Council on Tall Buildings and Urban Habitat

For Immediate Release

BioSkin Wins CTBUH Innovation Award

- Traditional Japanese practice adapted for a vertical future
- Cooling solution for individual buildings and micro-climates
- Potential for city-wide impact if used at scale
- 10-Year, Innovation, Lifetime Achievement and Worldwide awards announced next

CHICAGO, July 10 – **BioSkin**, a system of water-filled ceramic pipes that cools the exterior surface of buildings and their surrounding micro-climates, has won the 2014 Tall Building Innovation Award from the Council on Tall Buildings and Urban Habitat (CTBUH).

The initial use of BioSkin was at the NBF Osaki Building in Tokyo, Japan. Based on the traditional Japanese practice of *uchimizu*, the sprinkling of water to lower ambient temperatures, clean the streets and keep dust at bay, BioSkin absorbs heat through rainwater evaporation through a fine filigree of porous tubes, mitigating the urban heat island effect by cooling the building as well as its immediate surroundings. Through this process, the surface temperature of the building enclosure can be reduced by as much as 12 °C, and its micro-climate by about 2 °C. The potential implications of this are substantial: If a large number of buildings in a city used such a system, ambient air temperature could be reduced to the point that cooling loads for many buildings, even those without the system installed, could be reduced.

“This is a remarkable façade solution, both in its concept and how it has been beautifully detailed,” said David Scott, Technical Awards Jury Chair and lead structural director of the Engineering Excellence Group at Laing O’Rourke, London, UK. “I look forward to seeing this being proven by measurement. It is elegantly and delicately detailed, and it is quite outstanding, as it is combined with many other innovations in this remarkable building.”

The CTBUH Innovation Award recognizes a specific area of recent innovation in a tall building project that has been incorporated into the design, or implemented during construction, operation, or refurbishment. Unlike the CTBUH Best Tall Building awards, which consider each project holistically, this award is focused on one special area of innovation within the design, construction, or operation of the project – thus not the

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building overall. The areas of innovation can embrace any discipline, including but not limited to: technical breakthroughs, construction methods, design approaches, urban planning, building systems, façades, and the interior environment.

"We were taken by the diversity of submittals for the Innovation Award this year," Scott said. "It confirms that this is an industry focused on moving itself forward by embracing both revolutionary and evolutionary techniques and solutions."

The Awards Jury also recognizes several Finalists in the Tall Buildings Innovation category (see supplemental document for further details).

- **Living Walls** – as used at One Central Park, Sydney, Australia, also the recipient of the 2014 Best Tall Building Asia & Australia award
- **Active Alignment** – as used at the Leadenhall Building, London, UK

All award winners will be recognized at the CTBUH 13th Annual Awards Symposium, which will take place at the Illinois Institute of Technology, Chicago, on November 6. The symposium will be followed by the Awards Ceremony and Dinner in the iconic Crown Hall, designed by Mies van der Rohe. The 10-Year, Lifetime Achievement, and Building Performance awards will be announced in the coming weeks, and will also feature at November's awards events. Click here to see the previously announced 2014 regional **Best Tall Building** award winners, and here to see the 2014 Urban Habitat award winner and finalist.

The CTBUH Awards are an independent review of new projects, judged by a panel of industry experts. Projects are recognized for making an extraordinary contribution to the advancement of tall buildings and the urban environment, and for achieving sustainability at the broadest level.

Winners and finalists are featured in the annual **CTBUH Awards Book**, which is published in conjunction with a major global publisher and distributed internationally each year.

View an overview of last year's Awards Ceremony & Dinner

Tall Building Innovation Award:
Winner – BioSkin
Finalist – Living Walls
Finalist – Active Alignment

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Photos:
Media can download photos of the winner and finalists here:
ctbuh.org/awards/2014-innovation-press-kit.zip

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About the Council on Tall Buildings and Urban Habitat
The Council on Tall Buildings and Urban Habitat is the world's leading resource for professionals focused on the design and construction of tall buildings and future cities. A not-for-profit organization based at the Illinois Institute of Technology, the group facilitates the exchange of the latest knowledge available on tall buildings around the world through events, publications and its extensive network of international representatives. Its free database on tall buildings, The Skyscraper Center, is updated daily with detailed information, images and news. The CTBUH also developed the international standards for measuring tall building height and is recognized as the arbiter for bestowing such designations as "The World's Tallest Building."

CTBUH Innovation Award 2014 – Supplemental Information: **Winners and Finalists**

Innovation Award Winner:

BioSkin

as used in NBF Osaki Building, Tokyo, Japan

Innovation Design Team:
NIKKEN SEKKEI

BioSkin is a system of ceramic pipes, affixed to the side of a building, which absorbs heat through rainwater evaporation, mitigating the urban heat island effect by cooling the building as well as its immediate surroundings. Through this process, the surface temperature of the building enclosure can be reduced by as much as 12 °C and its micro-climate by about 2 °C. The potential implications of this are substantial: If a large number of buildings in a city used such a system, ambient air temperature could be reduced to the point that cooling loads for many buildings, even those without the system installed, could be reduced.

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The simplicity of the system is elegant. The BioSkin tubes are made of extruded aluminum cores, with a highly water-retentive terra-cotta shell attached to the aluminum core using an elastic adhesive. When rainwater collects on the rooftop, it is then drained to a subsurface storage tank, where it is filtered and sterilized. This water is then pumped up and circulated through the pipes, which in the live test case were incorporated as balcony railings on a Tokyo office building, reminiscent of the horizontal screens seen throughout Japan and known as sudare. Rainwater penetrates outward through the porous ceramic, evaporating from the pipe's surface, cooling the surrounding air. Excess water is then drained down to the soil of the premises to the extent possible, normalizing the water cycle and reducing the load on sewage infrastructure.

"BioSkin is a bold concept, suitably analyzed, elegantly integrated into the architectural form and beautifully detailed," said 2014 Technical Awards Juror Paul Sloman, Principal and Buildings Group Leader at Arup, Sydney, Australia.

Innovation Award Finalists:

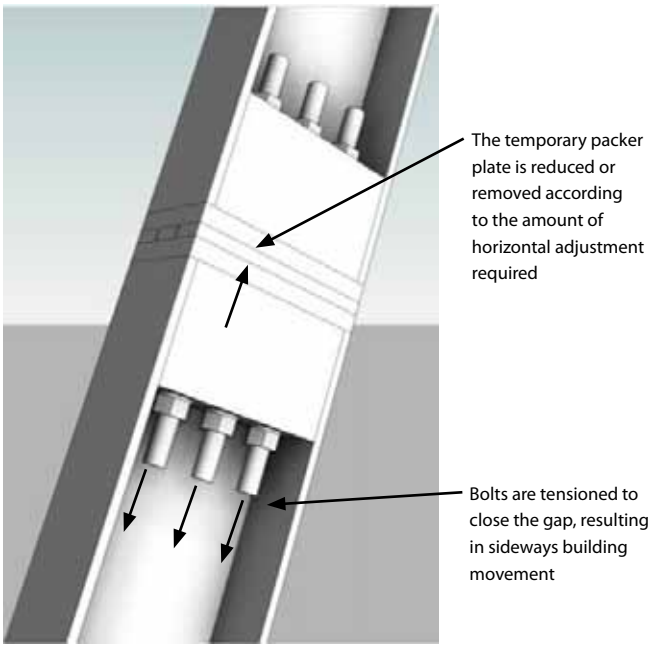
Active Alignment for Tall Buildings with Unusual Geometry

as used in The Leadenhall Building, London, United Kingdom

Innovation Design Team
Laing O'Rourke

Skidmore, Owings & Merrill; Arup (structures)
Watson Steel Structures Ltd (Steel Manufacturer)
Cambridge University (Monitoring Technique Research)

In any tall building with asymmetric loading, there is increased potential for the building to lean to one side. This was the case on the iconic Leadenhall Building, a 224-meter-tall office building located in The City of London. The awardees developed an alignment method for bolted connections in steel, which has been proven in practice in the construction of the Leadenhall. Between certain vertical steel elements, there is a set or "pack" of temporary plates that act as adjustable shims, which can be removed or added as needed, by moving the section vertically with hydraulic jacks, and horizontally by tightening or loosening the bolts.



"As applied on The Leadenhall Building project, the active alignment method has proved to be an innovative alignment method for tall buildings," said Nengjun Luo, Technical Awards juror and Deputy General Manager of CITIC HEYE Investment Co., Ltd., Beijing, China. "It is not only useful for construction of tall buildings with unusual shapes that have a tendency to lean, it could also be used for correction of geotechnical settlement, and wind and earthquake movements during tall building operations."

Living Walls

as used in One Central Park, Sydney, Australia

Innovation Design Team
Frasers Property (developer)
Ateliers Jean Nouvel (design architect)
PTW Architects (architect of record)
Surface Design (façade engineer)
Aspect Oculus (landscape architect)
Patrick Blanc (artist/botanist)
Watpac Construction (builder)
CPP (wind consultant)

One Central Park extensively deploys Living Wall technologies to grow plants around the periphery of the building at all levels. The shading saves cooling energy, while casting the concept of a tall building in new, green light.

The project, enshrouding itself in lush greenery, presages a future in which biomimicry is no longer a radical concept in architecture, while inverting a perception that tall buildings can only rob the urban environment of natural greenery.

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By showcasing the green art of the possible, One Central Park ascribes a tantalizing literalness to the expression "a forest of skyscrapers."

"The living facades in One Central Park provide fantastic visual, tactile, aromatic and auditory experience for the occupants of the apartments and make it unique and delightful to live in such high-rise buildings," said Guo-Qiang Li, Technical Awards juror and professor of structural engineering at the College of Civil Engineering in Tongji University, Shanghai, China.