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The Green School designers taking on the resort market

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Balancing fantasy and functionality

Powder Mountain

Crowd-funded resort taking shape in Utah

Zaha Hadid

Messner Mountain Museum Corones

FRANCINE HOUBEN

Designing for unpredictable change

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Children in Japan are helping design the cities of the future. This needs to happen everywhere



Seen and heard

Japan has embraced UNESCO's Child Friendly Cities initiative and is involving children in decision-making around design, architecture and urban planning, setting an example for others to follow in both the developed and the developing world

The UNESCO Child Friendly Cities initiative, which was founded in 1996, has been enthusiastically adopted by cities in Japan. The initiative was conceived as a way of empowering children and implementing the Convention on the Rights of the Child at a local level.

Cities in which children are able to "live happily and safely, express their opinions, influence decision-making and participate in community and social life" can apply for international recognition, and the cities of Fukuoka, Hiroshima and Sendai were recently awarded this special status.

UNESCO says many local governments in Japan are following their example, increasing children's participation in urban planning decisions and enabling them to express their opinions. In the town of Niseko, for example, the under-20s participate in town planning committees, and a children's parliament enables input and feedback on important design decisions.

In an interview with *CLADmag*, Dr Isami Kinoshita – architecture professor at Chiba University and leader of the CFC initiative in Japan – said: "The level of children's participation has been increasing significantly, especially, since the Great East Japan Earthquake in 2011. Children's participation has been promoted in municipalities where rebuilding is taking place, with consultation and support from global NGOs and UNICEF."

UNICEF said: "Child Friendly Cities are challenging traditional 'seen and not heard' attitudes to children and placing duties on parents, teachers and others to listen and give consideration to their views. Governments are holding consultations with children and in some cases, are seeking to build consultation into their everyday practices."



Japanese children engage in the planning process

Children are our hope for the future and we have a responsibility to involve them in shaping that future

These initiatives 'inform and involve' children, respect their views and experiences, recognise them as partners and human beings, rights-holders and equal citizens.

Children are our hope for the future. Respecting their views and taking them seriously is vital if we are to build healthy, sustainable communities. Adults are already

well represented in the planning process, but most children have no voice and would have no idea how to exercise it if they did. We need to mentor them in this process so they can participate.

The inclusion of children in the design and planning process is an important priority for all to champion – whether the circumstances be rebuilding, or more routine development. Ask yourself what you can do today to make this happen.

Liz Terry, Editor, CLAD @elizterry



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PHOTO: JACOPO SPILMEIER



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Miami architect Chad Oppenheim, p114



PHOTO: TUDOR SPACES

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

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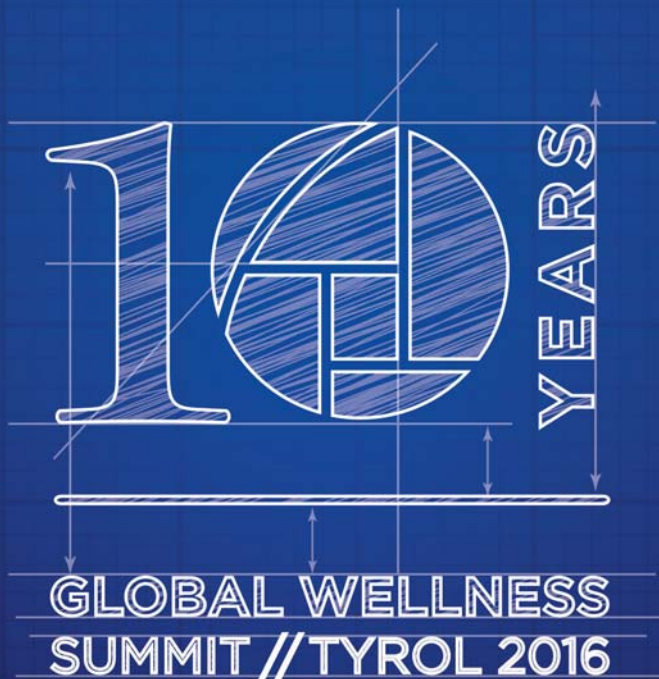
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CLADmag is published four times a year by The Leisure Media Co Ltd, Portmill House, Portmill Lane, Hitchin, Herts SG5 1DJ, UK. The views expressed in this publication are those of the author and do not necessarily represent those of the publisher The 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 2016. 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 2016 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.



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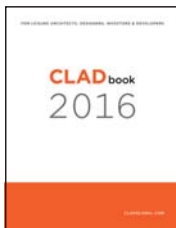
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The restaurant at the Four Seasons, New York City, forever changed restaurant design

James Biber founder **Biber Architects**

PROJECT: James Beard Foundation Design Icon Restaurant Award



James Biber is chair of the Restaurant Design Awards Committee at the James Beard Foundation

The James Beard Foundation – which celebrates America's culinary heritage – has launched a 'Design Icon Restaurant Award', with the inaugural winner announced as the Four Seasons Restaurant in New York.

The special award has been established to recognise restaurants in the US "that serve as national standard bearers of outstanding design and design innovation."

In order to qualify, a restaurant's design must have remained unchanged for at least 20 years and must have influenced and inspired the design of subsequent restaurants. "It's an honour to award The Four Seasons Restaurant the first ever James Beard Foundation Design Icon Award," said James Biber, chair of the Restaurant Design Awards Committee and founder of Biber Architects. "In introducing generations of diners to modern elegance and luxury, The restaurant at the Four Seasons, New York City, forever changed restaurant design, even as it remained virtually unchanged itself."

The restaurant, which opened in 1959, was designed by Philip Johnson and Mies van der Rohe to be as luxurious and modern as possible. Over the years it has exhibited rotating galleries of modern art,

including a Picasso stage curtain from a 1919 French production of the ballet *Le Tricorne*, and works by Andy Warhol, Frank Stella, Jackson Pollock and Joan Miró.

Today the Museum of Modern Art in New York features more than 100 of the restaurant's elements in its collection.

"We are deeply humbled to be the recipients of this award and grateful to have spent so many years in such a beautiful restaurant," said current owners Julian Niccolini and Alex von Bidder. "James Beard was one of The Four Seasons' greatest champions when it opened back in 1959, and we're honoured to see that come full circle by accepting this great honour in his name."

The James Beard Foundation is also due to announce the final nominees for all award categories ahead of an awards gala in Chicago on 2 May.

James Beard was a teacher and cookery author famous for his encyclopaedic knowledge of food.

The foundation has operated since his death in 1985, running educational initiatives, food industry awards, scholarships for culinary students and maintaining the James Beard House in New York's Greenwich Village as a "performance space" for visiting chefs.

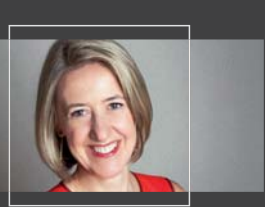
THE JURY: DESIGN ICON RESTAURANT AWARD



Spencer Bailey, editor in chief, *Surface* magazine



Stephen Starr, owner, STARR Restaurants



Caroline Baumann, director of the Cooper-Hewitt National Design Museum in New York



Pam Shamshiri, co-founder, Commune Design

Jurors chose the restaurant at the Four Seasons New York City as the inaugural winner of the James Beard Foundation Design Icon award. The remainder of the awards will be announced on 2 May



Craig Dykers, founding partner, Snohetta



Design Classic: Philip Johnson and Mies van der Rohe's iconic Four Seasons restaurant opened in 1959





PHOTO THIS PAGE: © XAN WUO

“The city of Paris is like a myth to me”

Ai Weiwei artist

PROJECT: Er Xi, Air de Jeux, Paris, France

In a surprise move, the Chinese artist Ai Weiwei exhibited his first original works in France at a luxury department store in Paris.

The show, named Er Xi, Air de Jeux (Child's Play), featured more than 100 bamboo and silk kites and 3D structures depicting mythological creatures from Chinese legend.

The exhibition at Le Bon Marché – which ran to 20 February 2016 and promoted a store sale – is inspired by the artist's childhood, his previous works and the Chinese book of myths Shan Hai Jing ('The Classic of Mountains and Seas'), which is over 2,000 years old.

Kite makers from China's Shandong Province worked with Weiwei to create the incredible kites, which were many shapes and sizes and represented birds, fish, dragons and a selection of other fantastical creatures.

The exhibition was divided into three areas of the store: the 10 exterior storefront display cases, the atriums and the gallery, which was patrolled by a large dragon made of woven bamboo.

"The city of Paris is like a myth to me; it is another world," said Weiwei. "Mythology

symbolises a parallel world to ours which is our imagination, our dreams, our fears, our history. It is like a mirror that reflects our society and our personality and helps us understand our world."

"I hope the show can surprise and amaze people and make their lives a little more joyous and colourful."

Asked to describe the challenges of the project, Weiwei said: "This is the kind of place I love having my work presented; a place directly linked to the city and its citizens. It is not really a place of art, but it is associated with trends and lifestyle."

"Yes, it represented a real challenge for me to create works specifically for a department store, but that made it all the more interesting."

Last year Weiwei hosted another art and sculpture exhibition featuring mythological kites at the former prison Alcatraz in the US.

The artist is most famous for his politically-influenced works, which led to him being placed under house arrest in China and unable to travel for four years.





The show featured more than 100 bamboo and silk kites, made by Weiwei and kite makers from China's Shandong Province. Storefront displays re-told stories from Chinese mythology

PHOTO © GABRIEL DE LA GUAHILLE



PHOTO © GUYA

PHOTO © GUYA



Kenzo has created an unparalleled private island



Kenzo Takada fashion designer

PROJECT: Arovada by Akaryn



PHOTO: ZACHARIE SCHUBERT/APPHRESS ASSOCIATION IMAGES

Akaryn Hotel Group plans to open a private island wellness retreat in Cambodia, with interiors by famed Japanese fashion designer Kenzo Takada, best known for his Kenzo brand of clothing, perfume and skincare.

Designed by Bangkok-based architect Duangrit Bunnag and due to open in June 2016, Arovada by Akaryn will be located on the private island of Koh Krabey – a 20-minute boat transfer from Sihanoukville – and will embrace Akaryn's concept of 'outdoor living in', with 40 private and uniquely appointed villas and a 2,000sq m (21,528sq ft) Ayurah Wellness Centre.

Arovada by Akaryn features villas designed to blend into their natural surroundings.

It's described as "a holistic, luxurious, light-footprint hideaway camouflaged within a canopy of perfectly preserved virgin jungle on an island paradise on the shores of Asia's last frontier."

Built around existing trees and virgin jungle, the villas include private infinity pools, a large terrace with day beds and ocean view gardens.

"It has long been a dream of mine to create the ultimate retreat: a place where we can rediscover who we truly are, far from the pressures and gaze of the world," said Anchalika Kijanakorn, founder

and managing director of Akaryn Hotel Group.

"I firmly believe Arovada Private Island by Akaryn is this destination. I am privileged to have worked closely for the last three years with the design icon Kenzo, resulting in an unparalleled private island retreat, combined with a world-leading wellness sanctuary. Arovada by Akaryn will become one of the most extraordinary island resorts in the world."

The wellness centre is founded on four pillars of wellbeing: weight optimisation, anti-ageing, mind balance and detoxification. It combines Eastern and Western philosophies, creating individualised, bespoke treatment plans.

Run by Ayurah Wellness, the centre integrates the cutting-edge technology of a medical clinic with time-honoured holistic therapies. Facilities include water therapy suites, full holistic fitness, medical and spa facilities, alongside meditation boardwalk trails woven into the rocks, caves and the shoreline.

Meanwhile, dining options feature a strong emphasis on the slow food movement, using organic ingredients sourced locally from the resort's own farm. Arovada by Akaryn will also work with the local community to protect the environment, partnering with local farmers and fishermen to teach them sustainable and organic methods.



The 2,000sq m Ayurarah Wellness Centre fuses spiritual and medical care, with a range of medical and spa facilities



Built in virgin jungle, the retreat features 40 villas with private infinity pools and a terrace with day beds and views of the sea. Architecture is by Duangrit Bunnag and interiors are by Kenzo Takada

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The SEED concept works toward the legacy solution as a starting point

David Manica founder **Manica Architecture**

PROJECT: SEED Stadium Concept



David Manica founded Manica Architecture in 2007

Sports architecture firm Manica Architecture is evangelical about its SEED Stadium concept, which it believes could shape the way stadia are built for major events in the future.

The Stadium for Evolving Economic Development (SEED) concept has been developed by Manica as part of an evolution of R&D ideas aimed at creating more successful legacy conversions for major stadium events.

"Most legacy conversions try and figure out what to do with a stadium once it's no longer needed for a major event," said

Manica founder David Manica. "The innovation of the SEED concept is that it works first toward the legacy solution as a starting point, and then reverse engineers it."

"We design a development concept that benefits the city, with low income housing, hotels, conference facilities, office and retail, parking, theatres, parks, and even terraced urban gardens – and then find a way to collect those buildings together temporarily for use as a stadium for a one-off event."

Forthcoming projects by Manica include the new LA Stadium, US; San Francisco Arena, US; VTB Arena Park, Moscow, Russia; and Shantou Sport Park, China. ●





The Manica-designed main sport and entertainment facility at Shantou Sport Park, China (above). Manica are working on a new home for a future NFL team in Carson City, Los Angeles (this pic)





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Above: Dax Polé Commercial



Den Haag Zuiderpark



Lyon Carre de Soie



Derby Arena



Omnisportcentrum Apeldoorn

CLAD UPDATE



IMAGES BY AND MICHAEL PARRANS

■ The stadium's moat will be used as a wave pool, kayaking course and winter ice rink

Bjarke Ingels' first stadium is a mould-breaker

Bjarke Ingels' first stadium will have a moat for surfers

After months of speculation, National Football League (NFL) franchise the Washington Redskins has finally confirmed architects Bjarke Ingels Group (BIG) will design its new home, and unveiled the first details of the project.

Described by the Redskins as "a new stadium concept", BIG's creation – a transparent wave-like structure wrapped in a golden metal mesh – is designed with a particular focus on how it will be

used on non-match days throughout the year for cultural events.

The ground will be surrounded by a moat for kayakers, which is crossed by bridges linking the stadium with surrounding parks, training pitches and green space. Renderings show bathers relaxing on a strip of man-made beach, rollerskaters circling the concourse and abseilers descending the stadium. They also suggest the moat could double as a wave pool for surfers

and a large-scale ice rink in winter.

Other leisure facilities teased by BIG include a Redskins museum and space for 'tailgating' – which allows fans to serve meals from the back of their parked vehicles.

"The one thing that everybody is excited about is the idea that the stadium is designed as much for pre- and post-game events as the game itself," said Bjarke Ingels, in a televised profile interview with CBS.

"We've found a way to make the

stadium a more lively destination throughout the year, without ruining the turf that is used for the football games," he said.

Redskins owner Dan Snyder wants to relocate the franchise from its current 82,000-capacity ground in the state of Maryland – which it has occupied since 1997 – and build a new stadium elsewhere in the region. No final location has yet been selected for the project.

More: http://lei.sr7a=F9X9y_C



■ The hotel will feature 505 guestrooms, a new aviation museum, several restaurants, a spa and an observation deck

The iconic Trans World Airlines (TWA) Flight Center at New York's JFK International Airport is to be converted into a luxury hotel themed around the airport's golden jet age. Project architects have just been announced as Lubrano Ciavarra and Beyer Blinder Belle.

The stark white TWA terminal was designed by Finnish architect

Eero Saarinen's iconic TWA Flight Center will become a luxury New York hotel

Eero Saarinen and opened in 1962. It soon became synonymous with the glamour of commercial air travel, as jet airliners began flying higher, faster and further than ever before.

New York state governor Andrew M. Cuomo has formally approved a \$265m (£244.3m, £177.6m) project to renovate the centre and create two new six-storey hotel towers.

According to plans, the hotel will feature 505 guestrooms, a new aviation museum, several restaurants, a spa, and a 10,000sq ft (930,000sq m) observation deck overlooking the airport.

As part of the scheme, the tower's most famous interior features – including its electronic schedule boards, red-carpeted departures lounge and food court – will be preserved at a cost of US\$20m (£18.4m, £13.4m).

Saarin's centre – which was designated a New York landmark by the Landmarks Preservation Commission in 1994 – is no longer in use, prompting development company MCR to reimagine the six-acre space.

An initial 75-year lease deal has now been agreed between MCR – in partnership with the JetBlue Airways Corporation – and the state.

Governor Cuomo said: "We have committed to modernising New York's airports by creating gateways worthy of the city. The TWA Flight Center will meet those goals while preserving its iconic design for decades to come."

More: http://tci.sr7a=6a4A_C



■ As part of the scheme, the tower's most famous interior features will be preserved



Giant brutalist landmark reinvented as arts and hotel complex in Israel

An iconic brutalist building on Israel's Mediterranean coast has been transformed into a vast arts complex with a hotel, galleries, concert halls, a number of restaurants and spa and wellness centre.

The 1960s structure – formerly known as the Mivtachim Sanitarium – is formed from a series of modular, concrete units, located on Mount Carmel Ridge in the village of Zichron Ya'akov.

It was created by the late Israeli

architect Ya'akov Rechter, who was awarded the Israel Prize – the country's highest honour – in recognition of his work.

Following eight years of planning and construction, the building has now been re-opened by philanthropist and art collector Lily Elstein and rebranded as the Elma Arts Complex Luxury Hotel.

"The complex is a new kind of utopia which mixes hospitality and high art," said Elstein in a statement. "It was built in the belief that



■ The 1960s structure is formed by a series of modular, concrete units located on Mount Carmel Ridge in the village of Zichron Ya'akov

when you stay with art, the art stays with you long after you leave."

The careful renovation of the building was carried out by Ranni Ziss and Amnon Rechter, the son of the original architect. Interior design was created by Israeli designers Lea Mahler and Baranowitz & Kronenberg and custom-designed textiles were developed by designer Neora Warshavsky to reflect the area's aesthetic heritage and traditions.

The interiors have a design that matches the subtlety of the minimalist façade, and feature heavy use of terrazzo floor tiles, cement surfaces and oak highlights. Monochromatic leather, oak and walnut furnishings are used throughout the complex's 95 hotel rooms and suites, as well as three art galleries devoted to Israeli and international artists.

The building has two performance venues hosting music, poetry and theatre performances throughout the year. The 450-seat



PHOTOS: ELMA ARTS COMPLEX LUXURY HOTEL



Elma Hall is designed by New York firm Arup/Artec Consultants and features twenty-five acoustic banners that allow the space to be acoustically customised.

A more intimate venue, The Cube, has 150 seats and hosts smaller-scale jazz, rock and dance performances and video installations.

Guests at the complex also have the option to dine at a Mediterranean restaurant, work out at the Techno Gym-equipped fitness centre and take tours of the region's wineries and museums.

A spa and wellness centre features eight treatment rooms, as well as a hammam, heated indoor lap pool and relaxation area.

The complex also has 28 acres of gardens, complete with an outdoor Olympic-sized pool and a 26-ton marble statue by artist Sigalit Landau.

The Elma Arts Complex Luxury Hotel is a member of the German group Design Hotels, which represents 290 independent hotels in more than 50 countries worldwide.

More: http://lei.sr?a=t2R2H_C



■ The careful renovation of the building was carried out by Ranni Ziss and the original architect's son, Amnon Rechter



Hotel/museum hybrid built around ancient Turkish ruins

A unique new attraction is set to open in the Turkish city of Antakya by the end of 2016: a museum/hotel hybrid where guests can walk around archaeological ruins dating back more than 2,000 years.

In 2010, international design studio Emre Arolat Architecture had been developing a five-star hotel development on the site when excavators discovered an intact 9,000sq ft (836sq m) mosaic tiled floor – one of the largest in the world.

After negotiations with the government and project developer, the architects agreed to change their design in a way that explores the dynamic relationship between architecture and archeology.

In the final structure, hotel guests will sleep above the ancient relics, and the units of the building will protect and promote the ruins below.



IMAGE: EMRE AROLAT ARCHITECTURE

■ Guest rooms in prefabricated boxes will be suspended above the ongoing archaeological dig

"There had to be a dichotomy between an archeological park and the private hotel, and this has become a major input in the design process," said Emre Arolat Architecture of the project. "

The building – now named the Antakya Hilton Museum Hotel – features a protective platform covering the excavation below.

This is occupied by hotel facilities – including a ballroom,

swimming pool, spa, fitness centre, nightclub and restaurant.

Guest rooms are contained within prefabricated boxes supported by a steel substructure. **More:** http://lei.sr?a=G6D9u_C

Could the citizens of the future live under the sea?

Belgian architect Vincent Callebaut has unveiled his vision for a future where the citizens of the world live underwater in vast self-sufficient 'oceanscrapers' made from recycled waste.

The futuristic concept – named Aequorea after a bioluminescent jellyfish – imagines communities living in twisting 250-floor structures that drop to depths of 1,000m (3,300ft).

Each of these underwater villages would accommodate 20,000 people and feature houses, hotels, coral reef gardens and sport, leisure and culture facilities. On the surface, large floating conch-shaped

marinas rooted with mangroves would provide access to the surface.

Each of Callebaut's oceanscrapers would be made from recycled plastic gathered from islands of waste floating in the world's oceans, and created into watertight and durable building materials using 3D printing.

Taking inspiration from sea shells, calcium-heavy materials like aragonite would be added to naturally form an external exoskeleton.

The structures' towers would be resistant to hydrostatic pressure. The cost of construction is estimated at €1,900 (£1,430, US\$2,000) for every square metre.

Light from the surface would be accessed using bioluminescence, water turbines on the ocean floor would provide power, water would be desalinated for drinking and algae would be a source of food.

More: http://lei.sr?a=X8V6k_C



IMAGE: VINCENT CALLEBAUT

■ Each of Callebaut's oceanscrapers would be made from recycled plastic gathered from islands of waste

Yves Saint Laurent museums set for Paris and Marrakech

The foundation dedicated to conserving the work of legendary French fashion designer Yves Saint Laurent has revealed two new museums dedicated to his life and career will open

in France and Morocco in 2017.

The Fondation Pierre Bergé-Yves Saint Laurent will showcase part of its vast collection of haute couture garments, sketches and photographs collected by Saint

Laurent between 1962 and 2002.

"To this day, this collection has no equivalent in the international milieu," said the foundation.

The museum's Paris branch will be housed in 5 avenue

Marceau, the studio where Saint Laurent designed and created his work for almost 30 years.

Stage designer Nathalie Crinière and interior designer Jacques Grange will rethink the available exhibition space, doubling it in size and refurbishing the interiors.

The museum will open in Q3 next year, coinciding with the opening of the second site in Marrakech – a city visited by Saint Laurent from 1966 onwards.

That museum will be located in a new 4,000sq m (43,000sq ft) structure designed by French architects Studio KO near the Jardin Majorelle – a garden the designer saved from being developed.

It will comprise a permanent display of Saint Laurent's work, a space for temporary exhibitions, an auditorium, a research library and a café and restaurant.

More: http://lei.sr7a=p4f4q_C



IMAGES: GÉRARD PINTA AND STUDIO KO



■ The Morocco museum will be located in a new structure designed by French architects Studio KO

Butterfly pavilion by 3deluxe clad with golden flowers

A German architecture firm, an Austrian artist and a Sharjah development company in the UAE have joined forces to open a butterfly-themed landscape park.

Al Noor Island, located in Sharjah's Khalid Lagoon, has been developed by the Sharjah Investment and Development Authority to "redefine the very meaning of an Arab city".

The culture and leisure park features a wide ensemble of themed pavilions, attractions and musical soundscapes masterplanned by artist, poet, singer and actor André Heller to create a multi-sensory experience.

At the heart of the 45,500sq m (489,700sq ft) island is a striking butterfly pavilion created by architects 3deluxe and Dubai-based engineers Wagner Biro Gulf. The structure – covered in a special golden paint that can



PHOTO: 3DELUXE

■ The twisting, ornamental rooftop is formed of 4,000 differently-shaped aluminium leaves

withstand high temperatures, UV radiation, salty air and sandstorms – features a twisting, ornamental rooftop formed of 4,000 differently-shaped aluminium leaves. Inside is a 230sq m (2,400sq ft)

artificial ecosystem and rainforest habitat populated with more than 500 butterflies and thousands of exotic tropical plants.

The roof – spread over 800sq m (8,600sq ft) and reaching a height

of 13m (42.6ft) – is formed of three prefabricated sections.

LED dots light up at night, creating programmed light patterns that emulate the motion of butterflies.

More: http://lei.sr7a=c2U2R_C



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Donatella Versace designs opulent Dubai hotel interiors

Luxury Italian fashion design house Versace has finally opened its long-awaited Palazzo Versace Dubai Hotel, billed by the brand as "the most luxurious hotel the Middle East has ever seen."

Located along the shores of Dubai Creek in the centre of the city's Culture Village, the hotel's design is inspired by a neoclassical 16th century Italian palace.

The company's artistic director and vice-director Donatella Versace has designed the interiors and furniture for each of the 215 rooms and suites and 169 residence, giving final approval for every piece of furniture and strip of fabric.

The hotel's grand lobby features a 1,000sq m (10,700sq ft) marble mosaic floor and bespoke furniture and textiles decorated with peacocks, falcons and horses. Other familiar Versace motifs, such as the head of Greek



PHOTO: PALAZZO VERSACE DUBAI HOTEL

■ The design of the Palazzo Versace Dubai Hotel is inspired by a neoclassical 16th century Italian palace

mythological monster Medusa, are incorporated alongside Versace prints and wallpapers.

Versace CEO Gian Giacomo Ferraris said: "The fine and luxurious designs by Versace will

be present in every detail of the living environment and luxury will become a lifestyle".

In addition to the guestrooms, the hotel has an internal courtyard for dining, eight restaurants and

bars, three outdoor pools, landscaped gardens and a spa.

The project was overseen by Versace in a joint venture with regional developer Enshaa Group.

More: http://lei.sr?a=N6R25_C

Baz Luhrmann dreams up 'spectacular' art deco hotel

Miami Beach's legendary Saxony Hotel, originally designed by Art Deco architect Roy F. France in 1948, has been transformed by Argentine real estate developer Alan Faena, film director Baz Luhrmann and

his wife, Academy Award-winning costume designer Catherine Martin. The Faena Hotel Miami Beach will also include a 22,000sq ft (2,044sq m) South American-themed spa, developed by Inge Theron.

"Aesthetically, it's one of the most spectacular places I've seen – and I've seen a lot," Theron told CLADmag. "It's so chic, so cool, but so different. Think Great Gatsby meets Buenos Aires."

The Faena Hotel's spa, Tierra Santa, will also be a holistic healing centre and spa, combining South American healing techniques and indigenous ingredients with state-of-the-art technology.

The spa includes four single and two couples' treatment rooms with sea views; an extensive wet spa with seven varying water, heat and steamrooms, including a hammam; two advanced rooms for treatments; as well as a fitness studio with Technogym equipment; Rosanno Ferretti Salon and nail studio; and an oceanfront, 1,000sq ft (92sq m) yoga movement studio.

"Art permeates everything, even in the spa," said Theron. She described the vibe as authentic, but playful; a chandelier made from fish hooks and a wall-to-wall mural depicting the beginning of the earth help to set the scene.

More: http://lei.sr?a=Q4u2b_C



PHOTO: FAENA HOTEL

■ Spa consultant Inge Thomas called the hotel 'so chic, so cool and so different'

First renovations finished at quirky Pulitzer Amsterdam

Pulitzer Amsterdam, the 45-year old waterside hotel in the Dutch capital's canal district, has announced that phase one of its extensive restoration project is complete.

Eighty redesigned guestrooms and suites and a restaurant and bar are now open once more to guests staying at the hotel, which is spread across 25 interlinked canal-side buildings over 400 years old.

The renovations, which were led by interior designer Jacu Strauss, showcase a design concept inspired by the history of the city's famous canal, and expose original features alongside contemporary design elements and fun props.

Four themed suites – dedicated to books, music, art and antiques – take their inspiration from the trade merchants, composers, antique collectors and aristocrats who may have occupied the houses.



PHOTOS: PULITZER AMSTERDAM



■ The hotel's renovation work has been overseen by interior designer Jacu Strauss

Speaking when work on the project began last year, the hotel's general manager, Alexander van Gastel, said: "Our future lies in our past, we want to stay true to our roots and celebrate the history

and heritage of the canal houses – the hotel's maze of secrets and surprises are what makes Pulitzer Amsterdam unique."

The second phase of the restoration has now begun on buildings

located on the Prinsengracht side of the canal, as well as a new lobby and a Pulitzer Garden. Work will conclude in Q3 2016, and the hotel will fully open with 225 rooms.

More: http://lei.sr?a=D9d9Y_C

Ted Baker founder designs stylish new Hilton interiors

The Hilton Bournemouth has opened in England, featuring interiors by Ted Baker fashion brand founder Ray Kelvin.

Classic design and quirky innovation are central to the hotel's

aesthetic, with bespoke interiors and furnishings designed exclusively for Hilton Bournemouth by Kelvin throughout. The hotel was developed by privately owned property company THAT Group

– whose chair is also Kelvin.

Housed in a soaring glass structure, the 172-room property offers panoramic views to the coast and across the popular seaside town.

Local craftsmanship and design influences are visible around the hotel, including specially curated items celebrating the best of British design. Artworks include a collection of local Poole Pottery – one of the largest on public display – and Colin Moore's mural of Poole Harbour, which hangs in reception.

The hotel's conference rooms feature quirky bespoke designs. Pop-art, spectacles and umbrellas emerge from the walls and ceiling in a 'Not So Mad' room, while clocks, calendars and vintage signing in machines decorate a meeting room called 'Not a Wind Up'.

"The exquisitely curated hotel incorporates refined aesthetics with a quirky edge," said Peter Tisdale of THAT Group. "Sitting perfectly alongside the innovative design and technological industries of the area, it's a real head turner."

More: http://lei.sr?a=H6T3N_C



PHOTO: HILTON

■ Local craftsmanship and design influences are visible around the hotel

“ This is an architectural wonder that will be as great as Burj Khalifa and Eiffel Tower ”

Santiago Calatrava wins contract for futuristic Dubai tower

Spanish architect Santiago Calatrava has beaten competition from five unnamed international rivals to design a landmark cultural tower in the city of Dubai.

The ruler of the emirate, Sheikh Mohammed bin Rashid Al Maktoum, approved Calatrava's futuristic design, which he hailed as an "architectural wonder that will be as great as Burj Khalifa and Eiffel Tower."

The sheikh – who is also vice president of the United Arab Emirates – said the unnamed tower will be a new cultural landmark and tourist attraction for the country.

While few details have been released about the design, Calatrava's studio said in a statement that the tower "is inspired by Islamic architecture and fuses modern, sustainable design with the rich culture and heritage of the United Arab Emirates."

Calatrava himself said: "We feel extremely thankful and honoured to have been selected for such an important project. Dubai is where innovative and revolutionary architecture is making incredible strides. In our proposed design, we have united local traditional architecture with that of the 21st century."

Construction is expected to begin in the next couple of months.

The building is being developed by real estate companies Dubai Holding and Emaar Properties and will be located in their Dubai Creek scheme – a "sustainable and environmental model for future global cities" – which is currently under development. Retail, dining, leisure and entertainment components will be included in the project.

Last November Calatrava was awarded with the prestigious European Prize for Architecture, with competition organisers describing his work as "immensely evocative and fiercely intellectual."

More: http://lei.sr7a-j76W_C

IMAGE: SANTIAGO CALATRAVA LLC

Oman developers fund waterfront tourist destination

Some of the world's best-known hospitality operators are vying to open hotels in a new multi-million mixed-use waterfront destination in Oman, which will regenerate one of the oldest ports and market districts in the Arab world.

Brands including Hyatt, Hilton, Four Seasons, Mandarin Oriental, Banyan Tree and Viceroy have declared their interest in opening hotels in the Mina Sultan Qaboos Waterfront Project, which will enter the first phase of construction in June 2016.

The state-owned Oman Tourism Development Company (Oman) will establish a new company to develop the OMR500m (US\$1.3bn, £917.7m, €1.19bn) waterfront scheme – which it says will “set new standards for authentic waterfront destinations in the region” – on a 101 hectare site in the centuries-old Sultan Qaboos Port in Muscat.



PHOTO: OMAN

■ Hotel brands including Hyatt, Hilton and Four Seasons have declared their interest in the project

It has formed an investor relations task force to identify funding and project partners from the private and public sectors.

The development has been green lit by the government of Oman to

stimulate the country's tourism sector. The site will feature a wide range of leisure facilities, including seven waterfront hotels, an aquarium, a yacht club, a children's entertainment village, a retail and

boutique shop district, restaurants, cafes and a marine heritage visitor centre. The project will also include an arts, crafts and organic farmers market called Emporium.

More: http://lei.sr?a=E7F9t_C

David Chipperfield to resurrect ruined Berlin brewery

David Chipperfield Architects have revealed their masterplan for a public beer garden, boutique hotel and a host of other leisure facilities on the site of a Berlin brewery partially destroyed by bombing raids in the Second World War.

The former Böttzow Brewery, located near Berlin's Alexanderplatz, will be transformed by the studio's German office into a 24,000sq m (258,300sq ft) public destination within the city. It will boast a new brewery, restaurants, shops, a gallery, an innovation centre and a swimming club situated around a large public plaza. The project client is Böttzow Berlin GmbH & Co.

Opened in 1885, the Böttzow Brewery was once one of northern Germany's largest private breweries and its beer garden had space for 6,000 guests. Parts of it were destroyed in 1945, and since 1950 the surviving buildings have been used



■ The site will have restaurants, a gallery and a swimming club

as storage space. The remains of the buildings will now be restored and three new volumes will be added to extend the site, referencing the earlier buildings and the surrounding architecture. Around 6,000sq m (64,500sq ft) of historic vaults will

form the foundations of the site and will be linked at some points to the new public space above. Work is expected to be completed in 2019.

"From its very beginning more than 150 years ago, the Böttzow family attached great importance



IMAGES: BREWERY: RENOVATION FOR DAVID CHIPPERFIELD ARCHITECTS

to running a modern brewery and a pleasant working environment," said the studio. "The architecture of the site always reflected these values and the masterplan perpetuates the singularity of this location."

More: http://lei.sr?a=G3C8p_C

'World's largest' bouldering gym opens in Texas

A facility billed as "the largest bouldering gym in the world" has opened in Austin, Texas after two years of construction.

The 50,000sq ft (4,650sq m) facility, called the Austin Bouldering Project, was designed by Dylan Johnson of DJA Architects, with interiors created by local studio Lilianne Steckel and realised by general contractor LaBelle Construction. The developer was Texan company 3423 Holdings.

The gym features 23,000sq ft (2,100sq m) of climbable surfaces, with layouts that can be configured into 250 different setups. The design includes a wide variety in the sizes and shapes of wooden climbing walls available, and these are rotated on a regular basis.

The development is part of a larger 200,000sq ft (18,580sq m) building that is being redeveloped into a community destination with



PHOTO: AUSTIN BOULDERING PROJECT

■ The gym's climbable surfaces can be configured into 250 different setups which are regularly rotated

restaurants and cafes, a brewery, a 5,400sq ft (501sq m) fitness centre and a yoga studio.

"The feeling of being in a boulder field outside was a huge inspiration to our design," general manager

Zach Olschwanger told CLADmag. "We wanted a really open layout with a flow that directed you around the entire facility, never getting cut off by a wall. We tried to push the boundaries with

everything. We designed our climbing walls differently than almost every other climbing gym. The community response has been incredibly supportive and exciting."

More: http://lei.sr?A=A4d6Y_C

Bird-shaped hotel and wellness complex set for Belarus

Marriott International is preparing to open a luxury hotel in Minsk, Belarus within a wider sports and leisure complex developed by the investment fund of Qatar's Ministry of Defence.

The Minsk Marriott Hotel will be located alongside a complex called the Falcon Club, which will have a 4,500 capacity sports arena, tennis courts and a health club featuring a gym, wellness centre and spa.

The leisure club has been designed by Belarusian studio Varabyeu Partners – who described it as "one of the most ambitious and challenging projects developed in Belarus."

The project has been developed by contractor Magnus Group for the Falcon Investment company – a subsidiary of the Qatar ministry – and is designed in the shape of a falcon: Qatar's national bird.

The hotel has 217 guest rooms, a Mediterranean restaurant and an aqua-fitness centre, featuring its own spa, swimming pool, gym, sauna and massage rooms.

"Local designers have tried to highlight the richness and diversity of Belarusian nature," a hotel spokesperson told CLADmag. "Only natural materials have been used for decorations and furnishings."

The Falcon Club project was approved in June 2012 and has now entered the very final stages of construction. Dr. Thani A. Al-Kuwari, the director of Falcon Investment, said US\$200m (£183.5m, £137.5m) has been invested in the project.

More: http://lei.sr?A=x4z5V_C



IMAGE: MARRIOTT INTERNATIONAL IS

■ The club is designed in the shape of a falcon – Qatar's national bird

Prize-winning beach art displayed in wintry Toronto

Citizens in Toronto, Canada have taken to the city's wind-swept beaches to enjoy the 2016 Winter Stations art festival, which features seven creative architectural installations built around existing lifeguard stations.

A special competition was held last year to choose the winning designs for the festival, with

the only stipulation being that the structures had to be in some way interactive and able to inspire Torontonians to brace the chilly winter weather and spend some quality time outdoors.

Four main winners were chosen to create their installations, alongside three others provided by student-led design teams.

"We couldn't be more impressed with the calibre of design and dedication from each team," said Roland Rom Colthoff, founder of RAW Design, the design studio which has co-organised the event. "Each installation brings its own unique story, demonstrating no matter what the temperature, design draws the crowds."

PHOTOS: KRISTEL SETCHUR / BEN RASH / JAMES FOX



▲ Sauna by Fox Fernley Landscape Office

Inviting the public to embrace a Freeze/Thaw theme, Sauna is an immersive art installation bringing heat to the blustery lakeshore. Built from timber, the interior is comprised of tiered seating, the higher the hotter. Meanwhile its transparent exterior walls allow walkers by to get glimpse of thawing bathers within, with solar powered lights illuminating the structure at night.



◀ In the Belly of the Bear by Caitlind r.c Brown, Wayne Garrett and Lane Shorde

Juxtaposing a dark, charred aesthetic against the bright, stark landscape, In the Belly of a Bear invites the public to climb up a wooden ladder into a domed interior lined densely in thick, warm fur. Within this cozy, warm space, visitors can find reprieve from the cold outside or gaze out the large round window pointing towards the lake.



▲ Floating Ropes by MUDO

Creating a highly sensory experience, Floating Ropes appears as a suspended cube of ropes, offering a playful and porous matrix into which visitors take shelter. At the centre of the multilayered rope forest, the lifeguard chair provides the perfect spot for the public to view the lake from a unique perspective.

◀ Flow by Calvin Fung and Victor Huynh

Capturing the transitional moment between freeze and thaw, Flow re-imagines a single ice crystal as a 3D star-shaped module digitally fabricated through slot-fitting wood connections. While capable of crystallizing into a solid state, the material is able to be easily reconfigured, like a liquid, due to the system's loose bonds.





IMAGES NETWORK OF ARCHITECTURE



■ A key element of the design is to showcase the cycle of the apple throughout the year, from bloom to harvest, refinement and repose

Italian architects creating apple-themed wellness centre

Italian collective the Network of Architecture (noa*) are constructing an apple-inspired spa and wellness centre for a boutique hotel set amongst the apple trees of Italy's Passiria Valley.

The centre will be built into the side of a tree-covered hill, with a large wooden circular volume forming the entranceway – a touch that resembles the dwelling of Bilbo Baggins in JRR Tolkien's *The Hobbit*. The outer space is completely green, evolving into a "mystical and intimate space" as guests enter to use the centre's

sauna, showers and relaxation area. "A key element of the design was the cycle of the apple throughout the year, from bloom to harvest, refinement and repose," said the architects. "The entire sauna area is dedicated to the repose period and is diving into nature in the truest sense of its word."

The spa, which will be completed in April 2016, is an extension of the Apfelhotel Torgglerhof, which is currently spread across three farm buildings in the town of Saltaus. The studio are adding nine new suites within

the old stable building. Bars and beams are being laid bare, loggias with glazed fronts will be implemented in the façade and the spa's apple theme will be echoed in the guestroom design.

The ground floor will become a museum explaining the region's history of apple cultivation.

The reception, restaurant and bar in the existing hotel buildings are also being refurbished to create a strong apple theme. Walls will be painted spring colours, bright apple flowers will decorate the walls and apple-shaped lightshades

and chairs will feature throughout.

The restaurant dissolves into the landscape with the use of full-height glazed sliding doors and a gradual transition into the outside terraces. The space features pastel tones of green, rose and yellow and harvest tools inspire the lighting.

"It was essential to us to bring the charm of the surrounding garden and nature into the interior and different elements of the historic apple harvest inspired the design," said architect Christian Rottensteiner.

More: http://lei.sr?a=n7e6A_C

Heatherwick designs 'tree-topped mountain' masterplan

Heatherwick Studio have designed a vast mountain-inspired mixed-use development to be located next to Shanghai's arts district.

The British firm are creating a verdant 300,000sq m (3.2 sq ft) complex of buildings, with approximately 1,000 structural columns supporting plants and trees.

"The design has been conceived not as a building but as a piece of topography, taking the form of two tree-covered mountains," the studio said in a statement.

The development will be located in the city's Moganshan district, within an existing residential area next to a public park and a series of historic buildings. It will be closely linked to the arts hub along 50 Moganshan Road, where around 100 artists operate studios.

Heatherwick Studio were approached by the unidentified developer – which owns a larger



■ The development will be linked to Shanghai's arts hub along 50 Moganshan Road, with its artists studios

15-hectare site in the area – after successfully designing the UK Pavilion at the World Expo in Shanghai in 2010.

Their installation – a 10m (32.8ft) high box of protruding

silvery hairs called Seed Cathedral – explored the relationships between cities and nature and the significance of plants to human life.

The designers have also combined nature and the built

environment with their concepts for London's controversial Garden Bridge project, New York's Pier55 and Abu Dhabi's Al Fayah Park – all of which contain large swathes of

More: http://lei.sr?z=h8j8Y_C

Graffiti and gastronomy combine at Montreal restaurant

A group of architects, artists, interior designers and developers have joined forces to open a seafood restaurant mixing street art, design and fine food in Montreal, Canada.

Être Avec Toi – which means 'to be with you' in English – has opened inside the city's four star W Montreal Hotel.

Creative agency MASSIVart have collaborated with Sid Lee Architecture, real estate company Ivanhoé Cambridge and hospitality development consultants BPC on the project, which has been called ÊAT for short.

The team's aim was to create a restaurant that promotes the culture, symbols and history of Montreal by "blurring the boundaries of art access and offering guests art right at their table."

Everything inside the restaurant has been created by both established and up-and-coming



■ In ÊAT, spray-painted images of cultural icons, including Darth Vader, jostle for wall space

Montreal artists. Windows, tables, chairs and booths are all works of art, and murals designed by local street artists WIA and Stikki Peaches depict icons of history and popular culture. Spray-painted

images of Darth Vader, Beethoven, James Dean and the city's hockey legends jostle for wall space.

"The concept goes beyond art curation," said MASSIVart chief executive officer Philippe Demers.

"We can really see the value that artists bring to a hotel like the W and through live performances and the fine ambiance they have created for its clients."

More: http://lei.sr?z=J3E2H_C



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Looking back, I recognise the coherence of the work we've done

Francine Houben

As Dutch firm Mecanoo wins the competition to lead the renovation of the New York Public Library, Magali Robathan talks to its creative director Francine Houben about inspiration, playfulness, and why she's embracing getting older



ALL PHOTOS EXCEPT NEW YORK PUBLIC LIBRARY: © MECANOO

Last year was a huge year for Francine Houben and Mecanoo, the Dutch multidisciplinary practice that she co-founded three decades ago.

"It was a very special year; what we call a crown year in the Netherlands," says Houben, speaking to CLAD from Mecanoo's offices in Delft. In 2015 Houben turned 60, and the Queen of the Netherlands presented her with the Prins Bernhard Cultuurfonds Prize, a prestigious Dutch cultural award given in recognition of her lifetime of achievement as an international architect. Mecanoo, meanwhile, celebrated its 30th anniversary in September with a party at its offices. Two months later came the biggest news of the year, when the practice was chosen to lead the \$300m renovation of the New York Public Library, replacing Foster + Partners, who were dropped from the project in 2014.

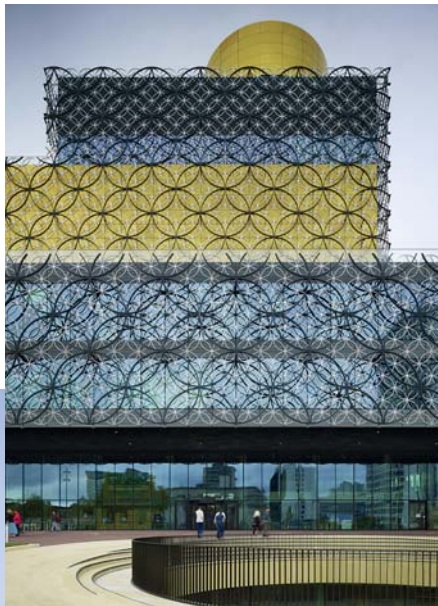
The practice also completed a wide range of projects in 2015, including cultural heritage museum Het Hof van Nederland in Dordrecht, the Netherlands; the HOME arts centre in Manchester, UK; the Hilton hotel at Amsterdam Airport Schiphol; a new train station for Delft in the Netherlands and the Bruce C Bolling Municipal Building in Boston (Mecanoo's first US project).

"It was a chance to look back at the whole oeuvre; to realise how much I've achieved," says Houben. "I started when I was a young student, and I never really thought about the continuous line in my work. Looking back, I recognise the coherence of the work we've done."

During her career, Houben has hung out with Charles and Ray Eames, collaborated with legendary architects including Álvaro Siza, Alvar



Below: The 42m-high atrium at the new
Hilton Amsterdam Airport Schiphol; The
Martin Luther King Jr Memorial Library (right)



The Library of Birmingham's
façade references the city's
history of jewellery manufacturing
(above); HOME Manchester
opened in May 2015 (left)

INTERVIEW: FRANCINE HOUBEN

► Aalto and Toyo Ito, and has worked across a diverse range of projects which cover libraries (including the Stirling Prize-nominated Library of Birmingham), museums, hotels, theatres, parks, skyscrapers and residential projects ranging from single houses to complete neighbourhoods.

There's a feeling, however, that the best may be yet to come. Being selected to lead the renovation of the iconic New York Public Library was a real coup for Mecanoo, whose first US project only completed last year. The practice is also working on a range of other high-level projects, including the renovation of Mies van der Rohe's Martin Luther King Jr Memorial Library in Washington DC; the National Kaohsiung Center for the Arts in Taiwan; and Three Cultural Centers & One Book Mall, in Shenzhen, China. And, as Houben points out, she's now the age that Frank Gehry was when he designed the Guggenheim Bilbao. "As architects, we need wisdom," she says. "There are so many valuable skills that come from being older."

STARTING OUT

Houben launched Mecanoo with two friends when she was a 25-year-old student (she studied architecture at Delft University of Technology). They entered a competition to design a social housing complex in Rotterdam, and won. "A year later there was a competition launched by UNESCO for housing of the future. The prize was a trip to Japan, and I wanted to go to Japan, so we entered it and won that too," she says.



Delft's new station hall features a dramatic vaulted ceiling

The world of Mecanoo is warm, it's human, it's well detailed, it's reacting to local culture

"In the 1980s, there weren't really any interesting architectural firms, not just in the Netherlands but worldwide; not really. Housing was horrible, so we thought we should change the way people live in cities. That's the way we started."

During the early days, they worked from Houben's student sitting room. After winning the competition, they employed another two people, and came up with the name Mecanoo – inspired by the British model construction kit Meccano, and a reference to the playfulness of creating structures. Mecanoo then moved to the

back room of a historic building on the Oude Delft Canal which was being rented out to start up businesses. The practice has since taken over – and refurbished – the entire canal house, including some of the neighbouring buildings.

Today, Houben leads a team of 160 people from 25 countries in what she describes as her "symphony orchestra". They're deliberately employed with a variety of backgrounds and skills, and include architects, engineers, interior designers, urban planners, landscape architects, architectural technicians, model makers, graphic designers, photographers and movie makers.

Mecanoo's projects are suitably diverse, ranging from the sober, neo modernist housing projects of the practice's early days to the flamboyant, shimmering metal-clad Library of Birmingham.

What unites them, says Houben, is the practice's unique approach. "People expect architects to have a form-based style. For me, that's not intellectually interesting," she says. "The world of Mecanoo is warm, it's human, it's well detailed, it's reacting to local culture. Our projects are very different, but what unites them is the idea of people, place, purpose."

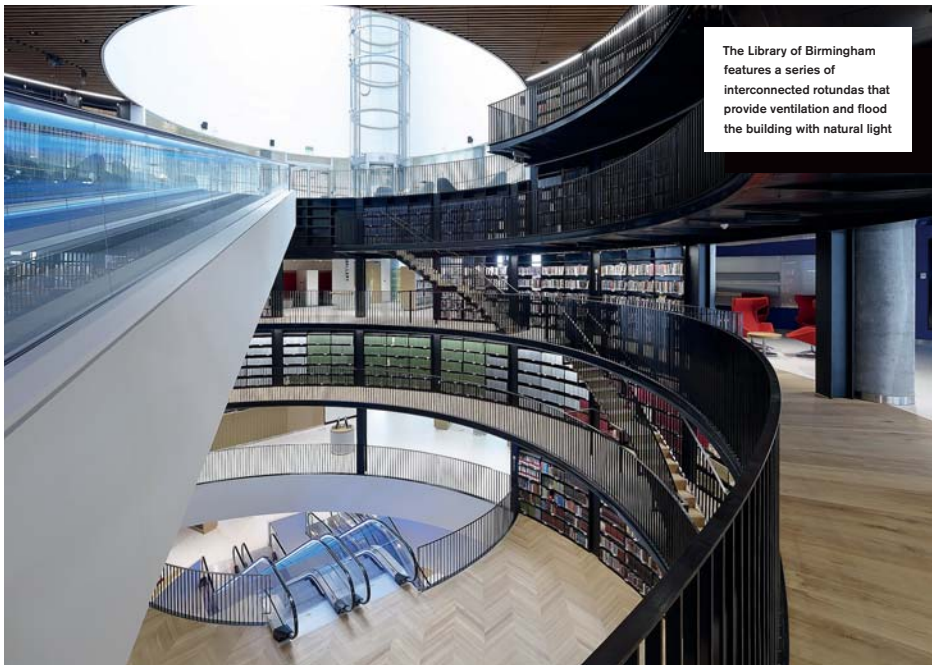
People, place, purpose sums up Mecanoo's approach to architecture and urbanism, and is also the title of a new book published by the firm in November 2015. The book highlights the practice's ethos of designing for people, and examines the effect time has on the function, or purpose, of buildings or landscapes. Houben believes strongly in "designing for unpredictable change"



PHOTO © VINCENT DESJARDINS

The public areas at New York Public Library's Stephen A. Schwarzman Building will be expanded. Interior (left); exterior (below)





The Library of Birmingham features a series of interconnected rotundas that provide ventilation and flood the building with natural light

– accepting that the use of a building is likely to change in ways we might not be able to anticipate, and ensuring spaces are designed in a way that can absorb and accommodate those changes.

One element that crops up again and again in Mecanoo's work is a particularly vibrant shade of blue. It's the colour of a stage paint Houben first used in a theatre set design in the 1990s, and it can be seen in many of Mecanoo's projects, as well as throughout the practice's offices.

NEW YORK PUBLIC LIBRARY RENOVATION

Houben has described libraries as "the cathedrals of our time," and "the most important public building in a city," so being selected to renovate one of the world's most famous was particularly exciting.

"For me, the New York Public Library is a symbol of all the libraries in the world," says Houben. "It's a library for everyone – for the whole melting pot that is New York society."

"Libraries are about so much more than books. They're about meeting other people, learning

from them, creating things. The New York Public Library had such importance for all immigrants coming to New York. They felt this was a place where they were free, where they could get connected to their own country and their own language but could also learn the new language."

The project will start with the renovation of the Mid-Manhattan Library, which will house a modern circulating library, a business library, a large education space, and spaces for public programmes and classes. Construction is expected to start in late 2017 and be completed in 2019. Once renovation has started on that branch, work will start on the expansion of public space – by 42 per cent – at the Schwarzman Building on Fifth Avenue.

"We will approach the New York Public Library project the same way we approach all of our projects – by observing," says Houben. "Trying to understand the history and the future of the library, observing people in the city and imagining how they could use it in five, 10 or 50 years' time."

Mecanoo already has several libraries in its portfolio, including the Delft University of

Technology Library in the Netherlands, which helped to put Mecanoo on the map when they opened in 1997. More recently, the practice designed the iconic Library of Birmingham – described by Houben as "a people's palace," which has won several awards and has been highly praised for its humanistic, accessible design.

"The Library of Birmingham is a very European building," she says. "I'm extremely proud of it. It's a beautiful interiors space, and one of the first things you notice is the people enjoying the building; people of all ages and sexes and races, all sitting together in a very harmonious way."

LOOKING AHEAD

Houben has promised to spend much of this year in New York in order to work on the New York Public Library design process.

Elsewhere, work is underway on the Martin Luther King Jr Memorial Library in Washington DC. "We're working very hard on that project," she says. "Intellectually it's very interesting because it's an existing building of Mies van der Rohe, and ▶



Francine Houben *in her own words...*

Which architects and designers do you admire?

I was always very impressed by the work of Charles and Ray Eames. I have met them, especially Ray Eames, several times. I was also impressed by the Brazilian architect Lina Bo Bardi, who did a lot of work heavily based on local culture.

I worked with Álvaro Siza in the 1980s because we were his local architects for a project in The Hague.

He had a very free form approach. For me, coming from a more rational educational background, I found that way of working gave me a lot of freedom. I met Toyo Ito in 1985 when I was in Japan, and found him very inspiring and I've also always admired the work of Alvar Aalto.

What inspires you?

I'm often inspired by people working in other disciplines. I've been working with

theatre directors, which has opened my eyes to new ways of dealing with light and colour. I also worked with the late Dutch astronaut Wubbo Ockels – we talked a lot about innovation and energy.

What makes you happy? What makes you angry?

I'm always happy. I only get angry if it makes sense to get angry; if the energy of anger helps me to change

something or do it better. I don't become angry about things I cannot change. That doesn't make sense.

What is your favourite place on earth?

Wherever my children are.

How would you describe yourself?

I'm very observant.

How do you relax?

Not enough. Sleeping. I like biking and swimming.

► it's the very first building named after Martin Luther King Jr after his assassination."

The concrete, brick and glass building was Mies's last project – and his only library – and was completed in 1972, three years after his death. The renovation project sees Mecanoo working with local partner Martinez+Johnson Architecture to transform the library's main entrance and two cores, turning them into focal points, creating new spaces and bringing more natural light into the building.

The biggest challenge for Mecanoo lies in respecting the iconic building, while creating a library that meets the needs of 21st century users. I ask whether Houben finds the project daunting.

"No, I like it," she says. "It's an opportunity for lifelong learning. I'm fascinated by the work of Mies van der Rohe. We went to visit as many of his buildings as we could, and we met with the original project architect, Jack Bowman. I knew the work of Mies van der Rohe, of course, but not as intensely as I do now. We've also spent a lot of time studying Dr. King's teachings, embedding his legacy into our design. I've learned a lot."

Another major project taking shape is the National Kaohsiung Center for the Arts in Taiwan. "It's a huge cultural complex featuring an opera house, a concert hall, a recital hall and a playhouse in combination with a huge open air theatre and a small library," says Houben.



The National Kaohsiung Center for the Arts design was very much inspired by the local banyan trees

"When designing the centre, we were very much inspired by the local banyan trees. People perform underneath them because they offer protection from the rain and sun and give you a kind of wonderful acoustic atmosphere."

The centre is an open structure, designed with Kaohsiung's tropical climate in mind, with a theatre on the roof. The other theatres and halls are housed in the building's four cores, or 'trunks', and the wind is able to blow through the centre of the structure. The project should be completed in 2016, and will be officially opened in 2017.

Work is also underway on Mecanoo's first Chinese project, Three Cultural Centers & One Book Mall, in Shenzhen, in the Guangdong Province. The complex includes a public art museum, a science museum, a youth centre and a vast bookshop, and is due to open in 2017.

I finish by asking Houben what else the future will bring. Her answer goes back to the Mecanoo philosophy of being ready for unpredictable change. "You never know what will happen," she says, simply. "You have to be open." ●



The Three Cultural Centers and One Book Mall complex comprises four building volumes that create sheltered outdoor event spaces beneath



The design of the the National Kaohsiung Center for the Arts in Taiwan was inspired by local banyan trees, which provide shelter and a place to meet

SELECTED MECANOO PROJECTS



Delft Station, the Netherlands

2015

Delft's new train station, designed by Mecanoo, opened to the public in February 2015. The building sits above a new tunnel, which has replaced the concrete viaduct that has effectively split the city in two since 1965.

Ascending the escalators into the main station hall, travellers are faced with a vast vaulted ceiling featuring a historic map of Delft. Walls and columns are covered in a contemporary reinterpretation of the

famous Delft blue tiles. The Station Hall is integrated into a new City Hall and Municipal Offices building, also designed by Mecanoo, which is due to open in 2017.

"This is an extremely important project for me," says Houben. "It's the crown on the work I've done on the aesthetics of mobility and what mobility means to people, and how we as architects, urbanists and planners should address that. It feels like a coming home, for me."



Hilton Amsterdam Airport Schiphol, The Netherlands

2015

Mecanoo set out to design a new building for Amsterdam's Schiphol Airport that would serve as a beacon for passengers flying in and out of the city. The 433 bedroom Hilton Amsterdam Airport Schiphol is instantly recognisable, with its cube shape and distinctive diamond patterned facade. The hotel is arranged around a huge atrium, which is flooded with natural light via a vast skylight. A covered walkway, with the same diamond patterned exterior, connects the hotel to the airport. "The outside is rational and organic; I like the form very much," says Houben. "It has become a new icon for Schiphol."



Library of Birmingham, UK

2013

Opened in September 2013, the 35,000sq m Library of Birmingham integrated with the REP Theatre is one of Mecanoo's highest profile buildings of recent years. It is comprised of a series of stacked blocks which create a range of spaces inside including a children's library, a circular courtyard and rooftop rotunda housing the Shakespeare Memorial Room, which dates to 1882. The exterior is made up of a delicate metal filigree skin of interlocking circles over gold and grey facades, referencing Birmingham's jewellery manufacturing history.

The library was nominated for the Stirling Prize in 2014 and has won a range of awards.

Francine Houben has described the Birmingham library as "a people's palace" and says: "It's a very European building. I'm extremely proud of it."



La Llotja de Lleida Theatre and Conference Centre, Spain

2010

This theatre and conference centre in Catalonia, Spain, opened in March 2010 and features a 1,000 seat theatre, two congress halls, an exhibition hall and a restaurant and lounge.

It's a low, monolithic building, divided into six levels and with a solid façade of natural stone. Inside it's sleek and modern, with white plastered walls and marble or wooden flooring, and bright details throughout the building. The main theatre is distinctive, with 'trees of light' cut out of the dark wooden walls.

"For me this building expresses the joy of being in Spain," says Houben. "We were also inspired by the local gastronomy. The materials and colour schemes we selected really reflect the local oeuvre of Catalonia. It also has a very expressive interior."



HOME arts centre, Manchester, UK

2015

The opening of the £25m HOME arts complex last summer brought a major new arts centre to Manchester. The triangular dark-tinted glazed building houses five cinema screens, a 500 seat main theatre, a smaller 180 seat theatre and an art gallery, plus a bar and restaurant.

The shape of the building was determined by the triangular site, sandwiched between a hotel tower and a multistorey car park.

The interior concept is based on an urban living room, according to Mecanoo, with the aim being to create a sense of warmth and intimacy. Concrete floor and walls are softened with warm oak and splashes of colour.

"This building is named HOME, and that's really how it does feel to me, like a home in Manchester," says Houben.

HIGH IDEALS



The mountain already has a ski lift (top picture). It is a popular resort, but as it has little in the way of accommodation, most skiers go for the day. Paving the roads to the village (this pic)

POWDER MOUNTAIN

A group of young US entrepreneurs are setting out to create a unique, crowdsourced ski resort where creatives and thought leaders can share ideas. Kath Hudson finds out more

“We want to subvert resort culture,” says Sam Arthur, design director for Summit. “This is a blank slate to work with: we have a 100-year vision to create a town which is enduring and meaningful.”

Summit intends to create a hip and select ski resort with a difference: one with arts and culture at its core, featuring contemporary architecture, which will blend with and complement the spectacular surroundings.

Formed eight years ago by a group of four young entrepreneurs – Elliot Bisnow, Brett Leve, Jeff Rosenthal and Jeremy Schwarz – Summit organises invite-only social mixers – the Summit Series – with the aim of “building a community and places that catalyse entrepreneurship, creative achievement and global change to create a more joyful world.” Speakers at the events could include the founder of Wordpress, Uber

or SoulCycle and the seminars are always complemented by food and entertainment from trendy, emerging chefs, artists and musicians. Immersive experiences, such as yoga, diving and skiing, are also part of the format.

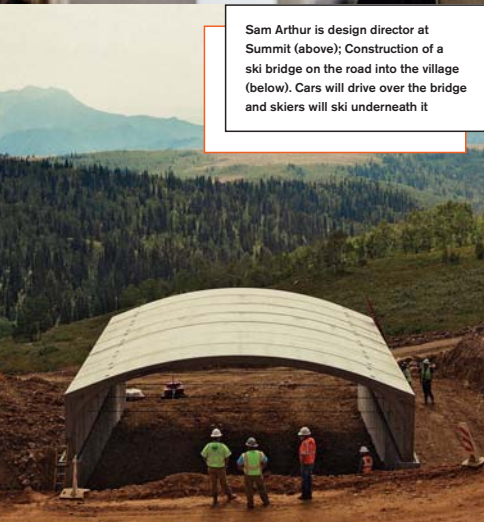
The Summit Series started out as nomadic: taking over a tropical island or a cruise ship for the weekend, but as the Summit community grew, the need for a headquarters became clear. In February 2013, Summit bought Utah ski area Powder Mountain, with a view to creating a permanent home for the community, and as a destination for its events.

“The Summit founders felt like the community would benefit from having a place to invest in long-term, to build its culture,” explains Sam Arthur. “This project could have been in New York, on an island, or in a lot of different places; it just so happened that here in northern Utah the founders found a raw, beautiful, up and coming area.”





Sam Arthur is design director at Summit (above); Construction of a ski bridge on the road into the village (below). Cars will drive over the bridge and skiers will ski underneath it



People very much believe in the community of Summit and so investing in continuing and empowering that community was the logical next step



The circular, wooden Summit Skylodge on the top of Powder Mountain. Construction was completed on the building in 2013 (above); A Summit Series gathering in Skylodge (left)

► The Summit team were introduced to Powder Mountain by a member of its community, Greg Mauro, a venture capitalist who is also a partner in the project. The acquisition was achieved using funds raised through crowdsourcing within the Summit community, who bought in to the ski resort dream.

Formerly a privately owned and operated ranch, the evocatively named Powder Mountain is already a functioning ski area, with 7,000 acres of skiable terrain. It is much beloved by adventurous regional skiers, drawn by its uncrowded slopes and untracked powder, and it hosts 120,000 skiers/riders annually.

Its full potential as a ski resort has never been realised, partly because the local community have fiercely guarded its integrity: they have already driven away two development companies who wanted to build 2,000 houses and three golf courses. Apart from a few cabins by the main ski area there is little in the way of development at the resort, so most skiers come for the day.

Although Powder Mountain will serve as the headquarters for Summit and host its events, it is also important that it will function as a ski village in its own right, with day visits and tourism part of the ambitious plans going forward.

Construction of a new village will start this summer, comprising a main street down the middle, with restaurants, cafés, artisan retail, artists' workshops and working studios on either side. Food will be at the core, as many of the Summit community are involved with the catering business, so the restaurants might change operators regularly and will reflect the seasons.

"It will be a culinary institute where there'll be seasonal restaurants, and the operators will rotate," says Arthur. "There will

also be third party operators, but we're not bringing in national chains to anchor the experience. There won't be stores for high-end designer clothing brands. There will be a lot of interesting partnerships and brands, but not the formulaic type – only those that align with the values and ethos of our community."

As part of the crowdsourcing arrangement, members of the Summit community paid between \$1m and \$2m for a one to two acre plot. There will be around 500 dwellings and several hotels.

Fifty founding members bought into the vision initially; this has now risen to around 110. "People very much believe in the community of Summit; investing in continuing and empowering that community was the logical next step," says Arthur.

Building a community

All houses will be limited in size to 4,500sq ft, because Summit doesn't want people to build castles which they don't emerge from; they want them to be mixing in the village. "This isn't a place to get away," says Arthur. "It's a place to lean in closer, like gathering around a campfire. It will be an incubator for ideas and friendships and will catalyse goodness in the world."

In addition to the privately-owned residences, there will also be a mix of tourist accommodation. Arthur says they want to be "wealth agnostic" so are building affordable accommodation as well as some high-end hotels, the details of which are still under wraps. Drawing on its community, Summit has worked with LifeEdited, which specialises in experiential design and branding and focuses on small scale urbanist living, to design the micro-units. ►



Summit runs artists in residence programmes



Arts & culture

It is its role as the Summit headquarters which the team feel will put the soul into the place. Arts and culture are a key part of Summit and they will become part of the DNA of the village, in the same way that Aspen came together around arts and culture in the 1950s.

As part of its support of emerging artists, Summit runs artists in residence programmes to create physical artworks. "It's partly an incubator and partly a residence," says Marshall Birnbaum, who runs the programme. "Artists spend between 14 and 21 days at the resort. They get the benefits of living in Utah, come to the Summit Series weekends and meet business leaders. Art and artists offer a unique perspective."



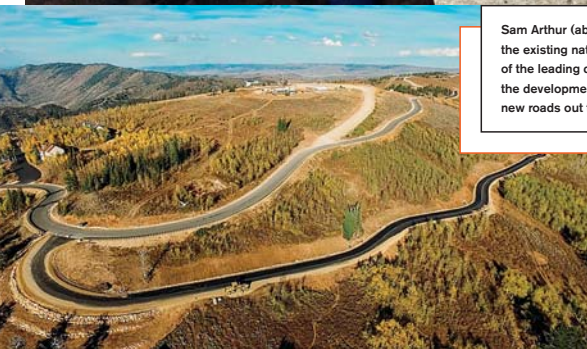
Summit members learning calligraphy



REGENERATION



Sam Arthur (above); Preservation of the existing natural environment is one of the leading design principles behind the development of the resort. Paving new roads out to the village (left)





The expectation is that people will come and participate: ski, have a blast, meet people, share stories and be involved in making the next part of this place, as it grows and changes



- "To keep it affordable we have put an emphasis on the social spaces," says Arthur. "The living room, the hearth and the kitchen are scaled up, while the sleeping experience is scaled down. Bedrooms are only as big as they need to be and there will be bunkrooms and shared bathrooms."

The approach to interior design is less about luxury and more about experience. "The architecture will recede into the landscape, to be part of the bigger whole and the interiors will be vehicles to allow a great experience, to enjoy the view and the sunset. The interest will come from the people inside," says Arthur. "The materials will be humble and earnest and they will be unpretentious, ergonomic and functional."

Design and architecture

Fifteen residential projects are about to break ground in phase one of the build. At the same time, a couple of key venues and lodgings will get underway. Arthur says these public buildings will be humble and fit with the landscape: "They will be wood clad buildings, which are not yelling for your attention. Warm on the inside and friendly on the outside, not asking too much of the landscape, or being too opulent."

The village will be densely clustered, all the buildings will be orientated to make the most of the views and the light. Building sustainably is a given, but the buildings will also be modern in character. "Our goal is to create new mountain architecture, which will be subservient to the natural landscape," says Arthur.

In keeping with many European resorts, the focus at Powder Mountain will be on pedestrian activity, with cars kept to a minimum; Arthur says they don't want big car parks.

"Many US ski resorts are based on prosperity and sprawl, so they've become hollow experiences," he says. "For us, restraint and focus and building stuff we really believe in, and which

people want to use, is how we will be different. The expectation is that people will come and participate: ski, have a blast, meet people, share stories and be actively involved in making the next part of this place, as it grows and changes."

The dream has been set out, but now the challenge is to bring it to fruition and the next focus is on the build. For a team of entrepreneurial creatives who expect to see quick results, the progress has been slower than hoped.

Services and infrastructure need to be brought in, village amenities and the dwellings have to be built, plus three or four more ski lifts to reduce the dependence on snow cat touring.


"Construction will take some time," says Arthur. "We've got a lot of the nitty gritty work ahead of us, before we can have the curtains-up reveal. Lots of our planning is based around choreography: how we can build the place, but also fill it."

After the initial crowdfunding, the development is now being funded by income generated from the Powder Mountain ski area, as well as Summit's events business.

"We've transitioned to a real estate model and are working on a BB5 financing model where we're getting funding from mainly China, in exchange for job creation," says Arthur.

The Summit community sounds desirable and edgy, but as members mature, can they continue to keep up the same levels of energy? Arthur says the community will continue to evolve, welcoming new people with fresh ideas.

"You can't hold on too tight. You have to set it up for success, so interested, passionate people can get involved. We learn from the more tenured people and listen to the younger people and put it all together to create the best experience we can." ●

A portrait of Chris DeVolder, a man with a shaved head, wearing a dark suit jacket over a white shirt. He is leaning against a light-colored wooden desk. In the background, there are some books and a blurred interior setting.

Chris DeVolder is sustainable design leader for sports and recreation at HOK

GOOD SPORTS

Chris DeVolder, sustainable design leader at architects HOK, explores how designing sustainable sports venues improves communities – and the bottom line

Hundreds of years ago, a sports facility served as a city's hub. It occupied the main public square or area where citizens assembled to support civic activities and housed functions including hospitality, food and retail.

Then, in the mid-20th century, many new sports venues were built outside cities' central business districts. These facilities were often surrounded by parking space and focused on a single use, resulting in disconnection from the city's day-to-day life and infrastructure.

Today, many new sports facilities are returning to city centres as part of

“ There's a focus on engaging residents, daytime workers and visitors every day of the week – not just on game or match days ”

sports-oriented, mixed-use developments. There's a focus on engaging residents, daytime workers and visitors every day of the week – not just on game or match days.

Developers of arenas in cities including Edmonton and Detroit in the US are following the successful model of the Kansas City Power & Light District and the Nationwide Arena District in Columbus, which integrate sports, entertainment, retail, office and residential. These projects

promote related development and maximise return on investment while creating vibrant, sustainable urban communities.

As well as economic sustainability, design strategies related to the site and landscape, and things such as transportation, materials and resources, energy and the indoor environment, can help operators minimise impact on the environment while improving the bottom line. Here are a few inspiring examples.



The project will see the creation of urban farming and open recreation spaces in the community

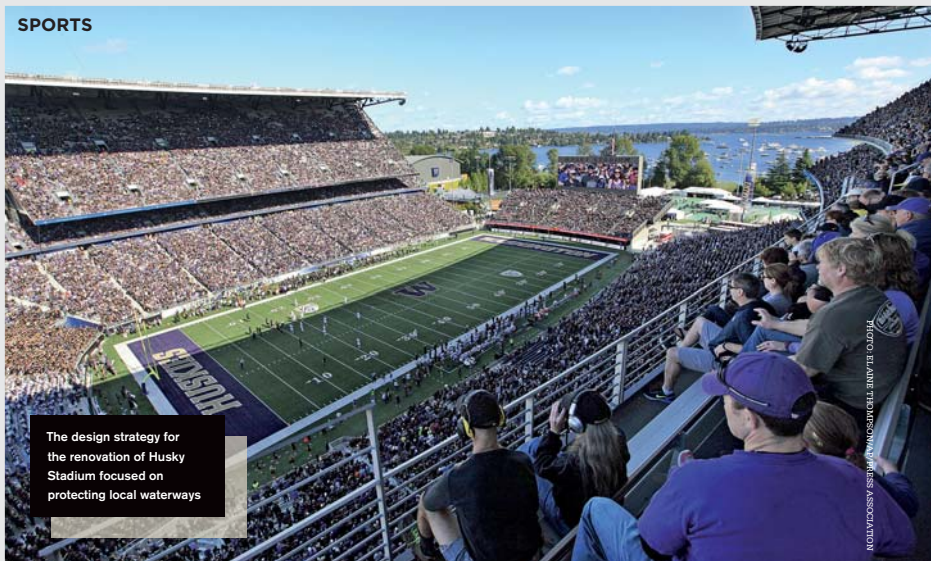
Mercedes-Benz Stadium ■ Atlanta



The HOK-designed Mercedes-Benz Stadium features a retractable roof inspired by a falcon's wing

The Mercedes-Benz Stadium – due to open in 2017 – will become the new home of the NFL's Atlanta Falcons and Major League Soccer's Atlanta United FC. Already billed as one of the world's most sustainable sports venues, it is targeting LEED Platinum certification and is designed to save 34 per cent more energy and 45 per cent more water when compared with a baseline design. Rainwater captured on-site will be used for cooling towers and for irrigating the landscape, including the edible gardens.

The stadium design team is currently working with dozens of manufacturers to advance transparency in ensuring the sustainability of building materials: manufacturers are required to provide information about a product's energy use, waste generation, chemical makeup and manufacturing processes.



The design strategy for the renovation of Husky Stadium focused on protecting local waterways

PHOTO: HUNTINGTON BUSINESS ASSOCIATION

Husky Stadium ■ Seattle

When it comes to HOK's work, the renovation and expansion of the University of Washington's Husky Stadium in Seattle, US, is an example of how client organisations, designers and facility operators can collaborate to create a venue which is both beautiful and sustainable. The new design preserves the history of the 1920

stadium while transforming it into a state-of-the-art, 70,000-seat venue.

Low-flow plumbing fixtures, dual-flush toilets and native landscaping have reduced water use in the building by 40 per cent, while strategies implemented in the design and operations divert 75 per cent of the waste from Husky Stadium.

This is achieved through the strategic placement of recycling and compost receptacles and the ability of the building's loading dock to accommodate composting and multiple recycling containers. There is also a buffer of trees and shrubs which separates the stadium from the wetlands.

Husky Stadium has received

Salmon Safe certification through the Pacific Rivers Council, which recognised its pollution capture, stormwater capture and construction activity pollution reduction strategies. It also won the inaugural Sustainability Award from the National Association of Collegiate Directors of Athletics and USG Corporation.

Auburn Recreation and Wellness Centre ■ Auburn

On a small scale, Auburn University's Recreation and Wellness Center pushes the boundaries of design from both a sport and a sustainable design perspective.

On track for LEED Gold certification from the US Green Building Council, the centre includes an innovative, figure-8

suspended track, open-air exercise and fitness studio, daylight throughout the facility and exterior courtyards for reflection. It's satisfying that sustainable design strategies in recreation centres like Auburn's reflect students' requests for healthy buildings – and it's great to see the desire of administrators to meet their demands.

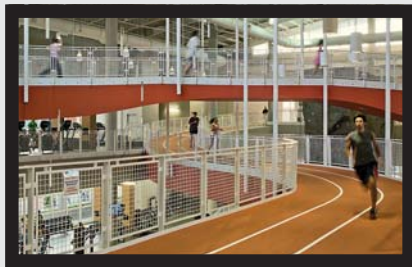


PHOTO: COURTESY OF HOK GRAD RESEARCH



PHOTO: GARY JERGEN/AV PRESS ASSOCIATION

New Jersey's MetLife Stadium is made of an outer skin of aluminium louvers and glass

MetLife Stadium ■ New Jersey

Elsewhere, the 82,500-seat MetLife Stadium is the only US stadium to house two NFL franchises and provides unparalleled flexibility in accommodating the needs and personalities of the New York Giants and Jets teams.

Through a partnership with the design and construction team and the US Environmental Protection

Agency, the project has achieved cost savings of approximately US\$23.5m over the past five years from green initiatives related to energy efficiency, renewable energy, water conservation, mass transit, waste reduction and recycling.

One of the solutions used is a group of solar panels above the stadium's catwalk, which generates

350,000kW hours of electricity per year – equivalent to powering 34 average residential homes.

The EPA named MetLife Stadium the NFL's 'Greenest Stadium', and it has been recognised by the Green Sports Alliance for its role in advancing sustainability in sports venues.

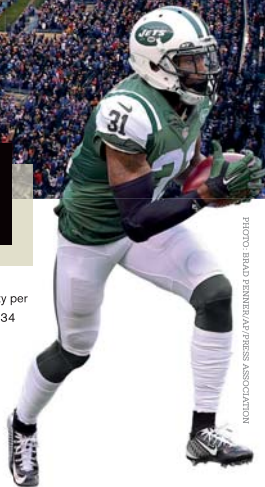


PHOTO: HEADLINE/AV PRESS ASSOCIATION

The Green Sports Alliance

Last summer, HOK entered into a partnership with the Green Sports Alliance, an international non-profit organisation which advises professional and collegiate leagues, teams and venue operators about strategies for sustainability.

The Alliance is helping sports organisations understand how



investment in sustainability can lead to long-term savings.

With more than 300 members consisting of teams, facilities, leagues and universities from 14 countries,

the Green Sports Alliance is already making a difference in developing and sharing best practice in sustainability. In November, the Alliance launched the Corporate Membership Network, which is engaging corporate partners to learn from each other and accelerate the pace of integrating sustainability into their facilities.

The Alliance hosted a climate and sports presentation as part of

the United Nations Conference of Parties' (COP21) international climate negotiations, which took place in Paris in November and December.

The panel, which was attended by representatives of European sports organisations, NGOs, government officials and the public, highlighted the opportunities sustainability in sports offers to the wider climate change effort.

THE FUTURE OF SUSTAINABILITY

HOK's Chris DeVolder says design strategies for the high-performance sports venues of the future will be based on these ideas

Abundance, not scarcity, is the lens for all design decisions. The venue harvests water, creates energy, turns waste into food, enhances the habitat and adds value for the surrounding community and the owner. Decisions support the common good of the community, not just standalone projects.

Projects feature mixed-use programming that creates an **active, engaging venue seven days a week**. The space synergies include sports, recreation, entertainment, transportation, food, healthcare, retail, hospitality, conferencing, urban farming, housing and education.

The design creates multiple solutions.

A canopy that provides shade for daily activities and game-day parking, for example, has a roof structure with solar panels that generate energy for the building and cars parked beneath.

The canopy also **directs rainwater** into cisterns for reuse in the building, site and community. The venue is the focal point of an **eco-district**, where resources are shared among facilities. Excess heat from equipment in an arena, for example, is used to heat water at an adjacent hotel.



Amsterdam Arena, Netherlands: Home to football club Ajax, Amsterdam Arena is carbon neutral thanks to a range of sustainable features including solar panels



Fenway Park, Boston, US: The home of the Red Sox has a rooftop garden that grows vegetables and herbs to be used in the stadium's restaurants



Waterbank Campus, Kenya: This high school campus, by design group PITCHAfrica, harvests rainwater and includes a 1,500 capacity football stadium

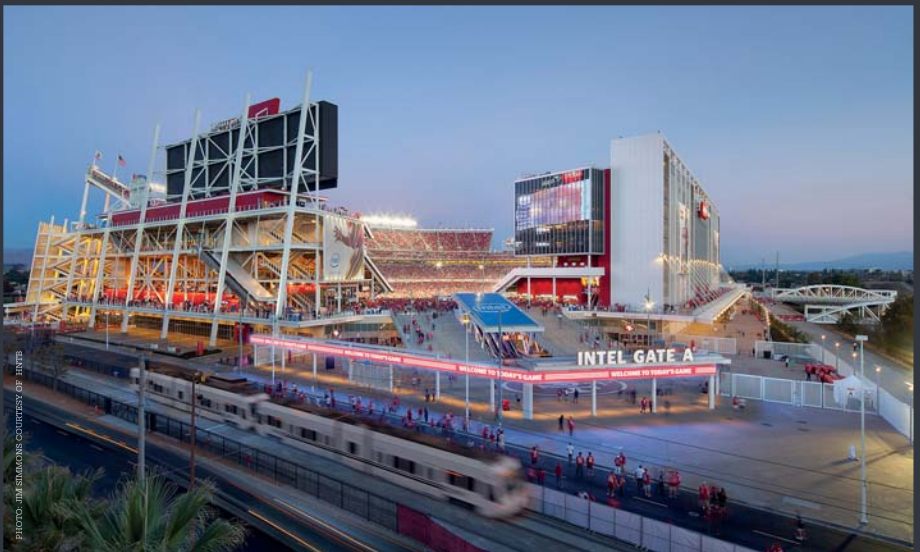


PHOTO: JAMES HARRIS / COURTESY OF INTEL

Levi Stadium, Santa Clara, US: The home of the San Francisco 49ers has LEED Gold certification



PHOTO: TILLY WATTS / AP/WIDEWORLD

CenturyLink Field, Seattle, US: This stadium acts as an anchor for a co-operative approach to the purchase of sustainable goods and services

SPORTS

The venue serves as an anchor for a **co-op approach to the purchase of sustainable goods and services**. It may bring together a ballpark, local school district, hospital system and retail centre, for example, to pool the buying power for green products, renewable energy, commercial composting and local food.

Biomimicry influences how the design responds to the local climate, allowing the building to breathe, provide comfort for every human sense and adapt to year-round requirements.

The site's **biodiversity** is enhanced through local or adaptive landscaping, edibles and the tree canopy.

The venue generates all its own energy through solar panels, wind turbines or other renewable energy solutions.

Future venues will be **net positive** when it comes to stormwater, accepting more water than they create, cleaning it naturally and reusing it.

With its mass appeal and ability to unite people worldwide, sport offers a **powerful platform** for demonstrating and communicating the importance of sustainability.

By establishing new paradigms for **environmentally friendly design** and acting as a hub for related sustainable development, sports venues can become critical assets for an individual location, a community and a region. ●



Kaohsiung Stadium, Taiwan: Toyo Ito's dragon-shaped stadium in Taiwan is covered in solar panels and is 100 per cent solar powered



Parc Olympique Lyonnais, France: Populous' new stadium features a 'green car park' planted with a forest of trees which is used as a public park on non match days



Al Ain Football Club, Abu Dhabi: This project sees the creation of a mixed use community around the 25,000 seat football club and sports facility



US Bank Stadium, Minnesota, US: The Minnesota Vikings' stadium is under construction and is due to open this summer (2016). It features a huge ETFE roof



TCF Bank Stadium, Minneapolis, US: Almost all of the construction waste was recycled from this LEED Silver certified University stadium

ray hole architects - Practice Profile

ray hole architects is a specialist international, award winning architectural practice with over 25 years' experience gained through delivering a broad portfolio of visitor attractions and experiences - *wildlife (animal and botanic), cultural, science, industrial, educational, man-made heritage and natural history, sports, brandlands, museums, themed environments, hotels and restaurants* – across a range of locations and a rich diversity of cultures.

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S U P E R G R A S S

Ibuku,

a Bali-based design firm, has been attracting attention for its **sustainable, elegant bamboo buildings**. Now its sights are set on the resort market and colder climates, too. **Its founder, Elora Hardy and lead architect, Ewe-Jin Low** share their vision





The Ibuku design team at Sharma Springs, a six level Balinese jungle retreat built by the practice almost entirely from bamboo. Founder Elora Hardy is third from left, front row

When Elora Hardy was a little girl growing up in Bali, her mother asked her to draw a picture of her dream home. She drew a fairy mushroom house. But rather than simply putting the drawing on the wall, her mother went a step further: she built it.

Twenty-five years later, that same creative boldness – the drive to turn seemingly fanciful ideas into reality – is central to Hardy's own vision, as founder and creative director of Ibuku: a Bali-based company that designs and builds soaring, curving, beautiful, solid and sustainable structures almost exclusively from bamboo.

Hardy founded Ibuku in 2010, but the seeds for the firm were sown much earlier. Raised in Bali until she was 14, Hardy moved to the US in 1994, going on to earn a fine arts degree from Tufts University before forging a career as a textile print designer for Donna Karan in New York. Meanwhile, back home in Bali, a groundbreaking building project was getting underway.

Although the island already had a long tradition of building temporary structures with bamboo, the arrival of young Western designers in the 1970s took the discipline to a new level. One of these designers was Linda Garland, a friend of Elora's father, the jewellery designer John Hardy.

The sustainable and functional credentials of bamboo as a building material were clear. It grows from a shoot to a structural column in three to four years, compared to 10 or 20 years for soft woods, and absorbs far more carbon dioxide. Bamboo clumps regenerate annually if selectively cut. And despite

I needed to be part of something sustainable. It really came down to that,

being extremely light, the material has the compressive force of concrete and the strength-to-weight ratio of steel.

The challenges were bamboo's vulnerability to insects and the weather. But the development of new treatment methods – such as soaking the poles in boron solution (a type of salt solution) to keep bugs at bay – combined with innovative building techniques to minimise the impact of rain removed those obstacles.

THE GREEN SCHOOL

In 2007, inspired by Garland's work, John and his wife Cynthia (Elora's stepmother) gathered a dream team of builders, artists and local craftsmen to create Green School: a campus comprised entirely of open-sided, sustainable bamboo buildings, which together with a similarly avant-garde curriculum, would help children, "to cultivate physical sensibilities that will enable them to adapt and be capable in the world... to develop spiritual awareness and emotional intuition, and to encourage them to be in awe of life's possibilities." (Green School philosophy).

Back home for a visit, Hardy was blown away by what she saw. But what's more, it coincided with a time when she was searching for a career path that more closely reflected her values. "I needed to be part of something sustainable. It really came down to that,"

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Elora Hardy designed a 'fairy mushroom house' when she was a child. Her mother later went on to build it (bottom right)





The spiralling Heart of School building (this picture) forms the centerpiece of the Green School. Children learn in open sided, bamboo classrooms



Many of the construction techniques and design principles used by Ibuku today were developed when building the Green School



“Over the past five years, the firm has built close to 70 permanent bamboo structures on Bali,”

she explains. “It became obvious that what was happening in Bali was really well-aligned with what I cared about.”

By the time the school was complete, the two lynchpins of the design team, a German builder called Joerg Stamm and Aldo Landwehr, a Swiss artist, were no longer involved: Stamm had only ever committed to a consulting role and Landwehr had passed away. “There was a bit of a swirl of ‘What do we do?’,” says Hardy. “Because the guys who had been working with them had this amazing skillset and had developed several really key structural concepts for how to work with the material.”

The answer to that question was Ibuku, which roughly translates as “Mother Earth.” Over the past five years, the firm has built close to 70 permanent bamboo structures on Bali, including 15 new classrooms at Green School; an exclusive community of luxurious private homes called Green Village; and an expansion of Bambu Indah, a boutique resort property owned by John and Cynthia Hardy.

While Elora Hardy has brought both entrepreneurial spirit and creative vision to the table, she is clear that the firm’s story both precedes and exceeds her personal contribution. While the media is quick to focus on her own story – the little girl from Bali who forged a high-flying career in New York then left it all behind to build bamboo houses – she would far rather talk about the collaborative work of her 130 full-time staff, including the 30-strong design team.

Since Hardy told her fairy mushroom house story at a TED talk early in 2015, interest in Ibuku has grown dramatically. With a strategic move into the resort market and overseas expansion on the horizon, the firm is on the brink of a whole new phase. In the following interviews, Hardy and lead architect, Ewe-Jin Low, explain how they’re using bamboo to reinvent the rules of building design and what sustainable architecture really means.



©DIO HELM

Elora Hardy, creative director, Ibuku

Why is bamboo so appealing as a primary material?

Whenever we’ve looked at integrating other materials over the years the question has been: “How does it even begin to compare sustainably?” When my father was planning Green School he really understood that there isn’t anything else that goes from nothing to timber in four years, with just rainwater, and also regenerates. Other trees take many more years to grow and have to be replanted. Recycled timber is a possibility but it doesn’t give us anything for the future, because it will run out. If you have access to recycled timber and want to use it for your house, great. But if you’re building a campus for kids to look at and think about? You want something that they can build the next thing they imagine out of, because it will still be available.

What was so pioneering about the building methods developed at Green School?

The buildings at Green School took their cues from the material. It’s as if they said: “OK, here’s a pole, a structural column: it’s curving, it’s tapering, it’s irregular, it’s extremely strong, it’s very long. What shall we do with it?” So it was really about using that natural form.

My brother Orin [now head of Ibuku’s landscaping division] was working with Joerg [Stamm] at Green School when they came up with the idea of bundling splits of bamboo to achieve structural curves in the building. To me, it’s showing such respect for the material: to let it guide you, instead of saying: “We want to build a house and this is what we want it to look like. How do we get the material to do that for us?” In our best uses of it,



Elora Hardy’s TED talk in 2015



Ibuku staff work across architecture, graphics, interior design, furniture, landscaping and permaculture.

the bamboo really gets to show off and serves us well. But we also have to protect it, which is why we have big overhanging roofs on so many of our structures. And I love that. Yes, it's strong, it's versatile, but it needs to be protected. And that's true for people, too.

How would you sum up Ibuku's philosophy?

Our aim has really been to push the boundaries of this one material and create spaces that people can relate to, that are comfortable and luxurious, and more importantly, that inspire a sense of wonder. I think the reason people feel connected to the buildings is that they feel connected to the natural world by being in the buildings, even though they're manmade. And that sense of connection and creative inspiration allows us to redesign the future for the world – because bamboo is a material that really sets up a good future.

One unique aspect of your design process is that your team works primarily from scale bamboo models rather than architectural drawings. Why is that?

Well, initially we couldn't find bamboo craftsmen able to read architectural plans! So it was about working directly with the craftsmen and creating something they could relate to. But what happened then was that designing in three dimensions with the stick models really influenced the kind of shapes we came up with. I could sit with the team and work on sketches all day, but I couldn't picture it until we'd worked on the model. And working on the models really affected what we built in a way that was quite intuitive.

Now it's a much more sophisticated process. We use a lot of drawings as well as models in order to communicate all the details, because our architects

don't sit with the craftsmen all day every day on site any more. But designing in 3D like that is pretty cool.

What's the biggest challenge of working with bamboo?

Most of our bamboo homes have a few air-conditioned rooms. If it's just a holiday home, some clients request not to have it as they want a real jungle experience, but I feel pretty strongly about having at least one space in a house in the tropics where you can dry out and keep your photos and books. So enclosing for air-conditioning is the most challenging part – because we even use curved members for our window frames. If we just backed off and became more conventional in how we build, the problem would go away, but we're still in that phase of really wanting to push the envelope.

What makes some projects more challenging than others?

Some projects just go really smoothly while others feel like they're stuttering. Sometimes the team says we started building on the wrong day according to the Balinese calendar. I haven't figured it out, but we do make a point now of offering the right offerings on the right day, at the foundation stage... You've got to pay the proper respects; you can't underestimate the power of that.

Your first foray into the resort market has been at Bambu Indah on Bali. How did that come about?

The original buildings at Bambu Indah are Javanese bridal houses, which Javanese families were quite eager to sell off as they became more able to afford new and modern structures. So my dad started collecting them and the resort of Bambu Indah was made from his collection.



Sumba House at Bambu Indah is a replica of a real Sumba house with its distinctive tall roof (above and below)

► The centrepiece and one of the earliest bamboo structures at the resort was the Minang House, which is a replica of a traditional Minangkabau clan house. And they'd also built a very simple, long barn, which functioned as a restaurant. Last year, we added a really beautiful, tented structure with a tower in the middle at the far end of the barn, and it became the kitchen. So it's a little inverse, because typically the kitchen is hidden in the back of the development and the restaurant is glorified, but in our case the restaurant is very simple and the kitchen is glorified.

Another structure we've built at Bambu Indah is a guest room called the Sumba House. It's a replica of a traditional Sumbanese house, which has a very distinctive tall, pointed roof.

How much potential do you see to expand outside of Bali?

We've had an overwhelming number of enquiries since the TED talk. The major response has been: Can you come and build this here? And by here, I mean Toronto, Holland... and of course India, Malaysia and Australia, too. Some of those places will require major efforts in the mundane world of building code and approval processes for them to even consider anything bamboo-related, so we'll have to see.

There are many parts of the tropical world that would be the intuitive next step for us, but big picture: bamboo should be used in cold climates as well.



Combined with appropriate insulative materials, there's no reason you can't have a towering bamboo structure in Denmark with a very smartly insulated roof – whether that's with rammed earth or something else – but using bamboo as the structural core. Ultimately we would build with bamboo anywhere except a desert, and even then it's just a matter of drying it out properly.

What drives you?

In Bali there's so much development, and people often say, "How do you feel about that?" And I'm like, "Can we please not talk about it?" because there's nothing constructive I can do except to show an alternative. It's such a world of compromise, people say: "We need to use the cheapest available option, and maybe we can do it a little less badly and slightly more sustainably." It's too late for that. We need to really stretch our creative, innovative minds – which humans are extremely good at. We've shown throughout history

the changes we can make in decades, and that's speeding up more and more. And I want to be part of that world of possibility and positive change.

From an emotional standpoint, what I feed off is the feeling that I get, and the feeling I see in other people, when they walk into buildings we've made – there's just this little bit of delight and this little bit of wonder. It's something very deep and very simple and I find it very rewarding.

“It was really just an early desire to create”



Ibuku expanded the Bambu Indah resort with a large open kitchen (above) and built a new guest room. The Green School's Starling Love Bridge (below)



Ewe-Jin Low, lead architect, Ibuku

Why did you become an architect and how has your career progressed?

It was really just an early desire to create, and finding I had an ability to sketch and draw things: as simple as that. I trained at Brighton University in the UK and got my first job with a small architecture firm in Sussex, working on industrial business parks. After having a child, my wife and I decided to go home to Malaysia, where I spent a couple of years with a premier firm working on hotels before setting up my own practice. Eventually, I moved my family to Melbourne for my children to go to school. After several years there working for other people, I went back to Malaysia to work for a friend on projects in Pakistan and Dubai. But after a couple of years, I'd had enough and came back to Melbourne to set up my own practice, focusing mainly on church, social and housing projects. I still run it with the help of friends.

How did you come to Ibuku?

I saw an advertisement online for a senior architect, and it interested me because I grew up with bamboo when I was a kid. So I decided to apply for it even though I wasn't looking for a job at the time. It was a long process – I had five or six interviews – but eventually they chose me.

What does your role involve, and how much of an adjustment has it been?

I manage a team of about 30 people, covering architecture, graphics, interior design and furniture, as well as a new landscaping and permaculture branch.

As an architect without much bamboo experience coming into this unique world, it has taken time to blend in. Initially, everything was foreign to me. The only advantage I had was the language: the Malay and Indonesian languages are pretty similar, so I could understand 60-70 per cent. But design ▶

“The next step is probably a fully fledged resort, where we do the masterplanning as well as all the buildings”

► methods and building methods I've had to learn the hard way.

Nine months down the line I can now get more involved in the design process, but my job is not to initiate design; that's Elora's role. My role is to assess the design, to look at how to streamline things, to look at areas I think can be improved or made equal to what we do in the other world – the world other than bamboo. I have a good general background in architecture, and a lot of experience of running projects from start to finish, so what I have learned I apply. That has really helped me start shaping this office from what it is to what it's going to be.

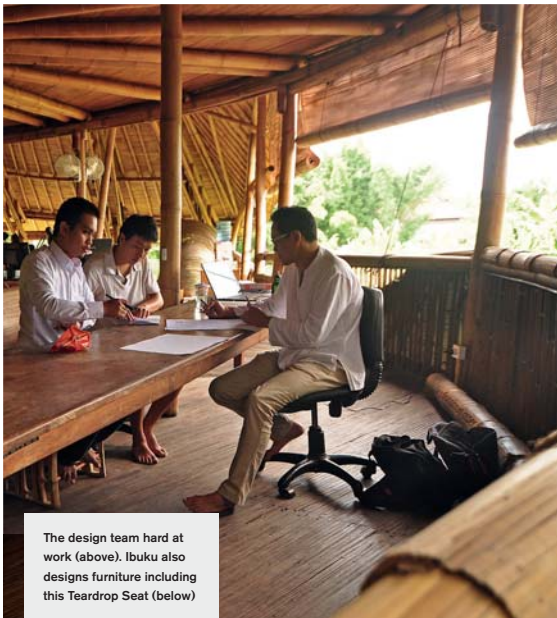
As an architect, how does working with bamboo compare to working with other materials?

I had to unlearn a lot of things then learn them again. Bamboo is not uniform like a piece of milled timber or a piece of steel. With bamboo buildings it is very difficult to get the levels and dimensions to exactly what is wanted, because bamboo flexes: the more weight there is on the building, the more it shifts and changes. On a traditional building of timber, steel or concrete, you will never run out by a few millimetres. Bamboo can run out drastically if it's not controlled. So the challenge is choosing the right bamboo, making sure the on-site team is sharp at keeping within the dimensional set-ups and adjusting where necessary.

Detailing is another example. You can do a detail as nice as you want by imagining and sketching it. But when you get on site and talk to the bamboo artisans, it can change because they come up with something even better, or the situation changes. One of the main things Elora told me when I joined Ibuku was: "You have to be flexible like the bamboo."

What's your biggest challenge right now?

How to make the openings in our buildings more modular. In the developed world, we take for granted when we specify a door or a window that we will get the opening built and our product will more or less fit into that opening. But bamboo is never straight, so that in itself is a challenge: how do you fit a door into an opening you've drawn as 1m by 2m, but which in the end is not square? So far we've done it by working with the skilled artisans here to purpose-build objects [such as glass panels] that fit into that irregular space. We can afford to do that on our bespoke projects. But for more commercial projects we're now looking at creating a transitional surround to even out the curves and nodes around the opening so we can insert a standard door or window into it – possibly using laminate bamboo panels.



The design team hard at work (above). Ibuku also designs furniture including this Teardrop Seat (below)



What's next for the practice?

As Elora mentioned, we're getting a lot of resort enquiries, both locally and from overseas. So the next step is probably a fully fledged resort, where we do the masterplanning as well as all the buildings. One of the first projects is likely to be a cliff-top resort here in Bali, which is currently in concept design. The big challenge there is how do you stop horizontal rain and wind from coming into the building and still get a view? And also how do you use bamboo to excite a discerning user who is used to five- or six-star experiences?

We're also looking at another two resorts on nearby Indonesian islands, and potentially two or three more overseas. These will be seaside resorts in tropical or sub-tropical locations where the climate is similar to Bali, and also one in a cooler climate.

What particular challenges does working overseas present?

Firstly, the buildings in colder climates will have to be closed in. A lot of our buildings are curved and organic in shape, so we may have to go more square or modular or compartmentised to solve that problem. We're looking at how glazing systems will work, and how to achieve a floor and a roof that are insulated using materials that are sustainable.

There's also the challenge of transporting traditional Balinese artisans overseas. We had a [restaurant] job in Hong Kong recently and we had some cultural issues. Balinese workers are spiritual: they need to go to temple, they need to do their offerings, and in Hong Kong that was hard! ●



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bamboo style

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bamboo is seeing a resurgence in

popularity as a building material.

Christopher DeWolf takes a look at a

few extraordinary structures

It was an astonishing sight. At the corner of two busy roads in Hong Kong, surrounded by glass and concrete skyscrapers, an enormous bamboo theatre rose from a vacant lot, its gnarly skeleton clad with tin sheets and festive banners. For just over a month in 2013, the West Kowloon Bamboo Theatre echoed with the wails of Cantonese opera as spectators munched on curried fish balls from the food stalls gathered outdoors.

Designed by Hong Kong architect William Lim, the theatre was built using 10,000 bamboo rods held together with plastic ties. With room for 800 people, it was one of the largest bamboo theatres ever built, but Lim could not take credit for the idea: these types of temporary theatres have been built in the villages of Hong Kong and Guangdong province for hundreds of years, playing host to travelling opera troupes and celebratory feasts. The West Kowloon Bamboo Theatre was a government-sponsored effort to bring the tradition to a high-profile location in central Hong Kong. "It's a very vernacular, local structure," says Lim.

The vernacular is increasingly in vogue. Around 1 billion people live in bamboo structures around the world, mostly in informal, hand-built houses, but the fast-growing grass is finding its way into hotels, restaurants, museums

Bamboo, dubbed 'green steel', is light, strong and highly sustainable, needing only four years to grow to maturity

and remarkably sustainable. It takes just four years to mature and 70 hectares of bamboo produces the same amount of construction material as 600 hectares of trees. It's even more efficient than

and other public facilities. Bamboo owes its new found popularity to the same qualities that made it the material of choice for Hong Kong's theatre-builders: it's strong, lightweight

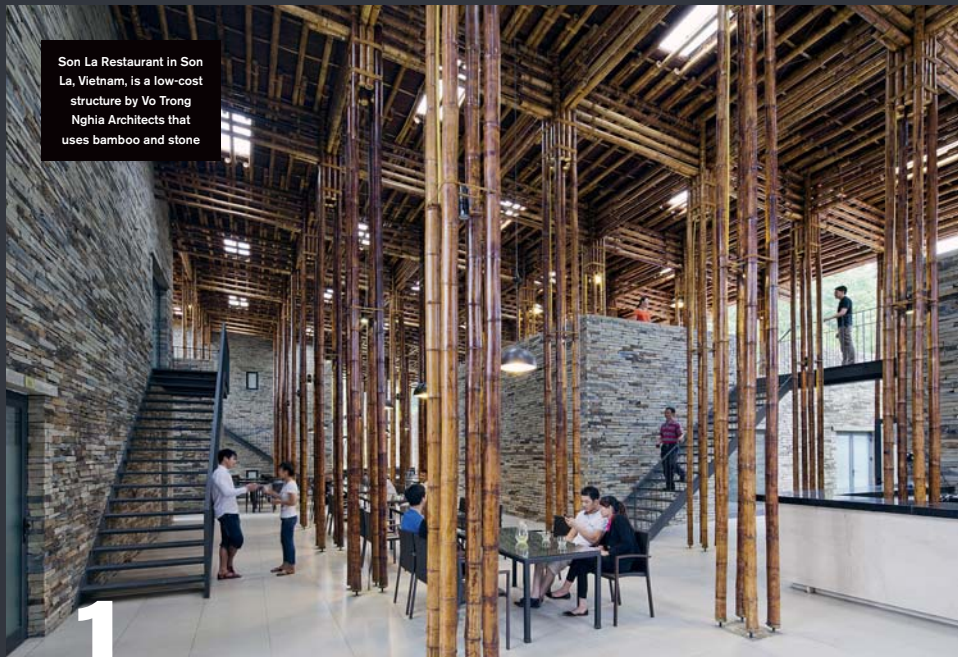
trees at cleaning the air, with 1 hectare of bamboo removing over 80 tonnes of carbon dioxide from the atmosphere every year.

"I think bamboo and laminated bamboo will replace other materials and become the 'green steel' of the 21st century," said Vietnamese architect Vo Trong Nghia in an interview last year.

He is not alone in his opinion: more and more architects are doing ground-breaking work with bamboo. Here are five to watch.



Son Le Restaurant in Son La, Vietnam, is a low-cost structure by Vo Trong Nghia Architects that uses bamboo and stone



Vo Trong Nghia, Vietnam

Vo Trong Nghia has proven that sustainability is stylish. Since establishing his firm in 2006, the Vietnamese architect has completed several bamboo projects, including restaurants, cafés, a community hall and Vietnam's national pavilion at the 2015 Milan Expo. The design of the pavilion was inspired by lotus ponds, with thick clusters of bamboo columns that appear to sprout from a shallow body of water. The bamboo elements were prefabricated, allowing them to be easily assembled, disassembled and recycled.

Nghia's work has been lauded for its beauty, but it is his structural innovations that are truly noteworthy. In the case of the Wind and Water Bar, an event space just north of Ho Chi Minh City, Nghia designed a 10-metre-high, 15-metre-wide dome made of 48 prefabricated bamboo units bound together with bamboo bolts. Clad in rattan and grass, the building sits on an island in an artificial pond, which creates



The dining room's roof structure is made from 'luong', a local bamboo that grows to 8m tall

a naturally cool breeze that passes through the base of the structure. Hot air escapes through a circular opening at the top of the dome.

Nghia treats the bamboo stalks using traditional methods. He first subjects them to heat in order to bend them into shape. Then he soaks the stalks in mud, which reduces the sugar content to stop them attracting insects, before smoking them to create a carbonised layer that prevents them being damaged by moisture. This allows Nghia to create durable, all-bamboo buildings that do not rely on steel or timber for support. "Using steel joints kills the cost benefit of bamboo structures," says Nghia.

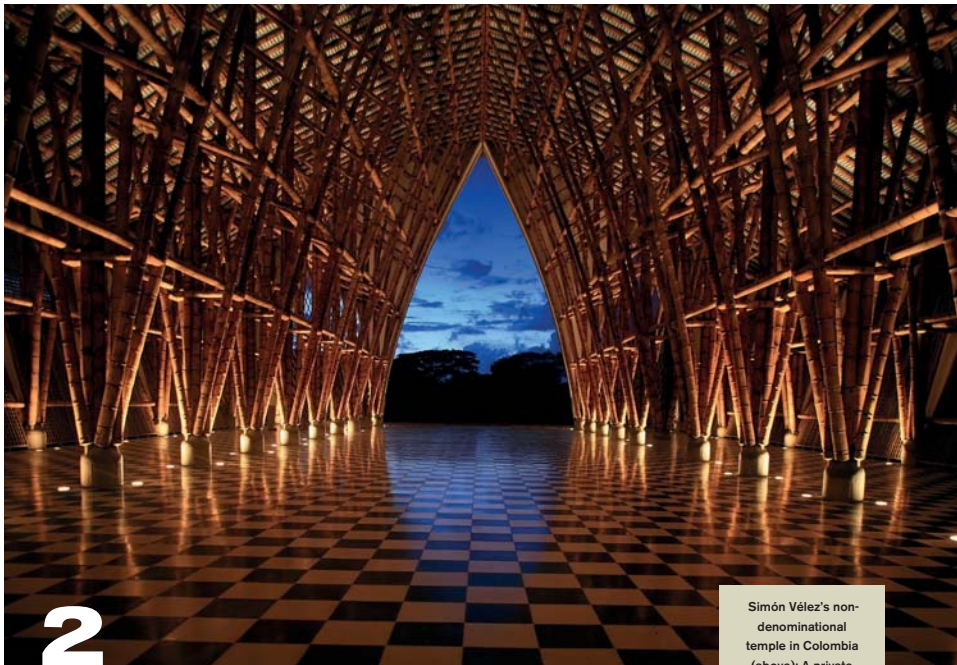
Though Nghia has established himself as one of the world's most innovative bamboo architects, he says there's still a lot of work to be done before bamboo can be more widely used. "There's almost no contractor with experience of bamboo construction," he said in an interview last year. "To realise the space as envisioned, it's essential for us to educate workers and build the construction together." ▶



Vo Trong Nghia's
Wind and Water Bar
is a dome-shaped
performance venue



Bamboo Booth, built for the Vietnam Architecture Exhibition in 2012; and a restaurant designed for Kontum Indochine Hotel (left) supported by huge bamboo columns



2

Simón Vélez's non-denominational temple in Colombia (above); A private residence (below)

Simón Vélez, Colombia

Colombian architect Simón Vélez is something of a bamboo evangelist, using his country's native guadua species of bamboo in dozens of projects around the world, including a temporary museum in Mexico City, a non-denominational temple in Cartagena, a resort in China and a 2000 Expo pavilion in Hanover, which was the first bamboo structure to ever receive building approval in Germany.

"I like bamboo because it's humble, it's very structural and very light," says Vélez from his home in Bogotá. "It's high tech from nature."

Vélez has been working with bamboo for more than 30 years, ever since he discovered a method of creating joints between rods by filling them with cement, which allowed him to insert steel plates and screws. This enhances the bamboo's tensile strength, turning it into what Vélez calls "vegetable steel." He has been using the same technique ever since. "It's so simple," he says. "It's a joint for idiots."



Like many bamboo architects, Vélez has taken advantage of bamboo's warm tone and unique texture to create soaring yet intimate spaces. In 1999, he built a temporary cathedral in Pereira, Colombia, whose internal bamboo structure curved up into a sharp point – an ethereal counterpoint to the heavy stone arches of Gothic architecture. Many of his projects blend raw bamboo with other materials that complement or contrast its rustic texture. "I like to mix materials," says Vélez. "In the tropics you have a lot of diversity and I like to have diversity in construction."

What distinguishes Vélez from his contemporaries is his preference for guadua, which is taller and sturdier than Asian bamboo. "For me, it's the best, and I don't say that just because I'm from Colombia," he says. "Asian bamboo is conical, it starts big on the bottom and by the middle it's already very narrow. You have maybe four or five metres

to use. With guadua, you have twelve." (Vélez did use Chinese bamboo for one project, a curvy bridge at the Crosswaters Ecologde in China's Guangdong province.)

Vélez says that guadua was traditionally seen in Colombia as "the wood of the poor," thanks to its use as a cheap building material by 19th-century gold rush settlers in the country's central region, where bamboo is abundant. These days, its environmental friendliness has made it a fashionable choice of material for the wealthy clients who commission Vélez to build their houses.

The next step, he says, is to make it more widely available to the masses. "I keep working with raw bamboo, but the future of bamboo is laminated, like any timber," says Vélez, who recently opened a laminated bamboo factory in his hometown in central Colombia. "The best thing about this material is that nobody needs to touch the tropical forests anymore." ▶



**With this material,
nobody needs to
touch the tropical
forests anymore**



Detail from a bamboo roof structure; and Crosswaters Ecologde (top) in China's Guangdong province

West Kowloon Bamboo Theatre hosted live Cantonese opera in Hong Kong in 2013



3

**I don't think you
can see anything as
permanent. It's just
a matter of duration**

William Lim, Hong Kong

William Lim had already been using bamboo for 10 years when he designed the West Kowloon Bamboo Theatre. His first bamboo structure, Lantern Wonderland, was a massive illuminated pavilion in Hong Kong's Victoria Park for the 2003 Mid-Autumn Festival, when families enjoy night-time picnics with candles and lanterns.

"Some of the earlier inspiration for using bamboo was not as a material but as a construction technique, which is pretty unusual to Hong Kong," says Lim. Bamboo scaffolding is ubiquitous in the city, even on skyscrapers. "One thing I learned very rapidly is that it's not a flexible material because it doesn't bend easily. It's very strong because it's so rigid," he says.

Although Lim is the director of architecture firm CL3, his bamboo projects are mostly personal, not commercial. "My interest is really

more in the rawness and the indigenous quality of how people used bamboo structures before there were building regulations," he says. "I'm fascinated by the handcrafted quality of it."

For an architect, that means setting aside some measure of control and learning to trust the experience of bamboo masters who have built with the material for decades. "There are things you need to improvise on site," he says. That was especially true for the bamboo theatre. Lim wanted the interior space to be unobstructed, so he hatched a plan with the bamboo workers to create a novel cantilevered structure to minimise the use of timber pillars.

The West Kowloon Bamboo Theatre was taken down after a month, its bamboo rods recycled for scaffolding or perhaps another theatre somewhere else.

"That transient nature is part of the beauty of bamboo structures," says Lim. "The impermanence is part of this ritualistic culture. I don't think you can see anything as permanent. It's just a matter of duration."

Lim created a bamboo pavilion when he participated in Mid-Autumn Festival in 2003





Penda, China

Inspired by the bamboo scaffolding used in Hong Kong and a handful of other Asian cities, Beijing-based architecture firm Penda has developed a concept for a modular hotel. Co-founder Chris Precht says the hotel was prompted by AIM Legend of the Tent, a competition that encouraged architects to design tent-themed hotels with a connection to the natural landscape of southern China.

"We always like to look at the local material and the local craftsmanship before we start a project. It was an obvious thing to use bamboo as a construction material," says Precht.

The hotel would consist of triangular pods supported by a grid of locally-grown bamboo rods that connect in X-shaped bamboo joints. Eight rods connect at each joint.

"Our general goal was to make more a product design than architecture itself," says Precht. "The main focus is the joint between the bamboo. The structural concept can be



Modular hotel concept One With The Birds can expand both horizontally and vertically

Our general goal was to make more a product design than architecture itself

expanded in all kinds of directions, so it can grow horizontally but also vertically."

The competition called for a temporary, low-impact hotel, so Penda's structure could be easily disassembled and rebuilt elsewhere, or used for another purpose. Precht compares the hotel to a tree house: a hideaway completely integrated with its surroundings, to the point where vegetation could gradually become intertwined with the bamboo support structure.

"Nature is stronger than all of us. In the end it will take over architecture, so we are giving this opportunity back to nature. It's changeable, so that when you go back as a guest to the hotel, it always looks different," says Precht.

"It's much warmer than concrete. More human"

Oval Partnership, Hong Kong

When Christopher Law set out to design a model house at Expo Integer, a new eco-town in the southwestern Chinese city of Kunming, he had one goal: prove that an entire multi-storey building could be made entirely from laminated bamboo. The two-storey house is distinguished by smooth surfaces and clean lines, a deliberate rebuke to the raw texture embraced by most bamboo architects. "We wanted to create a whole bamboo lifestyle to persuade people that a bamboo house doesn't have to be rough," says Law, the director of Hong Kong architecture firm Oval Partnership. "It's much warmer than concrete. More human."

The house was completed in 2010 and it set the stage for an even more ambitious hotel built on the same site in 2012. The

Innhouse Eco Hotel was designed as a series of three- to four-storey guesthouses linked by courtyards – a nod to the traditional *ye ki yin* houses of Yunnan province – and it is built mainly with laminated bamboo and locally-sourced timber.

Law says that, with a steel frame, a laminated bamboo structure could rise as high as nine storeys. Given the environmental benefits of bamboo over wood and concrete, it could prove a useful model for China's fast-growing cities. In most places, however, bamboo faces a regulatory roadblock as few cities have approved its use as a permanent building material. Law is optimistic nonetheless.

"There are a lot of obstacles, but eventually we will get there," he says. "This is the first time in more than a hundred years that we've found a new way to build with an entirely sustainable material. We can't stop." ●



Bamboo is the primary building material for the Innhouse Eco Hotel in Kunming



The eco-boutique hotel combines sustainable tourism with luxury experience



The resort consists of three- to four-storey bamboo guesthouses linked by courtyards

the invisible

Working on projects including the San Francisco Museum of Modern Art expansion and Gardens by the Bay, Singapore, Atelier Ten founder **Patrick Bellew** reshapes the way buildings interact with the environment. He speaks to Magali Robathan



ALL PHOTOS EXCEPT INTERIOR WATERFIELD & SPINOLA, ATELIER TEN

ARCHITECT

About Atelier Ten

As environmental design consultants and building services engineers, Atelier Ten are committed to the design and delivery of high-performance building services systems and sustainable building design. With a history of innovation, they're not afraid to challenge conventional thinking and have worked with a wide range of architects, including Stirling Prize-winning practices AHMM, Haworth Tompkins and Wilkinson Eyre, as well as big names such as Zaha Hadid Architects, Foster + Partners and Heatherwick Studio.

Atelier Ten describe their core objective as meeting the needs of clients by developing well-integrated buildings with simple systems that work with the natural laws of physics to increase wellbeing, reduce energy consumption and contribute back to the greater environment.

Founded by Patrick Bellew in London in 1990, the company now has offices in New York, San Francisco, New Haven, Doha, Bangkok, Singapore, Glasgow, Edinburgh, Melbourne and Sydney. Atelier Ten employs more than 180 staff worldwide.



Clockwise from above:
The Comcast Center,
US; Gardens by the Bay,
Singapore; the Baltic
Center for Contemporary
Art, UK; inside the Baltic



Patrick Bellew, founder, Atelier Ten

How would you sum up the philosophy of Atelier Ten?

We set out to develop more sustainable master-plans and buildings, as part of a mission to create a more sustainable built environment. We take a pragmatic approach, rooted in a desire to try and make the most of resources and to do as much as we can with as little as possible.

Our aim is to build intelligently and work with other designers in an integrated way so that we minimise the impact on things like the consumption of materials, energy, water and carbon.

What sets your work apart?

A combination of analysis, intuition and graphical output that helps to really move the conversation about green design forward.

We offer a huge range of skills. A traditional engineer just does engineering, but we do a lot more work in analysis and masterplanning.

Fifteen years ago we established offices in the US where we only do consultancy in environmental building design. Engineering is still a big part of what we do in Europe.

How do you approach each new project?

We think of ourselves as climate engineers, making good weather in buildings, so the first presentation from us is almost always an analysis of climate. The responses in traditional architecture vary across different climates, and we think the responses of modern architecture should be no different. Understanding the local pressures is important. In Southern California, for example, water is the biggest issue. They have lots of sun and it never gets cold, so insulation is not such a big deal; it's all about the water.

We work really closely with the architect, and where the owners want to get engaged we will work closely with them as well.

What are you working on now?

We're currently working on the expansion of the San Francisco Museum of Modern Art, which is due to open in May. It's a wonderful extension to the existing modernist MOMA museum by Snohetta. It's an ambitious and gorgeous building, with very high environmental standards. We've been working with a local engineer to drive the environmental performance, and it's on track to achieve LEED Gold certification.

We've been working with Heatherwick and BIG on the Google headquarters project in California, which has been very challenging and exciting.

We're also working on a large resort project on mainland China with Wilkinson Eyre Architects. I can't give too many details on that yet, but it's a follow-on project from the Gardens by the Bay in Singapore – which we also worked on with Wilkinson Eyre. It's also very exciting.

We've got a couple of big London hotel projects on the boards – one in West London



It's a wonderful extension to the existing modernist MOMA museum by Snøhetta

and one near the City. They're looking to hit very high standards of environmental performance.

We're also working with Shigeru Ban on a tall, all-timber residential structure in South London which is a very challenging project.

Are you doing any masterplanning?

We're working with four highly respected London architects to deliver a sustainable, high-profile recreational and residential masterplan for a large site in south-west London, the first phases of which are under construction. It will feature a public sports facility with a swimming pool, a community centre, plus five acres of public squares, streets and gardens and 400+ homes.

The client had ambitions for the project to achieve the highest international standards for a sustainable masterplan; we proposed they work with an assessment tool developed by the US Green Building Council called LEED-ND (for Neighbourhood Development).

From the work that followed with the client and a willing design team, the project became the first 'Platinum' rated scheme in Europe.

As well as putting obvious things in place, such as energy and water conservation strategies, a good masterplan needs to balance a range of other elements such as developed area vs amenity and usable green space, the public and private realm and permeability. It also needs to include a good mix of leisure and residential.

Perhaps rather unexpectedly, even a super-prime development can offer really state-of-the-art engagement with sustainability.

Do you have a favourite project you've worked on?

Gardens by the Bay [three waterfront gardens on reclaimed land in Singapore] is probably the project that we're most proud of.



We worked with landscape architect Andrew Grant and architectural practice Wilkinson Eyre on the two sustainably-cooled conservatories at Gardens by the Bay, acting as environmental consultants.

The biggest challenge was creating an environment in which European plants could survive in a tropical climate. That meant they needed the right levels of light, temperature, humidity and variability to mimic a European environment. In addition, the client required that the two giant, cooled conservatories had to use no more energy per square metre than a Singapore office building, so we had to think about a way to make that happen.

We used a liquid desiccant to remove moisture from the air; the challenge was how to provide cooling without using energy. We happened upon a solution which was based around using huge amounts of waste timber that the client was sending off for incineration from his tree management programme in Singapore. We intercepted that waste, mixed it with packing case waste from the local port and burned that on site. We then used the waste heat to drive

Atelier Ten is working on the expansion of SFMOMA

the cooling, power and desiccant systems. The whole garden runs on a city waste product without any other energy input. It tells a really powerful story about how a city can contribute to the running of individual buildings.

Together we produced an extraordinary building. The ambition was lofty, the goals were challenging, but it all came together.

Do you use biomimicry principles in your work?

I don't see biomimicry as just a tool, I see it more as a source of inspiration. What we do is difficult for people to get their heads around and using examples from nature is a wonderful way of getting them to think about the possibilities.

Back in 2002, we worked on the Federation Square arts and media development in Melbourne, developing a large labyrinth structure under the public piazza to provide free cooling for all of the bars and restaurants there. When we were presenting to the client, I drew very heavily on the way termites cool their nests – they build a big energy store underground, which provides passive



cooling throughout. I used that as a metaphor for the design, and the client went for our solution partly on the back of that biomimicry explanation.

These days we have a lot more digital and electronic tools for doing analysis, so we rely more on finding data-driven solutions than intuitive solutions, but in those days we used those kind of metaphors very strongly.

How has the introduction of benchmarking systems such as BREEAM and LEED affected your work?

The introduction of BREEAM and LEED has been a powerful force for change. It's not the answer to everything, but it has raised the bar across the industry to an enormous degree.

In the early days, we worked with universities in the US. They might say they wanted to go for LEED Silver, but once they found out another university was going for Gold or Platinum, they'd step up too. It's the same with property developers. They set out with fairly low ambitions. Once they understood what was involved, they started to compete to be the greenest, the biggest and the best.

The introduction of these benchmarking systems has also provided an extraordinary way of getting the whole supply chain up to speed. Twenty years ago, the company that supplied the plasterboard or hauled the trash on the site wouldn't have had a clue what you meant if you'd talked about sustainability. Now they all know which LEED or BREEAM credits their particular service will get them and what they have to do to achieve them.

What single advance in technology has most contributed to the work you do?

The ability to link different pieces of software and run dynamic simulations is the most significant development. It has completely transformed our work. We used to do so much by instinct.

I remember once it taking me two weeks to manually calculate a single load case for a new building, and by the time we got the calculations done, the design had gone past the point where you could impact it. It was very frustrating and difficult to make improvements.

**The Comcast Center Philadelphia (left)
Gardens by the Bay in Singapore (right)**

Today, using products like Grasshopper and Maya, we can link software together to produce enormous models that allow us to really get under the skin of a building.

Once we have the data we need, we can get back to the architects very quickly with the answers.

Can you think of some really excellent examples of sustainably-designed buildings?

Renzo Piano's Beyeler Foundation Museum near Basel in Switzerland is stunning. I love the way it manages light. That's been an inspiration for me since the very beginning.

I was very impressed by the Hepworth Wakefield [UK] gallery by Chipperfield. The way the environmental systems have been so seamlessly integrated into the building is fantastic. The Auckland Art Gallery Toi o Tamaki by Francis-Jones Morehen Thorp is another really beautiful building with great environmental credentials. The materiality of it, the systems and the way it was all put together by the teams working on it was very impressive.



Systems integration at Chipperfield's Hepworth Wakefield impressed Bellew

Do you ever get conflict between the engineers and architects on a project?

Of course; though perhaps 'creative tension' would be a better way of expressing it! If you followed engineers' solutions for the most sustainable houses, everyone would live in black boxes with a bit of managed ventilation, an LED light bulb and a solar panel on the roof. But where would the joy be without light and shadow and variety?

That's where architecture takes over. We work with architects to optimise what they're trying to achieve, not to try to impose our engineering reductionism on them. In the end they're the ones with the vision for the building.

What have been the biggest changes since you launched Atelier Ten?

The shift in attitudes. The thing that's made the biggest difference is people's willingness to understand the importance of sustainability. A few years ago it was seen as being a bit faddy and marginal. Now, because so many people across the whole industry are on board, it's moved on in leaps and bounds. Once you get volume, things become more affordable and then everything starts to change more quickly.

What invention has most impacted your work?

The one thing that's made the biggest difference across the board is the arrival of the LED light bulb.

It produces what we need at a fraction of the energy consumption of a traditional light bulb, and it doesn't produce heat, so you haven't got to air condition it out once you've got the lights on. That's transformational in a major way.

Are you optimistic or pessimistic about the future?

I'm on the fence. We're faced with some pretty catastrophic issues in the next 100 years; one has to remain optimistic about our ability to overcome them, but when you see how blind we've been to what's been coming at us over the past couple of decades, it is a bit dispiriting.

What will the next year bring for Atelier Ten?

We've got some amazing projects in the pipeline, in California, London, Singapore, Doha, China and more, and also a number of major buildings coming on stream soon.

SFMOMA opening in May this year will be exciting for us. We always look forward to big

buildings opening – to being there with all the teams and our client and enjoying the experience of the thing we've helped to create.

What makes you happy?

Just sitting down, with felt tip pens, tracing paper and a willing architect, structural engineer and landscape architect and creating something that goes on to become a great building.

The early days of a project, sketching out the ideas and seeing them morph into a building, are by far the most enjoyable part of the process.

What makes you angry?

The stupidity of governments and the unwillingness of people to stick to their guns. If you say you're going to do something, do it; don't keep chopping and changing your mind. The inadequacy of government systems bores me.

What would you like to be remembered for?

As someone who's always been willing to be generous and to share ideas – whether it's with the people I work with or with students or mentees. We're very open as a company, so hopefully we'll be remembered for that. ●



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A series of terraces will tell the story of the history of the area

Inspiring a new future

Building a museum in a volatile area, where the political situation is fluid, the supply of materials, water and electricity is uncertain, the pool of labour is restricted and there is no government funding is a daunting prospect.

So you might expect the plans for the Palestinian Museum Hub in the West Bank – the flagship for a planned network of museums – would err on the side of caution.

Not so. The Welfare Association, an international charity of Palestinians which provides aid, health and education in the region, has thrown £40m (\$60m, £55m) at the project, with the intention of creating an iconic building, which will represent a beacon of hope for Palestinians and act as a platform for them to move forward in the future.

The museum is due to open in May this year, with the first exhibition launching in October.

The Palestinian Museum has more than its fair share of construction challenges, but when it opens this summer, it could become a beacon of hope. Kath Hudson reports

The idea was first mooted in 1997, stalled by the second intifada – the Palestinian uprising against Israeli occupation – and then resurrected in the second half of the 2000s. An architectural competition was organised and Irish practice Heneghan Peng were shortlisted due to their track record with museums, including the Grand Egyptian Museum (currently under construction near the Giza Pyramids).

SYMBOL OF HOPE

After winning the competition, Heneghan Peng were appointed in 2011, and charged with the task of drawing up a masterplan for a 4ha (nine acre) site next to Birzeit University in north Ramallah.

The brief required them to create a credible platform for communicating knowledge about Palestinian history, society and culture. The project was conceived as a transnational institution, driven by a mission to provide a cultural voice for Palestinians worldwide, through physical and virtual mediums.

The design was inspired by its spectacular location. Conor Sreenan, project architect at Heneghan Peng, says the ambition was to create a building which appears to grow out of the landscape. The building, he says, should act as a backdrop for the museum's vision of a global hub for Palestinian identity. ▶



**This museum is not about being
stuck in the past. It's about
inspiring the younger generation**



IMAGES COURTESY OF HENNING FENG ARCHITECTS



The building is situated in the hills and terraces of Birzeit, around 16 miles north of Jerusalem. The area outside the building can be used as a performance space for planned and impromptu events





Former director Jack Persekian

► “Our intention wasn’t to create a building as an ‘object’ dropped onto the landscape,” says Sreenan. “It was to create something which is derived directly from: emerging from its surroundings to create a strong profile for the hilltop, integrated into the landscape, but also creating an assertive form with a distinctive identity.”

“There are other Palestinians elsewhere who could have helped us, but they haven’t been allowed visas”

GREEN FEATURES

The museum has been built according to the US LEED green building code, which refers not just to materials used, but how waste, recycling and water is dealt with.

The building is designed with embedded, low-tech green features.

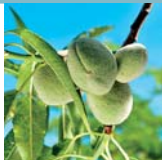
Orientated to avoid large sections of either north or south facing glazing, the primary views are to the west and are protected from overheating by solar shading

devices, integrated into the building’s façade.

The outer shell of the building is highly insulated to reduce the energy demands on the internal mechanical systems. The shell is clad in a light, locally-sourced stone skin which will help keep the building cool.

Internally, large areas of the concrete structure are exposed, allowing its thermal mass to act as a heat sink and regulate internal temperatures.

Rainwater is harvested from the building and



The plants tell the story of trade in the area

the paved terraces, and will be used to irrigate the landscaped areas. Across the site, locally-sourced stone has been gathered to build the terrace walls. The terraces are planted with a variety of flora which is native to the area.

THE BRIEF

Construction will be in two

phases. Phase one, to be completed in May 2016, comprises a 3,500sq m (37,673sq ft) climate controlled gallery space, amphitheatre, cafeteria with outdoor seating, classrooms, storage, a gift shop and office space.

Phase two, to be completed within a 10 year timeframe, will grow the museum to 10,000sq m (107,639sq ft) and will include more gallery space for temporary and permanent exhibitions, an auditorium, more classrooms and a library.

INSPIRATIONAL LANDSCAPE

The site is formed through a series of terraces, created by field stone walls, which echo the agricultural terraces of the area.

“The cascading terraces tell a range of stories: citrus brought in through trade routes, native aromatic herbs, and a rich and varied landscape, with connections to the east and west,” says Sreenan.

The main structure of the building is made from reinforced concrete, a common local construction material, as it acts as a heat sink which regulates the temperature of a building.

The outside is fully waterproofed and clad with stone extracted from within the country, giving an indigenous feel to the building and making it appear “like a cut piece of stone,” according to Sreenan.

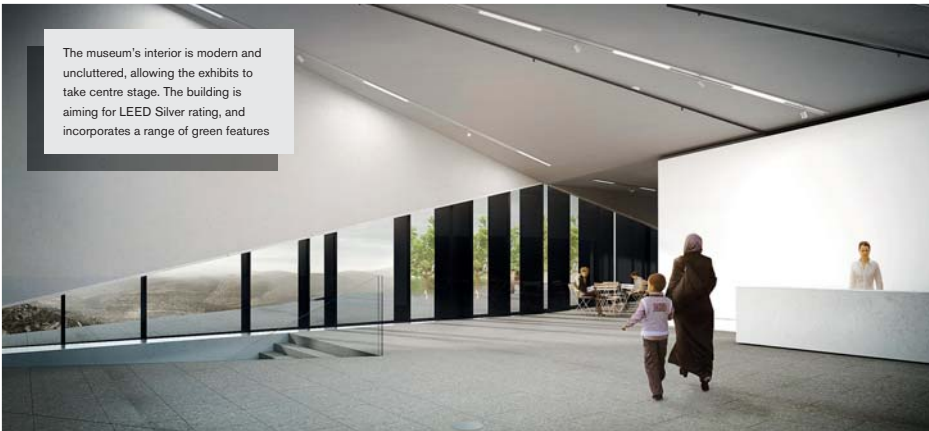
One of the main challenges during construction was creating the geometric shapes of the building. Since most Palestinian buildings tend to be orthogonal, with orthogonal windows, this required a learning curve for the construction team. The Israeli authorities would only allow the workforce to be sourced from the West Bank, which restricted the labour supply and slowed down the construction, according to the museum director Jack Persekian.

“Although the Israeli authorities haven’t interfered in the building work, we’re surrounded by huge obstacles concerning mobility and the accessing of resources and people who would have helped us to double the output,” he says. “Other Palestinians elsewhere could have helped us, but they haven’t been allowed visas.” ►



The museum's first exhibition, Never-part, gathers stories told by Palestinians about their treasured possessions, investigating the connections between material objects and personal and collective identity





The museum's interior is modern and uncluttered, allowing the exhibits to take centre stage. The building is aiming for LEED Silver rating, and incorporates a range of green features

- Nonetheless, the project has stayed on track. Heneghan Peng have remained involved throughout the construction, and visit the site once a month. The day to day project management has been looked after by Ramallah-based consultant Projacs International.

OVERCOMING LIMITATIONS

"The uncommon form of construction has been completely embraced by the project team, and the contractor is incredibly skilled," says Sreenan. "The process hasn't been us imposing a work culture from northern Europe; it's been very much a team effort, with an exchange of know how, expertise and problem solving."

Jack Persekian was director of the museum from 2012 until December 2015, when he

"The process hasn't been us imposing a work culture from northern Europe. It's been a team effort, with an exchange of expertise"

stepped down from the role [he was interviewed for CLADmag before his resignation]. Persekian acknowledges that the museum's location added difficulties to the project.

"Everything here is relative. The borders might be closed, or the Israeli army might

decide people can't come in on a certain day. The situation here changes from day to day. This is limiting. Life here is very limiting."

Access to water and electricity is controlled by the Israeli authorities, and isn't available 24 hours a day, posing another challenge for construction. This particular challenge has been negotiated by the use of generators and one of the museum's sustainable features: huge underground water tanks used to capture rainwater, as well as other tanks to capture reserves of water.

Although the museum was initially conceived to commemorate the Nakba – the point when Israel declared independence and hundreds of thousands of Palestinians became displaced and dispersed – it's as much about propelling Palestinians forwards as it is about looking back over their history of loss. The museum is aiming to create a fresh narrative and set up a new dialogue for the future, says Persekian.

SATELLITE SITES

Since not all of the target audience will be able to visit the West Bank, a key element of the project is to reach out to Palestinians across the diaspora, with satellite sites in key cities which have large Palestinian communities: Jerusalem, Gaza, Haifa, Beirut, Amman, Dubai, London, San Diego and Santiago.

The first two, in Beirut and Santiago, will open first, with the others following on at a later date.

Each satellite will have specific content determined by its context and location, and what is permissible in terms of logistics. Some exhibitions will tour from site to site, others will tour with different content.

The museum team is bringing this to fruition through partnerships and collaborations with local groups. This approach is especially necessary for Gaza, since people are rarely permitted to visit or leave.

LOOKING FORWARDS

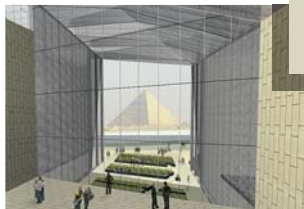
"The museum is not about being stuck in the past," he says. "We want to say: 'this is what happened, but we're here today and we want to come up with propositions for the future'. It's about inspiring the younger generation."

Persekian believes the museum's iconic architecture makes an important statement, which is central to the institution's mission: "It's not just the same old architecture that you see everywhere," he says. "We haven't fallen into the trap of regurgitating worn out symbols. We've created a contemporary, forward-looking museum." ●



The Giant's Causeway Visitor Centre opened in 2012. It was shortlisted for the Stirling Prize in 2013

GIANT'S CAUSEWAY PHOTOS © MARIE LOUISE HALLFERNY



The Grand Egyptian Museum is due to open in 2018

ABOUT HENEGHAN PENG

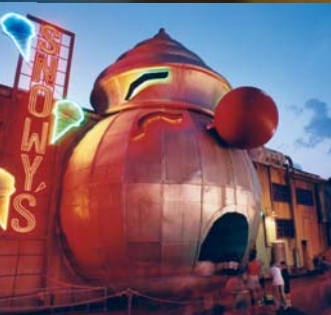
Heneghan Peng is a design partnership practising architecture, landscape and urban design. The practice was founded by Shih-Fu Peng and Róisín Heneghan in New York in 1999 and was relocated to Dublin, Ireland in 2001.

Past projects include the Giant's Causeway Visitor's Centre in Antrim, Northern Ireland, which was shortlisted for the 2013 Stirling Prize; the

extension and refurbishment of the National Gallery of Ireland in Dublin, Ireland; and the 2012 London Olympics Central Park Bridges in London, UK.

Current projects include the Palestinian Museum; a school of architecture at the University of Greenwich in Greenwich, London; and the Grand Egyptian Museum, located between the Giza Pyramids and Cairo, which is scheduled to open in 2018.

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WHO SAID GYMS
HAVE TO LOOK
DULL? CERTAINLY
NOT THE DESIGNERS
BEHIND THESE
BEAUTIFUL CLUBS

fit *for* purpose

Project 1: Third Space Tower Bridge

Location: London, UK

Premium health club operator Third Space recently completed a £3.5m redesign of its London Tower Bridge gym.

Specialist spa, fitness and wellness designers Sparcstudio led the redesign of the club, which is housed in a cast concrete, mostly subterranean building.

Third Space chose to play up the concrete elements to create an urban feel, while adding in luxury touches and bespoke artwork.

"Careful consideration has been given to the member journey to create a sense of drama and energy," said Beverley Bayes, director at Sparcstudio.

"The aim in the gym was to create functional spaces with some traditional club references, including brown oak panelling, old school gym climbing walls and Pommel-style bespoke benches, offset with very contemporary gym equipment and lighting."

The club features several dedicated group exercises studios and a gym floor featuring cardio, free weights, plate-loaded and functional training equipment.

On the wellness side, the club contains a range of thermal experiences, a dramatic black swimming pool, a Natural Fitness Food hub and lavish changing rooms.

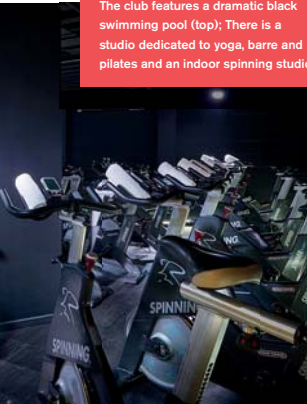
"We wanted to create a real 'wow' factor in the pool hall area, which is the last and most subterranean space that you encounter as a member," said Bayes.

The pool is lined with black tiles and features full height green glass illuminated panels at one end, designed to add depth and 'sparkle'.

The 28,000sq ft (2,601sq m) club was formerly called 37 Degrees before being taken over by Third Space owner Encore Capital in 2014. Sparcstudio are one of several designers working to overhaul the entire Third Space estate in London – which includes clubs in Soho, Marylebone and the Reebok Sports Club in Canary Wharf.



The club features a dramatic black swimming pool (top); There is a studio dedicated to yoga, barre and pilates and an indoor spinning studio





Project 2: Siclo

Location: Mexico City, Mexico

Interior designers and brand developers Ignacio Cadena and Michel Rojkind have created a cycling gym in Mexico City, which has been designed as a vibrant space for enhancing "physical and emotional fitness."

Described as "a 100 per cent Mexican concept," Siclo is a 420sq m (4,500sq ft) glass-fronted gym formed around a huge white concrete stairway. The steps of the monolith – which are covered with multicoloured polychromatic cushions and a small number of spinning bikes – provide a community space for film screenings, healthy food banquets, educational workshops and medical clinics.

Siclo's two main spinning studios are stacked underneath

the stairway, "integrating physical, emotional and spiritual fitness and wellbeing" within the complex.

"Siclo set out the task of building a top notch project by bringing together talented specialists in diverse disciplines to define a new sporting experience," said Rojkind.

"Like a public plaza where day-to-day encounters give life to a space, Siclo makes what happens inside the classes just as important as the community life on the outside."

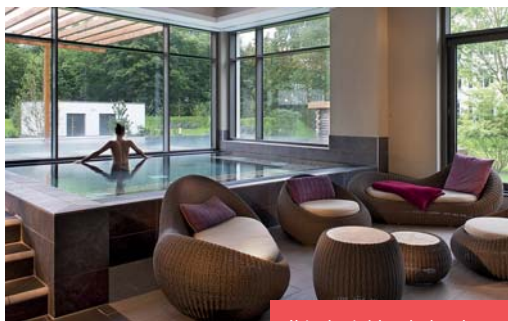
Speaking to CLAD, Ignacio Cadena added: "The design explores social interaction as a detonator for collective consciousness. It has become an iconic public space for the active community; an impeccable feat of construction, lighting, structural and acoustic design."

White concrete steps dominate the main space, which is used by members to relax after classes and hosts a range of different events





According to designers Sparcstudio, the decor 'features elements of a gentlemen's club juxtaposed with a few surprising touches'



Natural materials and colours have been used throughout the club to create a calming feel. Many of the rooms offer views of the gardens

Project 3: **Aspria Uhlenhorst**

Location: Hamburg, Germany

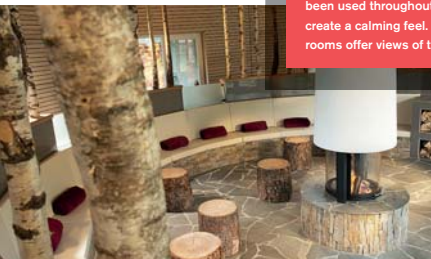
It's hard to choose one club from the Aspria portfolio to focus on, but on this occasion we've chosen Aspria Uhlenhorst, Hamburg, Germany.

Uhlenhorst is a redevelopment of the 100-year-old Klipper

Tennis and Hockey club, representing a €25m investment.

Aspria used a local Hamburg-based architect for the basic building and British interior design company, Sparcstudio, for some of the fit-out work. The rest of the design and specification work was carried out internally by the Aspria team.

The club – encompassing hotel, gym, pool and spa – feels almost 'aspirational home' in design. Both floors have large windows looking out over the gardens, and the colour scheme is gentle – browns, creams, lots of wood. There's a flow between gym and recreational, non-workout space: an open doorway links the first floor area of the gym with the restaurant, and there are leather sofas, standard lamps and even a pool table encroaching into the gym space. Huge, gilt-framed mirrors add glamour to the free weight and functional areas.





Project 4: Illoiha Omotesando

Location: Tokyo, Japan

The Illoiha Omotesando fitness club in Tokyo, Japan, is spread across two below-ground floors of a building, so architectural practice nendo decided to create an unusual two-storey workout area to unify the space.

To express the original brand concept of "becoming beautiful through movement", nendo chose the theme of rock-climbing. "We developed a design that uses the mismatch between a rugged outdoor sport and Tokyo's fashion district to its advantage," explained a spokesperson for nendo. "Instead of the usual rough and outdoorsy climbing wall, we came up with the idea of using interior design elements like picture frames, mirrors, deer heads, bird cages and flower vases to create a challenging wall with hard-to-find holds and unusual finger grips."

"We hope our unique Omotesando-style climbing wall inspires newcomers to try out the sport, and kicks off a new wave of fitness with style." ●

In order to unify the gym, which is spread over two underground floors, Japanese architects nendo created a fashion-inspired climbing wall



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The museum is surrounded by
the Alpine peaks of the Zillertal,
Orier and the Dolomites

“The brief said you had
to be able to walk through
it with ski boots on”



The museum is embedded into the peak of Mount Kronplatz and features a viewing platform

MESSNER MOUNTAIN MUSEUM CORONES

Zaha Hadid's Messner Mountain Museum Corones makes the most of its spectacular surroundings and brings a new kind of visitor to the mountain. Project architect Peter Irmscher talks Kath Hudson through the challenges of building it

PHOTO: JACOPO SPILIMBERGO



Peter Irmscher, senior architect, Zaha Hadid

“The engagement with nature, and indeed mountains, is something Zaha has explored since the very beginning of her career”

When did you first get involved and what was the brief?

Initially, the company that runs the ski lift at the Kronplatz ski resort in Italy ran a competition to design a viewing platform there. During the winter up to 30,000 people ski each day, but it's much quieter during the summer, so they thought about a sustainable way of using the ski lift.

Although the competition was for a viewing platform, the client was so happy with our proposal that they decided to develop it further by bringing Reinhold Messner on board and creating a museum, thinking it was a good idea to introduce culture to the spectacular Alpine landscape.

Messner is a wealth of knowledge about mountain ranges: he has climbed all the 8,000m-high mountains, including Everest (without oxygen) and has also walked through the Arctic. Everything he says is an interesting story. It was his idea to build under the

ground and also to have framed points of the mountain panorama within the museum.

How involved in the project was Reinhold Messner?

He was very involved at the beginning of the project, but then he left us to get on with our work. We asked him a lot about what he wanted to exhibit and what paintings to hang on the walls, and tried to plan the exhibition according to his wishes.

At the outset he didn't know what he wanted to exhibit. He told us to build the museum and said that by the end he would have his collection together. He gathered the stuff he wanted to show from his own belongings: presents from hiker friends, paintings he had bought or been given.

It was hard at the beginning to adjust the building to the exhibition; we knew the theme was rocks and climbing and we tried to interpret it in our own way. We

didn't want to be that strict about how many square metres were for hanging, instead we wanted to be flexible. When hanging the paintings, we put the screws in a grid and covered them again so that paintings could be easily moved around.

Were you inspired by any other museums or buildings?

The engagement with nature, and indeed mountains, is something Zaha Hadid has explored since the very beginning of her career. Her proposal for the Hong Kong Peak Club in 1982 was derived from the natural geology and topography of Victoria Peak that towers over the city.

As an office, we've been working on other projects that connect directly with nature – and with the Alps in particular. The Bergisel Ski Jump and the Nordpark Cable Railway in Innsbruck are so far the most prominent projects in a mountainous environment, and the Messner Mountain Museum is an exciting new aspect to this strand of our work.

Did the location present logistical problems?

The biggest problem was the weather and getting materials to site. Our client's main interest was keeping the ski lift running as long as possible, so the time we could build on site was limited to five months a year. This meant the project took three years to complete.

What is the visitor journey?

It starts before you enter the building, as you travel to the peak by hiking or cable car. Visitors experience the landscape before they experience the museum.

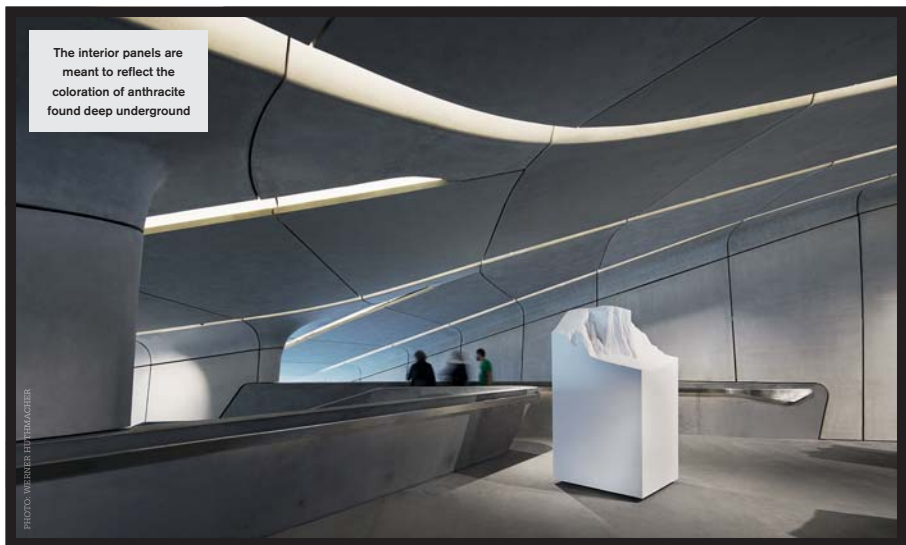
You enter the museum and the view is blocked, forcing a shift of focus to the exhibition, which explores rocks, mountains, hiking and conquering this type of landscape. The visitor is drawn downwards, through a cascade of paintings, until they come to a point where there are three framed views



Huge windows frame the view



Concrete canopies, cast in situ,
protect the museum's entrance,
viewing windows and terrace



The interior panels are
meant to reflect the
coloration of anthracite
found deep underground



The museum's reinforced concrete walls are 40-50cm thick. The roof is up to 70cm thick

Mountains are finite and fragile.
Fritz Messner, "Das Gestein"

PHOTO: JOERN HAUBE/AP/PIRELLA GÖTTSCHE LOWE

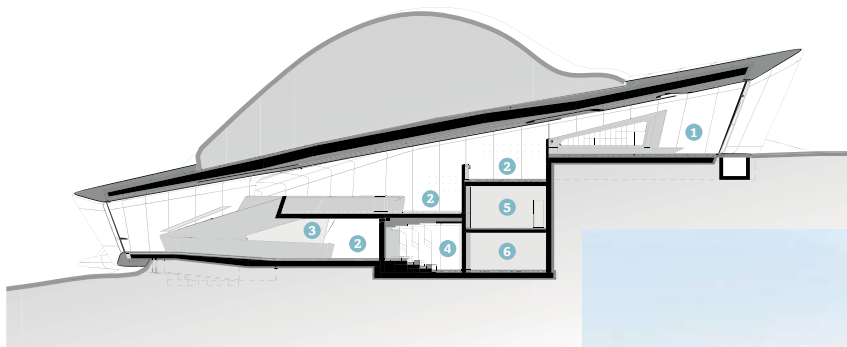


REINHOLD MESSNER

Italian mountaineer and explorer Reinhold Messner is widely regarded as the world's greatest living climber.

Born in the South Tyrol in 1944, Messner was the first person to climb all 14 peaks over 8,000m, and made both the first solo ascent and the first ascent of Everest without supplementary oxygen.

He has completed numerous other expeditions, including walking 1,200 miles across the Gobi desert on foot at the age of 60. Messner has helped to create a network of six Messner Mountain Museums in South Tyrol and Belluno. These cover different aspects of mountaineering and the mountains, including one on mountain people, one on ice, and one on 'the magic of the mountain' featuring several fine art collections. The Messner Mountain Museum Corones was the final in the series to open, and is devoted to the 'supreme discipline of mountaineering'.



► – two of the main peaks and of the rock where Reinhold first started climbing. They are the highlighted points in the panorama.

Visitors then take the stairs down to another display of hiking tools and can access the terrace to enjoy the full panorama again. On the lowest floor is a cinema.

I think the museum design is amazing and enhances and highlights the incredible views, while also pulling visitors into another interesting world. The exhibition provides another level of information about the landscape, explaining what it means to navigate through this mountainous area or how it feels to climb a vertical rock wall.

Messner Mountain Museum Corones Longitudinal section

- 1 Entrance, locker
- 2 Exhibition area
- 3 Display cases
- 4 Cinema
- 5 Plant room
- 6 Main storage

What colours and materials were used?

We used a bright concrete and a darker concrete to reflect the two different stones you find in the surrounding mountain ranges. The Dolomites are more like chalk, a brighter stone, and the Alps are darker and volcanic.

What about lighting?

We mostly used indirect lighting – lighting spikes in the ceiling and spotlights cantilevering out of the lighting channels in the ceiling. These are directed onto the paintings and are flexible, so if the paintings change position, the lights can too. It's quite dark inside, which suits the cave image.

What were the high points and low points?

The low point was when we tried to open the building in 2014 for Reinhold's 60th

birthday, but there was a delay in construction and we had to postpone till summer 2015.

The high point was the opening; it was really interesting to see visitors' reactions.

What were the main challenges on the way?

Getting the panels and glass sheets up the mountain was a real challenge and we had to use special transportation.

These type of projects are usually carried out in an urban environment, so it was different to do it in the mountains with contractors unfamiliar with this type of construction. The client was keen to use a local contractor, so we had to work with them to share our knowledge. They were really passionate and keen to learn, and in the end everyone was proud of the quality of what we achieved.

In this region you have to be experienced to handle the altitudes, so that was a significant advantage of using a local contractor.



How do you think the design helps to tell the story?

We provided the canvas for the story Reinhold wanted to tell. The path through his exhibition has created another level of experiencing his life story.

But the MMM Corones also attracts another type of visitor to the mountain: those who want to see the architecture, as well as the exhibition. You can access the museum by skis: the whole idea is to park your skis outside and one of the specifications was that you had to be able to walk through with ski boots on. It will hopefully become part of the skiing experience.

It's interesting to combine skiing and culture. Do you think we'll start seeing more cultural projects in ski resorts?

Competition is high in alpine areas. Some of the valleys are trying to differentiate themselves with pop concerts and marketing, but I think using culture, museums and architecture is a better way to stand out. ●

“ In this region you have to be experienced to handle the altitudes, so that was a significant advantage of using a local contractor ”

The exterior concrete panels were inspired by the surrounding rock and ice formations



BALANCING ACT

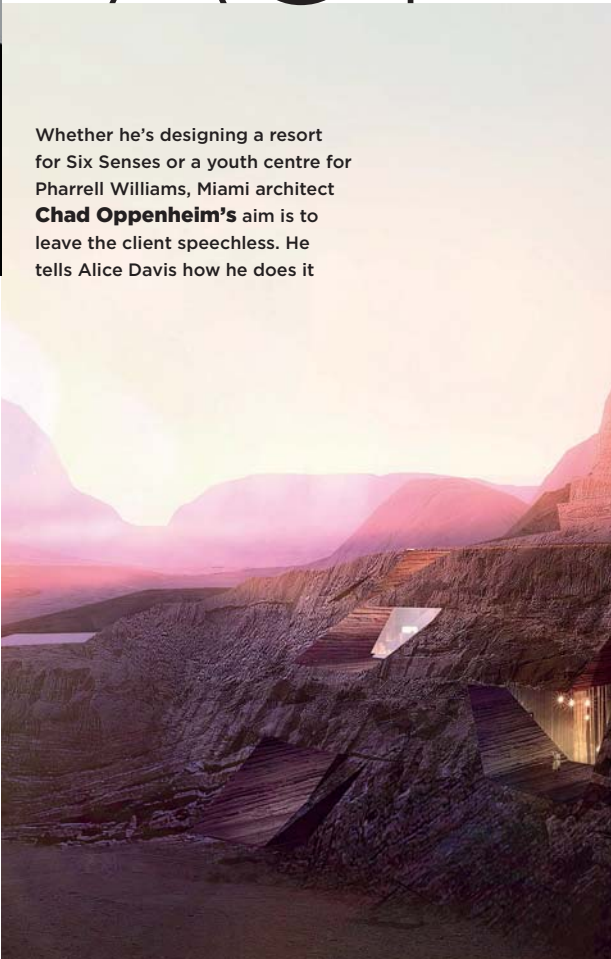
Whether he's designing a resort for Six Senses or a youth centre for Pharrell Williams, Miami architect **Chad Oppenheim's** aim is to leave the client speechless. He tells Alice Davis how he does it

I think we have a unique ability to balance the poetry and the proficiency of buildings, the fantasy as well as the functionality," says Chad Oppenheim, of Miami-based Oppenheim Architecture + Design. Oppenheim Architecture was founded in 1999, and in that time the firm has won more than 30 AIA Awards.

Specialising in hotels and resorts, retail, commercial and residential projects at the high end of the global market, the firm is recognised for its environmental approach and respect for the relationship between man and nature.

As the practice has grown and opened offices in both Basel and New York, it has attracted a variety of big-hitting clients, including the Walt Disney Company, Starwood, Morgans Hotel Group and Mandarin Oriental. A-list stars are also on Oppenheim's books, including singer/songwriter Pharrell Williams and filmmaker Michael Bay.

Oppenheim's concepts can be understated and sensational at the same time. One recent project, which he says was a defining point in his career, is Bay's Los Angeles home. From one angle, a minimalistic glass box perched atop a hill, framing the view like a cinema screen. From another, a Jenga game of complex volumes hovering next ▶



The Wadi Rum Desert Resort, Jordan, where lodge-like accommodations are carved out of the stone landscape; and a luxurious vacation cottage (right) on Norman's Cay, the Bahamas



You can't insert the operational aspects as an afterthought, the whole project is a balance of performance and poetry



Ten Museum Park in Miami, Florida, an exclusive fifty-storey apartment block

► to the cliff's edge, conveying all the drama you'd expect from a US\$5bn-grossing movie director.

For Bay, it was a dream home – and for Oppenheim Architecture, a dream client – one who wanted something spectacular and had the budget to make it happen. Oppenheim recalls that at Bay's celebrity-filled housewarming party, he gave one of the guests – director Stephen Spielberg – a tour. "His jaw just dropped," Oppenheim says. "He said he'd never seen anything like it in his life."

Oppenheim gets a kick out of creating this wow factor, the jaw-dropping moment that leaves people first speechless, then reaching for the superlatives. Whether designing a residential project – like Bay's villa or Miami's Ten Museum Park high-rise – or a hospitality or leisure project, Oppenheim says the aim is the same: get both form and function right because it has to feel as good as it looks.

PERFORMANCE / POETRY

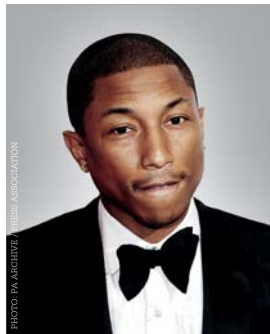
"You have to match the level of amazement, power and drama with the same level of comfort," he says. "In a hotel, the brief is not just to create something interesting, beautiful and dynamic architecturally, it's also to create something wonderful experientially and operationally."

It's easy to see how Oppenheim secures contracts with some of the biggest names in


luxury hospitality, such as Delano, Six Senses and Starwood. His aesthetic suits them down to the ground, and when he works on a hotel or resort, the experience and "tremendous comfort" of the guest is central. This can only be achieved when the resort functions flawlessly at every level.

"You can't insert the operational aspects as an afterthought," he says. "The whole project is a balance of performance and poetry."

One of the newest developments on his books is a Six Senses resort with private residences which will be located on the top of Powder Mountain in Utah. Oppenheim is in the preliminary design



Pharrell Williams Resource Center: a youth centre for the producer's Virginia Beach hometown



A top-secret project in the Middle East, dubbed Destination Resort and Spa, is inspired by the transition from the desert dunes to the sea and features gardens, pools and meditative spaces

phase. The mountaintop site was acquired in 2013 by the Summit Group, four radical young entrepreneurs – Elliott Bisnow, Brett Leve, Jeff Rosenthal and Jeremy Schwartz – who are planning to make Powder Mountain a modern-day ski village with eco-hotels and organic restaurants (see feature on p50 for more details).

One reason Oppenheim's practice is sought for jobs like this is its respect for the landscape and ability to create resorts that build on that connection between structure and surrounds.

Part of the firm's philosophy is to hide structures in the landscape or integrate them with the land, using traditional techniques and local materials.

One proposal for a resort and spa for a royal family in the Middle East is dug into the ground, becoming almost invisible. The aerial view, however, reveals the land is covered in a smattering of what look like space-age crop circles. The project marries cutting-edge construction techniques with ancient ones to create a destination that seems like a mirage. A "vibrant dialogue between built form and landscape inspired by and in awe of the power of the desert," the project description says.

DISCONNECT / CONNECT

Another example is an Oppenheim eco-destination in Jordan, the Wadi Rum Desert Resort, where lodge-like accommodations are carved out of the natural stone landscape.

Although the resort will have the usual five-star facilities, including restaurants and a spa, there

will be no heating or electrical fittings. Water will be solar-heated and after dark, guests will have to rely on candlelight. Rooms will be sparsely furnished and inspired by the tribal way of life.

"We're creating inhabitable land-art installations that rip you from your normal world and bring you to this place. It's about disconnecting and connecting," says Oppenheim. "It's very much tied in with nature: the sunrises, the sunsets, the moon, the breezes. I've always tried to express this purity of design to create a powerful sense of connecting with the earth and the world around you."

However, the project has only been moving forward at a snail's pace since 2011, partly due to tensions around the land ownership following the Arab uprisings that year.

When Oppenheim designs a project, he aims to create spaces where experiences can happen, to set up the moments that will become memories for the guest. These experiences are driven by nature

and Oppenheim will make sure he constructs the right place to watch the sunrise or appreciate the view, without the architecture interfering.

"We've done our job right when the architecture disappears and is submissive in relation to the beauty of the place," he says. "That's something we really strive for. It's not an elevated thought or an ethereal concept that these buildings tap into – it's something that you feel in your heart. You feel it and you sense it and it blows your mind."

If it sounds instinctive, perhaps that's because architecture has always been Oppenheim's *raison d'être*. He decided to become an architect at the age of seven, when his parents were building a custom home and he was allowed to join in the design process with them and the architect.

"I loved this idea of taking your dreams and translating them into a built reality," he says. "From that moment, creating buildings became an incredible passion. I've never really stopped." ●

IMAGES: LUXEON

INTERVIEW: CHAD OPPENHEIM



Ten Museum Park has sky gardens and pavilions, and rooftop vitality pools for the penthouses and tower suites



House on a Dune is a pavilion-style residence with living spaces arranged around a central breezeway





Above: the design for Norman's Cay resort accentuates the beauty of its surroundings while remaining hidden in the topography; Below: interior and exterior boundaries blur in Wadi Rum





HOT STUFF

From rusty steel walls to entirely transparent ones, and from floating saunas to the world's largest. We round up some great-looking projects in the booming world of sauna bathing

Located in Sandhornoya, the Agora Sauna is part of a moveable cultural platform called SALT



AGORA SAUNA
Sandhornoya, Norway

Design: Rintala
Eggertsson Architects
& Joar Nango



The amphitheatre style seating in the sauna can also be used for a varied programme of events

THINKING BIG

A sauna – billed as the world’s largest at 180sq m (1,938sq ft) – opened last summer on a remote Norwegian beach on an island in the Arctic Circle as part of a cultural programme of art and music.

Jointly built by Norway-based Rintala Eggertsson Architects and artist and designer Joar Nango, the glass-fronted Agora Sauna holds more than 100 people and looks out onto the Arctic Sea, offering views of the mountainous seascape. It also features its own bar.

Norwegian musician and recording artist Biosphere has created a specially commissioned ambient soundtrack, called Polar Low, which is installed in the sauna.

Located in Sandhornoya, the Agora Sauna is part of a unique, moveable cultural platform called SALT, which aims to bring together art, architecture, music and food in the Arctic landscape. The amphitheatre-style seating of the sauna means the space will also be used for a programme of events, including talks and performances.

Originally designed as a temporary project, the sauna and SALT project are likely to remain in Sandhornoya until September, with opening dates and times seasonal- and weather-dependent.



The design of the sauna was inspired by traditional Norwegian fish racks

WELLNESS

The charred wood was prepared and antiqued using traditional Japanese methods. The sauna provides views across the lake

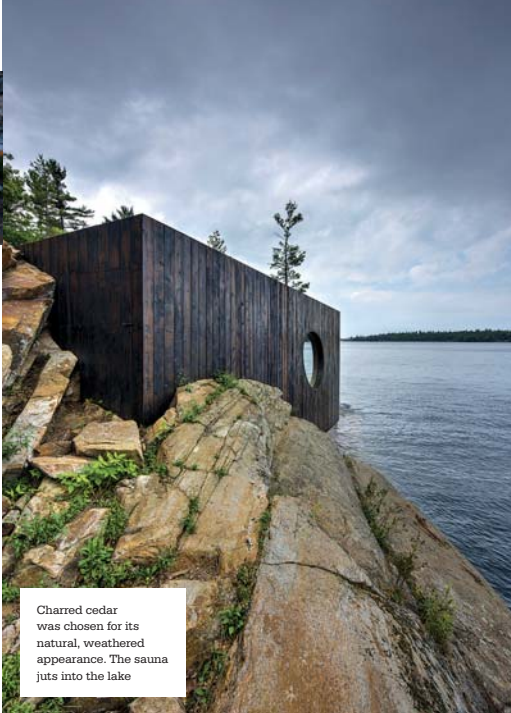


GROTTO SAUNA Ontario, Canada

Design: Partisan



The curved interior was inspired by natural grotto walls, which are worn smooth by the water



Charred cedar was chosen for its natural, weathered appearance. The sauna juts into the lake

INSPIRED BY NATURE

Designed by Toronto-based practice Partisans, the battered-looking charred timber exterior of the Grotto Sauna in Ontario hides a curved, sensual, warm interior.

The sauna is perched on a private island in Georgian Bay, Ontario. The design was inspired by the rugged northern Canadian landscape, and by natural waterside grottos – with curved chambers worn smooth by water currents.

The exterior is built from charred cedar chosen for its weathered appearance, and prepared using the traditional Japanese Shou Sugi Ban method (an ancient art of burning

timber to preserve and antique it). Inside, large curved windows flood the space with natural light and provide views across the bay.

The sauna was designed using 3D modelling, and was constructed off site before being transported to its home by boat.

The architects said of the project: "The Grotto Sauna is a feat of old-world craftsmanship and new-world sustainability made possible by cutting-edge software and fabrication technology. It is a sculpted space, a sensual experience, and a sophisticated exercise in building science."

WELLNESS



The project was designed by students at the Scarcity and Creativity Studio, part of Oslo School of Architecture and Design



THE BANDS

Lofoten Norway

Design: Oslo School
of Architecture and
Design students

The structure is designed to look like three separate buildings, but the interior is actually one space



A woodburning stove provides heat for the building. The design is clean and simple, with larch used throughout

BANDING TOGETHER

Students at the Oslo School of Architecture and Design (AHO) have designed and built a quayside sauna and terrace from three connected wooden 'bands' that step down to the water in the fishing village of Lofoten in Norway.

'The Bands' is a project by students at the Scarcity and Creativity Studio, a graduate design and build studio with the AHO. The larch-lined structure was inspired by three historic buildings on the site: a fisherman's cottage, a cod liver oil production building, and a cod salting building, which all date back to the early 1900s. The AHO graduates were tasked with designing the sauna and exterior facilities as part of a wider project which also involves the renovation of the three historic buildings.

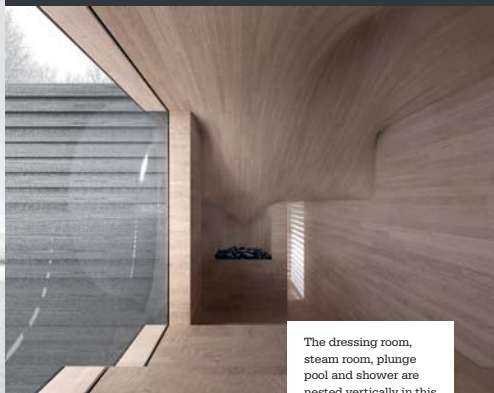
The larch clad structure – which has been designed to look like three separate buildings, but is actually interconnected inside – houses a sauna, wooden benches and a wood burning stove. The outside terrace features benches and a table, as well as a barbeque and hot tub/plunge pool.



The folds echo the rugged landscape and reference the historic buildings on the site



WELLNESS



The dressing room, steam room, plunge pool and shower are nested vertically inside this New England sauna

SPRUCE SAUNA New England, US

Design: Matter Design

SMALL BUT PERFECTLY FORMED

Boston-based firm Matter Design have designed an unusual maze-like sauna structure, with several rooms nesting vertically inside the narrow building, for a private farm in New England.

Spruce sauna features a dressing room, shower, plunge pool and steamroom. The building features curved ceiling, which, according to the designers: "Holds the steam at a specific elevation that one can slip above and below as moving through the programs."



FLOATING SAUNA Seattle, US

Design: goCstudio

ON THE WATER

Seattle-based architects goCstudio have built and launched a floating sauna in Seattle, providing locals with a new perspective of their waterfront city.

The designers wanted to create a tranquil refuge which could tour Seattle's many lakes. Designs were drawn up in January 2014 and a successful Kickstarter campaign raised over US\$40,000 to keep the project afloat. Construction was completed in late 2015, and the vessel – named the *wa_sauna* – has now been tested and registered to sail.

The sauna is transported from lake to lake by its operators and is propelled through the water by an electric trolling motor. Heat is provided by a wood burning stove.



INTERIOR: goCSTUDIO



BATHING CULTURE Gothenburg, Sweden

Design: Raumlabor

The sauna is accessed via a wooden bridge. It is part of a wider project aiming to revitalise the harbour

ROUGH & READY

When the City of Gothenburg wanted to revitalise its battered harbour front, as part of its wider scheme to regenerate the Jubilee Park and Frihamnen areas, the architects in charge – Raumlabor – turned to the country's rich sauna bathing tradition for inspiration.

They planned to create a project called Bathing Culture, with a first phase being the building of a beach and the Sauna in Frihamnen.

The 20-seater sauna building, constructed by volunteers out of local recycled materials, has bank-side changing rooms, riverside walkways and landscaping.

Phase two will see the creation of a public bath next to or in the



river, as well as outdoor water play, cultural buildings, a roller derby track and an urban garden space.

The sauna won the architects of Sweden Västra Götalands architecture prize for 2015. ●



The sauna was made with entirely recycled materials, with a wooden interior and corrugated iron cladding

CLADkit

From a lamp powered by plants to smart wallpaper inspired by moths' eyes, we take a look at what's new in the world of product design

Edited by Kate Corney



For full company and contact details of any of the products and services featured here, please visit www.CLAD-kit.net

Researchers harness renewable plant energy in remote Peru

The Universidad de Ingeniería y Tecnología has developed a lamp powered by energy from plants to bring artificial light to remote parts of Peru.

The Plant lamp supplies light using energy stored in the soil which contains nutrients and microorganisms released by plants as they grow.

Ten of the lamps have been given to families in the native community of Nuevo Saposa in Ucayali, a region which has the lowest rate of access to electricity in Peru but is surrounded by vegetation.

The team of researchers developed a renewable energy generating system which harnesses free electrons from the microorganisms to 'feed' the low energy consumption, high illumination LED lamp.

Elmer Ramirez, leader of the Plant lamp research team at the university, told CLAD: "The energy generation system we created stores soil and electrodes capable of converting plant nutrients into electric energy." CLAD-kit.com keyword: **Plant lamp**



The Plant lamp can supply up to two hours of light a day



Open Architecture hopes this flexible building system will help conserve resources

Open Architecture launches reusable building system

New York and Beijing-based design firm Open Architecture has created a flexible and reusable building system for a variety of functions.

Characterised as light, industrialised, flexible, sustainable and reusable, the first prototype of Hex-Sys is being used in Guangzhou China, for the real estate company Vanke.

Hex-Sys is a building system designed to be quickly assembled then dismantled after each use and reassembled in another

location, preventing the waste of resources.

The prototype is made of hexagonal cells, which can be rearranged according to site and program needs.

The basic building cell is a 40m sq hexagon module with three types of cells, indoor-open, indoor-closed and outdoor-open. Sandblasted and anodised aluminium panels are used for exterior cladding, and bamboo is used throughout the interior spaces. CLAD-kit.com keyword: **Hex Sys**



The pine tree and wooden boards contrast with the modern concrete and stone museum

Kids can play at Israel Museum illuminated tree house

Architects Ifat Finkelman of Bezalel Academy of Arts and Design, Jerusalem, and Deborah Warszawski have created an illuminated wooden-slatted tree house as part of a courtyard renewal project at the Israel Museum in Jerusalem.

With lighting by Hila Mayer of RTLTD Lighting Design, the roofed tree house is lit up at night.

Sited at the entrance courtyard of The Youth Wing for Art Education, the structure uses a large pine tree as the central focus and is made of a series of wooden boards attached to a light

A small roofed structure where children can hide is positioned high up the tilted trunk

steel skeleton set around the tree.

Giving the effect of hovering above the entrance to the museum, the 150m sq structure, which has a soft rubber surface, gives visiting children a place to play in the main gathering area.

Ifat Finkelman said: "As a tribute to the childhood collective memory of a tree house, a small roofed structure where children can hide and over look at, is positioned high up the tilted trunk, raised above the meticulous surroundings of the museum."

CLAD-kit.com keyword: **Israel Museum**



PHOTO: UNIVERSITY OF SURREY

Moths' eyes inspired the discovery

Graphene 'wallpaper' to revolutionise buildings?

British scientists have discovered how graphene – the nanometre-thin material with remarkable electrical conductivity and mechanical strength – could be applied as 'smart wallpaper' to generate electricity from waste light or heat.

Inspired by the light-sensitive eyes of moths, scientists at the University of Surrey's Advanced Technology Institute have used biomimicry to create ultra-thin graphene sheets that can effectively capture light for the first time.

Using a technique known as nanotexturing – which involves growing graphene around a textured metallic surface – light can be localised into the narrow spaces between the material's textured surface, enhancing absorption by about 90 per cent.

CLAD-kit.com keyword: **Graphene**



Various patterns have been printed onto the external glass of the solar panel

Innovative and architectural photovoltaic façades put to the test

A team at Lucerne University which has developed a way of creating attractive solar panels is testing its products.

Prof. Dr. Stephen Witt at the university's Competence Center for Envelopes and Solar Energy (CC EASE) leads the research on daylight and photovoltaics, the conversion of solar energy into direct current electricity.

As part of his project, innovative and multifunctional

photovoltaic façades are being developed for a villa on Lake Lucerne, to demonstrate their architectural application.

"Our goal is that the potential of photovoltaics is better utilised," said Dr Witt.

The Lucerne team has developed coloured and patterned solar panels which were produced by project partner Glas Trösch AG.

CLAD-kit.com keyword: **Lucerne**

Bio-bean extends the lifecycle of a cup of coffee to give more warmth

A London-based start up company is pioneering the use of old coffee grounds as a source of green energy to heat buildings.

Bio-bean Ltd makes biomass pellets from waste coffee grounds, providing a clean, cheap and locally produced alternative to fossil fuels.

The company collects old coffee grounds from waste management businesses, transport companies and coffee processing factories. It takes the waste to its

recycling factory where the grounds are turned into biomass pellets to be sold to heat buildings, office blocks and supermarkets through biomass boilers.

The idea is the brainchild of CEO Arthur Kay, a former Architecture student at The Bartlett, University College London (UCL).

"Where others see waste, bio-bean sees resources in the wrong place," says Kay. CLAD-kit.com keyword:

Bio-bean



Coffee grounds are turned into biomass pellets to heat buildings



The grill ceiling uses fire treated Siberian larch

Hunter Douglas curved wooden grill ceiling designed for aesthetic appeal

Architectural products company Hunter Douglas has created a curved wooden grill ceiling at a city centre dining hub.

The exterior solid wood radial grill ceiling was installed at Broadgate Circle, a £20m restaurant and leisure scheme next to Liverpool Street Station in London, designed by Arup Associates.

The 600m sq exterior grill system was installed in a series of four concentric curves and uses inspiration from similar projects in continental Europe.



The new range uses a wide range of materials

Lightlink creates ambient range with fibre optics

Architectural and art lighting creator Mike Brannon of Texas-based Lightlink Lighting has developed a new fibre optic range.

The Triangulation LightFrame Series is a fibre optic-powered art lighting suspension with a triangular shape and lightness of structure suspended by chromium strings, designed to enhance the ambience of an environment.

The eco-friendly art lighting fuses industrial components and natural fibres into ambient illuminated sculptures. Brannon says: "The pieces have echoes of Zen, Asian and industrial design coupled with the use of such diverse materials and techniques as dichroic and negative space mirroring, touch dimming, fluorescent acrylics, perforated metals, bamboo veneers, reclaimed hardwoods and hand-made art papers."

CLAD-kit.com keyword: **Lightlink** ●

Designer carbon fibre bar stool started life as materials experiment

Mooui interior design has released a lightweight bar stool made from carbon fibres.

Designed by Studio Bertjan Pot, the 5kg (11lb) Carbon Barstool is made from individual strands of carbon, drained in an epoxy resin, interwoven to create a strong body and intricate patterned aesthetic.

Available in black and suitable for indoor and outdoor use, the 80cm high stool measures 50cm wide and 50cm deep and costs £614.

Studio Bertjan Pot works with manufacturers such as Arco, Established & Sons, Feld, Gelderland, Montis, Mooui and Richard Lampert.



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