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OLA – Office for Living Architecture, Wettbewerb "Haus der Zukunft", 2012, Perspektive © OLA



Closer to Nature

Building with Fungi, Trees, Mud

16.2. – 14.10.24

**BERLINISCHE
GALERIE
MUSEUM OF
MODERN ART**



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Closer to Nature Building with Fungi, Trees, Mud

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Architecture and nature inevitably compete for space. That poses a dilemma when resources are finite and the demand for space keeps growing. Besides, we know that the construction sector generates huge waste and emissions. All this has raised issues about the role of architecture: Does it need a shift in perspective? Could we be building with nature instead of against it?

This exhibition showcases three Berlin-based projects: the experimental building MY-CO SPACE (2021, MY-CO-X), a competition entry for the Futurium exhibition venue (2012, 3rd prize, ludwig.schoenle, now OLA – Office for Living Architecture), and the Chapel of Reconciliation built on Bernauer Strasse (1996–2000, Reitermann/Sassenroth Architekten with Lehm Ton Erde Baukunst – Martin Rauch).

New sensuality

These buildings draw on the potential of fungi, trees and mud. Doing so lends them not just an ecological quality but an entirely new character: they breathe, grow and take on life. As a result, the architecture acquires a surprising sensuality. When our senses respond to the space, we experience our contact with the environment physically: the sustainable impact is not merely material.

Installations, some purpose-designed for this show, will enable visitors to discover the materiality and aesthetic value of building with these natural materials. The genesis of these three projects and the strategies behind them are illustrated by about 45 original plans and sketches, photographs, renderings, objects and models.

Sustainable building strategies

The teams presented here – the SciArt collective MY-CO-X from Berlin, the Office for Living Architecture (OLA) from Stuttgart and the group collaborating with Martin Rauch, the clay virtuoso from Vorarlberg – all boast an international reputation or rank as pioneers in the fields of fungal research, botanical architecture and modern-day mud construction. They all share a desire to combine different disciplines and to merge cutting-edge technology with traditional practice.

In pursuit of building methods that place less pressure on the climate, they have established new links between architecture and the world outside. Fungi, trees and mud are not just building materials but partners, partly because the architects are learning from them and partly because they influence

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the structure both conceptually and formally. Collaboration and combination are closing the gap between architecture and nature.

The building transition

There is much talk at present about a transition in the construction sector. The buildings and designs on show here are prominent examples. They symbolise a belief that sustainable architecture cannot be achieved simply by technical means, such as by focusing on ecological materials and energy efficiency. They go further by adding a deeper cultural dimension to the sustainability debate, questioning the conventional relationship between architecture and nature and promoting an awareness for things in our environment not made by human hand.

Nature v. architecture

The conflict between nature and architecture is ancient and fundamental. The basic function of a building was to protect us from natural forces such as weather and wild animals. Of all cultural techniques, architecture has served most clearly to keep nature at bay, suppress it or at best exploit it. Even in 1925, Le Corbusier, a hero of modernism, described the construction of cities as “a human operation directed against nature”.

The history of architecture records many critical responses and counter-proposals, sometimes utopian or visionary, sometimes pragmatic and successful. In Berlin, an ecological architecture movement emerged around the International Building Exhibition (IBA) in 1987. That, too, promoted natural materials and sought to integrate buildings more effectively into environmental cycles, drawing on solar energy and rainwater, respecting the vegetation available and incorporating it into the built fabric.

When Berlin was redeveloped as the capital of a newly unified Germany, accompanied by politically endorsed discourse about “Critical Reconstruction”, the focus shifted again, and those ideas largely dried up. Much of the resulting architecture sought to echo history and the opposition between nature and architecture remained unchallenged, still driving the competition for space and resources. But now the time seems right to reassess the future of that relationship.

Chapters in the exhibition

The exhibition begins with photographic art (from the museum collection or loaned) by Elisabeth Niggemeyer, Ulrich Wüst and Thomas Eller.

The photographs by Niggemeyer and Wüst illustrate an apparent incompatibility and stand-off between post-war modernist architecture and forms that take shape organically. Thomas Eller’s photo-installation addresses a new perspective by quoting Albrecht Dürer’s well-known watercolour “The Large Piece of Turf” of 1503. In his piece, the humans look very small and nature oversized.

Fungal research

Fungus-based building materials are the speciality of the collective MY-CO-X, founded in Berlin in 2020 by biotechnologist Vera Meyer and architect Sven Pfeiffer. It currently has nine members from the fields of biotechnology, art, design and architecture who see fungus as a past master of networking, transformation and symbiosis and as a partner and teacher rather than an object of research.

MY-CO SPACE resulted from this partnership in 2021. It is a mobile experimental building to sleep, live and work in and it is lined with 300 panels of mycelium composite. This material, produced in the lab, recycles leftovers instead of consuming resources. It is lightweight, totally biodegradable and a good insulator. Studies are underway to assess its strength, including its ability to withstand weathering and fire. Visitors to the exhibition can explore the “Pilzhaus” (“fungi house”), which has a footprint of about 20 square metres.

Botanical building

Architects Ferdinand Ludwig and Daniel Schönle demonstrate how living nature can function as building material. With their “Baubotanik” approach they have devised hybrid buildings where plants fuse with construction elements. These growing architectures are always changing and never finished, undermining the traditional belief that a building must display constancy. The ability to experience architecture and nature as one promises new perceptions.

If this method had been implemented in the Futurium, the new exhibition centre near Berlin’s main station, visitors would have felt as if they were walking through the crown of a tree. Ludwig and Schönle, who took 3rd prize in the design competition, wanted to build a botanical façade. A lozenge-shaped structure composed of plane trees would have been grafted onto the core of the building, creating a ramp for people to circulate inside. Trees would create a habitat for fauna, bind dust and save energy by providing shade. In the exhibition, a genuine specimen of a tree grafted onto inanimate material



suggests how the façade would have worked and demonstrates how plants can form large load-bearing structures capable of life.

Structural mud

The Chapel of Reconciliation on Bernauer Strasse is the most significant modern-day mud structure in Berlin. This sacred building was designed by Rudolf Reitermann and Peter Sassenroth. The wall seven metres high enclosing the chapel interior was made of rammed earth by the Austrian Martin Rauch. A bold venture at the time, it now ranks as a pioneering achievement. This is the first time in over 100 years that mud has been used to build north of the Alps and its first use in Berlin to make load-bearing elements.

Martin Rauch has created an installation for the exhibition to highlight the renewal of mud as a building material in Europe, a development in which he has played a key role. The work consists of ready-made sections of rammed earth. Rauch's technique, drawing on an ancient practice, has now entered serial manufacture. His company works for prestigious architects in Europe and beyond. The installation will enable visitors to experience the extraordinary aesthetic power of mud, for the earthen substance appeals to multiple senses.

Accompanying events and outreach in English

Guided tours in English take place every Saturday at 4:15 pm. No extra charge to ticket-holders.

No advance booking required.

berlinischegalerie.de/en/programme/calendar

Press images

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Admission 10€, concessions 6€

Wed–Mon 10 am–6 pm

Tue closed

Biographies

Participating Artists

Bruno Klomfar

Bruno Klomfar (*1961 in Schruns, Austria) has lived in Vienna since 1980. He studied philosophy, soon turned to photography and took part in making experimental films and videos as a self-taught cameraman. In 1995 he founded a photography studio in Vienna specialising in the documentation of architecture and art. This has made him widely known throughout Austria. His photographs have been featured in many international exhibitions, architecture magazines and technical books..

Thomas Eller

Thomas Eller (*1970) is an artist, curator and art manager. From 1985 he spent three semesters studying fine art at Berlin University of the Arts, then switched to religion, philosophy and art history at the Freie Universität until 1989. Since the 1990s he has been using the medium of photography to create installations that raise questions about reality and representation in art. His works have been shown in Europe, Asia and America. In 2008/09 Eller led the Temporäre Kunsthalle in Berlin. He lived in New York in 1995–1999 and 2001–2003 and in Beijing in 2014–2020. In Jingdezhen (China) he established a contemporary art museum and a biennial. Eller now lives and works in Berlin and Franconia.

Elisabeth Niggemeyer

Elisabeth Niggemeyer (*1930) trained in photography in Munich in 1950–1952. She made books of photography about Munich (1956), London, Bonn (both 1957) and West Berlin (1964, “Die gemordete Stadt”, with Wolf J. Siedler and Gina Angress). The latter sparked an influential debate about post-war urban design. In the late 1960s Niggemeyer shifted her focus and published over 20 educational books of photography about and for children. These helped to promote a strategy for pre-school education in West Germany. Later she became increasingly involved in educational exhibition projects for families. In 1985 she published a critique of post-modern building in Berlin in “Die verordnete Gemütlichkeit”. From 2013 to 2015 she brought out 20 books with photocollage from the arrondissements of Paris.

Ulrich Wüst

Ulrich Wüst (*1949) studied architecture at the College of Architecture and Building in Weimar, after training to build with concrete. He came to photography from his work as an urban planner in East Berlin, and from 1979 to 1983 he was employed as a picture editor. Since then he has been a free-lance photographer. His cityscapes and landscapes often focus on marginal places devoid of people, notably in the rural Uckermark and in his home town of Magdeburg. Wüst portrays built environments as a setting for and testimony to social problems. In the mid-1980s he acquired an international reputation for his photography and in 2017 he took part in documenta 14. Wüst lives in Berlin and Mecklenburg.

Participating architects/ planners

Lehm Ton Erde Baukunst – Martin Rauch

Martin Rauch (*1958 in Schlins, Austria) attended the College of Ceramics and Stove-Building in Stoob before graduating in ceramics from the University of Applied Arts in Vienna in 1983. Since 1984 he has been carrying out projects for building with mud (pisé) in Europe, Africa and Asia. For this purpose he founded the company Lehm Ton Erde Baukunst GmbH, based in his home town, in 1999. His pioneering efforts to revive and enhance European techniques for using rammed earth in construction have been honoured with numerous exhibitions and many awards (e.g. the New European Bauhaus Prize in 2021 and the Global Award for Sustainable Architecture in 2022). Rauch taught at the University of Arts in Linz; since 2010 he has been an honorary member of the UNESCO Chair for Earthen Architecture and since 2013 a guest lecturer at ETH Zurich.

MY-CO-X

The collective MY-CO-X, founded in 2020 by two graduate engineers – Prof. Vera Meyer (*1970, biotechnologist at TU Berlin) and Prof. Sven Pfeiffer (*1972, architect in Berlin and at Bochum University of Applied Sciences) – works at the intersection between science and art. Currently with a team of nine, the collective brings together teachers and students of biotechnology with people from the art, design and architecture communities. Together with interested members of the public, they are developing fungus-based materials for a sustainable future architecture.



OLA – Office for Living Architecture

In 2022 Prof. Ferdinand Ludwig (*1980) joined with graduate engineers David Schönle (b. 1976) and Jakob Rauscher (*1985) to set up the OLA – Office for Living Architecture. The Stuttgart-based practice specialises in botanical building projects which integrate living plants into architecture. In 2007 Ferdinand Ludwig established “Baubotanik” as a research field at the University of Stuttgart. Since 2017 he has pursued research into building with living plants as Professor of Green Technologies in Landscape Architecture at TU Munich. Daniel Schönle is a self-employed architect and urban designer who teaches and researches at various universities. Jakob Rauscher is an architect and has been working with Ludwig and Schönle since 2012.

Reitermann/ Sassenroth Architekten

The practice Reitermann/Sassenroth Architekten was active in Berlin from 1995 to 2015. Engineer Rudolf Reitermann studied architecture at TU Stuttgart and Berlin University of the Arts. After working with Alfred Grazioli, he set up his own practice in 1992. Today he works for Horender Architekten in Nuremberg. Prof. Peter Sassenroth, likewise a graduate engineer, studied at TU Berlin and in London, where he worked for Ian Ritchie’s practice in 1987. Since 1989 he has practiced architecture independently in Berlin. He teaches at the University of Applied Sciences and Arts in Bielefeld.

Exhibition texts

Where people build, nature is destroyed. That poses a dilemma when resources are finite and the demand for space keeps growing. But adversaries could become allies, as demonstrated by three architecture projects in Berlin: the Chapel of Reconciliation on Bernauer Strasse (1996–2000), the experimental MY-CO SPACE (2021) and an unimplemented design for the Futurium, an exhibition venue near Berlin's main station (2012).

The architecture was designed by interdisciplinary teams who treat nature as a co-agent. With a blend of groundbreaking technology and traditional practice, they seek to harness the potential of fungi, trees and mud. This lends the buildings not only an ecological quality but an entirely new character: they breathe, grow and acquire life. Visitors will be surprised at how this architecture appeals to their senses. We can physically experience the contact with our environment and the impact is sustainable in more than material ways.

This exhibition presents three approaches to creating architecture for the future: fungal biology, botanical building and mud houses. By pursuing greener methods to protect the climate, the relationship between architecture and the world outside is redefined. Where earth, fungi and trees co-exist, they forge dense networks to mutual advantage. That can be a source of inspiration – and not only for our building culture.

Prologue

Vor Witterung oder Tieren zu schützen, ist die elementarste Aufgabe eines Gebäudes. Die fundamentale Aufgabe eines Gebäudes ist es, uns vor Wetter und wilden Tieren zu schützen. Das setzt einen zugrundeliegenden Konflikt zwischen Architektur und Natur. Architektur ist dazu da, Natur abzuwehren, so lange es möglich ist, sie zu unterdrücken oder sie zu nutzen. Eine Barriere entsteht zwischen den beiden Welten. In vielen europäischen Städten gab es bis zum 18. Jahrhundert keine Bäume. Die Bedrohung durch eine sich ausbreitende Wildnis wurde durch Steinmauern abgewehrt.

This opposition is still reflected in modernist Western architecture. Its forms are the very reverse of organic. Floor plans are rectangular, plain façades are arranged in serial order and buildings consist of glass, concrete and steel.

Criticism soon followed, but despite the counter-proposals – some actually implemented – and a burgeoning movement for green architecture in the 1980s, buildings and nature still compete for space and resources. Now the urgent need for more sustainability is challenging us to change perspective. Can we build with nature instead of against it?

Mud houses

Building with rammed earth (pisé) is an ancient technique now making a comeback due to its sustainability. It consumes hardly any energy, the material – soil – is available almost anywhere and it can be recycled. The colour and texture of the earth are always unique and so facing is rarely applied. This allows the mud to breathe, regulating indoor humidity and temperature the natural way. The earthy material has a very sensual appeal. By the same token, it responds with great sensitivity to its environment.

One striking testimony to this revival in Germany is the Chapel of Reconciliation on Bernauer Strasse, implemented in 1996–2000 by Rudolf Reitermann and Peter Sassenroth on the “death strip” where the Berlin Wall once stood. Given its location, a decision was made not to use concrete – a ray of light in the years since the “Wende”! The chapel is encased in a clay wall seven metres high with a roof and outer skin of wood. It was a bold move then but today the design by Austrian artist-builder Martin Rauch is seen as a pioneering feat. It is the first time in over 100 years that rammed earth has been used to build north of the Alps and the first specimen in Berlin.

Fungal biology

Fungi are an integral part of our everyday lives but usually out of sight. They thrive in and on our bodies and help to produce food, textiles and medicines. The idea of experimenting with fungi in architecture and furniture-making was imported from the world of art and design about ten years ago. The development of fungus-based building materials has been gathering pace around the world ever since. One moving force is the Berlin collective MY-CO-X, founded by biotechnologist Vera Meyer and architect Sven Pfeiffer. They see fungus – which has tremendous expertise in networking, transformation and symbiosis – as a partner and teacher rather than as an object of research.

MY-CO SPACE, a mobile dwelling to sleep, live and work in, was created in 2021 as a joint venture with nature. The timber frame is filled with 300 panels of a mycelium composite made from parts of the native hoof fungus and agricultural waste.

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The material, produced in the lab, recycles leftovers instead of consuming resources. It is lightweight, totally biodegradable and a good insulator. Studies are underway to assess its strength, including its ability to withstand weathering and fire.

Botanical Building

Living nature can also function as building material. In India, bridges are still constructed from the aerial roots of rubber trees. In Europe, the crowns of lime trees were often converted into spaces for dancing and other public activities. Today, botanical building seeks to fuse plants with elements of built fabric. Deciduous trees, in particular, are included within growing architectures which are constantly changing and never reach completion.

Architects Ferdinand Ludwig and Daniel Schönle have used this “Baubotanik” to build open-work spatial structures such as pavilions. Nature is literally the mainstay of their experimental raised walkway. In 2012 they designed a botanical façade for the Futurium exhibition centre in Berlin. Trees that fuse with buildings can provide an urban habitat for animals, bind dust and save energy by supplying shade. Planting an architectural organism like this at the heart of the city would break down the traditional antithesis between buildings and nature. Trees, together with people, would define the architecture. It would have called for patience, continuous care and respect for natural boundaries.

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Press images



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Reitermann / Sassenroth, Kapelle der Versöhnung, 1996–2000
© Reitermann / Sassenroth, Foto: Bruno Klomfar



OLA – Office for Living Architecture, Baubotanischer Turm, 2009, Detail 2011
© OLA, Foto: Cira Moro



MY-CO-X, MY-CO Space, 2021
© tinyBE, 2021, Foto: Wolfgang Günzel



MY-CO-X, MY-CO Space, 2021
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