday villas, adventure and watersports, shopping, dining and live entertainment will complete the mix.

Developer, Funtasy Island Development Pte Ltd, says 70 per cent of the land will remain in its natural state. Eco-themed activities will include aquaculture tours in the surrounding waters and nature trails allowing visitors to explore the island. funtasyisland.com

The resort is only 20 minutes by boat from Singapore's Sentosa Cove

Seven different types of villas are available, including over-water, ocean front and forest

Hamburg autobahn gives way to parkland and birdsong

The new park will reunite east and west Hamburg and enable the building of 2,000 homes

One of Germany's longest autobahns is to undergo a major transformation – sections of the A7 will be covered over, allowing for the creation of parks, meadows, woods, cycleways and gardens on the newly-created 'roof'.

Excessive noise pollution caused by increased traffic has been affecting the town of Hamburg – the solution is to send a stretch of the road underground.

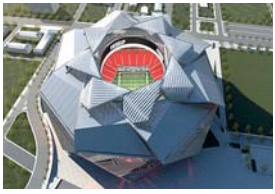
Reinhard Schier, from Hamburg's Ministry of Urban Development and Environment, said: "Our plan is to reunite the west and the east of the city, which have been separated by the road. Once completed, there will be peace, gardens, bird song, and clean air."

Spanning a two mile (3.2km) section of the road, the covered areas will create 60 acres of green space for the city. There are also plans to build 2,000 new homes along the route.

Construction will begin on the first two autobahn covers later in 2015, with completion expected by 2022. The A7 will be expanded during the process, with some sections increasing to eight lanes. The total cost will be E775m (£590m, US$890m). marketing.hamburg.de

360 Architecture/HOK reveals unique stadium design

The Atlanta Falcons stadium will have an eight-petal retractable roof that opens like a flower



Bill Johnson of 360 Architecture says the circular opening was inspired by the Pantheon

American football team the Atlanta Falcons has released details its new US$1.4bn (£1.2bn, £922m) 83,000-seat stadium, which will open in downtown Atlanta in 2017.

The unique multi-use stadium features an eight-petal retractable roof – a first for any venue of this type – as well as the world's largest 360 degree HD video screen, which will be viewable from every seat.

Also included is an exterior 61,000sq ft (5,600sq m) fan plaza for pre- and post-game entertainment, as well as a 100-yard bar and technology lounge which will offer spectators access to game-day media content.

Bill Johnson of 360 Architecture, which was recently acquired by HOK (see page 36), is lead architect for the project. Johnson says the circular opening in the roof was inspired by the Roman Pantheon and will be made of a clear, lightweight polymer whose opacity can be adjusted to control light.

360 is seeking LEED certification and using recycled materials and solar panels in the development. @hoksportsrecent

Norwegian Cruise Line plans largest waterpark at sea

A ship in Norwegian Cruise Line's fleet will boast the largest waterpark at sea when it launches later this year, with the company unveiling a raft of leisure facilities on board.

The investment comes as the cruise market continues to experience rapid growth and the broadening of its customer profile.

The 4,200-passenger ship – *Norwegian Escape* – with interior design by SMC Design and Tillberg Design, will feature an Aqua Racer – a tandem slide where competitors race side-by-side on tubes; Free Fall – side-by-side slides where passengers freefall into a loop as the floor drops away beneath them; a dedicated Kids' Aqua Park; two pools; and four spa pools.

In addition, the ship will house a rope course covering three storeys and a nine-hole miniature golf course themed on the Teenage Mutant Ninja Turtles. Nickelodeon characters such as Spongebob SquarePants will also be on board *Norwegian Escape* to greet guests.

The ship joins the fleet in October 2015 and will home-port in Miami, offering Eastern Caribbean cruises. It will be Norwegians fifth ship in the Caribbean. @cruisenorwegian

NORWEGIAN CRUISE LINE

Norwegian Escape launches in October, stuffed with leisure and with a huge waterpark on board

During winter, the walkway will be protected from the elements by retractable transparent curtains

PHOTO: ATELIERS JEAN NOUVEL

Work begins on Jean Nouvel's Artists' Garden in China

Ateliers Jean Nouvel's arts scheme for Qingdao, China – the 70,000sq m (753,000sq ft) Artists' Garden – has broken ground. The development will include a new museum hosting exhibitions from the National Art Museum of China, Beijing, which was also designed by the practice.

An existing harbour will be doubled in size and converted into a marina at one end of the site, while other elements will include art studios, a hotel and restaurants, retail and extensive parkland and gardens.

Elements of the scheme will be spread along the 1km (0.62 mile) site, housed in towers with views over the landscape through shuttered windows. A covered promenade with graffitied ceiling will run the full length of the development, connecting all the elements. It will have retractable transparent curtains to protect it from the elements in winter.

Ateliers Jean Nouvel is working in collaboration with Shandong International Coastal Cultural Industry on the project. The scheme has been in concept design and development for three years. @ateliersjnouvel

Iceland's Langjökull IceCave will debut in May

A new visitor attraction will launch later this year in Iceland in the shape of IceCave – a network of man-made tunnels and spaces running inside the Langjökull Glacier.

IceCave will be one of the largest man-made structures in the world, stretching 300m (984ft) back into the glacier and a further 30m (98ft) below the surface.

In the works since 2010, the US$2.5m (E2.1m, £1.6m) development will allow visitors to see 'blue ice'. Each year the ice cap is covered in roughly six metres of fresh snow, which is is melted by the sun on one side and compacted by the weight on snow on the other. That compacted snow turns to ice, which over time becomes denser until it becomes the blue ice formed only under these specific conditions.

Backed by leading pension fund investors and the Icelandair Group, the project has engaged a number of experts, including one of Iceland's leading geophysicists and glacial experts, Ari Trausti, plus a team of specialist construction workers. Iceland-based engineering and consulting company EFLA is digging the tunnels in the glacier.

ICECAVE

IceCave will be one of the the largest man-made structures in the world when it opens in May

Visitors will embark on a weather-dependent adventure between March and October on an ex-NATO, eight wheel drive missile launcher, converted to transport up to 40 people at a time to the glacier. Tours will last between 2.5 and 14 hours. @icecaveiceland

Designers reveal 'second gate' for Amsterdam

Plans to create a E400 million (£314m, $489m) metropolitan theme park on the outskirts of Amsterdam, the Netherlands, are being developed by a caucus of leading design firms.

The project – Park 21 – would be a 1,000-hectare (3,000 acre) cultural, recreational urban parkland, with landscaped and leisure elements. Facilities such as shops, restaurants, hotels and attractions are central to the proposal, which would offer a 'cluster concept' where visitors pick and choose activities.

Plans have been commissioned by the Municipality of Haarlemmermeer – 20 minutes from downtown Amsterdam and five minutes from Schiphol Airport. "Downtown Amsterdam is overcrowded," Hans van Driem, development consultant for the project, told *CLADmag*: "The city has seen a 14 per cent increase in international visitors since 2013, from 6.35 million to 7.23 million in 2014. The Park 21 scheme will give it more capacity."

Park 21 will ease pressure on central Amsterdam with strong transport links and a family focus

Rhys: Park 21 will be a deconstructed theme park where you choose what you want to do

The concept is being developed by Toronto-based planning and design firm Forrec, along with consultancy practice Leisure Development Partners (LDP) and M2 Leisure.

Steve Rhys, vice president of Forrec said: "There's a phenomenon we're seeing in entertainment where the conventional single-gated attractions – where you park your car, walk through the retail village and spend your whole day inside a gated facility – are making way for many-gated cluster-concepts.

"Park 21 will be a cultural, recreational, family destination – a deconstructed theme park – where you enter through public, no-charge gates and choose what you want to do and how long you want to stay," added Rhys.

The project is currently at the funding and feasibility stage, with opening planned for April 2020. @forrecdesigns

Leela plans hotels in Nepal as part of Buddhist Trail

Leela Palaces, Hotels and Resorts has signed a memorandum of understanding with developers Summit Group of Nepal to collaborate on the first of four hotels to be built across the country as part of a development rollout.

The five-star Leela Kathmandu – designed by John Gerondolis of Smallwood, Reynolds, Stewart, Stewart & Associates of Atlanta, US – will be the first hotel created by the partners, to capitalise on tourism in India and Nepal.

Leela Group plans to pave a Buddhist Trail from Nepal to Bodhgaya, Nalanda and Varanasi in India, with the next hotel being built in Lumbini, the birthplace of the Buddha. Another hotel is planned for Pokhara in Nepal.

Gerondolis is expected to incorporate the rich Newari culture into the designs. He has created Leela Palaces in New Delhi and Chennai and is working on the Leela Palace Agra, where every room will have a view of the Taj Mahal.

Nepalese Prime Minister, Sushil Koirala, is urging the Leela Group to establish hotels in other parts of Nepal. Both Koirala and his Indian counterpart, Narendra Modi, are committed to developing tourism. @theleelahotels

PHOTO: ROBERT MILLER

John Gerondolis is designing Leela Kathmandu, following his success with Leela Channai (above)

Smithsonian in talks to anchor London's Olympicopolis

SHUTTERSTOCK.COM/RON ELLIS

Olympicopolis is a major part of London's Olympic legacy plans for the site at Stratford

The Smithsonian Institute is in discussions with a view to opening its first location outside the US. The 40,000sq ft (3,700sq m) Smithsonian gallery would be part of the Olympicopolis educational and cultural quarter being developed at the Queen Elizabeth Olympic Park in East London.

In September 2014, London mayor, Boris Johnson, launched a design competition for the new £400m (US$650m, E503m) educational and cultural quarter and nearly 1,000 design and architecture firms registered their interest.

Several high profile names, including the Victoria & Albert Museum, Sadler's Wells and University of the Arts, London are already involved in the project and £33m (US$50m,E44m) in private contributions have been raised for the proposed Smithsonian, which would anchor the Olympicopolis development when it opens in 2021.

The Smithsonian currently has a total of 19 museums in Washington and New York City, the National Zoo (also in Washington) and nine research facilities around the world. @smithsonian @noordinarypark

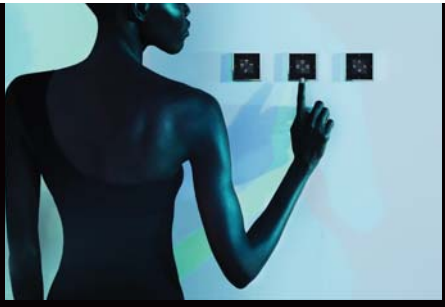
DORN BRACHT

Dornbracht
Sensory Sky[ATT]

Just like being in the open air. **SENSORY SKY** turns showering into a unique experience that awakens all your senses.

Culturing Life

Inspired by natural phenomena



READJUST sharpens the senses. Mist and warm rain reduce the daily flood of stimuli to a pleasant minimum – until the sky gradually clears and perception is more focused and intensified: where is this pleasantly soft dry forest floor fragrance coming from?

RELEASE is an intensive summer rain which is both cleansing and liberating. Accumulated energies erupt in an expressive choreography composed of different types of rain and different temperatures – accompanied by a refreshing, tropical-like fragrance.

REJOICE protects, envelops and stabilizes. The external rain curtain is a projection screen for the light with water drops sparkling in all the colours of the rainbow – a multifaceted, harmonious interplay of colours and fragrances which is gradually transferred to the whole body.

Dornbracht Group, Unit 8&9 Bow Court, Fletchworth Gate, Coventry, CV5 6SP.
Phone: +44 (0) 2476 717 129. Fax: +44 (0) 2476 718 907. E-Mail: mail@dornbrachtgroup.co.uk

CLAD PEOPLE

"A project should make people dream and ponder and intellectually think about the space"

Joyce Wang Principal, Joyce Wang Studio

ON THE COVER

Hong Kong restaurants Isono and Vasco represent the latest offering from rising interior design star Joyce Wang, whose Mott 32 Bar & Restaurant in Hong Kong won the World Interior of the Year space at the INSIDE World Festival of Interiors back in November.

Isono and Vasco are located in the Police Married Quarters complex in Hong Kong. Isono serves Basque-influenced food, while Vasco offers a Spanish fine dining experience.

"For Isono, we used rustic interiors, raw materials and an open-plan design to convey a relaxed vibe that is conducive to communal dining," said Wang. Vasco is a more formal space, with two semi private dining rooms and two entirely private rooms. "Gold, burnt caramel, deep green and tar reference the aging process of Spain's celebrated olive oil but also reference the dominant palette of colours evident in the mid-century era in Europe and in the US," said Wang.

Mott 32 is located in the basement of the Standard Central Bank in central Hong Kong, and is reached via a long escalator and stairwell. To counter the absence of natural light in the space, Wang introduced two architectural octagonal skylights, which can be lit to simulate daylight or dimmed during the evening.

The venue features a variety of spaces, including the tangerine room, the mah jong private dining room, the main dining room, and the alcoves, which are divided using screens.

For Wang, it's important to reference the history of the areas the projects are located in, but also to look to the future. "It's very important for our studio's projects to pay tribute to their past, but also be forward-looking. To us, a project should essentially be both, so it's contradictory, but at the same time it can create a really surrealist feeling, making people dream and ponder and take their time to intellectually think about a space."

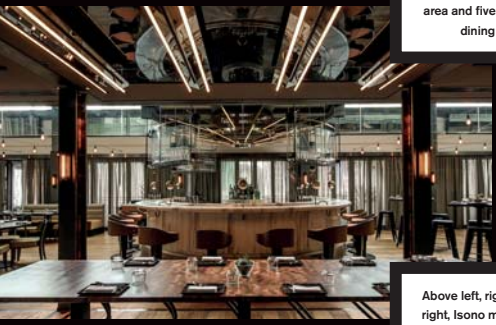
Joyce Wang has built a reputation for her luxury interiors

Wang launched her practice, Joyce Wang, in 2011. Other projects include the renovation of the Roosevelt Hotel, Hollywood, US; AMMO bar and restaurant, Hong Kong; and a number of private residences.

"My inspirations come from film, music, fashion, and from spending time with people who engross themselves in these mediums," said Wang. "I get excited when I work with talented individuals – designers, craftsmen, fabricators, artists, clients – and when I hear their personal take on the value of design."

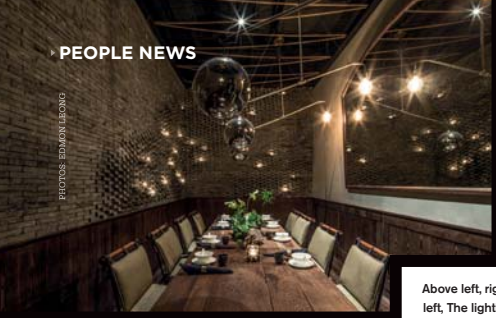
PHOTOS: EDMON LEONG

Above, Mott 32 features one large general dining area and five small private dining rooms



Above left, right and below right, Isono mixes new and vintage fittings. Below left, Vasco's dining room

PHOTOS: EDMOND LEUNG



Above left, right and below left, The lighting in Mott 32 has different mood settings for the day and night

Above right, A circular tapas bar dominates Isono's main dining room. Below, Mott 32

In Isono's main dining room, exposed steel structural columns have been kept in their raw form

The Ride Studio is able to cater for large classes, offering 64 of the latest ICG bikes

"We're passionate about market disrupters – companies with conviction and a will to change"

James Balfour, Giles Dean, Kevin Yates 1Rebel

After much anticipation and a raft of headlines, the first 1Rebel microgym has launched in the City of London, UK.

The company, which aims to shake up the fitness industry as a 'market disrupter' – in a similar vein to businesses like Airbnb – has plans for another six to eight boutiques across the City over the next few years. In an interview with Health Club Management, co-founder James Balfour said the brand is designed "to bridge the gap between fitness and fashion" and is targeted at millennials.

The club is cashless, paperless and pay-as-you-train, with customers signing up online, and 'paying' for things in-club via their ID.

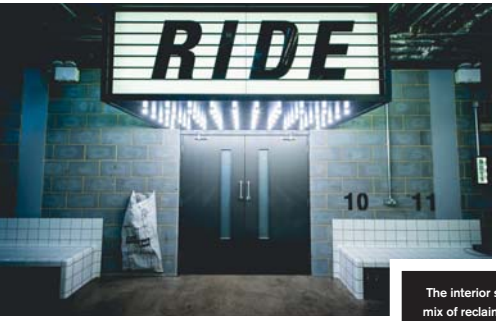
"We're passionate about market disrupters: companies with conviction and a will to change things, not for the sake of change, but because changing would make things better," said Giles Dean, who co-founded the company with James Balfour, bringing in fitness industry veteran Kevin Yates as ops director.

Left to right: James Balfour, Giles Dean and Kevin Yates

The club is spread over a ground floor and basement, and offers 8,000sq ft of space structured around two studios with theatre-grade lighting. There's also a reception area, café and changing rooms.

The club's interior, which has been designed by London-based architect firm Studio C102, is described as "industrial luxe" and features lots of reclaimed items and unexpected details like fire hoses being used for the hand shower attachments.

1REBEL PHOTOS: SMD PHOTOGRAPHY/WWW.SMDPHOTOGRAPHY.CO.UK



The interior showcases a mix of reclaimed industrial features and was designed by Studio C102

"Mark definitely wasn't a minimal architect – his designs were outrageous, big, splashy, noisy and extravagant"

Ray Winkler Managing director, **Stufish**

Cristina Garcia Principal, **KPF Architect** and widow of Mark Fisher

The Wuhan Movie Theme Park and the Han Show Theatre have opened in Wuhan, China, the final project of the late Mark Fisher and the first permanent buildings for him and his practice, Stufish Entertainment Architects.

Fisher was responsible for the design of spectacular stage sets for artists including Pink Floyd, Lady Gaga, The Rolling Stones and Madonna, and also created the Millennium Dome Show with Peter Gabriel and the opening and closing ceremonies for the Beijing Olympics. Fisher and the team at Stufish took on the Han Show Theatre and Wuhan Movie Theme Park project in 2010, however Fisher died in June 2013, 18 months before the completion of the buildings.

"These two buildings represent the pinnacle of achievement for Stufish," said managing director Ray Winkler, speaking to CLADmag. "They are an amalgamation of everything that we as a studio stand for – they are interesting, complex, intriguing, literal, striking, colourful and bold. They are a fantastic testimony to what Mark started off – a studio of very creative, talented designers. To be able to include them in our portfolio is a joy. The only sad part is that Mark is no longer here to enjoy it."

The Han Show Theatre and Wuhan Movie Theme Park anchor the Wuhan Central Cultural District, a development by Beijing-based group Dalian Wanda which features offices, residential and cultural buildings and shopping malls spread along a 2km canal-side site.

The 2,000-seat Han Show Theatre was purpose-built for a new water show by Cirque du Soleil creator Franco Dragone. The design of the theatre takes the traditional Chinese paper lantern as inspiration, with the building's façade created from thousands of red aluminium LED discs. Inside the auditorium, audience seats move during the show, revealing a 10m-deep pool with wet and dry lifts used for acrobatic stunts.

Ray Winkler (left) and Cristina Garcia (right)

The Wuhan Movie Theme Park houses six indoor attractions which combine 3D effects, live actors, props and stunts. The inspiration for the design comes from the Wuhan Bells, a traditional symbol of the local Chu-Han culture.

Mark Fisher and Stufish's background in entertainment allowed them to bring a fresh way of thinking to the design of the buildings, said Winkler. "In the world of set design and rock and roll staging design, the gestation to completion period is very quick, so you can experiment with many more ideas than you could do with a permanent building. When it came to these two buildings we had a really good reference point of things we knew worked on a grand scale and that people find entertaining and intriguing.

"A lot of architecture is self referential, looking at what other architects are doing, and that brings a certain kind of incestuous mindset. We're much more interested in looking at the wrap of a CD cover or at a billboard poster or a rock roll show. That respectful disrespect for architectural tradition has allowed us to go down certain avenues which more traditional architects might not have dared to do."

After graduating from the Architectural Association School in London, Mark Fisher moved onto creating set designs for musicals. His first big break came in 1976, when he was asked to build a set of inflatable sculptures for Pink Floyd's Animal Tour. This set the tone for his later work, which was very varied, but always dramatic, striking and hugely ambitious.

"Mark was definitely not a minimal architect – his architecture was outrageous; big, splashy, noisy and extravagant," said Fisher's widow and fellow architect Cristina Garcia, principal of KPF Architects. "He understood the basics of good architecture, and he had a very strong traditional, formal education that translated well into his not so formal and more eclectic type of work.

"Mark always used to say that an idea was only an idea until you actually built it. He knew how to get things built, and he wasn't afraid to push the boundaries to create something new."

IMAGERS © STUFISH 2014

The Han Show Theatre (above); Mark Fisher (right); The Wuhan Movie Theme Park (left)

“This is not a projection or a slide – it’s a real rainbow”

Daan Roosegaarde Founder, **Studio Roosegaarde**

The installation uses new liquid crystal technology developed by researchers to create the rainbow

PHOTO: STUDIO ROOSEGAARDE

PHOTO: STUDIO ROOSEGAARDE & HEIJMANS

The Van Gogh Cycle Path runs from where Vincent Van Gogh lived between 1883 and 1885

Dutch designer Daan Roosegaarde's latest light installation, Rainbow Station, can be seen every night in Amsterdam's Central Station until the end of the year. As a celebration of the station 125th anniversary, and to mark UNESCO's 2015 Year of Light, a rainbow lights up the station's historic roof arch every evening after sunset.

"Although the station is beautiful, a lot of people consider it to be a bit dark and grey," said Roosegaarde, speaking to CLADmag shortly after the artwork launched. "We wanted to add a layer of light. Because it's a national monument, we couldn't add anything physical to the station though, so that was a big challenge – to transform it, without adding to it."

Studio Roosegaarde worked with astronomers at the University of Leiden to develop a lens filter that 'unravels the light efficiently into a spectrum of a colours' to create the rainbow.

"We worked with the astronomers to make an optical lens made of liquid crystal of 1,000mm thick, which breaks the light in a very efficient way. This is not a projection or a slide – it's a real rainbow," said Roosegaarde.

The rainbow will be visible every night at Amsterdam Central for the next year. After that it will tour different cities in Europe, including Berlin, Prague and London.

The launch of Rainbow Station came shortly after the unveiling of Roosegaarde's Van Gogh-inspired cycle path in Nuenen, Netherlands. The 60m-long section of the path consists of thousands of solar powered glowing stones, arranged in patterns inspired by Van Gogh's painting The Starry Night. It also features LED lights, so it will still be partially lit when there isn't enough sun to charge the stones.

"My work relates to history – to the old world where we come from – but also to the future," said Roosegaarde. "It's about creating landscapes that are poetic and energy neutral."

The cycle path is part of Daan Roosegaarde and developer Heijmans' Smart Highways project, which aims to create safe, sustainable interactive roads using smart lighting, harvesting energy and creating signs that automatically adapt to the driving conditions.

The first Smart Highways project – called Glowing Lines – opened in the Netherlands in October. Solar powered, glow in the dark lines (created using photo-luminescent paint) have been installed on a stretch of the N329 road in Oss. The project is also developing Dynamic Paint, which will be triggered by different temperatures – so ice crystals could be painted on the road, which will light up when the temperature drops below a certain level, indicating that the surface could be slippery.

Roosegaarde's work focuses on interactive landscapes that automatically respond to movement and function. In 2008, his practice, Studio Roosegaarde, created the Sustainable Dance Floor – an interactive dance floor which generates electricity as people dance on it – for the Sustainable Dance Club in Rotterdam. In addition to the ongoing Smart Highways project, he is also experimenting with ways that the bio-luminescent qualities of jellyfish could be used to light up trees at night, meaning they could be used in place of streetlights.

"It's a great time to be back in sports – it's a piece of our practice we've sorely missed"

Bill Hellmuth CEO, HOK Sport + Recreation + Entertainment

Bill Hellmuth, president of global architecture practice HOK, is "excited" by the firm's recent re-entry into the sports sector.

Speaking to CLADmag's sister publication Sports Management, Hellmuth said the acquisition of sports specialist 360 Architecture, which will form part of a new global practice called HOK Sports + Recreation + Entertainment, has "filled a void" in HOK's operations.

"It's great to be back in sports," he said. "It's a piece of our practice we've sorely missed."

HOK's previous sports arm – HOK Sport Venue Event – became Populous in 2008 following a management buy out. A non-compete agreement, which formed part of the deal, meant HOK hasn't worked in sports architecture for more than five years.

Founded in 2004, 360 Architecture is recognised as one of the world's leading designers of stadiums, arenas and wellness centres, employing 200 staff. The company's previous work includes the MetLife Stadium in New York and the Basra Sports City project in Iraq.

Hellmuth said the integration of 360 into HOK will impact all of HOK's future work around large projects. "We do an awful lot of work with developers and a lot of masterplanning of communities," he added.

"Having the sports component woven in from the very beginning is a real benefit. In the past, people doing these masterplans would get to the sports part and we'd have to say 'we don't do that'. That's no longer the case and it makes our offering to clients so much richer."

IMAGE COURTESY OF HOK

The two firms collaborated on the design of the Dubai World Expo 2020 bid master plan

Brad Schrock, principal at 360 Architecture, will be among the staff to join the new Sports + Recreation + Entertainment practice. He is poised to become its director.

Speaking to Sports Management, Schrock said the new sports practice's philosophy will mirror the scale of opportunities offered by being part of a global masterplanning giant such as HOK. "Sports facilities are so much more than just sports facilities nowadays.

"The days of having a traditional sports architect execute a stadium are pretty much over. Our philosophy is that we've got an incredible group of professionals and experts around the world that practice in a number of markets that come to bear on all of our sports projects.

"Joining HOK enables us to take advantage of an exceptionally strong global platform and expand our sports facility design practice, while offering our clients additional expertise in other markets," he added.

Along with Schrock, 360 Architecture's senior principals set to join HOK include Tom Waggoner, George Heinlein, William Johnson, Tracy Stearns and Chris Trainer.

HOK's re-entry into the sports market in 2015 coincides with the celebration of the company's 60th anniversary.

"Our goal is to be one of the largest dedicated green wellness communities in the world"

Heather Henninger Founder, Yamani Healing

Nathan Stevenson CFO, Yanami Healing

The construction of Yamani Healing, a new eco-design hotel, destination spa and healing centre in Mexico's Riviera Maya is due to start later this year, following the announcement of a real estate partnership with lifestyle development Los Árboles Cobá

The $12.3m Yamani Healing project will offer a holistic approach to detoxification and will feature a hotel with 38 rooms and 10 suites, three large yoga halls, six cleansing and detox rooms, eight alternative healing and spa treatment rooms, infrared and herbal saunas, a temazcal sweat lodge, and a swimming pool.

The centre will act as the centrepiece of the Los Árboles Cobá development, which includes 420 residential lots, a community centre and more than 1,000 acres of conservation areas.

"Yamani Healing will be situated in 48 acres of pristine, raw jungle, so we have a real responsibility to protect the land," Yamani Healing co-founder Heather Henninger told CLADmag. "We have committed to not clearing more than 10 per cent of the land – and whatever trees we do clear, will be used as design materials as much as possible. We will maintain raised walkways throughout the property, so we minimise our imprint on the land itself."

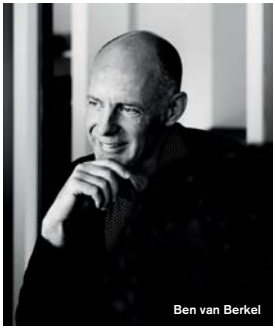
Heather Henninger (left) and Nathan Stevenson (right)

Mexico City-based architectural practice Estudio Tacubaya has been selected to lead the design of the hotel and healing centre, and UK-based Greg Kewish has been hired as sustainable architect and design consultant. LEED-specialist Robyn Vettriano will work with the architectural team to outline green specifications and design strategies to reduce the retreat's environmental impact, and ultimately obtain LEED certification.

The design features raised walkways to protect the jungle floor

"Yamani will be one of the largest dedicated green wellness communities in the world," says Henninger. "Our goal is to be the first carbon neutral resort and destination spa, with the first LEED accredited hotel, in Mexico. From a design perspective, our starting point is the delivery of personalised and renewing experiences which come from being surrounded by nature. We want the architecture to be in sync, so form follows function. The healing centre has been designed around the rising and setting of the sun, feng shui, and natural sightlines, so it's harmoniously integrated with the jungle." The project will use solar and wind power, reclaimed and naturally harvested building materials, water reclamation and aquaponic techniques.

While a 'substantial part' of the funding has already been secured via a key investment partner, potential investors are being invited to contact Nathan Stevenson (nathan@yamani-healing.com) about getting involved. "Yamani is a $32m project with $12.3m dedicated to the eco-design hotel, healing centre and spa and surrounding areas," said Stevenson. "There's a private offering open to investors for the remaining capital." ●



Ben van Berkel

dutch master

UNStudio co-founder Ben van Berkel talks about healthy buildings, theatre design and his fascination with art and commerce. Alice Davis reports

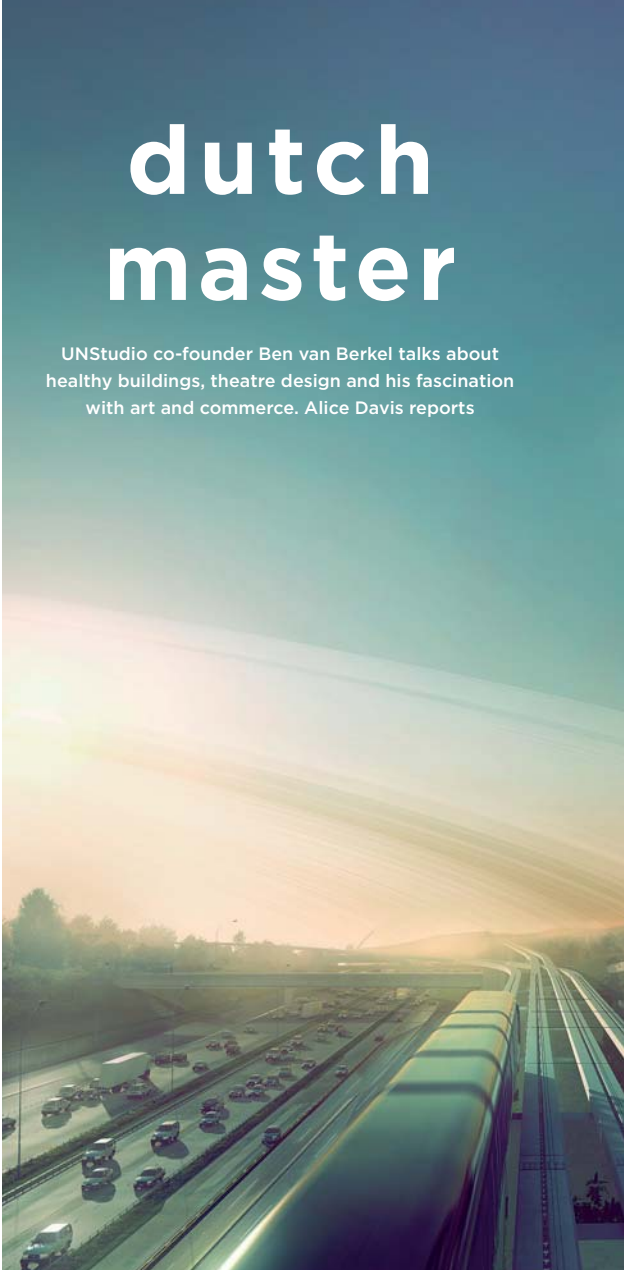
Since 1988, Ben van Berkel and his business partner, urban planner Caroline Bos, have championed a collaborative approach to architecture, first through the Van Berkel & Bos Architectuurbureau, and then through UNStudio, which they set up in 1998. UNStudio is a network of specialists in architecture, urban development and infrastructure, with a focus on innovation, sustainability and efficiency.

Projects include the Mercedes-Benz Museum in Stuttgart, Germany; the Ponte Parodi harbour project in Genoa, Italy; a new metro system for Qatar and the Theater de Stoep in Spijkenisse in the Netherlands

Van Berkel's position as a leading theorist, author and professor – he is Kenzo Tange Chair at the Harvard Graduate School of Design and professor of conceptual design at Städelschule, Frankfurt – shows itself in the layered intelligence of his high-tech buildings. Here the Dutch architect explains why we should aspire to find flexibility in function, and how design in the cultural arena influences his approach to other typologies.

You recently completed Theatre de Stoep in the Netherlands, and you're working on the Lyric Theatre for the West Kowloon Cultural District in Hong Kong. Do you enjoy designing theatres?

I've always found the theatre an exciting place. My mother was a singer so we often went to the theatre when I was young. Our visits were always followed by discussions about the music, the show, the acoustics and how the environment related to the performance. ▸



UN Studio's Nippon Moon observation wheel is in development in Japan

©UN STUDIO

Visitors can use the Nippon Moon app to customise their experience

GOW Nippon Moon

Nippon, Japan

In development

A project that's currently awaiting investment, the Nippon Moon is a showstopping, high-tech observation wheel designed by UNStudio at the request of Japanese company Ferris Wheel Investment. It offered the studio a perfect opportunity to explore socio-architectural and experience design in terms of mobile technology, creating a journey that starts before and ends long after the rotation of the 32-capsule wheel.

The user experience was designed alongside design consultancy Experientia, and the resulting Nippon Moon app enables both customisation and social interactivity. Users can use the app to buy tickets, select their ride time and choose a theme for their capsule during their ride. Digital photography can be displayed on the Hall of Fame installation. During the ride, it's possible to communicate via the app with people in other capsules. Inside the capsules, augmented reality technology allows guests to create digitally altered imagery during the ride in an experience that mixes reality with virtual reality. Structural engineering guidance was provided by Arup and Mitsubushi Heavy Industries.

> **"Making buildings more healthy is definitely the future"**

My love of theatre has developed. For me, it's about stepping into a different reality, but whether you see it as a form of escapism or as an enrichment of your own reality, what matters to me is that richness. That's what I like so much about designing theatres.

What insights can you share about theatre design from these two projects?

In these two projects lots of ideas came together. Theatre de Stoep features a huge open foyer. The idea is to celebrate going out. The foyer – which is unobstructed by columns, and features a huge sculptural staircase – celebrates the visitor as though he is an actor in a scene from a play. He can be seen from viewpoints on all different levels, so the foyer is like a stage as he steps out of his everyday life.

There are a lot of pragmatic considerations related to both theatres. Each has two auditoria, so you have to deal with the acoustics very carefully to stop sound from one travelling to the other. We created a 'box within a box,' so there's no acoustic interference between the two spaces. In another project, the Theatre Agora in Lelystad, the Netherlands, we had to split the foundations to make sure there were no vibrations moving from one auditorium to another.

The latest request from clients is to factor in a 24-hour lifecycle for the theatre. Clients want the theatre to be used by the city and the public, for cultural and commercial activities – we have to make it more than just a theatre.

©EDMOND LEUNG

The architecture of the pavilion was designed to interact with the surrounding landscape

World Horticultural Expo Theme Pavilion

Qingdao, China

2014

UNStudio designed the Theme Pavilion for the World Horticultural Expo 2014 in Qingdao, China. The pavilion consisted of four buildings: the main expo hall, a performance hall, a conference centre and a media centre.

Qingdao's decision-makers have plans to develop tourism in the city, and UNStudio created the pavilion buildings with their potential future uses in mind. Ben van Berkel and his team created flexible structures that can be turned into a hotel with conference and teaching facilities in the future.

Foresight is needed to engineer buildings that are capable of this type of change in use while a respect for the language of the original design form is maintained. "As part of the design process, the future use of the Theme Pavilion is incorporated into the DNA of the design," the studio says.

The outline of the collection of four buildings references the Chinese Rose – the city flower of Qingdao – with each of the four buildings representing a petal. They are connected via walkways.

World Horticultural Expo Pavilion
Vertical seams in the outer cladding offer flashes of colour – green, yellow, orange and blue – which can only be seen from certain viewpoints and which help orient visitors. The four pavilions (or 'petals') frame a central square which becomes a kind of stage for visitors

©CUN STUDIO

The four structures are clad in aluminium panels and offer brief flashes of colour

©EDMON LEONG

©EDMON LEONG

UNStudio has launched an online knowledge platform aimed at faciliating the open exchange of knowledge within architecture

Can you tell us about the Mercedes Benz Museum?

The building cost E150m (E100m for the structure and E50m for the interior). When the client first approached us there was talk of creating a showroom for the car collection, but we suggested that it should be more of a museum space; a space that would appeal to the public, where industrial products could be seen in the same way artworks are viewed – from many angles and perspectives, and from close up and far away.

Did you look at any other brand-focused architecture projects for inspiration?

Actually we looked more at museum architecture. Our interest was more about creating an experience for the visitor that would go hand in hand – conceptually, visually and spatially – with what was being displayed. It was very important for us to go beyond brand-focused architecture.

UNStudio is a global practice. Do you adjust your approach to take account of cultural differences?

We always try to understand a new location. At the moment, we're working in two new countries – we have a lot of work in Australia, and we are currently working on a new metro system in Qatar.

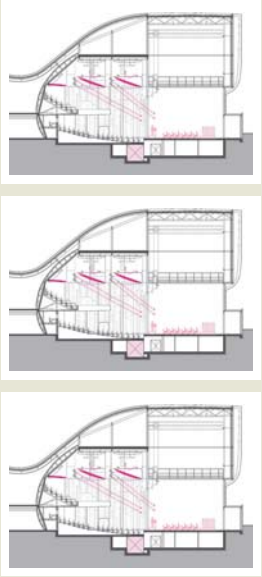
We have thorough discussions with the client and with our local advisers; we also like to work with local engineers and architects to enrich our knowledge of the area.

We refer to the location, the history and the context of every project, but we always add new insights, and reinterpret it so that it's forward-looking.

©PETER QUENZEL

The curved shape means wind flow to a nearby windmill isn't disturbed

©UN STUDIO



The auditorium ceiling panels can be raised, lowered and angled differently, giving the venue flexibility to host a wide range of performances

Theatre de Stoep

Spijkenisse, Netherlands

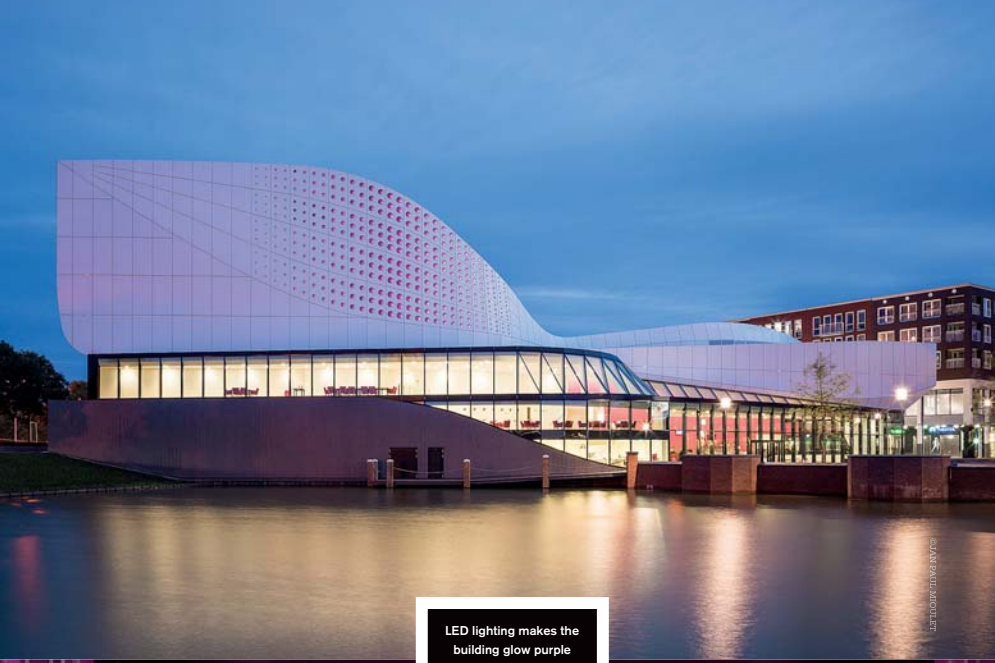
2014

The design of Theatre de Stoep takes into account the theatre as a place of wonder and illusion, at the same time as being a place of community and social interaction. Inside, Van Berkel uses the voluminous foyer – with no columns, it is unobstructed throughout – and sculptural staircase to create a huge foyer space where people can gather and socialise, conceived as a stage for the visitors themselves.

The 5,800sq m venue features a main 650-seat auditorium, with a smaller theatre space for 200 audience members. The ceiling in the main auditorium is adjustable, meaning it can be adapted to meet the acoustic needs of different types of performances.

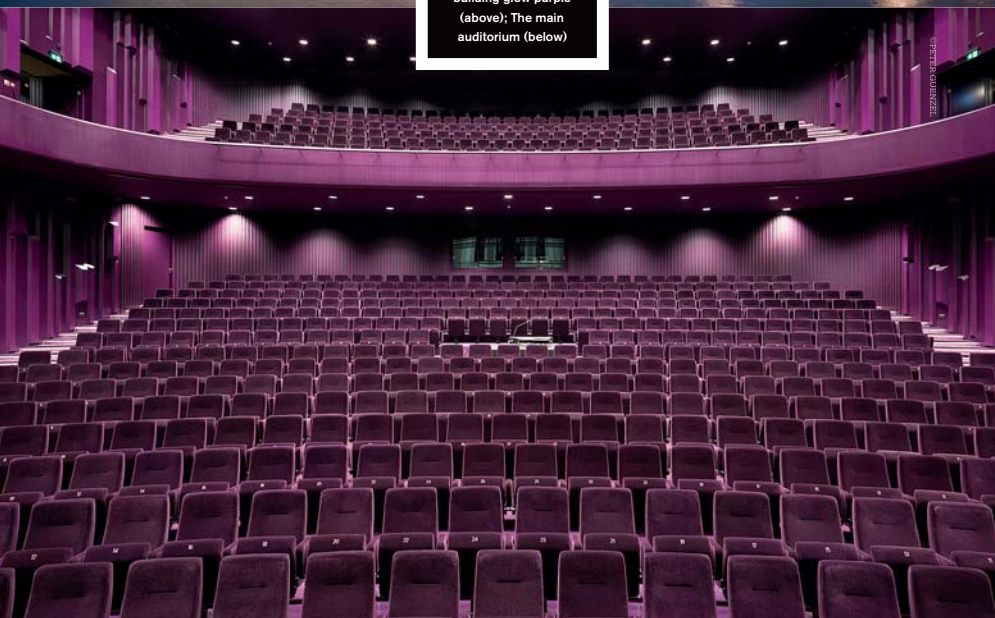
The building also houses a café, a restaurant and an artists' café, dressing rooms and office space under the theatre roof.

UNStudio was able to keep costs low thanks to its capabilities in Design Information Modelling and Building information modelling methodologies, which can digitally model and test structures before the construction phase begins.



©JEAN PAUL MIOULET

LED lighting makes the building glow purple (above); The main auditorium (below)



©PETER GUENZEL

What kind of things are you looking to incorporate into your designs?
I look at everything from historical examples of form to the way the light falls or to the way people are dressed. I'm inspired by the many levels of culture you can find in society.

I've learned so much from working in so many places, so I'm also able to cross-combine different cultural qualities to give our architecture a global feel. That doesn't mean we're totally global in our ideas however, as we also believe in being highly local. With a global network and local experiences you can be truly innovative.

Your work strikes a powerful balance between interior and exterior. How do you approach this?
We've done many projects where this 'inter-quality' between exterior and interior come together. I think it comes from my experience in product design and interior design, and I'm also very influenced by art. I always strategise a holistic approach.

You can see this approach in theatres we've designed like Theatre de Stoep and Theatre Agora, in the Museum de Valkhof in Nijmegen in Holland, and in the Mercedes-Benz Museum in Stuttgart, Germany.

In the Mercedes-Benz Museum, a major design element is the void space in the centre of the building, which became one of the biggest inspirations for the façade. It's almost as though the façade and the central void have a direct dialogue with each other.

You often talk about intelligent buildings. What characteristics do they have?
We want to bring all the values of a building – the materials, construction, acoustics – together to make buildings that are smarter and more interactive. Buildings will become interactive machines that react and respond

©UN STUDIO

The Ponte Parodi waterfront development will feature a large rooftop park

Ponte Parodi

Genoa, Italy

In planning

Ponte Parodi is part of Genoa's harbour regeneration project.

UNStudio won the competition to design a new experience destination for the city and repurpose space vacated by industry. The concept includes a cruise terminal, wellness, a park, sports fields, beaches and cultural attractions. All of this orbits around a large public piazza.

The main building houses retail, F&B, wellness and the terminal, and a botanical park and amphitheatre are located on the roof. The studio has incorporated different approaches to public space across the destination, with an esplanade, urban park and other recreational areas.

UNStudio's philosophy of creating buildings that are sustainable and flexible in function can be seen in action at Ponte Parodi.

> **"Artists have always been fascinated by the world of display"**

Van Berkel brought ideas from museum design to the Galleria Centercity in Cheonan

PHOTO: ©CHRISTIAN RICHTERS

to people. We have just completed a smart house that operates on this level.

The idea of intelligent buildings also relates to the design process. At this stage we can create buildings that are as efficient and intelligent as possible, and we consequently save money. We make more exciting architecture by using new design techniques.

Intelligent buildings can be highly flexible. We've designed an office building for example – the UNStudio Tower in Amsterdam – that can be transformed into a residential building. By incorporating maximum flexibility into the design, the future use of the building can be changed without any structural alteration.

How do you predict building design will change in the future?

I believe the idea of comfort will change. Comfort will be much more connected with health, so buildings will be healthier. We'll be much happier to walk around buildings and use staircases because we know it's better for us. We've also been using a technique used in hospitals, where the air is extracted vertically from the room instead of flowing from one person to the next. Making buildings healthier is definitely the future.

What has been the greatest change to the architecture profession since you started your career?

The widespread use of computers and new technology. I was brought up with hand drawing and the drawing board, and I do still sketch, but the computer gave me new insights and a belief that new design techniques can stimulate our imagination.

Computers are knowledge machines that can help us achieve smart, interactive, innovative buildings. They also help us deal with the many building codes and requirements that have been introduced to the profession over the years.

In the past, architecture was segmented and fragmented – you had the column, the ceiling, the floor. Now, with computational techniques you can hybridise these ideas; a ceiling can turn into a column, for example.

Which UNStudio leisure building are you most proud of and why?

Sometimes quite unusual projects become the most fascinating ones for me. We designed a shopping centre in Cheonan in South Korea called Galleria Centercity [completed in 2010]. The project came straight after a run of museums and theatres, which meant I approached it in a totally cultural manner. I asked the client why we couldn't see the objects that people buy in this building as the art, why we couldn't use the lighting effects we use in museums, why we couldn't make a fantastic atrium and a lobby space and make everything white. I approached it from a totally different standpoint than I had before.

It's a fascinating building. I always notice when people stand in the atrium and look up, they can't work out if the building is 20 metres high or 60 metres high – it's full of illusions.

What's fascinating about this typology is how and where we see commerce and culture overlap. What is their relationship? Sometimes friends ask me how I can work on a department store. Yet half of my work is cultural, and I like what I learn from the cultural typology so much that I want to translate it into my other work.

Andy Warhol was an incredible shopper. He believed that when we die we go to Bloomingdales. Artists have always been fascinated by the world of display, and I've ▸

"Like a good book, you should want to return to a great building"

always been fascinated by the combination of art and commerce.

Which leisure building by another architect do you most admire and why?
An architect who inspired me in the early days was Clorinda Testa. He did the Banco de Londres y América del Sur in Buenos Aires. When you step into that bank, you feel like you've stepped into a museum. That project really inspired me.

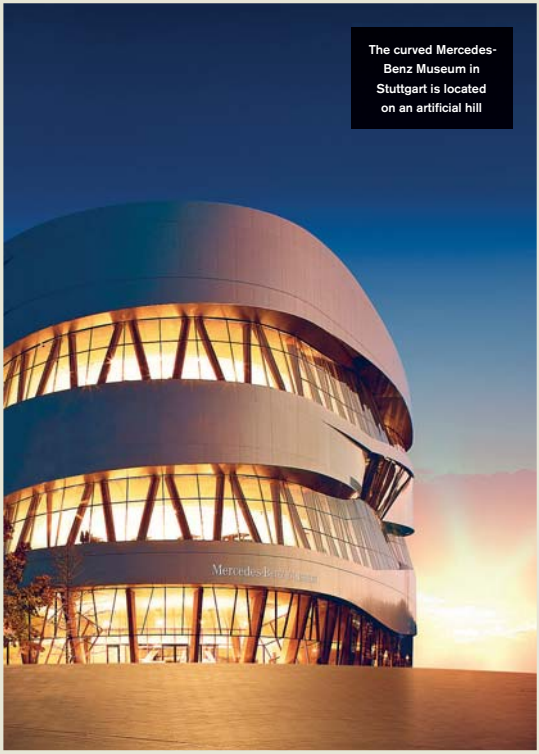
What sets your practice apart from its rivals?
We are very collaborative and open. We liken architecture to art, and we want to make buildings that people will remember and want to come back to. Like a good book or a good movie, you should want to return to a great building because there's more to discover. We believe in architecture where many different meanings can be applied.

In architecture, we need to add something so it becomes a bit more coherent, a bit more surprising and innovative. That's why I'm always searching for new ways to approach architecture and its typologies.

Why is leisure architecture important?
This is where we have the thrill of going out; of stepping into another world.

These places are a mirror to the world we live in, and it's important that they are there. We sometimes forget to think about the social implications of what architecture can do. We should bring that much more strongly into the discussion of the role of architecture.

It's also about people coming together, sharing knowledge and enjoying public moments. That's the beauty of leisure buildings. ●



The curved Mercedes-Benz Museum in Stuttgart is located on an artificial hill

Mercedes-Benz Museum

Stuttgart, Germany

2006

UNStudio weaved a sense of movement into the Mercedes-Benz Museum to illustrate the story of the automobile and the freedom that came with its invention. Ben van Berkel and Caroline Bos, inspired by the shape of a clover leaf, constructed an exhibition space in the form of an open, twisting, sculptural spiral. Oblique and angled surfaces reference motion while directing the visitors' route. The openness of the space was paramount to the visitor's ability to view the vehicle exhibits from any perspective. The duo drew on the column-free rooms of Mies van der Rohe's National Gallery in Berlin and the ramp-style spiralling gallery of Frank Lloyd Wright's Guggenheim to create the unobstructed spaces.

The architects were concerned that the "interest in the architecture of museums almost surpasses the interest in the works that are inside them" and, like all of UNStudio's work, the museum holds their insights and philosophies at the centre of its design. "The success of a museum depends on the inventiveness and adequacy of its internal arrangement of spaces; it's not an iconic face that makes a museum great," said Bos and Van Berkel.

One of the ramps leads into a series of galleries displaying Mercedes-Benz' vehicles

©DAIMLER AG

Visitors walk through the museum via two ramps that spiral down around a central atrium

PHOTO: ©CHRISTIAN RICHTERS

We have created GOCO Spa Venice. The largest spa in Venice is opening on Isola delle Rose Island in March 2015.

GOCO RETREAT UBUD
Bali, Indonesia

GOCO RETREAT NIUTUO
Greater Beijing, China

GOCO RETREAT THIMPHU
Thimphu, Bhutan

THE SPA AT STEIGENBERGER FRANKFURTER HOF
Frankfurt, Germany

GOCO SPA AT AJMAN SARAY
Ajman, United Arab Emirates

GOCO RETREAT KHAO YAI
Khao Yai, Thailand

GOCO HOSPITALITY
Horwath HTL
Health and Wellness

©Matteo Thun & Partners, 2013

WELLNESS MEETS WANDERLUST

GOCO Hospitality, a dedicated global wellness hospitality consulting and management company, working in over 25 countries.

Providing a true turnkey solution from initial market research and design, to management of wellness projects.

BANGKOK • BERLIN • SHANGHAI

www.gocohospitality.com

Butterfly wings are inspiring the next generation of solar power

INSPIRED BY NATURE

From creating breathable metals to copying how animals cool their homes, architects and designers are increasingly using the principles of biomimicry in their work. Christopher DeWolf takes a look at how the discipline is evolving

When Janine Benyus published her book, *Biomimicry: Innovation Inspired by Nature*, in 1997, she expected it to cause a stir in the academic world. She didn't imagine it would help launch a movement that has reshaped the way many architects, designers and engineers approach their disciplines. "It shocked me how much architects really responded to it," she says by phone from her office in Montana.

Trained in natural resources management and English literature, Benyus has a gift for making complex ideas like biomimicry accessible. Simply put, she believes that human innovation should be inspired by nature, because nature works efficiently and sustainably. "A truly biomimetic system solves more than one problem at a time," she says.

Janine Benyus popularised biomimicry with her 1997 book. She continues to work in the field

Nothing in nature works in isolation, yet the past 200 years of industrialisation and specialisation have led humans to take the opposite approach. "Biomimicry is useful in whole system thinking," she says. "Rather than being siloed, where you have the engineering folks here and the design folks there, they're sitting together and looking at something as if it has organic systems and it all works together."

A GROWING TREND

Over the past decade, biomimicry has burrowed small but persistent roots into the foundation of architecture. Its greatest influence can be seen in small innovations with far-reaching implications. In the United States, architect David Benjamin is pioneering the field of 'mycotecture' by creating structures with fungal material. Last summer, he unveiled Hy-Fi at MoMa's PS1 Gallery

PHOTO: SCOTT FRANCIS/OTTO

Richard Meier's Jubilee Church uses self-cleaning cement inspired by photosynthesis

in New York, an experimental tower built entirely of bricks made from mycelium (the vegetative part of fungus), hemp and corn stalks. Made by a company called Ecovative, the bricks grow naturally into shape in five days. Benjamin sees them as a jumping-off point for a more elaborate fusion of biology and architecture. "Biological systems have amazing properties like adaptation, self-organisation, self-healing, and regeneration," he told *Inhabitat* blog last year. "Imagine our buildings having the same properties."

Biomimicry has found its way into some of the biggest architecture firms in the world. Hong Kong-based practice Aedas sees sustainability as one of the key components of its design process. "Clients think that sustainability is expensive, but most efficiency comes from synergy," says Benny Chow, the firm's director of sustainability. Engineers collaborate with architects from the beginning of each project, rather than at different stages of design. "It costs you zero in terms of extra budget," he says.

That process came in handy when Aedas was asked to design a mixed-use development in Nanjing. Like many Chinese cities, Nanjing suffers from severe air pollution, so Aedas decided to turn the development's centrepiece, a large observation tower, into a device that scrubs pollution from the air. "We were inspired by photosynthesis," says Chow. More specifically, it's a process called photocatalytic purification, also known as the Honda-Fujishima Effect, which decomposes pollutants into simple compounds that can be converted into oxygen. The tower enables the process through surfaces nano-coated with titanium dioxide, a widely-used compound found in products as diverse as sunscreen and ▸

David Benjamin's experimental Hy-Fi tower fuses biology and architecture

> **With 3D printing we can actually imitate life's structures, but we need to get it right and use a small material palette. In the natural world there are only about five common materials that are used over and over again**

Above: architect Doris Sung has developed a building skin made of thermo-metals that breathes like human skin. Top pic: Sung's Bloom installation uses the new 'skin'

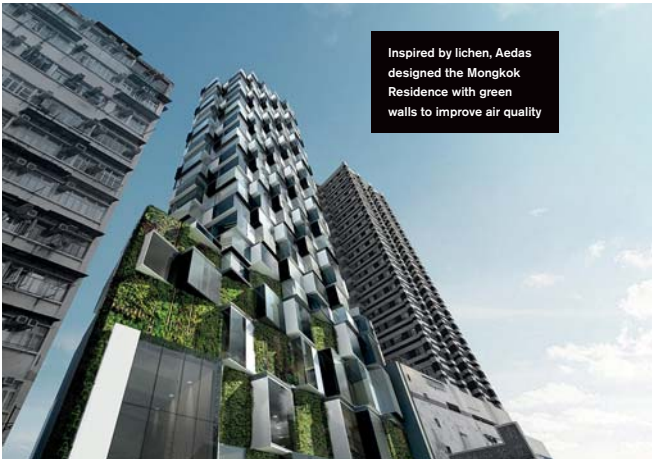
skimmed milk. The tower's surface is highly porous, which increases the surface area covered by titanium dioxide.

RESPONSIVE BUILDINGS

One of the key elements of biomimetic design is responsiveness to natural elements. Sensor systems that mimic the communication patterns of bees have been developed to regulate the energy consumption of home appliances, allowing them to work more efficiently at peak hours. Los Angeles-based architect Doris Sung prefers a less technically intensive approach. Sung has developed a building skin of thermo-bimetals that 'breathe' in order to heat or cool a building. Originally trained as a biologist before studying architecture, Sung says she was in grad school, working all day in air-conditioned buildings, when she wondered why building skins couldn't be more like human skin. "I thought architecture should be an extension of the human body," she says. Her concept is deceptively simple: thin sheets of digitally fabricated metal expand and contract in response to solar energy, curling down to provide shade on sunny days and curling up to allow in light when it is dark. A similar process creates openings for ventilation on hot days while retaining warm air when it is cool.

Sung put the materials to work last year in Bloom, an experimental installation in Los Angeles, and she has designed a house clad in thermo-bimetals for a developer in mainland China. "The cost is actually reasonable," she says. "The hurdles we have to get past are building safety and permit approvals." Because the metal sheets are loose and movable, they are not certified for use as construction materials in the United States. Obtaining approval would require hundreds of thousands of dollars in testing. It's an irony that should come as no surprise to architects: material innovation has outpaced regulatory innovation. Thanks to digital fabrication, it has never been easier to turn novel designs into reality, but applying those designs to architecture might require a similarly proactive response from regulators.

IMAGE: AEDAS



Inspired by lichen, Aedas designed the Mongkok Residence with green walls to improve air quality

FLICKR/DOPPLER

Architect Neri Oxman led the research team that developed the Silk Pavilion

MATERIAL WORLD

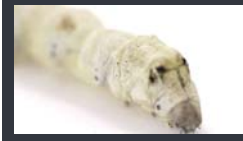
Digital fabrication has already pushed biomimicry to new frontiers, but Benyus says there's still a long way to go. "With 3D printing, we can actually imitate life's structures, but we need to get it right and use a small material palette," she says. "In the natural world there are only about five common materials, they are used over and over again but given functionality through structure." More than that, architects should take inspiration from nature's constant reuse of materials. "A product must be able to be disassembled at the end of its life," says Benyus. "You should be able to pop it into a bath that takes it back to its raw materials, which you can take and use once again for your printer."

A number of architects have begun to investigate the potential of using animals to create building materials – turning them into "animal printheads," in the words of writer Geoff Manaugh. In one case, liquor company Dewar's used a bottle-shaped beehive to create a massive beeswax bottle. In another, a team led by Massachusetts Institute of Technology architect Neri Oxman guided 6,500 silkworms to create a dome around a simple metal frame. "Animal bodies can be guided, disciplined, or otherwise regulated to produce large-scale structures, from consumer objects to whole buildings," writes Manaugh. In other words, nature itself can be used to create architecture for humans.

Though projects like these are often labelled as biomimetic, Benyus considers them retrograde. "It disturbs me," she says. She notes that bioutilisation ("Where we cut down a tree and use the wood") and bioassistance, like using bacteria to clean drinking water or using bees to make food, have been in practice for eons. "It's old technology," she says. And they are both practices that are open to abuse: "Whenever we use organisms to do our bidding, we do tend to apply our fetish of efficiency onto them, and we tend to mess with them genetically." Biomimicry learns from nature without exploiting it. "If you want to make ceramics, the toughest ▸

SILK PAVILION

Researchers at MIT Media Lab's Mediated Matter group created the Silk Pavilion using a robotic arm and 6,500 live silk worms. The project's aim was to explore the relationship between digital and biological fabrication



> **If you want to make ceramics, the toughest ceramics are on the inside of abalone shells. You could farm abalones. Or you could see how abalones take seawater and self-assemble that amazing ceramic**

ceramics are on the inside of abalone shells," she says. "You could farm abalones. Or you could see how abalones take seawater and self-assemble that amazing ceramic."

BIOMIMICRY THINKING

By itself, there is nothing inherently sustainable about biomimicry. That's why process, and not just material innovation, is so important. Shortly after publishing *Biomimicry*, Benyus was approached by companies that wanted to apply her ideas to their entire working systems. She founded a consultancy to cope with the demand, along with the not-for-profit Biomimicry Institute, which promotes biomimetic ideas. "We've developed a methodology that is pretty robust – we look at natural systems and pull out design principles from that," she says. Benyus calls the methodology "biomimicry thinking" and compares it to the recent emergence of "design thinking," which advocates a solution-based approach to problem-solving, rather than an analytical one.

Such thinking might lead some to reconsider the very nature of architecture itself. Neri Oxman has been vocal in promoting a new kind of architecture based on natural principles, such as growth over assembly, integration over segregation and difference over repetition, which are now made easier by digital fabrication technologies. "These technologies will enable us to create buildings that are entirely different than the ones that we inhabit today," she wrote last year. It may be possible to print concrete with the variable density of a human bone, she added, but that alone should not be the goal of biomimicry. "[It] is not a matter of pouring 'new wine into old wineskins' but of reconceiving the entire quest for creating habitat and expressing form." ●

Christopher DeWolf is an architecture journalist and photographer based in Hong Kong

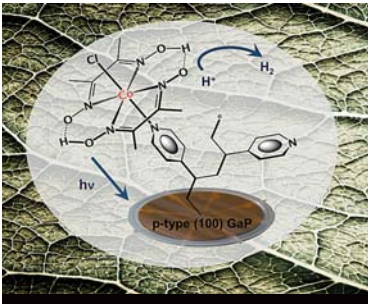
François Barthelat and his team at McGill University are working to recreate the structure of nacre

BIOMIMETIC MATERIALS

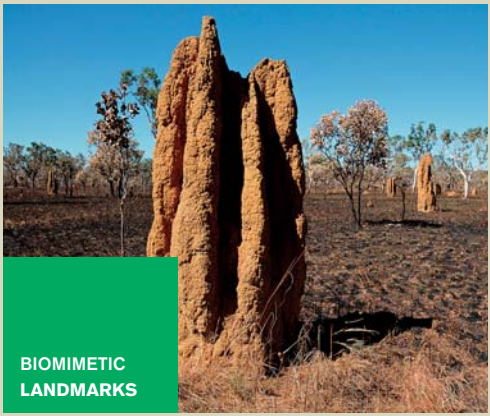
How do animals cool the air? Ask Nature. That's the name of a website established by the Biomimicry Institute to catalogue the many sources of inspiration for biomimetic systems and materials. Prairie dogs ventilate their underground warrens by creating two tunnel entrances, one tall and narrow, the other wider and more shallow, which helps suck out stale air. Ask Nature suggests using the system for a passive ventilation system in buildings.

Architects, engineers and designers seem to be listening; more and more biomimetic materials are being put into use. Titanium dioxide is used in self-cleaning windows as well as on the bare concrete walls of Richard Meier's gleaming Jubilee Church in Rome. Researchers at the University of California, Berkeley are developing a bionic leaf that converts solar energy into hydrogen, which could help fuel electric cars and, eventually, entire buildings.

At McGill University in Montreal, the Biomimetic Materials Laboratory is trying to create a synthetic version of nacre, which forms the inner layer of mollusk shells and is 3,000 times stronger than the mineral from which it is made. No synthetic material can match this kind of 'toughness amplification,' to use the technical term. If scientists can determine what allows nacre to become more than the sum of its parts, the durability of other basic materials could be increased.



Researchers in Berkeley are developing 'bionic leaves'



BIOMIMETIC LANDMARKS

PHOTO: DAVID BRAZIER

The temperature at the Eastgate Centre in Harare is regulated using methods inspired by African termite mounds

One common misconception of biomimicry is that its product must look like something found in nature. More often than not biomimicry is invisible. While it wasn't ultimately shortlisted, HOK's proposal for the Barack Obama Presidential Library was a good example. It was designed to be indistinguishable from its surroundings thanks to features like habitat restoration, an urban farm and a carbon neutral design.

Many of the boldest examples of biomimicry in architecture are experimental installations, like Marc Fornes' nonLin/Lin Pavilion in Orleans, France, which consists of perforated aluminium sheets that can be connected and replicated infinitely. Others are vernacular: villagers in the Indian state of Meghalaya have woven together the roots of banyan trees to create living bridges that grow stronger with each passing year.

The most celebrated example of a biomimetic building is the mixed-use Eastgate Centre in ZImbabwe, designed by architect Mick Pearce in collaboration with engineers at Arup. Its ventilation system is modelled on that of a termite mound, with an open courtyard and a series of ducts that draw air into the building, cooling or heating it depending on the difference in temperature between the building mass and the air outside.

PHOTOS: ©MARC FORNES

Marc Fornes' nonLin/Lin Pavilion can be replicated infinitely

MICHAEL PAWLYN

Exploration architects have built a global reputation for their work in biomimicry. Founder Michael Pawlyn tells Rhianon Howells why biology and architecture make great bedfellows

As one of the world's leading biomimetic architects, Michael Pawlyn has always been as passionate about the natural environment as he is about the built. But it wasn't until he joined Grimshaw Architects in 1997 that he realised he could combine both loves in his work.

Pawlyn was part of the core team responsible for the Eden Project in Cornwall, UK; he led the design of warm temperate and humid tropics biomes, helping to radically reinvent the principles of horticultural architecture and creating a groundbreaking, world-class visitor attraction in the process.

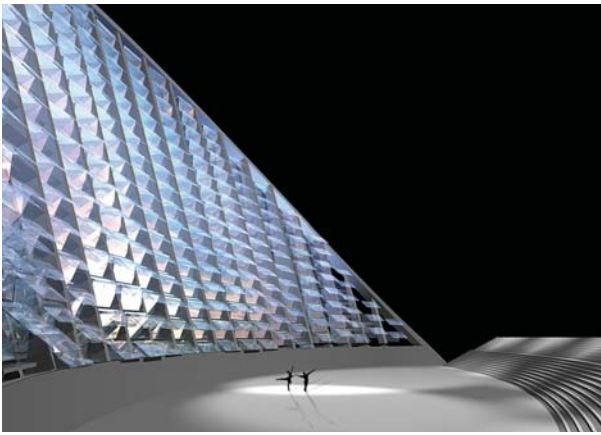
In 2007, he left Grimshaw to set up his own firm, Exploration, a group of architects, designers and researchers who specialise in design innovation and strategy which is specifically focused on biomimicry.

Pawlyn and his team are casting their net wide, in the belief that this kind of design has the potential to benefit all areas of life. Projects range from studies for a biomimetic office building to the Sahara Forest Project – a pioneering attempt to grow vegetation and create green jobs in desert regions – that's already proven successful in a pilot in Qatar. Looking ahead, Pawlyn believes there's great potential to apply the principles of biomimicry to leisure architecture, particularly in the area of mixed-use schemes.

What sets your work apart?

There aren't many architectural practices doing what we do, although I'm sure that'll change. There are a few architects in colleges doing work on biomimicry, but the practices tend to focus more on biomorphic architecture.

Biomimicry is about engaging with the way functions are delivered in biology and translating that into solutions that meet human needs, whereas biomorphism is more about looking to nature as a source of original forms. Some of Frank Lloyd Wright's buildings or the TWA terminal by Eero Saarinen are good examples, and they can be very enjoyable buildings. It's worth making the distinction, though, because I feel strongly that what we need over the next few decades is a functional revolution.



LAS PALMAS WATER THEATRE IMAGES: GRIMSHAW

The Las Palmas Water Theatre – a desalination plant that takes the form of an outdoor amphitheatre – was inspired by the Namibian fog-basking beetle

The Namibian fog-basking beetle creates its own fresh water in the desert

How does biomimicry in architecture differ from other sustainable approaches?

The sustainability paradigm has often been about mitigation – how to make things less bad. In their book *Cradle to Cradle*, William McDonough and Michael Braungart argue that we need to get beyond that: it's not enough to produce solutions that are less bad, we need models that are 100 per cent good.

In the case of biomimicry, I think it's possible to move to a new paradigm, which is about restorative design. So while conventional human-made systems are generally extractive, linear, disconnected, wasteful and reliant on fossil fuels, biomimicry is about creating densely interconnected, zero-waste systems that rely on solar energy in a way that is actually restorative to the environment.

How much potential is there to apply the principles of biomimicry to leisure buildings?

The potential definitely exists to use biomimicry to solve functional challenges but at the same time to deliver secondary benefits. A good example is the Las Palmas Water Theatre in the Canary Islands, which I worked on at Grimshaw and which is actually a desalination plant. The key biomimicry idea came from the Namibian fog-basking beetle: you've got a cool surface, humid air passes over it and condensation forms. We tried to maximise that effect using the sunny conditions, steady wind direction and cold seawater that are abundant in the Canaries. That drove the form of the building, but the evaporators and condensers were arranged in such a way that they created a backdrop for the creation of an outdoor amphitheatre.

The Sahara Forest Project [a scheme that combines solar power technology and ▸

> HERZOG AND DE MEURON'S BIRD'S NEST STADIUM LOOKS AWESOME, BUT IT'S INCREDIBLY RESOURCE-INTENSIVE AND TAKES NONE OF THE INGENIOUS ASPECTS OF BIRDS' NESTS

desert revegetation techniques with sea-water-cooled greenhouses which are also inspired by the Namibian fog-basking beetle] also has the potential to work very well as part of a mixed-use leisure resort.

Resorts have normal infrastructural demands in terms of energy, water, food and waste, so if we're going to create sustainable destinations we have to find ways of meeting those needs in the most sustainable way. If we had a Sahara Forest Project near a leisure scheme, we could deliver zero-carbon food and potentially create all the energy and water needed, at the same time as turning a barren environment into a more bio-diverse and micro-climatically cooler environment.

Are you working on any leisure-related projects at the moment?

We've done a seed proposal for a sustainable scheme in the Amazon. If it goes forward, it will be a boutique hotel. It's completely off-grid, so we'll have to propose ways in which it can be self-sufficient in water and energy and completely closed-loop in terms of its waste processes. And as far as possible the buildings will be made of locally available materials.

What role did biomimicry play in the Eden Project?

It was used at pretty much every stage of the design process. One of the challenges was that the site was still being quarried and we didn't have predictable final ground levels. So we conceived of the building as being composed of bubbles; we studied their geometry and developed a bubble model that fitted into that 3D terrain. The next stage was thinking about how those spherical surfaces could be structured most efficiently. For that, we looked at examples in biology such as pollen grains, radiolaria and carbon molecules, which demonstrated that the most efficient way of structuring a spherical surface was with pentagons or hexagons.

We then wanted to maximise the size of those hexagons, to save steel and to maximise light, which meant finding an alternative to glass. In nature, there are some very efficient forms made out of pressurised membranes and that led us to ETFE, which is a high-strength polymer that's put together in three layers then inflated to give it rigidity. We pushed the material further than ever before, and eventually we were able to produce inflated 'pillows' of up to 75sq m in size.

With safety glass you're limited to 10sq m; not only were some of these hexagons seven times that size, but they were also 1 per cent of the weight of double-glazing. That delivered a huge advantage in terms of steel use.

When designing the dome intersections posed a challenge, we resolved it by looking at the structure of dragonfly wings.

Why is it important the buildings we spend our leisure time in are well designed?

When people are in leisure mode, they're often very receptive to new ideas, and there's a real chance if someone sees something innovative when they're on holiday, they will think about how to apply that when they go back to their work environment.

I also think it's really important to find ways to reconnect with nature and help people to understand just how much we depend on nature for our future quality of life: our materials, medicines and foods. And that's something that you can often do on a leisure scheme that you wouldn't be able to do on, say, a dense urban site.

IMAGE: COPYRIGHT SAHARA FOREST

The Sahara Forest Project aims to create revegetation and green jobs through the production of food, water, clean electricity and biomass in deserts

PHOTO: CHARLES AW

By developing a model based on bubbles, the team at Grimshaw solved the challenge of unpredictable ground levels for the Eden Project biomes

What single opportunity or experience has most defined your career?

Working on the Eden Project was a great break for me. It made me realise the three things I was passionate about as a teenager – design, biology and the environment – could be brought together in the congruent pursuit of sustainable architecture inspired by biology, and I hadn't realised that before. Also it showed me how you can take a fairly wild idea and, by following a thorough process, managing innovation and getting the right people together, turn it into something real.

What's your favourite leisure building?

A real hero of mine is the Swiss-Italian engineer Pier Luigi Nervi, who worked on some really stunning buildings, including a small sports stadium called the Palazzetto ▸

Studying dragonfly wings helped with the design of the Eden Project's dome intersections

> THE FOSSIL FUEL INDUSTRIES HAVE DRIVEN US TO THE BRINK OF THE ABYSS AND NOW THEY'RE PUTTING THEIR FOOT ON THE ACCELERATOR. IT MAKES ME ANGRY

The design of the 1960 Palazzetto Dello Sport in Rome was inspired by giant Amazon water lilies

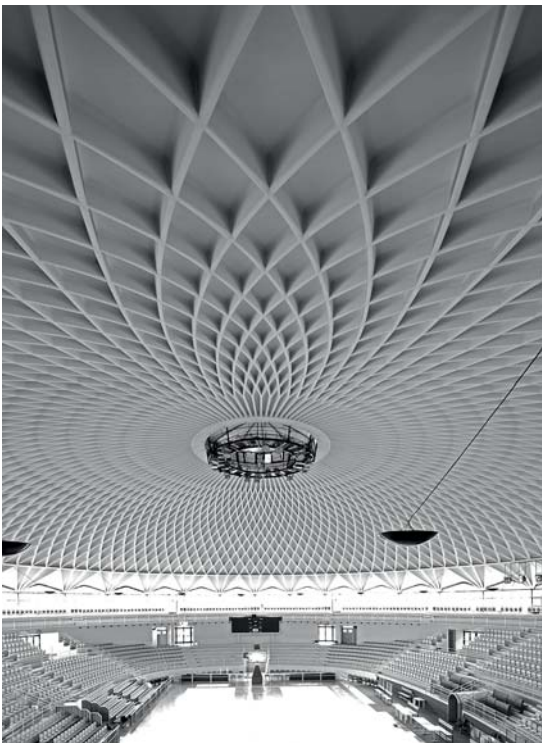


PHOTO COURTESY OF THE ARCHITECTURAL REVIEW

Pawlyn cites the Palazetto Dello Sport as one of his favourite buildings

Dello Sport, which was built for the summer Olympic Games in Rome in 1960 and designed by architect Annibale Vitellozzi. The structure is based pretty closely on giant Amazon water lilies and there's a nice parallel between the way Nervi works and the process of evolution, in that he won many of his projects in competition by being lighter and more efficient, and therefore cheaper, than his competitors.

Are there any leisure buildings that you dislike?

I'd be critical of the Bird's Nest Stadium in Beijing by Herzog and de Meuron. In some ways it's stunning, it looks awesome, but it's incredibly resource-intensive. Although on a certain level it claims to be inspired by birds' nests, it actually takes none of their ingenious aspects. You could have used those examples to create a highly resource-efficient structure, but it isn't resource-efficient at all.

What are the biggest threats facing your discipline?

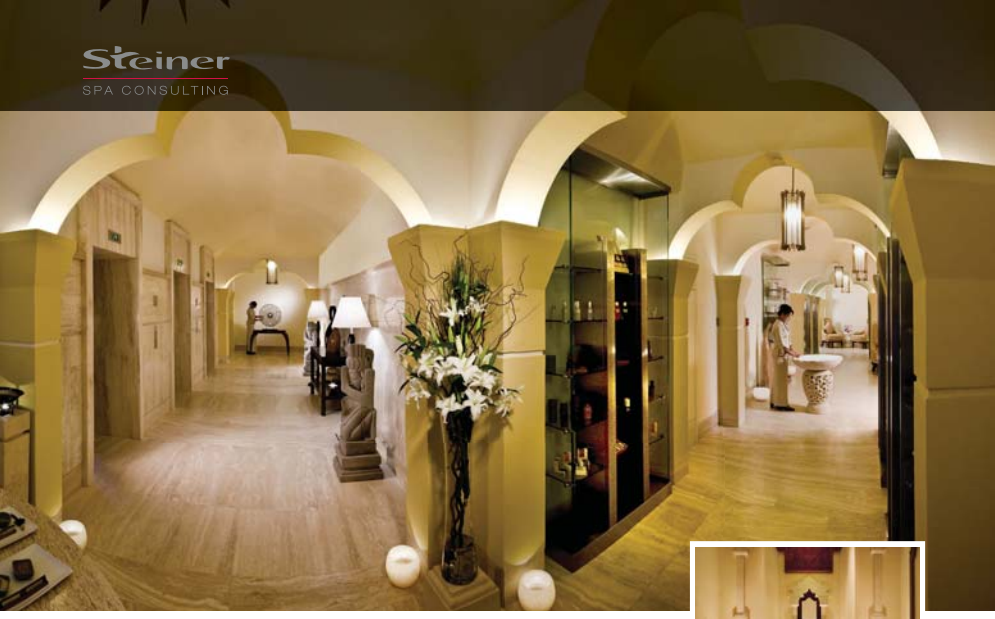
The fossil fuel industries. They've driven us towards the brink of the abyss and now they're putting their foot on the accelerator. And it makes me angry, because there are so many solutions that architects such as myself and others have proposed over the last 20 years, but they don't get adopted simply because of the skewed way we look at energy. Fossil fuel energy is way too cheap because it externalises all the main damage costs and treats the atmosphere as a dump. If we were to internalise the full costs of fossil fuels and many other materials, it would really make the economic case for the kind of solutions we're proposing.

What would you like to be remembered for?

Building schemes that made a positive difference to people's lives and the environment. ●

Rhianon Howells is a business journalist with more than 15 years' industry experience

Steiner
SPA CONSULTING



Our Difference:

Longevity

Age actually does matter.

Since 1960, Steiner has been at the forefront of the spa industry. The largest and most seasoned spa management company, we nurture successful brands, products, services and companies that deliver our clients continued growth and profitable results.

Operating in more than 200 spas worldwide, our difference is experience. With a history that spans more than half a century, our longevity in this industry has no bounds.

- Spa Design
- Spa Operations
- Treatment Development
- Product and Skincare Selection
- Branding and Marketing
- Recruitment and Training
- Equipment and Supplies

bliss · CHAVANA SPA · ELEMIS · glow · MANDARA SPA · REMÈDE SPA

Let's connect.

Visit **steinerspaconsulting**.com to learn about our services or e-mail inquiries@steinerspaconsulting.com.

Rich Weissmann

Last year, KSL Capital Partners became majority stakeholders of US destination spa Miraval. As the firm prepares to announce two new Miraval resorts, KSL partner Rich Weissmann explains its vision for the brand to Rhianon Howells

Miraval Resort & Spa, a nearly 20-year-old destination spa in Tucson, is arguably one of the best-known brands in the global spa industry – quite an achievement considering it is, in essence, a single site in the middle of the Arizona desert. But as KSL Capital Partners' Rich Weissmann will testify, this has no bearing on its potential.

"Miraval is a business that clearly punches above its weight," says Weissmann, a partner with the private equity firm, which bought a majority stake in the resort from Steve Case's company, Revolution, last June. "I think that's because of the quality and nature of the experience that people get there."

It was the opportunity to translate this reputation into growth that piqued the interest of KSL's managing director, Mike Shannon, when the firm started looking for spa investments seven years ago. As a specialist in travel and leisure investment, KSL was already involved in the spa business through its then ownership of destination resorts with significant spas, from La Costa in California to Grand Wailea in Hawaii. But the world of wellness was relatively new territory.

Before KSL, Weissmann headed up the hospitality and gaming practice at Goldman Sachs

"We needed to focus on wellness, and we came up with two names: Canyon Ranch and Miraval," says Weissmann, who joined KSL in 2008 after 10 years at Goldman Sachs, where he headed up its hospitality and gaming practice. "Miraval dovetails with the demographic we were trying to target."

The KSL clientele, says Weissmann, want to consume leisure in a meaningful, non-prescriptive way and also have a relaxing vacation. Miraval, with its stunning location in the foothills of the Santa Catalina Mountains, its focus on life-affirming experiences and its lack of regimens, ticked all the right boxes.

So where exactly is Miraval heading under KSL's steerage? Before the deal, Revolution ▸

Despite being a single site in the middle of the Arizona desert "Miraval is a business that clearly punches above its weight" says Weissmann

KSL announced plans to expand Miraval last year. The company would like to see around six new resorts in the US

"We don't leave design and development to chance as you can lose a lot of money doing bad renovation"

had announced plans to open several new Miraval resorts in the US. Now there's talk of rolling out the brand both at home and abroad, but where and how?

HIDDEN VALUE

On its website, KSL claims its investment philosophy is not about financial engineering, but about unlocking the "hidden value" of businesses through targeted capital expenditures, operational efficiencies and enhanced marketing strategies. So where does KSL see the hidden value in Miraval?

"It's a brand," Weissmann says. "Since we've bought the business, we've had significant enquiries on opportunities either to brand new developments as Miraval or invest in other businesses that are related to what Miraval does.

"What we're focused on now is how to connect with guests on a daily or weekly basis when they're not in the resort. So we're looking at all the different aspects [of Miraval's offering] and asking, 'how does that translate into a more ongoing consumer experience?' That might be through creating programming that's portable or by affiliating with or buying like-minded businesses that have distribution in multiple locations."

In terms of the rollout, Miraval will push ahead with plans to open new resorts: "We'd like to see half a dozen or so. East coast, west coast, probably south-east… we could probably do two in California."

Although details of two sites are due to be revealed imminently, Weissmann will only confirm that one is the rebranding of an existing operation in Natirar, New Jersey, already announced by Revolution in 2013. "That's one of the two, but we've been doing some revisions to the programming and design," he says.

The design and development of properties is something the company takes very seriously. "We're very involved," says Weissmann. "We're one of the few funds that actually has a development officer and a team [who concentrate on that]… We don't leave it to chance or somebody else, because you can lose a lot of money doing bad renovations."

In terms of locations, its looking for "places that have a compelling physical presence… in settings that conform with the mindfulness of what Miraval stands for."

When Revolution first unveiled plans to roll out the brand, vice-chair Philippe Bourguignon identified proximity markets – within a two-hour drive – as key to making the model a success and Weissmann confirms that this remains a consideration, albeit not a central one.

"We want locations that are geographically advantageous as well as having the ability to attract drive-to customers, because they're more likely to generate repeat business," he says. "It's not critical, but it's something we're taking account of."

KSL, which only invests in travel and leisure, has a share in Whistler Blackcomb

MAKING MONEY

Back at Tucson, the current priority is to develop and enhance the guest experience and to balance that against profitability. "The way we look at businesses, we look at all the major departments as businesses within the resort itself," says Weissmann "So for instance, the spa has to have a P&L [statement] and show that it can be profitable relative to food and beverage and rooms. It's not necessarily targeting [specific areas for improvement]; it's keeping people accountable.

"On the cost side, we're maximising the use of group purchasing and making the most efficient use of labour. In terms of room product, we're managing the room distribution and yielding those rooms in the most effective way… a lot of it is just tweaks here and there."

One area earmarked for extra attention is fitness. The difficulty, says Weissmann, is that while guests will pay for spa treatments, fitness at resorts is typically considered to be ▸

PHOTO: ERIC LAGINEL

Designer Clodagh designed the new spa at Miraval, as well as the villas and private houses

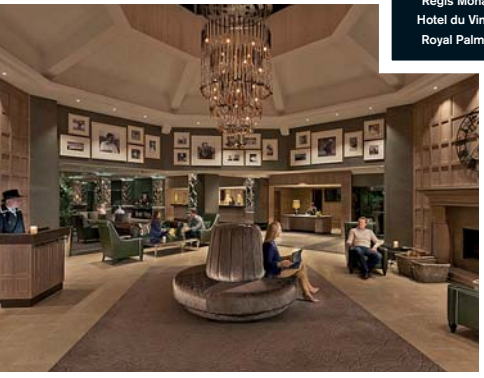
KSL INVESTMENTS

Some of KSL's current investments include:

- **The Belfry** (UK)
- **ClubCorp country clubs** (across the USA)
- **East West Partners** (real estate developments across the USA)
- **The James Royal Palm hotel** (Miami, Florida, USA)
- **Malmaison and Hotel du Vin hotel chains** (across the UK)
- **Miraval Resort & Spa** (Tucson, Arizona, USA)
- **Squaw Valley/Alpine Meadows ski resorts** (California, USA)
- **St Regis Monarch Beach** (California, USA)
- **Village Urban Resorts** (across the UK)
- **Whistler ski resort** (Canada)

KSL has a 24 per cent share in Whistler Blackcomb Holdings, one of the main companies behind the Canadian ski resort

Clockwise from left, KSL investments include: St Regis Monarch Beach; Hotel du Vin; The James Royal Palm; The Belfry



an amenity. "Today, fitness isn't really a focus at Miraval," he admits. "Our goal is to have the fitness offering match the quality of the wellness and spa offering [at the Tucson site] by adding programming that creates value for people." In the new resorts, he adds, fitness may offer outside memberships, though this will not be the case in Tucson.

Generally speaking, Weissmann believes too many people in the global industry are guilty of buying into the self-perpetuating myth that spas are not natural profit centres. "I think there's a misconception that spas don't make money," he says, citing two causes for this: one, the spa operators who make excuses, blaming the hotel for adding the spa as an afterthought and not giving it enough focus; and two, the hotel owners who refuse to believe spas can turn a profit.

"Part of [the challenge of] running a successful spa operation is scale," he admits. "That's what we focus on. We don't make excuses: it hasn't been profitable, therefore it can't be. We ask, why hasn't it been and what can we do to make it so? And we've been very successful at that."

"The lobby is the first impression a guest gets. A quiet lobby might look beautiful but it's not exciting"

FOOL'S ERRAND

A key element of the resort at Tucson, alongside its 118 rooms and suites, are 16 privately owned villas, which are rented out whenever the owners are not in residence. But although it has proven successful in this context, further spa real estate is not something KSL will be rushing into, following lessons learned from Miraval Living in New York City, a residential building with which the brand parted ways in 2010 following a disagreement with the developer.

"We don't predicate our investment on residential," says Weissmann. "It was a fool's errand during the last upswing, so we predicate our investment on being able to make the resort itself successful. We think there is an ongoing opportunity to create a Miraval Living concept – it [spa real estate] has been

"We've invested through good cycles and bad cycles and been successful at it"

Clodagh allowed the views to take centre stage in Miraval's residential villas

done successfully at Tucson and elsewhere and I think people are looking to incorporate wellness into their lifestyle, but it's got to be done thoughtfully."

But creating standalone residential communities is another matter, he feels. "If you lived in a Miraval community, you might take a fitness class but you're not going to have a facial or massage every day. In a resort, your guest is only there for a short period, so is more likely to try those services. The model is very difficult at the pure residential level as opposed to residential and resort combined. First and foremost, it has to be a successful resort."

GLOBAL PLANS

Further to its plans to roll out Miraval at home in the US, Miraval is also looking at global opportunities for the brand. "We think the name would translate well internationally," says Weissmann..

"[We also believe] the international traveller is looking for the same type of spa and wellness experiences as our domestic traveller, so we think it will work. The question is how do we do it and where do we go? I think the very first one outside the US has to be very thoughtful."

The first site, he adds, is likely to be in Europe – the Denver-based firm has an office in London, and at present its only non-US investments – including The Belfry Hotel & Resort, the Hotel du Vin and Malmaison hotel chains and Village Urban Resorts – are in the UK.

LOOKING AHEAD TO THE FUTURE,

Weissmann sees the biggest challenge for the spa industry as "discipline, and being able to deliver a relevant product on a cost-effective basis for both the operator and the consumer."

Part of rising to that challenge, he adds, will be creating spa and wellness opportunities that are meaningful not only for the current generation of core spa consumers – those who are aged 45 and over – but also the millennial generation coming up behind them.

Weissmann is confident, however, that the spa sector – and indeed leisure and travel in general – will continue to be attractive to investors, even in these uncertain economic times.

"While [travel and leisure spending] is discretionary, given the extent of global travel today, recession in one place doesn't necessarily mean your business is going to suffer a significant decline.

"We've invested through good cycles and bad cycles and been successful at it. I think that just reflects having an eye for what is relevant to the consumer and being able to offer value." ●

Edgbaston Cricket Ground, UK

Redcar leisure and urban regeneration, UK

Elephant and Castle Sports Centre, London, UK

London Aquatics Centre by Zaha Hadid Architects. (Consultants).

PHOTO: HUFTON + CROW

Krasnodar Stadium, Russia

DELIVERING INTELLIGENT SOLUTIONS FOR 30 YEARS

AFLS+P specialises in major sport, leisure and community infrastructure projects across Europe, the Middle East, Africa and Asia. With more than 30 years' experience, we advise on, develop and deliver the very best solutions for our clients.

We've developed a reputation for providing exceptional solutions which recognise operating requirements and maximise development profitability.

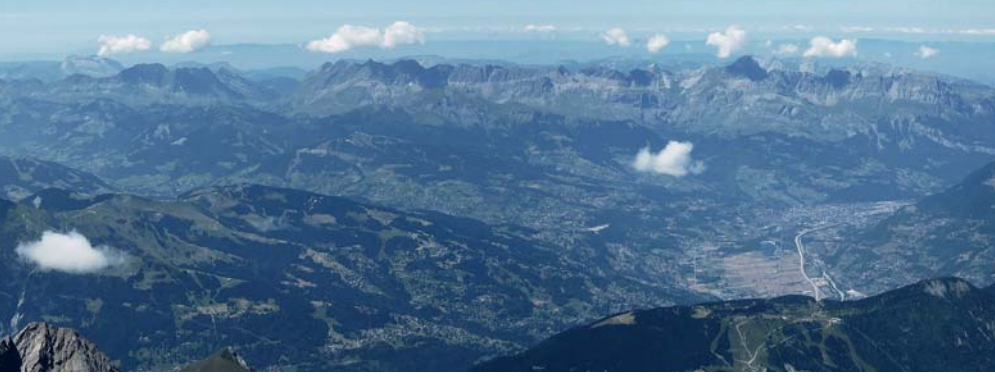
AFLS+P

Architecture • Masterplanning • Consulting • Regeneration • Feasibility
Refurbishment • Consultation • Engagement • Procurement Advice
Project Management • Planning • Sustainability • Value Management

www.AFLSP.com

AIMING HIGH

When the French Alpine Club decided to build the Refuge du Goûter – a climbers' refuge 3,800m up Mont Blanc – it chose Groupe H as architects to work on the daunting and complex undertaking. Kath Hudson tells the story



Groupe H's Nikolaï Bersenev: "This was a once in a lifetime challenge."

The challenges faced by the team creating the Mont Blanc mountain refuge, the Refuge du Goûter, must have initially seemed insurmountable. Extreme weather conditions rendered the site inaccessible for eight months of the year. Altitude made the work physically challenging and meant getting workers and materials on-site was a complex logistical exercise. In addition, there were no existing services up the mountain to power the construction, so the building had to be completely self sufficient energy-wise, both during construction and in operation.

As this type of structure had never been attempted before, there were no precedents. And, to cap it all, the building had to be a spectacular architectural showpiece – and to come in on a tight budget.

For Nikolaï Bersenev, from Groupe H Architecture & Engineering, these challenges made the project even more appealing, although at the outset there were doubts about whether or not it would be possible to build in such an inhospitable location. "This was a unique chance – one which comes along once in a lifetime – to build something on an exceptional site," he says. "When we were researching the project, we didn't find any buildings at the same altitude to use as an example, so we had to produce a prototype for nearly everything." This meant new systems had to be invented, prototyped, built and tested before they could be deployed.

FRENCH ALPINE CLUB

Client the Club Alpin Français (French Alpine Club) made the decision to build the refuge in 2004, to cater for the 5,000 people who climb Mont Blanc each year. The Club is a federation of over 410 climbing clubs and already runs 125 refuges for its 90,000 members.

It was decided the building should sleep 120 people; Bersenev acknowledges this isn't big enough, but also says it's as big as it can be without having a negative impact on the environment – an important part of the brief.

Sitting 3,800m up Europe's highest mountain on the Aiguille du Goûter, the Refuge du Goûter, with its spectactular views, took eight years to bring to fruition

It took eight years for the project to come to fruition and because it involved so many prototypes, the initial planning, research and consultation alone took five years. Building work started in 2010, but had to be undertaken over three seasons, because work could only be carried out for four months of the year.

A very collaborative approach was taken to the build. "It was a real partnership between the architects and the engineers," says Bersenev. "It wasn't just a case of the architects drawing the shape, it was the fusion of technology with architecture and then a collaboration to find solutions for every part of the building. We had many exchanges and discussions with other architects and experts who had built mountain refuges, although none had worked at this altitude."

THE CONSTRUCTION

Nothing about the build was straightforward. Diggers couldn't get to the site, so all the excavations were carried out by a Walking 'Spider' Excavator with six axes of rotation, ▸

The project demanded that architects and engineers worked in very close partnership

Those without whom...

Groupe H
Architect
www.groupe-h.com
Design and architectural project management, pilot committee, project planning

Charpente Concept:
Wood structure engineer
www.charpente-concept.com
Design and project management relating to wood structure, exterior joinery, metal structures, stainless steel cladding, pilot committee

DecaLaage:
Architect
www.decalaage.com
Design and architectural project management, operations on site

Cabinet Strem:
MEP engineer
www.strem.fr
Design project management relating to heating, ventilation, plumbing, water production, sewage, high and low voltage electricity, kitchen equipment

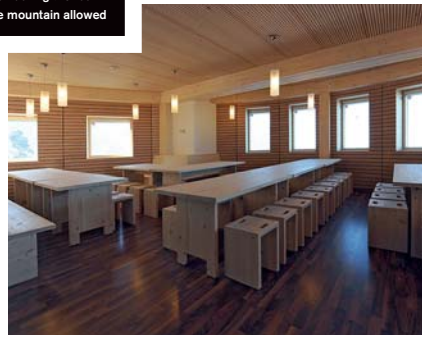
Albedo Energie:
Thermal simulations, HQE
www.albedo-energie.fr
Dynamic thermal simulations, environmental quality of the building

Betech:
Civil engineer
www.betechsarl.com
Design and project management relating to earthwork, foundations

Cabinet Denizou:
Building economist
www.denizou.fr
Budgetary studies relating to interior wood joinery, metalwork, wall partitions, ceilings, painting, flooring, furniture, signs and labelling

Charpente Concept created the wooden structure, which was lifted into place in year two of the build

The team worked eight hour days with 40 per cent oxygen during the four month windows the mountain allowed



which was assembled on-site. The same machine, in drilling mode, anchored 69 pilings into the solid rock at an average depth of 12m, to guarantee the stability of the building and secure the refuge on its ridge, where wind speeds can exceed 250 km/h.

The construction was undertaken in stages. In year one the team tackled the foundations, in the second year the building and envelope were created and in the final year the inside fit-out was completed, including the furnishings.

TECHNOLOGY AND INNOVATION

Because there are no power, water or sewage systems at the site, the building had to stand alone and the team found some ingenious solutions to the challenges they faced. For the first time ever in an architectural project, a sanitation system used by submarines was put in place to deal with waste water and sewage.

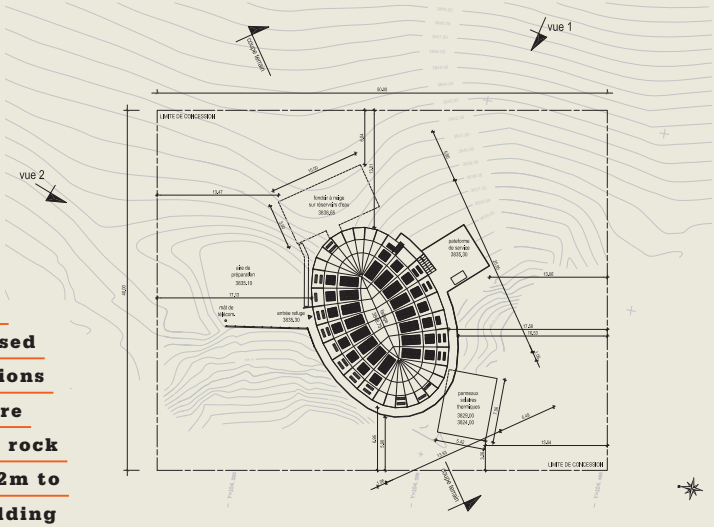
There are almost 100sq m of solar panels around the building providing energy and hot water, but this was deemed insufficient to allow for more than two weeks of cloud cover, so a bio-fuel emergency generator was developed which works with both normal fuel and a more environmentally friendly rapeseed oil to provide a back-up for the solar system.

A system was also invented to melt ice around the structure. There were two reasons for this: firstly to generate water for showers and flushing toilets, and secondly because if the ice wasn't cleared it could push on the building and cause structural damage.

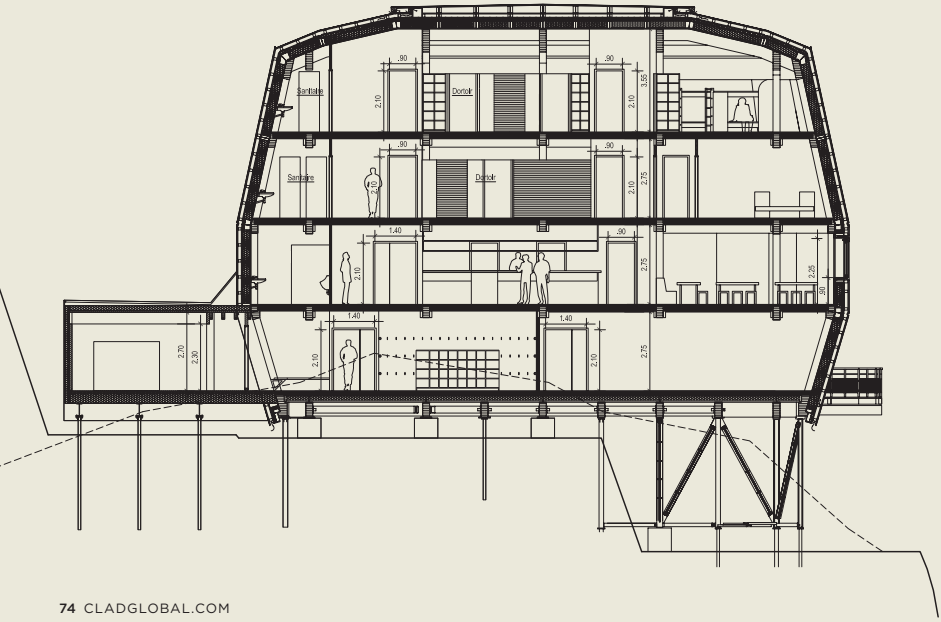
The final piece of the technology jigsaw puzzle was a dual-flow ventilation system which was developed to allow warmth to be harnessed from the actual guests. The building is only heated to 10 degrees, with the rest of the heat required coming from the Alpinists'

Refuge du Goûter Prizes and awards

- Winner: Archi Design Club Awards 2014, Paris. Category: Exceptional project
- Winner: German Design Award 2014/Iconic Awards. Category: Public Architecture
- Winner: Eurasian Prize 2012-2013, February 2013
- Winner: Rhône-Alpes Award Palmares Bois 2013
- Winner: Geneva Award of Sustainable Development, June 2012
- Winner: Special Jury Award of France-Switzerland Chamber for Trade and Industry (CFSCI) January 2012



Civil engineers Betech SA advised on the foundations – 69 pilings were driven into the rock to a depth of 12m to anchor the building to the mountain



Heat and oxygen levels are adjusted by sensors in response to the number of people inside and their body temperature

bodies. Carbon detectors work out how many people are on each level and manage the flow of air accordingly, automatically calculating if more heat is needed, or if oxygen levels need to be increased to maintain a healthy atmosphere.

ARCHITECTURE

Although there was no chance of the design playing second fiddle to the technology, the striking ovoid shape of the Refuge du Goûter wasn't chosen for appearance alone.

"We made the building that shape so it could resist the pressure of the wind and because it prevents snow from collecting behind it" says Bersenev. "The sphere is the optimal form for saving energy, because there are no angles." The shape was tested in a wind tunnel at IRSTEA, the French public research institute, to calculate the relationship between the wind flow and the snow.

All building materials used had to meet the French High Environmental Quality (HQE) standard, as well as being able to withstand the climate, which meant that everything – right down to details like the tile adhesive – needed to tolerate temperatures ranging from minus 40 degrees to plus 30 degrees.

The structure was created by Charpente Concept from glue-laminated wood, with resin sealing assembly. This system was chosen for a number of reasons: it made it light to transport in order to limit CO2 emissions and meant the timber could be cut locally and is recyclable and natural. The façade panels were manufactured in the valleys, and then transported by helicopter and assembled like a Lego construction on site.

Several materials were considered for the exterior envelope before the final choice was made. Zinc was ruled out because it breaks at low temperatures and despite being light to transport and work with on site, aluminium was also ruled out because it wouldn't be able to withstand the harsh conditions. Stainless steel was the final choice, Bersenev explains: "Steel can resist harsh conditions, and it is also solid and expressive, which worked because we wanted to create edges which reflect the edges of Mont Blanc."

Interiors are mainly made from wood which was sustainably harvested nearby

INTERIORS

Inside, the décor is simple and natural. Furniture is predominantly wooden and mineral tiles are used on the floor in places. The windows incorporate technology much used in northern Europe – argon gas in triple glazing. Wood fibre insulation was used in the walls.

AWARD WINNING

"The refuge opened in 2012 and full capacity operations started in 2013," says Bersenev. "Now after two years we can see the building works well. We've also received a number of international awards for it, which is a sign we've created something to be proud of."

He hopes the Refuge du Goûter will become the prototype for other mountain projects and that more conventional buildings might even use some of the cutting edge technology which was developed for this building.

"It was a difficult project for us financially, however, we felt it was a chance to do something with an exceptional site and technology that would be worth doing for the personal and professional experience," he says.

Bersenev is keen to point out it was a team effort. "It was a real challenge for the construction companies: there's 40 per cent less oxygen up there and the teams were working for eight to 10 hours at that altitude. They say altitude forges friendships and we certainly found this to be true – the challenge united us as a team."

Partly as a result of this project, Groupe H and Charpente Concept are working on new buildings for the Pic de Château-Renard Observatory, an astronomy site in Saint-Véran, France, at an altitude of 3,000m. "It's something we do with pleasure, because of the satisfying nature of the work we've already done together," says Bersenev. ●

Kathryn Hudson is a former editor of Leisure Management and a freelance design, travel and health writer based in Cornwall, UK

Earl Santee

A well-designed sports stadium can transform a community, but there are no shortcuts to making it authentic, Populous principal Earl Santee tells Magali Robathan

ABOUT POPULOUS

Global architecture firm Populous is responsible for some of the world's best known sports and entertainment buildings, including the Sochi 2014 Olympic Stadium in Russia, the Arena das Dunas stadium for the FIFA World Cup 2014 in Rio, Brazil; the London 2012 Olympic stadium, the new Yankee Stadium in New York and the O2 Arenas in London, Dublin and Berlin.

Populous started out as HOK Sport, which was founded in 1983 as a division of US-based HOK group. In 2009, Populous was created through a management buyout, and now operates as an independently owned collective with more than 500 staff worldwide.

● More: populous.com

PHOTO: PAUL CROSBY

Target Field in Minneapolis is located on a very tight urban site, surrounded by parking and mass transportation

PHOTO: POPULOUS

Earl Santee

Why did you become an architect?

I've always loved to draw and through my teenage years I helped my dad with his construction firm. My love of art and building gave me the passion for architecture.

I studied architecture and environmental design at the University of Kansas. I was always a big sports fan – I love going to games and events and always have done – so when the opportunity to join HOK Sport presented itself in 1985 I didn't hesitate. I've never looked back.

How do you approach your projects?

When I'm faced with a new project, I start by looking at the local community, and thinking about how we can connect the community to the building and the sporting events it will host. I think they have to be more than just connected; they have to be completely linked in all aspects from transportation to community development.

Why is it so important that the buildings are rooted in their communities?

It's what gives a spirit to a place. Our work is about more than just the building itself – it's about how people feel about it and about how it fits into the community it sits in. Our goal is to create sustainable, impactful experiences that have a real definite spirit to them, and that last as long as possible.

How do you achieve that?

I spend a tremendous amount of time in the cities and towns I work in. I need to fully understand a place so that I can appreciate the client's comments about their desires, goals and objectives for the project. ▸

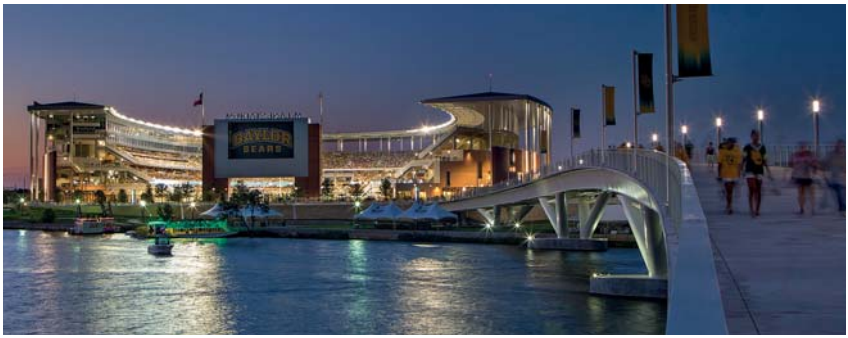


PHOTO: CHRISTY RADJEGIC. OPPOSITE PAGE: PAUL CROSBY

Populous designed Target Field to integrate with all transport networks and to appear iconic no matter how it is approached

I try to experience the communities as the people who live there experience them. I stay there, use the public transportation system, go to the restaurants and bars, the public activities and sporting events. I want to fully understand the unique differences between that community and others – what's great about that city, what the aspirations of the people who live there are. It's also about the art of possibility. What can that community become? You have to have a really deep understanding of all of these things in order to make a project authentic – you can't make it up.

How does the design of a sports building affect the experience of the fans?

Having a stadium changes the dynamics of a community completely. It's important to understand how that works – to understand that the moment when we take the subway to a stadium or ballpark is the first moment of our experience. The culmination of that is the event itself, but at the end of that, it doesn't stop – you go back out into the community, back on the subway, back to the restaurants or bars, back home or to your hotel. Understanding the synergy of all those experiences, both inside and outside of the stadiums, is so important.

At Target Field in downtown Minneapolis (2010), we designed a baseball stadium that was completely connected to all possible modes of transport – we built a pedestrian skywalk that links the stadium to the city, we have bike trails running under the site, we built in access to light rail and commuter rail, there's a car park on site and it's connected to the bus service.

This had a big impact on the architecture, because we wanted to design something that was iconic no matter how you approached it. We had to think about how people would see the park from the highway system three or four miles away, from mass transit 10 miles away, or from close up as they approached it on foot on by bike. Part of the design is manifested by the opportunities created by the site.

What have you been working on over the past 12 months?

We recently completed Baylor University's McLane Stadium [a new 45,000-seat American football stadium that opened in Waco, Texas in August 2014]. I'm currently working on the design of the Atlanta Braves stadium, a Major League baseball stadium in Atlanta, Georgia, and we're in the middle of construction on the Kyle Field [American] football stadium at Texas A&M University, which is the largest renovation project in collegiate sports history. It will open during 2015.

What have been your most challenging projects?

Target Field in Minneapolis was one of our most challenging projects, because we had to put a 41,000-seat, 13 acre ballpark on an 8 and half acre site which is very tight.

We had to make do with what we had space-wise – it was a very urban site, and was surrounded by a railway line, a federal highway, viaducts, an interstate, an underground creek and a waste incinerator plant – among other things. Making the project fit within the site was a huge challenge.

We built under the bridges and vertically in some places, we built out over the street where we could. We took advantage of every nook and cranny on the site to make it work.

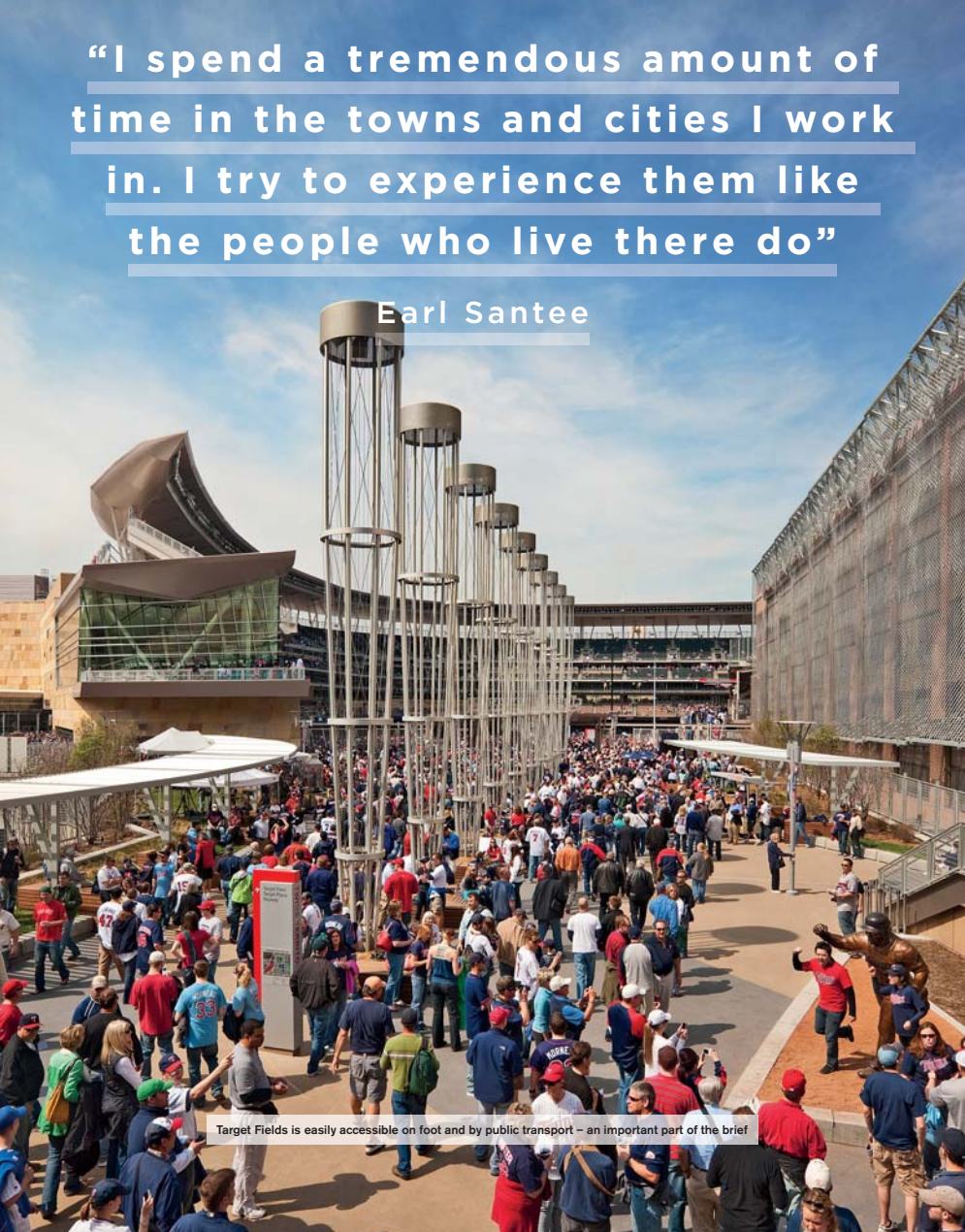
EARL SANTEE BIO

Earl Santee received a bachelor's degree in architecture and environmental design from the University of Kansas, and joined Populous (then HOK Sport) in 1985.

Describing himself as an urban designer first and an architect second, Santee's philosophy is that urban sites shape the buildings he designs.

Santee has designed more than 40 sports venues across the US, including the new Yankee Stadium, New York (2009), Marlins Park, Miami (2012), Target Field, Minneapolis (2010), McLane Stadium at Baylor University (2014) and the Texas A&M Kyle Field redevelopement (due for completion in 2015)

A senior principal at Populous, Santee is a member of the American Institute of Architects, the Society for American Baseball Research, Stadium Managers Association and the Urban Land Institute. In 2014, he was named a Fellow of the American Institute of Architects.



“I spend a tremendous amount of time in the towns and cities I work in. I try to experience them like the people who live there do”

Earl Santee

Target Fields is easily accessible on foot and by public transport – an important part of the brief

It's definitely a challenging time for sports architecture right now – we really have to focus and innovate constantly. Every detail counts

The renovation and redevelopment of the Kyle Field stadium at Texas A&M University was also a huge challenge. We were faced with a building that had been designed by five or six different architects since the 1920s – trying to find a way to unify the architecture in and around pre existing conditions was tricky. The scale of the project was also a challenge – it's a $450m renovation, which takes the capacity from 82,000 to 102,500 seats, and the work is being done without interrupting the team's schedule.

Do you have a favourite project?

I couldn't choose a favourite, but I do have moments in each that are personally powerful. Walking up on Babe Ruth Plaza at the new Yankee Stadium is a real moment for me. I have a very strong emotional connection to it. We wanted to capture the legacy of the Yankees and I think we did it in a strong way. It reminds me of what a great experience that was.

PHOTO: ESTO PHOTOGRAPHICS. OPPOSITE PAGE: CHRISTY RADECIC

Santee says the Yankee Stadium, New York City captures the legacy of the Yankees

What have been the highest and lowest points in your career?

This year I was named a Fellow of the American Institute of Architects – that was a great moment. I don't often look backwards in my career, I just take one project at a time, so it was great to stop and think: Wow, maybe I really did accomplish something.

The lowest points have been whenever we've had to lay anyone off. I love our staff, I love the work they do and the commitment and passion they bring to the projects, so having to let anyone go is really hard.

What are the biggest trends in sports architecture at the moment?

We're going through a really dynamic change in the industry because of technology. The experience people can have at home is so much greater than it used to be, so the challenge is competing with that and giving as much impact to the experience of watching a live sporting event as possible.

It's definitely a challenging time for sports architecture right now with so much competition – we really have to focus and innovate constantly. Every detail counts.

How do you judge whether a building has been a success or not?

If you can create great experiences outside a building, it's easier to create them inside. You have to focus on tying the two together.

On greenfield sites it's more challenging because everything's new, you have to understand connected moments – how people arrive, their experience as they approach and once they get inside. With urban sites, one of the biggest factors is whether people can get there easily. You have to give them every reason to come and remove reasons not to.

How has the focus on sports legacy changed during your career?

Together with our partners in London, we've been thinking hard about the adaptability of our projects as they move on in their lives. The London Olympic Stadium [designed by Populous] was a good example of this.

What's the best part of your job? And the worst?

I love when I'm in a meeting with a client and they're finding something impossible and we find a solution. There's a magic moment when everyone gets it at the same time. These moments are what really builds the relationship with a client; they bind you forever.

The worst part of my job? I'm not a morning person. I do my best work after noon.

Which other architects do you admire?

I've always liked the simplicity of César Pelli's work. I like Calatrava's work, and I like the clarity of IM Pei's work.

What three words sum you up?

Passionate, engaged and optimistic. ●

The materials and detailing of the new Yankee Stadium were inspired by the original 1923 stadium

SWEDISH LAPLAND

moving kiruna

When White Arkitekter won the competition to relocate the Arctic town of Kiruna to stop it being swallowed up by its mine, they knew they had a real opportunity on their hands. The CEO and social anthropologist tell Magali Robathan how culture and leisure will play a central role in the new Kiruna

In February 2013, Swedish architectural practice White Arkitekter won an international competition to design a 20 year masterplan for the relocation of the Swedish town of Kiruna.

Kiruna has to move. The town was built in 1900 by the state-owned mining company LKAB to house workers at the iron ore mine, with LKAB engaging some of the best architects and planners of the day to build it. In 2004, the company announced it intended to drill deeper into the ground on the western edge of Kiruna and warned that the resulting subsidence would cause the town to collapse.

Faced with the choice of shutting down the mine – resulting in mass unemployment – or moving Kiruna, LKAB opted to fund the relocation of the town two miles east in order to sustain mining activities until 2033.

It's a massive project and in their competition submission, White Arkitekter made it clear that a 20 year plan wasn't nearly long enough, instead initiating a 100 year masterplan which will see the town being moved in phases, 'crawling' step by step along a new urban belt towards its final location. The old Kiruna will be phased out and inhabitants will relocate as the new town becomes more vibrant.

"It's a very exciting project," says White Arkitekter's CEO Monica von Schmalensee. "How often, as a planner and architect, do you get to move a whole town? The world is now looking at Kiruna. There's an opportunity to make this something really special."

> how often do you get to move a whole town?

Monica von Schmalensee (above) and Viktoria Walldin (above right). Kiruna's historic church (right)

PHOTO: HEINZ-JOSEF LÜCKING VIA WIKIMEDIA COMMONS

The vision is to create a sustainable model town with a more diverse economy that's less reliant on iron ore. The hope is that the new Kiruna will also pull in more tourists and be more attractive to women and families, as Kiruna has always been very male dominated.

At the same time, it's important to respect the heritage of the existing town and the memories of its inhabitants. This will be achieved in a variety of ways – the iconic wooden church, for example, which was designed by Gustaf Wickman and voted Sweden's most beautiful building in 2014, will be dismantled and reconstructed, while materials from demolished buildings will be reused wherever possible.

"It's a big question for us: How do you bring the memories of the old Kiruna with ▸

The design ensures that no house is more than three blocks from nature, something that was important to residents (top pic). The existing architecture will be preserved where possible (bottom pic)

The new town square features a circular town hall designed by Danish architect Henning Larsen. The historic clock tower will be moved from its existing location and rebuilt

> We want to engage the inhabitants in a dialogue about their wishes and dreams for the new Kiruna

Kiruna's sub-Arctic climate means that the sun never rises in winter and never sets in summer

you?" says von Schmalensee. "Different parts of the old – mostly wooden – buildings will be moved and we plan to set up a kind of marketplace, where people can exchange materials or parts from old buildings so they can be incorporated into the new ones. This will mean people can keep part of the old city – they might find a doorknob from a public building they loved, for example."

The remote location of Kiruna adds an extra challenge. It's 87 miles north of the Arctic Circle in Swedish Lapland, and has a sub-Arctic climate where the sun never sets in summer and never rises in the winter and temperatures can plummet to -40°C. It's vital that the masterplan uses resources efficiently, therefore, and the plan is to harness the enormous amounts of waste heat generated by the mining activity, combined with wind turbines to create energy and recycling infrastructure to reduce freight and waste.

LEISURE AND CULTURE

The past three years have seen White Arkitekter engage with the community via a series of consultations and meetings to find out what they want from the new Kiruna.

One of the themes that has come up repeatedly is a desire for more leisure and culture – for places to meet and more social activities.

"There's not much leisure or cultural provision in Kiruna at the moment," says White Arkitekter's social anthropologist Viktoria Walldin. "What there is is mainly focused on hiking, skiing, and outdoor sporting activities. There is a swimming pool, but it's very old. Residents find that when they have visitors from the south, they get bored because there's nothing to do. There's no downtown – nothing.

"If you ask the people of Kiruna what they want, the first thing they say is that they want more leisure facilities. They want a modern city. The people of Kiruna are active, well-travelled and multi-cultural. This needs to be reflected in the new town."

So, how is White Arkitekter planning to work this demand for more leisure and culture into the plans? "It's partly to do with speaking to the residents, and partly getting the leisure, culture and social departments of the municipality to work together to upgrade their offering," says Walldin.

Creating more leisure and culture will help in the bid to make Kiruna more attractive to women, families and tourists, says Walldin. "Also, increasing the size of the service industry will create more jobs for both men and women."

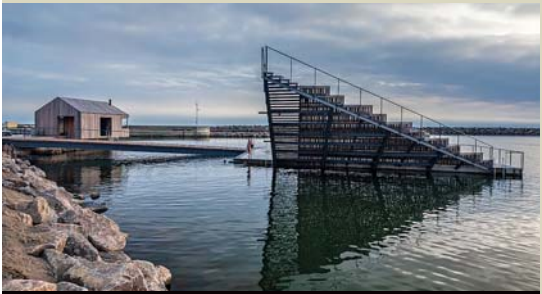
Exactly how the new Kiruna will look is being debated, but the new town will definitely feature a swimming pool and a library, says von Schmalensee, and more hotels are a must, as demand currently outstrips supply.

CIVIC SQUARE AND CITY HALL

Phase one of the masterplan will see the construction of a new civic square for Kiruna. It will house its historic clock tower, which is being moved from its original location, and a new city hall – called The Crystal – which has been designed by Danish firm Henning Larsen Architects. This will house cultural, social and music events, as well as the administration for the local government.

Inspired by the area's iron ore, the inner building will be shaped like a crystal, with the outer building surrounding it like a ring to protect it from the elements. Parts of Kiruna's old City Hall – which dates back to 1958 and was designed by Artur von Schmalensee – are being incorporated into the new one, with the bell tower and a range of existing building materials being reused wherever possible.

PHOTO: SIGNE FIND LARSEN



White Arkitekter completed the Hasle Harbour Baths in Denmark in 2014

Neighbourhoods will extend from the square and the central axis of Malmvägen – one of Kiruna's main streets – to form 'urban fingers' reaching into the Arctic landscape, ensuring no house is more than three blocks from nature.

This was something the residents were very clear about, says von Schmalensee. "Having nature so close to the town makes it very different from other places in the world, and its spectacular climate creates a very special mood. People told us they wanted to still be close to nature. We had the idea that the town should be very dense at the centre, but also at the same time very close to the surrounding landscape."

TOURISM

Kiruna is a good place to see the northern lights and is just 15 minutes from the popular Ice Hotel. However, visitors tend to pass through it, staying a night before moving on to better known destinations. "This is a real opportunity to create interesting places for tourists, to encourage them to stay one, two or three extra days," says von Schmalensee.

International interest in the project should help, as should building cultural and leisure attractions and hotels. Cultural events will also be an important part of the mix, and White Arkitekter has proposed the development of a city-wide cultural Biennial festival to attract international visitors to Kiruna and facilitate a dialogue with other global cities undergoing urban growth.

Visitors to Kiruna can currently enjoy a tour of the iron ore mine, which houses a small visitor centre, and there are long-term plans to turn the entire mine into a large scale visitor attraction once the ore has been extracted.

With a project of this size and scale, plans are sure to change, but one thing is certain – the rest of the world will be watching carefully to see how it pans out. Moving a town may seem a one off, but as White Arkitekter's Mikael Stenqvist has pointed out, rising sea levels and increasingly extreme weather may force other towns to consider it as an option.

"It's a fascinating project, and what could be really interesting is the fact that we can export this model," says von Schmalensee.●

WHITE ARKITEKTER

When White Arkitekter was founded by Swedish architect Sid White in Gothenburg in 1951, the focus was on raising the quality of everyday life for Swedish families through the design of the home.

Early projects included a housing experiment called Baronbackarna, which saw the traditional house redesigned to help with the problem of overcrowding in Swedish housing, and the Miljonprogrammet, a housing programme introduced by the Swedish government in 1965 to help improve the poor housing conditions in the country at the time, with the goal of building one million homes over 10 years.

Sid White

Today, White Arkitekter works across a range of sectors, with a particular focus on environmental design and sustainable masterplanning. The practice employs 750 people, in offices in Sweden, Denmark, Norway and the UK.

White Arkitekter has worked on a wide range of leisure projects, including Oslo Harbour Promenade, Oslo (ongoing); the Yasuragi Spa Hotel near Stockholm (2014); Väven, a cultural arena in Umeå, Sweden (2014); Southend Pier, UK (2012); Hasle Harbour Baths, Denmark (2014) and; the Stockholm Waterfront multifunctional building, which features a congress hall, banqueting hall and four star hotel and office space (2010).

Monica von Schmalensee has been chief executive of the practice since 2010.

● More: www.white.se

SWEDISH LAPLAND

icy reception

The Icehotel, in Jukkasjärvi near Kiruna in Sweden, celebrates its 25th anniversary with art suites designed by artists handpicked from around the world. We take a look

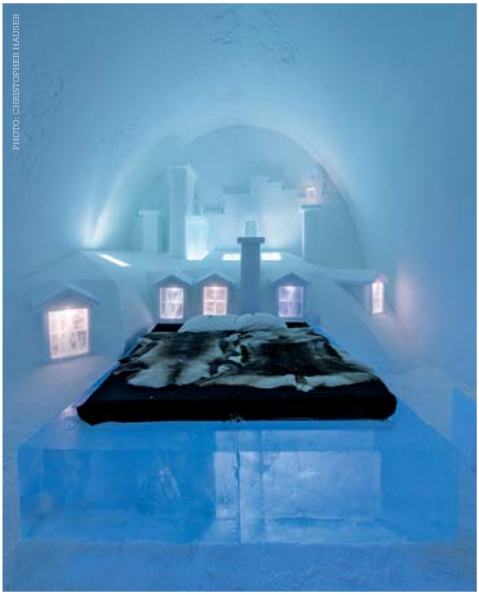


PHOTO: CHRISTOPHER HAUSER

Up There by Luc Voisin & Mathieu Brison of Les Ateliers de Germaine depicts the Parisien skyline

Each spring, an open call is issued for ideas for that year's art suites. The hotel provides instructors and tools for the actual sculpting

PHOTO: PAULINA HOLMGREN

PHOTO: PAULINA HOLMGREN

Above: ° Rø by Wolfgang-A Lüchow, Sebastian Andreas Scheller & Anja Kilian. Below: Dr Frankenstein's laboratory recreated by Karl-Johan Ekeroth & Christian Strömqvist

PHOTO: CHRISTOPHER HAUSER

PHOTO: VIKTOR TSARSKI

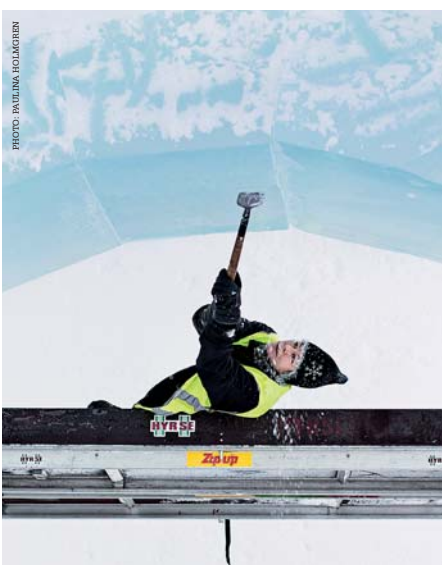


PHOTO: PAULINA HOLMGREN

PHOTO: PAULINA HOLMGREN

Top photo: The Icebar was designed by Wouter Biegelaar, Viktor Tsarski and Maurizio Perron. Other pics: The Icehotel is constructed between October and December each year

Mind the gap by Marcus Dillistone & Magdalena Åkerström. This suite was designed to celebrate the London Underground's 150th anniversary

PHOTO: CHRISTOPHER HAUSER

Time piece by Emma Curdén, Gabriella Bulin and Theodor Fahlén depicts the inner cogs and wheels of a clock frozen in time

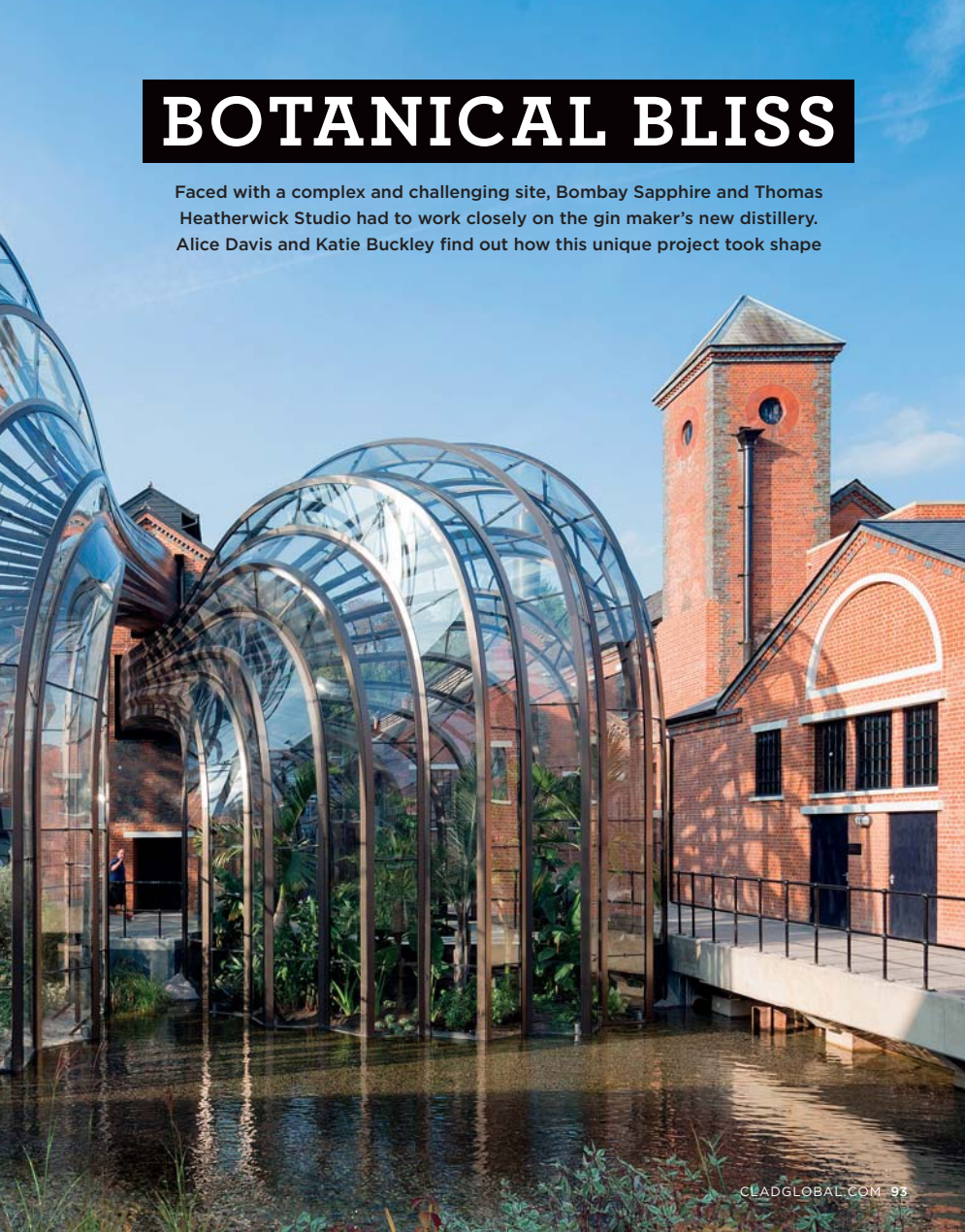
PHOTO: PAULINA HOLMGREN

PHOTO: IWAN BAAN

The intertwining botanical glasshouses are made from 893 individually shaped curved glass pieces

BOTANICAL BLISS

Faced with a complex and challenging site, Bombay Sapphire and Thomas Heatherwick Studio had to work closely on the gin maker's new distillery. Alice Davis and Katie Buckley find out how this unique project took shape



With a relationship that stretches back a decade, Heatherwick Studio and Bombay Sapphire had a shared vision for the Bombay Sapphire Distillery. Project architect Eliot Postma and estate manager Will Brix describe how it all came together

Will Brix, Bombay Sapphire

Eliot Postma, Heatherwick Studio

PHOTO: ELENA HEATHERWICK

"Thomas Heatherwick has a long relationship with Bombay Sapphire"

When a location scout from premium gin brand Bombay Sapphire stumbled on Laverstoke Mill, a derelict paper factory in Hampshire, UK, he didn't just discover 4.2 acres of land, but a site with more than 40 buildings, a history going back to 903AD and a protected river teeming with wildlife.

Bombay Sapphire, which is owned by global drinks brand Bacardi, decided to restore the site – originally a flour mill and later the location for the manufacturing of banknotes for the British Empire – to create its first visitor attraction.

The company commissioned Heatherwick Studio to masterplan the transformation, restore the buildings and the surrounding ecology to create a gin distillery and brandland.

When studio founder Thomas Heatherwick installed two glass houses at the heart of the scheme it was an inspired crowning flourish. The glasshouses, built from 893 unique pieces of curved glass, immediately became iconic. One is temperate and the other tropical, creating the perfect environments in which to grow specimens of Bombay Sapphire's 10 botanicals. Both harness excess heat from the distillation process.

The distillery process buildings became the first refurbishment and the first drinks industry facility in the world to receive the BREEAM outstanding rating.

Bombay Sapphire Distillery estate manager Will Brix and Heatherwick Studio project manager Eliot Postma led the venture from its beginnings. They tell us how the vision became a reality.

What kickstarted the Bombay Sapphire Distillery at Laverstoke Mill?

Will Brix, Bombay Sapphire:

"It began with a huge fire in 2006 at the facility where Bombay Sapphire was produced. At the time, G&J Greenall were contracted to make the gin, but after the fire we decided we were big enough to establish our own distillery and set about making that happen. We bought huge traditional copper stills to distil the gin and we've made them central to the new distillery here at Laverstoke Mill.

"We had a number of objectives: while the operations side of the business was dealing with balancing the rise in demand with the aim of producing the gin as sustainably and responsibly as possible, over on the experiential and marketing side, we wanted to show the care, craftsmanship and skill that goes into every single drop of Bombay Sapphire."

What was the brief?

Eliot Postma, Heatherwick Studio

"Bombay Sapphire wanted to create a state-of-the-art distillery where they could produce all their gin on-site. At the same time they also wanted to create a home for the brand; somewhere they could bring clients and invite the public to experience the distillation process and to appreciate what makes Bombay Sapphire unique. Sustainability was a vitally important part of the development and underpinned the design brief from the beginning."

How did Bombay Sapphire and Heatherwick Studio come to work together?

Eliot Postma, Heatherwick Studio:

"Thomas Heatherwick has a long relationship with Bombay Sapphire. The brand has supported design for many years through its glass design competitions – Thomas won 10 years ago with a design for a glass bridge. He later judged competitions for Bombay Sapphire and they've kept up a dialogue ever since."

Will Brix, Bombay Sapphire:

"Heatherwick Studio had that added insight about who we are and that was really big for us. There was a natural tie-in with their ideas. And we didn't want to just do it, we ▸

PHOTO: IWAN BAAN

A tropical and a Mediterranean glasshouse house the plant species used in Bombay Sapphire gin

The visitor centre and brandland – with the dazzling glasshouses – sits at the heart of the historic site

PHOTO: IWAN BAAN

"We wanted somewhere with history, and this site dates back to 903"

wanted to do it how Bombay Sapphire would do it."

How did you find the site?

Will Brix, Bombay Sapphire:
"A man called John Burke, who used to be the Bombay Sapphire category director for Bacardi, lived in a nearby village. One day, he had a pint with the caretaker, who's been looking after Laverstoke Mill for 35 years. When the caretaker heard John was looking for a site, he told him about it.

There was hoarding all along the front of the site, and no one had been in since 2000 apart from copper thieves. John Burke jumped the fence and had a look round, then got us all to come and look. We quickly realised it was the site for us. We were so convinced, we bought it without planning permission."

Eliot Postma, Heatherwick Studio:
"The moment you visit the site you fall in love with it. It's an unusual, unique place."

What was it like when you took over?

Eliot Postma, Heatherwick Studio:
"There were 49 buildings on the site, dating from the late 1850s through to the 1960s and 1970s. The original early 20th-century structures had been built on with additions like lean-to buildings – they were almost like barnacles stuck to the side of the handsome Victorian buildings. Overall it was a confused cluster and it was quite difficult to understand where you were. Essentially it felt like being in a maze."

What were you looking for from the site?

Will Brix, Bombay Sapphire:
"We wanted a site which was suitable for redevelopment and somewhere with history. Our preference was to repurpose or bring a property back to life rather than to build afresh. This site – which dates back to 903 – met all those criteria.

We got inspiration from the Campaign for the Protection of Rural England and – like them – we believe the English countryside is a finite resource that needs to be preserved. With this project, we've been able to achieve all our commercial aspirations, as well as restoring an important piece of English heritage."

The site was cluttered and confusing

How did you approach the redevelopment?

Eliot Postma, Heatherwick Studio:
"Our first move was to clear away the pre-fab buildings to reveal the Victorian charm. In doing that, we brought life back to the stretch of the River Test which runs right through the site. It's an exceptionally beautiful chalk stream with the clearest water I've ever seen in the UK. But it was unloved, with high concrete sides and buildings obstructing the water. Once we'd cleared the river, we used the direction of its flow as an organisational reference point to determine the direction of the visitor flow through the attraction."

What role did the river play?

Will Brix, Bombay Sapphire:
"Heatherwick Studio championed the river from day one. It's a complicated site, so it was used as a navigational feature.

This mill was at the forefront of pioneering hydroelectric innovation in the UK, so we also reconditioned an open flume Francis turbine we found on the site and it's generating electricity for us."

What was the next stage?

Eliot Postma, Heatherwick Studio:
"The next stage was deciding where the factory buildings should be – they had to be big enough to house the huge stills – and then after that, creating a heart to the site with the visitor centre and the glass houses to enable the public to immerse themselves in the story of Bombay Sapphire."

Why did you make the visitor centre central to the experience?

Will Brix, Bombay Sapphire:
"The entire development was designed from scratch with that in mind. We wanted it to be a journey of discovery rather than a didactic museum experience. "

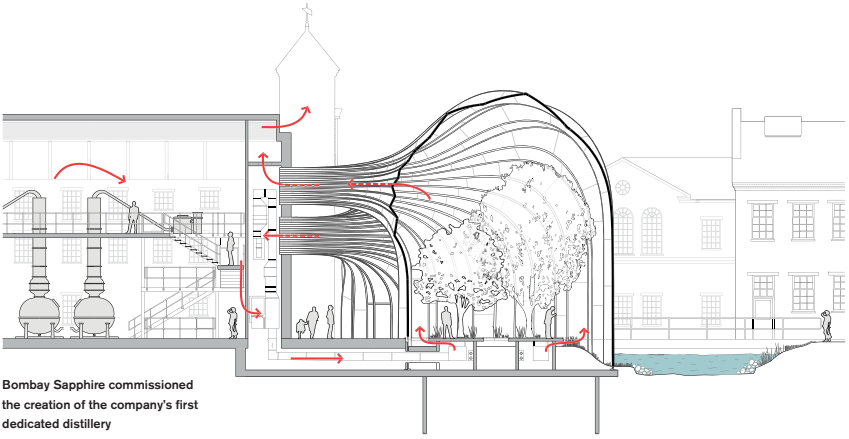
Tell us about the glasshouses

Eliot Postma, Heatherwick Studio:
"One of the lovely things about Bombay Sapphire is the crazy lengths they go to source their botanicals, from India, China, Spain... We loved that part of their story.

A quirk of the distillation process is that it produces a huge amount of excess heat. These two things came together. We saw the opportunity to create a couple of greenhouses that could use the excess energy to grow specimens of the botanicals that go into the gin. So, we created two glass houses, a tropical one and a Mediterranean one, alongside the stills right in the heart of the site."

Tell us about their design?

Eliot Postma, Heatherwick Studio:
"The UK has an amazing Victorian heritage of glass engineering, from glasshouses – such



Bombay Sapphire commissioned the creation of the company's first dedicated distillery

as the Palm House at Kew Gardens – right down to smaller items like the glass cloches you put over plants. We combined the language of the glass cloche with the elegance of the Victorian glass house and brought it to the 21st century by applying the most innovative glass technology.

The structure of Victorian glasshouses is integral; the glass and the ironwork work together structurally. A lot of modern glass architecture can be very cold, with perfect glass cubes, seamless joints and microscopic spider fixings. We enjoyed the idea of doing something different from that and creating a very contemporary glass structure that isn't afraid of the steel that goes into it, and using that steel to accentuate the form of the glasshouses."

Who advised you on the heritage aspects of the development and design?

Will Brix, Bombay Sapphire:

"We worked extensively with English Heritage, the conservation office and the local community. When we came here, there was no archive to consult, because the previous occupants made bank notes, so everything had been destroyed for security reasons.

"We wanted to know what had happened on the site and to compile an archive. We'd heard stories but had to verify them ourselves, so we hired an archivist. Local people were really happy that was happening and were very willing to talk to her. This enabled us to build a dialogue with the local community and as a result of the material she gathered, we'll be running heritage tours next year."

Key factors in BREEAM certification assessment

- EPC rating of A, CO2 index of 14
- Carbon emissions below 4kg CO2/m2
- Sustainably powered biomass boiler, photovoltaic array and 6kW hydroelectric turbine give carbon savings of 38% from energy produced
- Demolished buildings' materials recycled and re-used
- 80% of original structures retained
- Rainwater harvesting, restricted water devices
- Improvements in ecology and biodiversity of the SSSI
- Heat from distillation process used to heat glasshouses
- Spent botanicals used as fuel source

How does the heating system work?

Eliot Postma, Heatherwick Studio:

"The ironwork frame of the glasshouses connects to the still building behind it and gathers at the neck. The warm air is circulated from the still building into the base of the glasshouse through grilles around the walkway. The warm air rises naturally and the negative pressure in the still house behind creates a plenum which draws the air out of the glasshouse at the top."

The distillery received a BREEAM outstanding certification. What other sustainable attributes does the development have?

Will Brix, Bombay Sapphire:

"In addition to generating hydroelectricity, we've installed photovoltaic panels and at the heart of the operation, a sustainable biomass boiler. The boiler burns locally-sourced renewable woodchip, as well as the spent botanicals which are a by-product of the distillation process."

Eliot Postma, Heatherwick Studio:

"That energy loop between the still building and the glasshouses is a really big part of why we were able to achieve the sustainability accreditation, and it's the first time a BREEAM outstanding certification has been awarded to a refurbishment."

Did the site pose many challenges?

Eliot Postma, Heatherwick Studio:

"Pretty much every challenge you can possibly imagine! There are three Grade II listed buildings on site, and another 10 are

The distillery allows visitors to learn about and witness the distilliation process

The visitor experience

Alice Davis

Visitors get the chance to sample the botanics

Visitors to the distillery at Laverstoke Mill are free to roam around much of the site. With a simple map and a number of gramophone-inspired listening points, with multilingual audio, visitors determine their own route and pace around the attraction.

"They can see behind the curtains of Bombay Sapphire: the people and the place where it's made, where all the ingredients come from," says estate manager Will Brix. "If you're interested in history, architecture, sustainability, horticulture, ecology, then Laverstoke Mill is a fascinating place to come.

Being the home of Bombay Sapphire is the jewel in its crown, if you'll excuse the pun."

The Heritage Room This room introduces the history of the site with artefacts and photographs

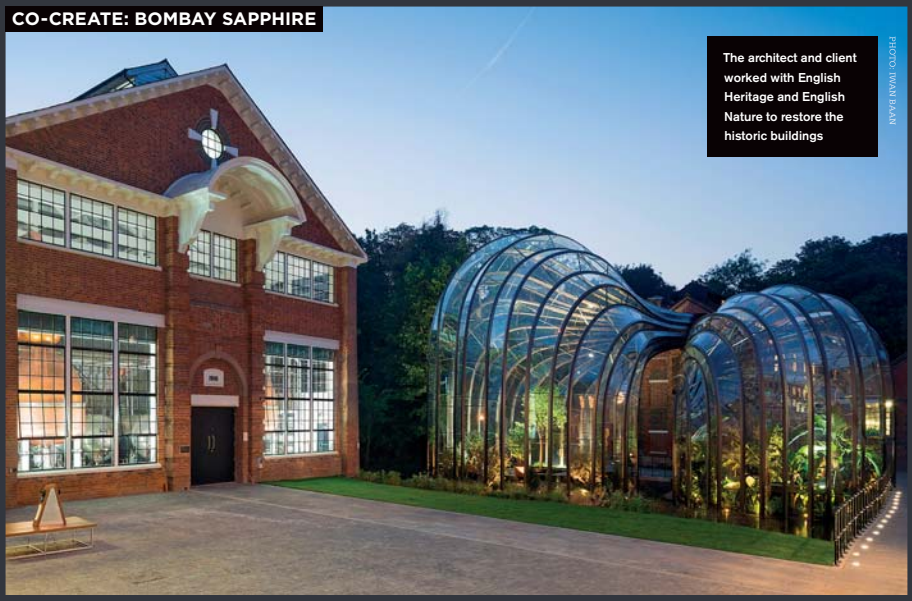
The Glasshouses Visitors learn about the different plants that form the ingredients of Bombay Sapphire

Botanical Dry Room Visitors embark on a 'tasting adventure' where they can sample and smell the botanics. If they record their preferences, a gin cocktail is tailored to their tastes at the bar

Dakin Still House Visitors see the historic copper stills and learn about the vapour infusion process

The Mill Bar Visitors can enjoy a cocktail or two in the bar, which has no admission charge

The Gin Academy For an extra fee, visitors can take a gin workshop or a cocktail masterclass in this event space



The architect and client worked with English Heritage and English Nature to restore the historic buildings

PHOTO: IWAN BAAN

TIMELINE FOR LAVERSTOKE MILL

903

There has been a mill on this site since 903AD

1086

Laverstoke Mill was recorded in the Domesday Book as a working Corn Mill

1718

Acquired by Henry Portal (c.1690 -1747), a French Huguenot who fled persecution and arrived in Southampton in 1706

1719

Henry Portal built the existing mill on-site to manufacture paper

1724

Portal won the contract to produce watermarked bank note paper for the Bank of England, a measure to target forgeries. Watermarks were necessary as banknotes were entirely handwritten until 1725

1850s

A series of reforms took place at Laverstoke under the control of Henry's grandson, Sir Wyndham Portal (1822-1905). The Bank Charter Act of 1844 gave the Bank of England a monopoly on bank note issue and production. Laverstoke was given production over moulds which formed the individual notes for the Bank of England

1950s

More than 800 people worked for the Portals during this period

1963

The last bank note was produced for Western Samoa. Laverstoke Mill ceased milling paper

2000

Laverstoke Mill was officially declared derelict

2005

The site was purchased by St James Homes, who planned to build 70 homes despite substantial opposition

2008

Recession prevented the housing development plans from advancing

2010

The site was discovered by Bacardi-employee John Burke, and Bombay Sapphire bought it

2012

Work begins on site to transform it into a visitor experience and working distillery. A team member from Heatherwick Studio was on-site to supervise the work at least three days a week

2014

After years of neglect, the transformed site of the Bombay Sapphire Distillery opened in October

"In a way bringing the river back to life is what we're most proud of"

Widening the River Test was a key part of the project

considered important to the conservation area of Laverstoke and Freefolk.

The River Test is a site of special scientific interest (SSSI), which means the habitat and the ecology is very important. English Heritage was involved in everything we did with the buildings and the Environment Agency was involved in anything we did relating to the river.

We had bats, we had newts, we had the breeding season of the trout in the river. The entire project programme became based on the fauna, which dictated when we could start building and when we could block the river to build the glasshouses.

People often think of local government and government agencies as being barriers to innovation who always want to leave things as they are, but English Heritage and the Environment Agency saw that we were trying to bring the site and the riverway back to its original majesty and were extremely supportive."

Will Brix, Bombay Sapphire:
"English Heritage described us as a knight in shining armour!"

Was it important to have the local community on board?

Will Brix, Bombay Sapphire:
"Laverstoke is a small village with 70 houses which were originally built for people who worked at the mill. A developer had bought the land before we acquired it, and planned to build 70 more houses, which would have radically altered the character of the village, but there was no mention of investment in the community in that scheme.

People favoured this return to industrial usage. We had unanimous backing, which is uncommon for a project of this scale. People think it's great we're bringing high quality goods manufacturing back to Laverstoke."

Eliot Postma, Heatherwick Studio:
"People here worked at the mill or are children of those who worked at the mill. We had consultations where members of the public were invited to comment on the design. There was a really good turnout, because the local community is invested.

"The consultations were an opportunity for them to comment on the design and for us to incorporate their feedback.

"We worked with an executive architect, GWP, and representatives from Heatherwick Studio, Bombay Sapphire and GWP were present at all the public consultations to answer questions and reassure the community."

Do you have a highlight, or a favourite part of the project?

Eliot Postma, Heatherwick Studio:
"In a way bringing the river back to life is what we're most proud of in this project. It's unrecognisable from when we first arrived and visually it's a really lovely stretch of river now. We're thrilled to have been a part of making that happen."

Will Brix, Bombay Sapphire:
"There are so many reasons we chose this site, but the most important for me is the hardest to convey – the emotional experience you get from being here. Even before the glasshouses were built, just standing in the courtyard was amazing, and now the site has been transformed it's even more powerful. That courtyard is the thing that does it for me… you can feel the centuries of history. It's really, really beautiful."

PHOTO: ELENA HEATHERWICK

On the horizon for Heatherwick Studio

The 20m-high shaded garden will be open to all

Al Fayah Park
Abu Dhabi, UAE
Opening: 2017

Heatherwick Studio has designed a 125,000sqm (410,105sq ft) desert oasis, a major piece of public land that will become the Al Fayah Park in Abu Dhabi. The park will offer a variety of open spaces with exercise paths and picnic areas. There will be organic fruit and vegetable gardens, which will be used to supply the various restaurants and cafés in the park. Heatherwick designed the park to protect the plants and foliage from the powerful desert heat. Abu Dhabi's rapid rate of expansion and transformation has led to a desire to provide a public space devoted to the wellbeing of the people in the city. The Salama Bint Hamdan Al Nahyan Foundation is the developer behind the scheme.

RENDERINGS THIS PAGE: HEATHERWICK STUDIO

The plans celebrate the building's industrial history

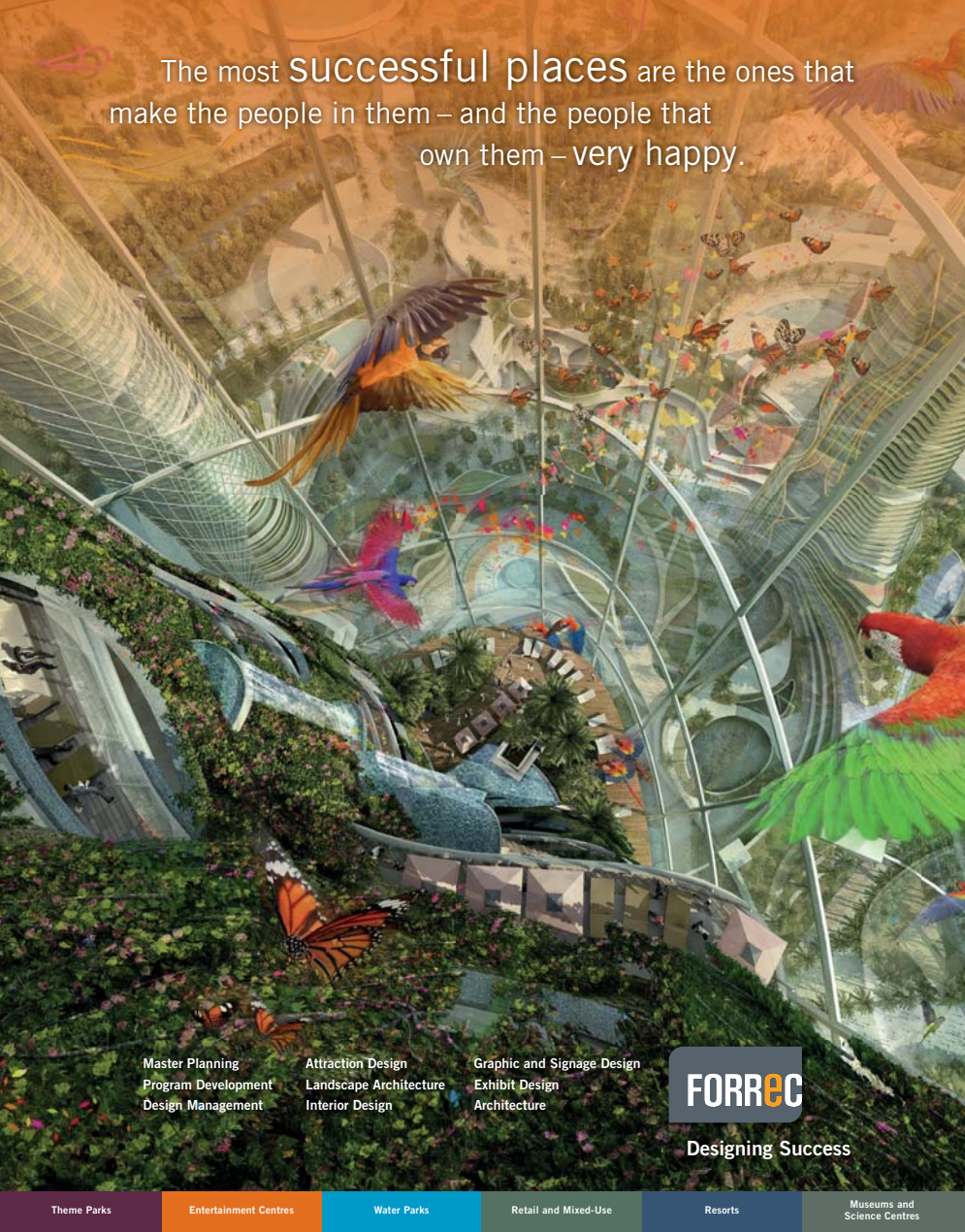
Zeitz MOCAA
Cape Town, South Africa
Opening: 2016

The Zeitz Museum of Contemporary Art Africa (Zeitz MOCAA) marks the architect's biggest museum project to date. Heatherwick is transforming the Cape Town grain silo into leisure space spilt across nine floors. Plans include keeping the character of the building to "enjoy its tube-iness." The studio is carving out galleries from the shell of the silo, allowing movement, space and light, while keeping the structure – and its 42 tubes – relatively intact. The outside of the silo will see the most visible changes. Glass panels are being inserted into the exterior of the upper floors and the site will be lit up at night. Built in 1921, the 57m (187ft) silo is a major feature of the skyline.

The pier will house a 2.7 acre park

Pier 55
New York, US
Opening: 2018/2019

Heatherwick Studio and landscape architecture firm Mathews Nielsen have been chosen to design Pier 55, a US$170m (£136m, £109m) floating park on the Hudson River. Pier 55 will be situated 186ft (57m) away from the bank of the Hudson River and accessible via an undulating platform. More like an island, the pier will be a fully-fledged 1.1-hectare (2.7 acres) park, with three performance venues, a 700-seat amphitheatre and wooded outdoor spaces. The structure will replace Manhattan's ageing Pier 54 and will be mostly funded by the Diller-von Furstenberg Family Foundation, with help from the Hudson River Trust and the city. Planning for this bold addition to the Manhattan waterfront could be approved this year, with construction starting by 2016. ●


The most successful places are the ones that make the people in them – and the people that own them – very happy.
Master Planning
Program Development
Design Management
Attraction Design
Landscape Architecture
Interior Design
Graphic and Signage Design
Exhibit Design
Architecture
FORREC
Designing Success
Theme Parks
Entertainment Centres
Water Parks
Retail and Mixed-Use
Resorts
Museums and Science Centres

"We felt a great sense of social responsibility when we acquired the land, and so we undertook a huge project in order to rebuild these two 100-year-old parks"

Paula Marques, Unicer representative and GM of Vidago

GOING TO THE SOURCE

Two mineral spa and leisure developments are making waves in Portugal – all thanks to investment from the country's largest brewer. Julie Cramer finds out more

As one of Portugal's biggest beverage companies, known for its Super Bock beer, Unicer might seem an unlikely business to be operating two leisure, spa and nature parks in the country's lesser developed northern region. Yet its opulently-restored Vidago Palace hotel, spa and park and eco-centred Pedras Salgadas nature park and thermal spa have been putting this corner of Portugal firmly on the tourist map since opening in 2010 and 2013 respectively.

Despite this, the two sites – designed by several acclaimed Portuguese architects – are still, according to Unicer, just a niche part of its E500m (US$622m, £396m) a year global drinks business. So just how did the investments come about and why did the company feel it would be a good move?

Social responsibility

The story of the parks, located 13km apart around two spa towns of the same name (Vidago and Pedras Salgadas), began when Unicer expanded into the mineral water sector.

In 2001 it purchased drinks company Vidago Melgaço e Pedras Salgadas (VMPS) and automatically inherited 20 hectares (49 acres) containing two nature parks, which were the original source of the naturally-carbonated mineral water.

Paula Marques, Unicer representative and GM of Vidago, says: "With the acquisition of VMPS, Unicer achieved one of its strategic goals – to become the main Portuguese beverage company, with its core business as a brewery and in bottled water – and to extend its activity to tourism.

"We felt a great sense of social responsibility when we acquired the land, and so we undertook a huge project in order to rebuild these two 100-year-old parks. Unicer is known as a company which cares about the preservation of national patrimony and identity."

Renovation works

The Vidago Palace Hotel, first built for royalty in 1910, reopened during its centenary anniversary year in 2010, with a rich and stylish new look created by interior architects José ▸

The opulent Vidago Palace hotel re-opened in 2010 (above); the Pedras Salgadas eco park launched in 2013

"We decided to create two unique projects, allowing us to attract different kind of tourists to our region."

Pedro Vieira and Diogo Rosa Lã. In contrast to the ornate, marbled and very colourful interiors of the 70-bed hotel, the 2,500sq m (26,910sq ft) spa has been designed with the signature minimalist look of Pritzker prize-winning architect Álvaro Siza Vieira.

The nearby Pedras Salgadas Spa and Nature Park opened in 2013, with a focus on the environment. Lisbon-based architect Luis Rebelo de Andrade built 13 deluxe eco houses and two striking tree houses that literally suspend guests in the verdant pine forest. Siza Vieira was again commissioned to work on the spa by restoring the park's art nouveau thermal baths. Marques says: "We've combined the preservation of the natural environment and renewal of the thermal park concept in Portugal with modernism and innovation."

Unicer says total investment amounted to E70m (US$87m, £55m) – E50m (US$62m, £40m) for Vidago and E20m (US$25m, £16m) for Pedras Salgadas. "One of our main goals was to renew the thermal tourism concept," says Marques. "[But] as the two projects were so geographically close, it didn't make sense to have the same offer. So we decided to create two unique projects, allowing us to attract different kinds of tourists to our region."

It seems that the tactic is paying off. Pedras Salgadas has captured the imagination of Iberian tourists, with 84 per cent of its visitors being Portuguese, and 10 per cent of guests coming from Spain.

The Pedras Salgadas brand is the most famous mineral water drink in Portugal, which has no doubt helped attract locals. Vidago, on the other hand, appeals to a wider spread of nationalities: 65 per cent of customers are Portuguese; 12 per cent Spanish; and 11 per cent from elsewhere in Europe.

ÁLVARO SIZA VIEIRA

Portuguese architect Álvaro Siza Vieira is known for his minimalist style and his projects range from swimming pools to mass housing developments, offices, restaurants, art galleries and retail.

Some of his best known works are in his home town of Porto including the Boa Nova Tea House (1963), the Faculty of Architecture at Porto University (1993) and the Serralves Museum of Contemporary Art (1997).

He has won numerous awards over his 60-year career, including the prestigious Pritzker Architecture Prize in 1992.

The jury citation for the position of Pritzker Laureate said his work was "a joy to the senses and uplifts the spirit. Each line and curve is placed with skill and sureness...Like the early modernists, his shapes, moulded by light, have a deceptive simplicity about them...To paraphrase Siza's own words, his is a response to a problem, a situation in transformation, in which he participates."

Drawn to the waters

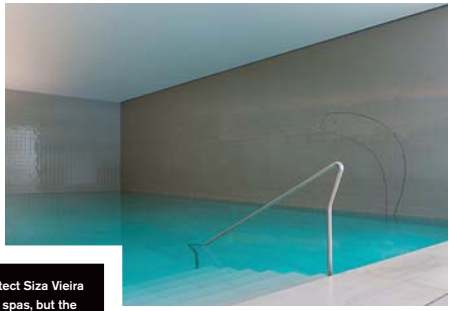
Of course, the USP that ties both sites together is the healthy mineral water, known for its particularly high iron content and for aiding the digestive system, liver detoxification and overall natural purification. Spa manager for both sites, Vera Gonçalves, says: "The Vidago waters are believed to be therapeutic and curative, with only 0.5 per cent of waters in the world sharing the same mineral properties. These waters are collected directly from deep underground granite rock springs and are now used in several of our exclusive signature treatments."

In stark contrast to the main building, with its belle époque style, the spa at Vidago Palace Hotel is designed as a modern, Zen-inspired space that Gonçalves says "exudes tranquillity and promotes an immediate sensation of well-being".

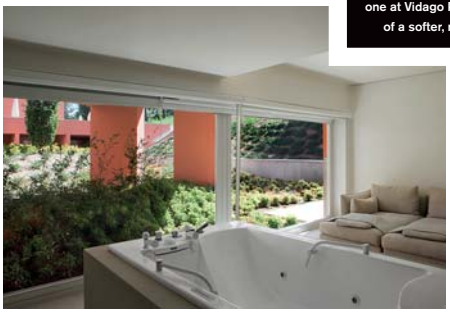
Spa facilities at Vidago include 17 treatment rooms (including five for water therapies and two suites); a doctor's room; a beauty room; two relaxation areas; a hydro

UNICER

- Unicer is one of Portugal's largest beverage companies, with multiple brands and 13 production centres around the country. Focused mainly on brewing and bottled water, the business also comprises soft drinks, wine, malt production and sales, and latterly, tourism assets
- Fifty-six per cent of Unicer is owned by Portuguese shareholders – Viacer Group (BPI, Arsopi and Violas) – and 44 per cent is owned by the Carlsberg Group
- The company has a strong international presence, with brands now in 50 countries

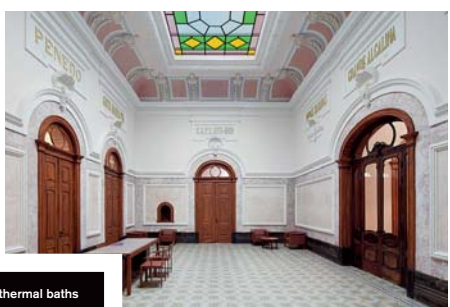


Minimalist architect Siza Vieira designed both spas, but the one at Vidago Palace has more of a softer, nurturing feel

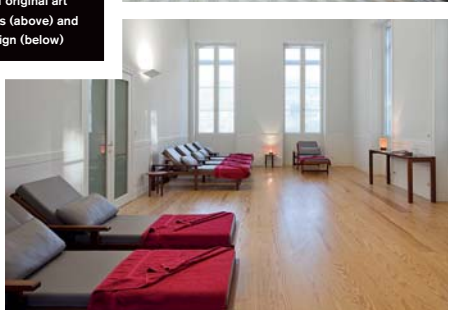


The contemporary spa stands out against the restored belle époque-style hotel

The USP that ties both sites together is the therapeutic water. At the eco park, many guests relax in the warm pool after a day of outdoor activities

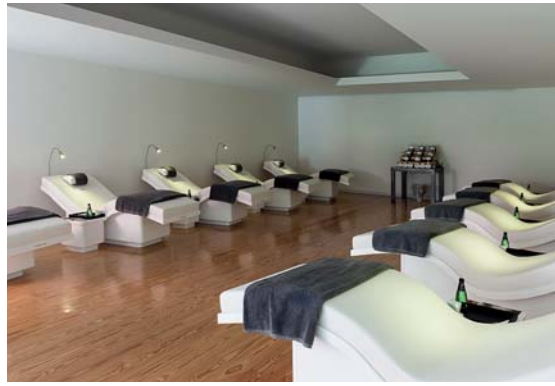


The renovated thermal baths offer a mix of original art nouveau details (above) and modern design (below)



SPA CONSULTANT'S PERSPECTIVE

Helen Merchant, a UK-based spa consultant oversaw the final phase of development and pre-opening of the Vidago spa. Although she's been involved in a number of international projects, the Portuguese spa – and working with Siza Vieira – is a highlight. She says: "Vidago Palace is a truly unique property. Its modern, minimalist spa sits in complete contrast to the historic palace yet blends in beautifully… In homage to the location's natural springs, the spa's therapeutic water treatments are a signature offer."



pool, plus an indoor and outdoor pool; and a gym with Matrix equipment.

While the emphasis at Vidago is on relaxation and pampering, the focus at Pedras Salgadas is very much on being outdoors. There are cycling, walking and nature trails and the thermal waters are there to revive guests as a complement to the physical activity.

The renovated thermal baths are much starker. Architectural details such as the art nouveau doors and original signage remain intact, while modern light wells added by Siza Vieira ensure healthy amounts of light are projected into the spa spaces.

The spa has 14 treatment rooms (including five for hydrotherapy). Other facilities include a heated indoor pool, an outdoor pool, sauna, hammam and two relaxation areas.

FACTS & FIGURES

Vidago Palace Hotel
Room rate: E200 for two people (B&B)
Annual occupancy: 40 per cent
Type of guest: 70 per cent leisure, 30 per cent MICE

Pedras Salgadas Spa and Nature Park
Room rate: E200 for four guests (B&B)
Annual occupancy: 50 per cent
Type of guest: 98 per cent leisure, 2 per cent MICE

Spa capture rates are 20 and 25 per cent says spa manager Gonçalves. She's confident these will increase as the reputation of the resorts grow

Water wellness

Gonçalves says that extensive wellbeing programmes (with themes such as Purifying, In Balance and Keep Moving) are offered at both spas, with seven- or 14-day packages both being popular. Programme prices start from around E2,600 (US$3,240, £2,060).

A ty00-pical package would include medical and nutritional consultations, a biometric evaluation, personalised spa cuisine, facials and massages, water treatments and traditional therapies like shiatsu, as well as fitness activities such as PT sessions, yoga and walking.

Gonçalves adds: "Our guests also like to experience our waters even when they have shorter stays with us and the most popular is the Vichy scrub [treatment] and the personalised relaxing massage."

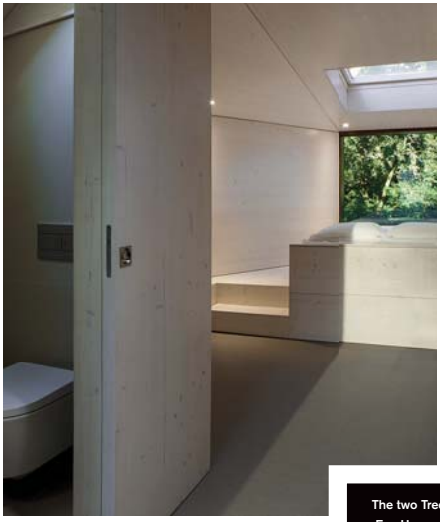
Currently both spas average the same amount of treatments per month. At Vidago, 20 per cent of hotel guests have spas treatments, but the capture rate at Pedras Salgadas is slightly higher at 25 per cent.

Combined overall revenues for the Vidago and Pedras Salgadas spas was E250,000 (US$311,060, £197,860) in 2013, with expectations for 2014 being around E325,000 (US$404,370, £257,220).

The two parks may have started out as an incidental business for Unicer, but in a world where wellness tourism is growing year on year, they're holding their own. The mix of history, luxury, nature, therapeutic waters and eco-consciousness has created a twin centre that's sure to attract an increasingly international and affluent group of health tourists.

As Gonçalves concludes: "We want to present to the world the quality and effects of our waters and help the maximum number of people achieve a healthy lifestyle without using medication and to obtain immediate effects on their health with the help of nature…and our reputation is growing." ●

Julie Cramer worked as news editor for BBC New Online for more than 10 years. She is now a freelance design, health and travel writer



The two Tree Houses and 13 Eco Houses were designed by Portugese architect Luís Rebelo de Andrade

The Tree Houses are clad in slate and wood, helping them to blend into their surroundings

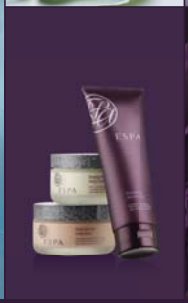
CREATING SPAS OF DISTINCTION

For over 20 years, ESPA has pioneered the spa and wellness industry with the design, build and management of spas around the globe. Sharing our passion and vision, we have successfully partnered with hotels and property owners across 55 countries to create award winning spas of true distinction. With offices throughout the world we have unparalleled knowledge of diverse international requirements and considerations, and can respond to every client's need whatever the culture.

To discuss our spa services further, speak to one of our team on **+44 (0)1252 742804** or visit **espa-consulting.com**

ESPA

ESPA Life at Corinthia, London



Steve & Marie Nygren

In the US, where sprawling suburbs are king, Steve and Marie Nygren decided to create an alternative. As work starts on a new wellness hamlet as part of eco village Serenbe, Mia Kyricos and Magali Robathan find out how the founders are using architecture to foster a sense of community

"The vision was to create a community that feels as though it's always been there"

The idea for 'anti suburbia' eco community Serenbe was born in 2000, when founders Marie and Steve Nygren spotted a bulldozer clearing trees on a neighbouring property.

"It ignited in us a real fear of sprawl, a need to protect our land and a desire for change," says Steve Nygren. "In many ways, that moment turned us into accidental developers by default with a new sense of consciousness."

The Nygrens had bought their 60 acre farm deep in the Georgia countryside in 1991, as a weekend retreat for their young family. Three years later, they gave up their lives in Atlanta, retired from their jobs running restaurant business Pleasant Peasant, and moved to the farm full time, converting the stables next to their home into a bed and breakfast. The family saw how living closer to nature positively impacted their lives, and they developed a growing desire to protect the land around their farm.

Soon after their 'bulldozer moment', the Nygrens bought a further 1,000 acres of land surrounding their 60 acre farm, and set about creating Serenbe – so called because they wanted it to be a serene place to be.

The vision was for a high density community promoting walkability, community living and self sufficiency built on 30 per cent of the land, with the remaining 70 per cent left as undeveloped green space.

The masterplan – designed by professor of architecture at Texas A&M University Dr Phillip Tabb – comprises four omega-shaped hamlets, each with a different theme. Today, more than 400 people – including 100 children – live in 180 homes in Serenbe. Two of the four hamlets are complete: Selborne, which focuses on arts and culture, and features art galleries, two restaurants and a range of ▸

Phillip Tabb designed a series of omega-shaped hamlets separated by undeveloped land

The development was designed to promote walkability and discourage unnecessary car use

SUMMARY: The design principles of Serenbe Steve & Marie Nygren

1. To foster community engagement
It was important to us that we find a way to help community members naturally interact throughout their days. So we established central mail stations, small parks for both children and pets, a path network throughout the grounds and woods that connect the hamlets, lots/plots and homes with sidewalks/pavements close to front porches, and a range of other elements that promote gatherings and conversations.

2. Development in close connection with nature
Disrupt as little as possible: no more than 30 per cent of the area. For example, we don't move soil from one location to another. This way, we save as many trees and natural landscaping as possible.

3. Public Vistas
Serenbe has natural high and low elevation points. The lower areas are left for residential and community clusters, and higher areas – those with beautiful views – are designed for public use to be enjoyed and shared together.

> "We feel Mado – our new spa development – should be European in scale and form"

shops, and the Grange, which has an agricultural theme and houses the community's organic farms and general store.

The third hamlet, Mado, broke ground in 2014 and will have a wellness theme, with assisted and independent living, a spa, a hotel, doctor's offices and a community centre offering classes including yoga and social clubs.

SOCIABLE DESIGN

The hamlets are modelled on English villages, and are shaped like the Greek letter omega, part of a plan to use architecture to encourage interaction among Serenbe's residents.

"The omega shapes create a sense of community because they surround a natural meeting area in the centre," says Tabb. "We wanted the omega shape rather than a 'u' shape, because the opening of a 'u' is too open, and so the energy of the hamlet could be lost. If you begin to close the opening, you get a greater degree of containment."

"It was important to us that we find ways to help community members naturally interact throughout their days," adds Steve Nygren. "All homes are required to have a porch and they must be sited close to the street, both for a connection to neighbours and activity. All post boxes are centralised for communal collection of mail and the opportunity to see your neighbours and catch up. All homes are connected to the trails as well as by streets and sidewalks.

Serenbe Community Masterplan

STAGE 1
The first hamlet, Selborne, focuses on the arts, including the culinary arts, and features restaurants as well as art galleries and shops.

STAGE 2
The second hamlet, Grange, has an agricultural theme, and features Serenbe's 25 acre organic farm, an equestrian centre and a general store.

STAGE 3
The construction and development of Mado, Serenbe's wellness-themed hamlet, is currently underway. It will feature a spa and hotel, a Montessori school, assisted living, a community pool and fitness centre and a memory care centre.

STAGE 4
Serenbe's fourth, and largest, hamlet will focus on 'education with a twist,' and will welcome students keen to learn about the architectural and developmental principles Serenbe is built on.

In-ground trampolines, bocce courts, fire pits, games of horse-shoe and rocking chairs and benches are placed around the neighbourhoods for organic and planned congregation."

Designing the community in this way also makes sense from an environmental point of view, says Nygren. "Serenbe is designed on sacred geometry principles, with buildings clustered along serpentine-like forms fitted to the undulations of the land. This requires minimal land disturbances and allows the community to reserve large areas of undeveloped green space. Homes and hamlets are connected by these looping country roads and a network of well-worn footpaths that make walking easier than driving a car."

LEISURE AND CULTURE

Selborne and the Grange have also been modelled on English villages, which – in contrast to most modern American surburban developments – tend to feature a high number of non residential functions.

Today Selborne has three restaurants, a B&B (The Inn at Serenbe), a spa, art galleries and a range of boutiques. It also has a lively programme of events, from Saturday farmer's markets to performances by the Serenbe Playhouse theatre group, all of which are promoted to visitors as well as residents. "I was very keen to get in as many non residential functions as possible, and also to cross pollinate those functions," says Tabb.

Thirty acres of the development is devoted to farming and edible landscaping – the farm is certified organic and biodynamic. The produce is used in Serenbe's restaurants and also sold at the weekly farmer's market.

While the planned developments are important, allowing space for spontaneous meetings to occur was also vital, says Tabb.

"The interstitial space between the buildings is very important. What happens here is that a random set of opportunities – either a waterfall or a clearing in the woods, or human interventions such as treehouses built by the community or seats placed in clearings – become points of discovery. It contributes to a greater sense of the non residential."

A range of events, workshops and performances bring the community together

> "Ten years ago we set out to research sustainability to preserve our backyard. Today we're doing the same with wellness"

MADO

Work has now begun on Mado, which means 'life in balance' in the native tongue of the Georgian Creek Indians.

So why did the Nygrens choose wellness as the theme for the third hamlet? "We're living longer today yet we're not living well longer," says Steve Nygren. "Over 10 years ago, we set out to research sustainability and community development to preserve our backyard, and today we're doing the same with health and wellness. We're seeking out and learning from the best wellness models around the globe and bringing them back to Serenbe.

"We plan to have experience concierges bringing young and old together," he continues. "We'll do this by offering communal homes and smaller dwellings with live-in nurses to provide gateways to assisted living, but build them alongside a Montessori school for children aged 0 to 14. We have plans for a memory care centre, community pool and a fitness centre alongside the spa and hotel."

The spa will be a partnership between the Nygrens and an outside operator, and the family is currently in discussion with several international brands.

As for the design, the founders have been looking to Sweden and Denmark for inspiration: "We recently toured Sweden's countryside and Stockholm and Copenhagen for inspiration because we instinctively feel Mado should be European in scale and form," says Nygren. "We're inspired by the architectural vernacular of Scandinavia – simple scale with minimal ornamentation but playful placement and colour."

The fourth and final hamlet will focus on "education with a twist," providing standard education and welcoming students interested in learning the architectural and developmental principles on which Serenbe is built. ●

Mia Kyricos is chief brand officer at Spafinder Wellness Inc and founder of Kyricos & Associates. She is based in the US

Serenbe: The lowdown

How has Serenbe been financed?

The Nygren family has financed the development. The growth of Serenbe is being funded via private partnerships with the family.

Who are the shareholders?

There are none – it's a private partnership.

What's the end game?

Once all the lots are sold, Serenbe will revert and be managed by the Home Owners' Association and the Serenbe Institute will become the conservator and steward of the extensive trails and green space.

Has any research been done on the 'Serenbe effect' on property prices?

Yes. There's a premium on homes and lots in Serenbe compared to the surrounding land. Premiums are around five to 10 times the typical sq ft cost.

How many people are employed at Serenbe?

More than 250 people across the 30 room Inn, the restaurants, spa, trail riding, maintenance and corporate functions.

Is there a waiting list of people wanting to live at Serenbe?

There are waiting lists for various home products, such as the loft apartments, that have 10 times the number of people versus units available. The adults 55+ cottages also have a waiting list.

There are lots available to build custom-designed homes, along with resales and builder spec homes available.

How many people will live there once it's complete?

At full build out, Serenbe will have 1,200 units with an estimated 3,000 residents.

How far is Serenbe from local ameneties?

The Atlanta airport is 25 minutes away and the small town of Palmetto is a six minute drive with local shopping and major grocery and big box stores another 20 minutes away.

WTS INTERNATIONA

We are design consultants and operator
fitness centres and leisure facilities worl

AL
s for spas,
dwide.
Call +1 301.761.5803 to find
out how we can help you.
email: svp@wtsinternational.com
web: wtsinternational.com

WEST KOWLOON CULTURAL DISTRICT

White elephant or a new model for development in Hong Kong? Christopher DeWolf takes a look at the ups and downs of the $1.8bn waterfront project

Last November, thousands of people thronged the Hong Kong waterfront for a festival with an unusual name: Freespace. Young people sold handicrafts and second-hand clothes along a seafront promenade, while families picnicked on the grass and food vendors made brisk business hawking pizza and beer. At one point, a group of people dressed in giant seagull costumes wandered through the crowd, papier-mâché beaks pecking at the ground.

Freespace's focus is revealed in its name. In a city where public parks are governed by many onerous restrictions – no dog-walking, frisbee-throwing or music-playing allowed – the festival was conceived as a way to see what would happen if Hongkongers used a park as they liked. It could set an important precedent. Over the next few years, the ▸

festival's waterfront site will be transformed into the West Kowloon Cultural District, a £1.8bn, 40 hectare collection of museums, theatres, shops, flats and public spaces.

More than just a cultural district, West Kowloon is an ambitious experiment in architecture and urban planning. Built on a piece of land reclaimed from the sea in the early 1990s, it could set a new model for development in Hong Kong, where profits usually trump good architecture and planning. But spiralling costs and delays have taken their toll on the project's reputation, with one local newspaper decrying it as "one of the ugliest breeds of white elephant." Delays on an adjacent train terminus mean that construction on most of the project won't be finished until the late 2020s.

"I think it will be very difficult," says John Batten, an art and architecture critic who has followed West Kowloon's development. "Hong Kong doesn't do public space very well."

Such scepticism could be forgiven, considering the district's history. When the project was first announced by the Hong Kong government in 2003, it was conceived primarily as a tourist attraction, with exclusive development rights given to one of Hong Kong's largest property conglomerates. Foster + Partners proposed a design that enclosed the entire district under an enormous canopy.

The public was not impressed. Eventually, the entire scheme was sent back to the drawing board, with the developer replaced by an independent government agency, the West Kowloon Cultural District Authority. That led to a new public competition for its

The Pavilion will offer views over the harbour and will act as an event and exhibition space

Bing Thom's Xiqu Centre is purpose-built for Chinese opera performances

The latest concept design for the West Kowloon Cultural District was unveiled in July 2014

masterplan, with a shortlist that included avant-garde proposals from Rem Koolhaas' OMA and local architect Rocco Yim. In the end, the public chose yet another plan from Norman Foster, this time based around a grid of pedestrian-only streets running from the dense, older neighbourhoods of Kowloon to a large new park on the site's western edge.

"We approached West Kowloon with a new idea of the cultural district being an extension of the city, influenced heavily by the DNA of its streets, alleyways and building blocks," says Foster. That started with the recognition that "exemplar cultural districts can be, if you're not careful, terrible urban districts," says Colin Ward, Foster's Hong Kong-based partner. "The question we asked ourselves is, how do we make this an extension of the city, but better?"

Foster says the masterplan relies on a mix of "anonymous city architecture" with a few landmark structures. "We would advocate that, as the architecture is developed, there are a limited number of 'star' buildings within the context of more general background buildings and urban spaces, like streets, squares and parks," he says. "Public space is the urban glue that binds the city together, and will be central to the success of the new district."

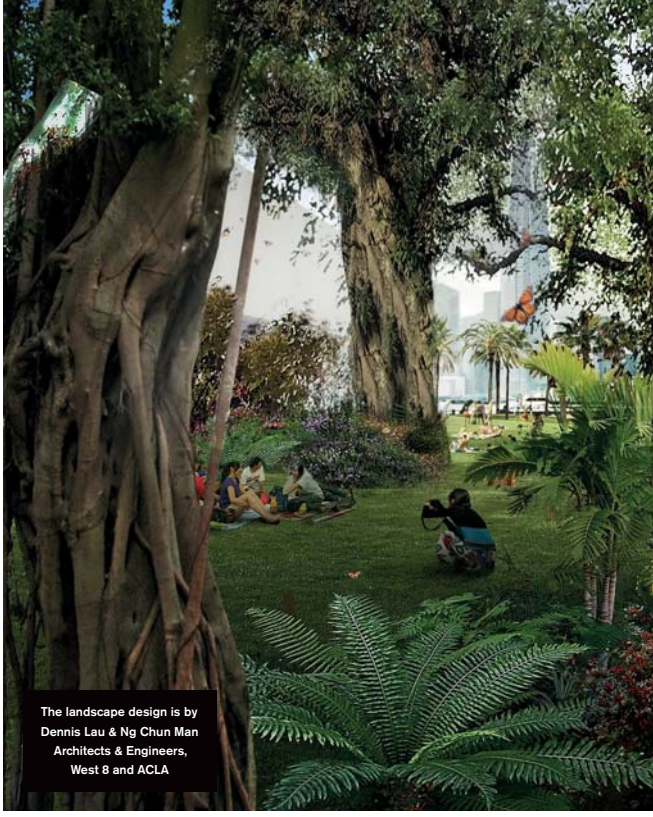
ACHILLES HEEL?

The key to that approach is to banish all vehicular traffic underground, in a system of subterranean roadways and service entrances. That will free up the entire ground plane for pedestrians and cyclists – a bold statement at a time when Hong Kong's traffic congestion and air pollution continue to worsen. It may also be the plan's Achilles' heel, adding serious cost and technical complexity to the project. Last year, some Hong Kong lawmakers urged the government to scrap the underground portion of the plan, which it has so far resisted. To make matters worse, construction of the basement cannot begin until the completion of the adjacent high-speed railway terminus, which is running several years behind schedule.

That means Foster's anonymous urban fabric will have to wait. In the meantime, construction on two of the district's star buildings, the M+ museum of visual culture and the Xiqu Centre opera house, has already begun. M+ will be designed by Swiss firm Herzog & de Meuron, winners of an international competition whose shortlist included five Pritzker winners. Herzog's design is an austere concrete cross that stands in sharp contrast to the glossy commercial architecture behind it.

While the exterior sent tongues wagging – some likened it to a tombstone – interior ▸

> We're going into unknown territory. That's where real innovation can occur



The landscape design is by Dennis Lau & Ng Chun Man Architects & Engineers, West 8 and ACLA

details have not yet been revealed. The museum's curators wanted to avoid the fate of many high-profile museums, like the Guggenheim Bilbao, which have been criticised for being visually striking but functionally poor, so they have spent the past year working with Herzog & de Meuron architects to complete the schematic design.

"[Herzog & de Meuron] won because they understood the importance of creating dialogue between these different platforms for culture instead of just compartmentalising everything," says museum director Lars Nittve, who previously oversaw the creation of London's Tate Modern. Along with contemporary art, the museum's mandate includes architecture, design and moving image, a decidedly 21st-century mix of disciplines that calls for an especially flexible kind of building.

As the finishing touches are put to its design, M+ has been steadily building up its programme with a number of itinerant exhibitions. So far, under the guidance of curator Aric Chen, two have dealt with the architecture, including an online exhibition on Hong Kong's disappearing legacy of neon signage, and a show that provided a glimpse inside the museum's burgeoning architecture collection, with photographs, models and historic documents.

Not far from M+, West Kowloon's flagship Chinese opera house, the Xiqu Centre, will be designed by Canadian architect Bing Thom, who is known for his work on ethereal civic structures like the Arena Stage in Washington, DC and the Surrey City Centre Library in British Columbia. Thom proposed a jewel box structure with a façade of metal fins that bring to mind theatre curtains; inside, public space on the ground floor leads to an upper-level bamboo garden, teahouse and a main stage built specifically for Chinese opera, which calls for a less steeply inclined viewing angle than Western theatre in order to avoid a foreshortening effect that diminishes the exaggerated movements and elaborate makeup of performers.

"This art form is hundreds of years old but there are no contemporary Xiqu theatres," says Thom. "We're going into unknown territories. That's where real innovation can occur." In keeping with the philosophy behind Foster's master plan, Thom wants his building to be as permeable as possible: "We want to build a situation where all the circulation is visible," he says. The building's curtain-like façade is marked by distinctly yonic openings, which give the building a certain shimmering transparency. "Even though it's not physically moving, the quality of light [against the façade] the seasonal changes and the changing of the gardens with different colours will give the building a moving quality," says Thom.

OPEN SPACE

If all goes well, M+ and the Xiqu Centre will open in 2017. That year will also mark the completion of another district landmark: the public park, where Freespace is held each year. When the festival held its first edition in 2012, West Kowloon Cultural District Authority CEO Michael Lynch – the man who oversaw the Southbank Centre's

renaissance in the early 2000s – suggested its freewheeling atmosphere was a preview of the atmosphere in the future park.

"People were doing extraordinary stuff all over the place," Lynch said at the time. "It had a feeling that people had not been given this opportunity before. It felt like a microcosm of what you'd like the place to be like in 10 years' time."

Construction on the park is now underway, with a design by two local firms – Dennis Lau & Ng Chun Man Architects & Engineers, and ACLA – in collaboration with Dutch architects West 8, who were responsible for the revitalisation of Madrid's riverfront (in conjunction with Burgos & Garrido Arquitectos Asociados, Porras La Casta Arquitectos and Rubio & Álvarez-Sala). When it was unveiled, the new design sparked controversy for doing away with the lush urban forest proposed in Foster's masterplan; instead, it features a number of open spaces and pavilions.

Some decried this as a cost-cutting measure (it cut the park's budget by half) but others say it reflects the cultural district's need for flexible space. Mike Hill, director of independent music festival Clockenflap, says the new plan reflects input from festival organisers who wanted more open space to stage events.

John Batten says it is crucial that the public feels the park hasn't been given over entirely to festival organisers and other event promoters. "The park is the make or break of the project, because the whole plan was sold to the public on the park," he says. He worries there will be a conflict between active users attending events like Clockenflap and passive users looking for a space to relax.

While the public may have high expectations for the park, it's the cultural district's urban fabric that may be most important to the district's long-term success. "This is where the vibrancy comes from," says Batten. Despite Foster's vision of lively streets, however, there has been no public discussion on the design of the smaller buildings and public spaces that will comprise the bulk of the district. And with delays mounting, it may be a long while before those urban spaces come to life. ●

Christopher DeWolf is an architecture journalist and photographer based in Hong Kong

CLAD kit

A new LED solution for the Sistine Chapel, a product that makes it easy to render onto curves and an elevator system that could transform the way buildings are designed

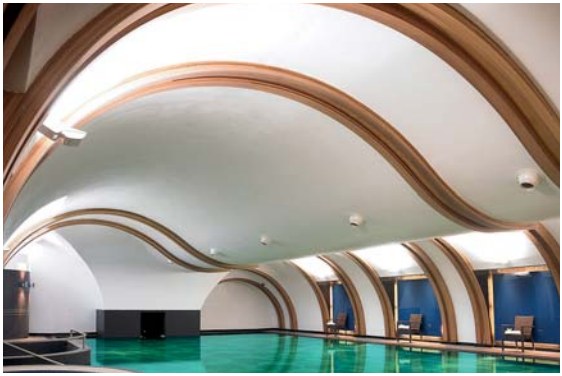
For full company and contact details of any of the products and services featured here, please visit www.CLAD-kit.net

German manufacturer Osram has supplied the Sistine Chapel with a new type of LED solution

Let there be light

The world-famous Sistine Chapel in Rome is now illuminated like never before thanks to a new lighting system from German manufacturer Osram. The new solution comprises 7,000 light-emitting diodes (LEDs) in a gilded, rail-like structure and is designed to protect the artworks while enabling much stronger lighting. New standards in "technological strength, quality and innovation" have been set, according to Osram CFO Dr Klaus Patzak. Each LED can be tuned to a different colour, with the aim of ensuring the light faithfully reflects the original colours. Another strength of the system is that it will use up to 90 per cent less electricity than the previous installation. Approximately E1.9m ($2.25m, £1.49m) was spent on the chapel's new lighting. The European Union supported the project as part of a programme to demonstrate how LED technology improves energy efficiency and quality of light, with the aim of achieving more rapid market penetration. Other partners included Italy's Fabertechnica, the Pannonian University in Hungary, and the Institut de Recerca en Energia de Catalunya in Spain.

CLAD-kit keyword: Osram



Cembrit PB flex makes it possible to render onto curves

Ahead of the curve

Cembrit's cement-based building board, used as a stable base for a range of internal and external applications, is now available in flex formulation. This makes curved rendering possible, with 'Cembrit PB flex' specifically developed for use on curved walls, arches, vaulted ceilings and around beams and columns. It delivers dimensional stability and water resistance in order to minimise expansion and contraction as a result of heat, cold and moisture. Its low water absorbency makes Cembrit PB suitable for use as a tile backer board for any internal wet area application where ceramic tiles will be used as the decorative finish, as well as externally for applications such as rendering, brick slips or stone cladding.

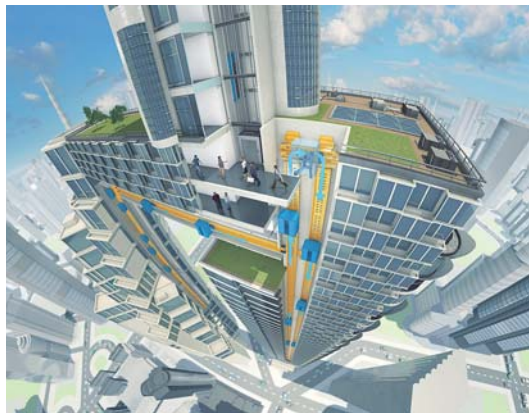
CLAD-kit keyword: Cembrit

The Geo bathroom suite

Inspired by Japan

William Garvey's portfolio of wooden furniture for the bathroom features an Oriental aesthetic and a focus on luxury. The company's latest Japanese-inspired designs include a freestanding 'Geo Deep Single Bath' and matching wall-mounted 'Geo Basin', complemented by an 'Interior Spa Bench' and 'Illuminating Mirror'. The bathroom interior in teak was designed by Thorp Design and handcrafted by furniture specialist William Garvey. All William Garvey teak work is finished with a specially formulated marine polish. Baths can be made bespoke size to fit any project.

CLAD-kit keyword: William Garvey



The rope free elevator system allows elevators to move horizontally and vertically

A new kind of elevator

The world's first rope-free elevator system could be set to transform the construction industry. ThyssenKrupp's magnet-controlled 'MULTI' system allows elevators to move from side to side, as well as up and down, creating vertical metro systems. Linear motors placed in elevator cabins allow the elevators to move along horizontal shafts as they are no longer connected to ropes that pull them up and down. The system also allows several cabins in the same shaft to move at the same time, thus permitting buildings to adopt different heights, shapes, and purposes. ThyssenKrupp said tests on the system would begin in 2016.

CLAD-kit keyword: ThyssenKrupp

LED visualisations will guide players through a variety of challenges

A clever court

Nike has unveiled the world's first LED basketball court in Shanghai, China, a facility that has been created for basketball star Kobe Bryant to help train young players in Shanghai as part of Nike's RISE campaign. The company teamed with design firm AKQA to produce the LED court. Dubbed the House of Mamba, it features all-over LED flooring; bringing graphics, video and real-time player tracking to training. Using motion sensors to enable tracking and interactive visualisations, players will be trained and challenged using circuits set by Bryant. 'House of Mamba' can display almost anything, from bespoke virtual training programmes to classic court markings and customised court overlays. It can also display personal performance statistics.

CLAD-kit keyword: Nike AKQA

The court will help train young players

The Memoria range

A sleek finish

Designed by Christopher Pillet in his signature contemporary style, Turkey's VitrA Bathrooms has unveiled its Memoria range. Intended to be timeless and elegantly simple, the range includes sanitaryware, furniture and brassware. With its defining sleek clean lines, VitrA says the range is ideal for hotels looking to bridge the gap between the bathroom and living spaces. Five sit-on basins have been produced using the flexible 'Infinit mineralcast' material to form delicate and exact shapes. A selection of vanity units is also available with inset basins in Infinit mineralcast or ceramic. The brassware includes a shower column, and bath and basin taps.

CLAD-kit keyword: VitrA

In safe hands

Art galleries and museums may be able to share their textile treasures with a wider audience if a new protective solution is used. Kommerling's latest product, Ködiguard Conservation' offers protection from ultra-violet light, the most damaging wavelength in the spectrum for textiles. It is a specialist colourless liquid composite specifically designed for applications where the highest reduction of ultra violet light transmission across the full UV light spectrum is required without affecting the quality of naturally transmitted light. Chris Davis, composites manager at Kommerling, said Ködiguard Conservation offered "a viable solution in single or insulated glass format and will remove the need for the regular replacement of post installation applied films."

CLAD-kit keyword: Kommerling

CONTACT US NOW

01926 622600 @contractuk@gerflor.com

www.gerflor.co.uk @gerfloruk

Gerflor®
theflooringgroup

THINK WHOLE

360° WELLNESS DESIGN

hospitality commercial residential

H C R

AWLAKE

www.awlakeonline.com