# ENGLISCH


GESTALTERISCHE
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POSITIONEN
FUER
BESSERE
ZUKUENFTE
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Stiftung
Saarländischer
Kulturbesitz
LOTTO
Moderne
Galerie

## Raum B1

## Re:start

## Creative positions for better futures

In view of man-made climate change and the resulting social challenges, we are facing profound upheavals. In order to overcome these, we do not need solely critical reflection, but also optimism - as a driving force for transformation, social cohesion and new solutions. Design plays a key role in this process: It can highlight possibilities and create future scenarios.

“Re:start”, curated by Mark Braun, Professor of Product Design at the HBKsaar, displays works created by young designers to show how current and future problems can be tackled. New perspectives on the usage of energy and resources, strategic changes in the field of mobility, inclusion and consumption as well as experimental, nature-based materials and circular processes are central. Future-oriented scenarios for recyclable materials, products, architecture and urban space have been developed. At the same time, the focus is on resilience - how we can adapt to future living conditions and actively counteract them. The designers show how social transformation and empowerment can contribute to sustainable developments.

The “Re:start” project was created in dialog with Mark Braun, the video artist Florian Penner and the Saarlandmuseum - Moderne Galerie with the aim of strengthening the discourse on sustainability both internally and externally, regionally and internationally. In this context, Florian Penner presents one of his own works and three positions by selected media artists who deal specifically with questions of sustainability in the Moderne Galerie. Their works visualize possible future scenarios or reflect on the effects of climate-related changes on our perception and emotional world.

# Re:invent

## Innovative strategies for the circular use of materials and technology

Everything is made of something. Materials not only shape our environment, but also our future. The choice of material determines to a large extent whether and how an object can be repaired, recycled or reused - and what ecological impact this has. Design plays a key role here: it illustrates the links between material, resource and recycling and questions existing material cycles. The challenges of our time are too complex to be solved individually. Materials can act as catalysts - they connect designers with academic research, crafts, industry and even other living beings in interdisciplinary processes. The works exhibited here are examples of designers who are actively involved in material innovations and cycles. They test new materials, develop sustainable alternatives or work closely with scientists to make research results visible, usable and understandable.

How can we design materials in a way that they function completely in closed cycles? What role do biological processes play in material development? And how can close collaboration with other disciplines and living beings contribute to a more sustainable design?

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## *Urban Fibers*

The current industrial textile recycling methods are energy intensive and deteriorate the fiber quality. *Urban Fibers* relies on a simplified design approach that recovers raw materials from locally rescued jersey cotton textiles, preventing them from ending up in landfills, being shipped overseas, or burned. This extends the lifespan of local resources to produce yarns optimized for knitting, weaving, and rope-making machines. The *Urban Fibers* team carefully designs using the colors already present in the textiles, avoiding additional environmental pollution from overdyeing processes. Borrowing from a natural process of biological reorganization of resources, the combination of craft and digital industrial techniques is used to reuse every bit of material. For the production, communities with machinery located in Germany are chosen to promote local manufacturing. The new, digitally upcycled textiles are suited for sophisticated interior and fashion items made to disrupt the linear fiber-to-landfill production narrative.

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## *About Slag*

Approximately 7 million tons of blast furnace slag are generated annually in Germany as a mineral byproduct of metal production. So far, most of it is used as filler in linear applications within the construction industry.

*About Slag* presents various objects that explore alternative and circular uses for slag by transforming this complex material into a glass mass, which is then processed through different techniques.

This step not only converts slag into a controllable and recyclable material but also replaces valuable chemicals and reduces energy consumption in glass production.

Through close collaboration with engineers and artisans, a dialogue between industry and craftsmanship emerged. The results suggest that the tested processes can be scaled and demonstrate that slag, as a glass component, offers a resource-efficient alternative.

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## *Wild Clay*

The material study *Wild Clay* is an exploration of clay as a material in our immediate environment and its transformation from raw natural form to a crafted object. Wild clay was collected from riverbeds and excavation pits in the Greater Region, which was then cleaned, processed and analysed. This showed that the different sites had considerable differences in colour, plasticity and firing behaviour. Tiles were produced from the extracted material, labelled with the coordinates of the extraction site and fired. This experimental approach makes the entire process visible, from extraction and processing to the finished object. The project combines geological, craft and design aspects and invites visitors to explore the materiality and origin of everyday products.

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## *Stapelspiel*

In Germany, more than half of all plastic waste is incinerated. Due to its special material properties, plastic is also the preferred material for the manufacture of children's toys - around 80 per cent of all toys are made from this material.

*Stapelspiel* comprises a set of toy shapes made from 100 per cent recycled plastic waste. The beautifully coloured recycled elements take up the positive material properties of plastic, such as malleability and colour variety, and place them in a sustainable context through their circular concept. The project aims to encourage an increase in recycling processes and highlight the design potential of plastic waste. The mono-material and embossed recycling code allows for a return to the circular economy.

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## *Blattwerk*

The *Blattwerk* project investigates the potential of the unused and existing material urban foliage. It was investigated whether and how foliage can become a potential material to replace or supplement expensive and complex panel materials. Urban foliage is usually thermally recycled and accumulates in the city of Munich alone at a rate of approx. 15 tons per year, although the energy density is very low. Thanks to bio-based glues, the material can be completely biodegraded and returned to the biological cycle. The colour, shape and structure vary depending on the type of foliage. The study has shown that foliage offers potential opportunities for further uses and can be processed using the usual tools and machines in a joinery.

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## *Super Zeichen*

House numbers are more than just functional identifiers – they shape the appearance of a building and provide orientation. Once installed, they are rarely replaced. This is precisely why recycled plastic was chosen: a sustainable material that combines durability with environmental awareness.

But house numbers are also an expression of individuality. For this reason, the numbers were deliberately designed in an unusual, almost playful design language. The typographic design is based on a modular principle. This clear, geometric approach creates a diverse range of numbers and letters. At the same time, the manufacturing process ensures that no two numbers are the same – each number is therefore unique with its very own design character.

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## *The Essence of Biocement*

Biocement is made using bacteria to bind together recycled bricks with calcium carbonate. The production process requires neither combustion nor CO2 emissions. Biofabrication and 3D printing open up new possibilities for moulding the material. In the project, the key functional and aesthetic potentials of Biocement were analysed and used to produce a piece of seating furniture. The chair, consisting of three individually manufactured profiles, was created to make scientific research more accessible through design.

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## *Gestalterischer Ungehorsam*

The concept of “creative disobedience” is an attempt to design a radical corrective mechanism. This has the possibility of acting outside the design, social or legal norm. In addition to the theoretical system, various products have also been developed to actively engage in creative disobedience.

A massage grip was developed to reduce tension without violence and to increase well-being. This not only stimulates conversation and discussion, but is also a highly functional tool for physiotherapists, for example.

The coiled tubes are the result of the development of a low-tech process. An extruder and a mould are used to produce tubes as semi-finished products. The surface structure can be designed using the modular mould.

Der Schemel *Modul.02* is made exclusively from recycled HDPE. The colours of the material are determined by the available waste streams. Thanks to its multifunctionality, mono-materiality and high stability, *Modul.02* is durable and circular.

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## *plastikfabrik*

*plastikfabrik* is an interdisciplinary creative collective based in Saarbrücken, Germany. We are designers, researchers, artists and communicative activists who use plastic waste to create new, circular products that move between serial design and art. We create furniture, injection moulded objects, free forms and prototypes based on our own designs, but also in collaboration with other designers, artists and companies. We run workshops to show how design works in a circular economy, promoting the global open movement.

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## Re:consider

## System-based strategies as empowerment for a more sustainable future

The works presented here develop new methods for using local resources or transforming waste into valuable products. Exchange systems are created that conserve resources and promote community.

Sometimes, sustainable innovations are also created by taking a look back into the past. Techniques and products from pre-industrial times serve as models and inspiration for new designs that are combined with modern technology.

Collective, low-threshold processes allow local production of goods and food. In some cases, products are created that function without electricity and instead require mechanical energy - returning to analogue principles. Concepts are also being developed for gadgets that are easier to repair.

What could a collaboratively organized, decentralized production look like? How can we grow our own food in the smallest of spaces? What strategies make everyday objects to be used for longer and repaired more easily?

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***Stapelhocker Volker***

The stool is made from industrial waste materials. The wooden materials used come from transport crates and defective goods. The body is made of tubular cardboard, which was previously used as a means of transport in film production. As the edges fray after repeated use, the cardboard cylinders become unusable for the machine processes at a certain point and are subsequently discarded.

The original design of the stool was created as part of the Upcycling Zentrum Neunkirchen research project of the IfaS (Institute for Applied Material Flow Management at the Environmental Campus Birkenfeld). In the course of the follow-up project *Upzent*, the design was further developed and took on its current form

*Volker* was produced in collaboration with the social workshop AQA gGmbH in Neunkirchen.

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## *OpenCyclone*

Open-source and economic efficiency are not mutually exclusive. To illustrate this, a conventional industrial product - a hoover - was designed that can be manufactured at three different levels of complexity. Both private and commercial actors can produce the *OpenCyclone*. The blueprints are available in three stages: DIY, Advanced, and Professional - and can be downloaded from www.os-system.eu.

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## *MEA modern restoration*

*MEA* is a conceptual idea that focuses on the repairability of furniture, exemplified by a solid wood chair. Thanks to detachable connections, the chair can be quickly disassembled and refurbished in less than 60 minutes. Irreparable parts can be replaced, while all others remain in use. Its straight surfaces allow for effortless sanding, removing signs of wear without compromising ergonomics. This process can be repeated up to four times, significantly extending its lifespan.

When the chair is no longer needed, it can be returned, repaired, and resold—this time at a lower price, as hardly any new resources are required. This makes repairs more accessible to a wider audience. In a world where 10.5 million tons of furniture are discarded annually, *MEA* challenges the throwaway culture and promotes sustainable consumption.

After the first repair, *MEA*'s life has just begun!

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## *Break-up Lab*

The *Break-up Lab* is dedicated to the end of an emotional relationship: that between the textile and its previous owners. In collaboration with research institutes and textile recycling experts, it develops future-oriented recycling processes for used textiles containing polyester fibers.

Through biotechnological processes, PET fibers can be broken down within minutes using the enzyme PHL7. The recovered building blocks are then metabolized by bacteria into a biodegradable plastic (PHA). Yarns and add-ons made from PHA facilitate the easier separation of impurities and enable fiber-to-fiber recycling.

Two circular clothing items reveal the aesthetic and functional potential of this approach, demonstrating how biotechnological processes can help establish regional material cycles for used textiles.

Additionally, the *Break-up Lab* is creating a transparent infrastructure for textile waste collection.

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## *Empowerment Tools*

The open-source CNC plasma cutter enables computer-controlled metal cutting. Designed for the maker-community and crafters, the plasma cutter can be easily replicated with personal tools or in local FabLabs thanks to its reduced complexity and detailed instructions. It promotes the autonomy of the target group by enabling the creation of different frames and precise connections.

The archetypal tools, which emerged through experimental cutting and shaping of the tubes, challenge the relationship between humans and technology.

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## *Compostable Devices*

The service life of small electrical appliances is getting shorter and shorter. In the recycling process, manual dismantling of these appliances is not worthwhile. Despite sophisticated technological processes, finite raw materials such as precious and special metals are lost. This study investigates the use of compostable materials in small electrical appliances using the example of a hairdryer.

Mushroom mycelium is electrically insulating, flame-retardant and heat-resistant up to 250 °C, which makes it ideal as a material for circuit boards and housing components.

At the end of a biodegradation process, only the recyclable components remain. Solder-free galvanic connections make it possible to separate the various metal fractions without the need for costly and wasteful shredding technologies.

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***nomo***

Considering the extent to which people are polluting and increasingly destroying their environment, deposit systems need to be expanded, rethought and made more widespread. The reusable deposit system *nomo* consists of neckless jars, plastic packaging and cloth bags as well as the local linking system design. The containers are optimized for extensive use in terms of handling, durability, dimensions, returnability and recyclability. The functional design enables intuitive handling.

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## *Dream Base*

*Dream Base* is an alternative to conventional mattresses. Standard mattresses have various problems for which the product offers a solution. Similar to a camp bed or a hammock, *Dream Base* consists of a steel construction over which a fabric is stretched. A major advantage is that the firmness of the base can be individually adjusted. The product is available in all standard mattress sizes so that it can be fitted into almost any bed frame without any problems. *Dream Base* is also separable and fully recyclable. If the bed size is changed, it is not necessary to replace the entire model, it is sufficient to replace only individual components. *Dream Base* also offers advantages from a hygiene point of view, as the fabric base can be removed and washed in the washing machine.

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## *Geplante Obsoleszenz*

The case analysis of a washing machine defect revealed that the defect in an electrical component weighing 0.000839 kg resulted in a pile of scrap weighing over 60 kg that was difficult to recycle. The investigation showed that this failure was not an isolated case and that the lifetime of the electrical components had apparently not been considered sufficiently and their ageing and wear had not been taken into account in the design.

The practical work therefore involved analysing the factors that contribute to the wear and tear of washing machines and looking for possible solutions. It was important to come up with a concept and a design that companies could implement economically and that would make a real difference. The result is the *M_ALPHA* washing machine, designed for rental and shared use. Key aspects of the design work focused on the machine’s reparability, interchangeability of elements and components, separation of materials and recyclability.

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## Re:act

## Raising awareness for people and the environment

Our everyday lives are shaped by design - it contributes to the conditions in which we reside, move, communicate and live together. However, not all people have the same opportunities to participate in social life. As more and more people live in cities, the challenges of coexistence grow: social inequality, lack of accessibility and access to collectively used spaces. The works shown here explore how design can make everyday life more sustainable, inclusive and collaborative.

How do we design an environment in which all people can participate in a self-determined and equal manner? How can spaces, products and digital technologies be designed to benefit everyone? How can existing structures be repurposed to combine social and ecological sustainability? Which concepts promote solidarity and facilitate access to housing, mobility and culture? And how can we integrate sustainability into everyday routines without sacrificing aesthetics and quality of life?

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## *UnNorm*

*UnNorm* is a socially oriented bar system that aims to promote inclusion and self-determined mobility. Due to its modular design, it can be adapted to the diverse requirements of people in different situations of interaction and cooperation. This creates a barrier-free meeting place where people with and without disabilities can come together. This common meeting place enables an inspiring exchange and helps to make the diversity and different perspectives in our society visible.

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## *Orto*

Blind people are restricted in their mobility. With a conventional white cane, they can only recognise what is on the ground. Things and obstacles that are at head height or beyond the cane are not perceived, or only to a very limited extent. Even indoors, the constant bumping with the white cane makes it difficult to move freely and safely.

This is where the mobile orientation aid *Orto* comes in. The surroundings are scanned using electromagnetic waves and transmitted to the blind user via vibration feedback. In its function as a handle for the white cane, *Orto* detects things at head height. In addition, the handle can be removed from the cane and thus serves as a mobile aid for indoor environments and wherever the white cane is insufficient or obstructive for orientation. *Orto* thus enables more self-determination and more mobility for blind people.

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## *Hazo*

Our city needs more green – and so does our home! Growing plants, especially edible ones, reduces stress and promotes a healthy lifestyle. This benefits not only us but also future generations. However, not everyone has a green thumb.

*Hazo* is a user-friendly hydroponic system for growing vegetables and herbs at home. It can be used individually or connected to a water pump, allowing the water to circulate naturally. The set includes plant baskets, sponges, and seeds – everything you need for cultivation.

*Hazo* not only make the home beautiful, but makes it also easy to grow fresh vegetables - no prior knowledge required. After two months you can enjoy your own harvest.

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## *Besteck und Stigma*

The *Besteck & Stigma* project deals with the relationship between design and disability. Using flatware as an example, the project investigated how design contributes to the stigmatization of disability and why the topic of disability receives too little attention in product design. The result is a cutlery set that can be used equally by people with and without disabilities and can therefore eliminate differences instead of cementing them. The project also aims to initiate relevant discourse.

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## *Vruit*

*Vruit* is a sextoy set for self-insemination that offers an alternative to clinical insemination by medical professionals. The use of *Vruit* enables a sensual and relaxed choreography for everyone involved, from the sperm donation to the actual insemination. This makes self-insemination as easy as conception through heteronormative sex.

*Vruit* is intended for everyone, but plays a particularly important role for queer people and singles, as they often have to bear the high costs of fertility treatment alone. In addition, some fertility clinics and sperm banks refuse to treat queer families and single people. Thanks to *Vruit*, people can realize their desire to have children in a self-determined way.

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## *Organic Cycle*

The disposal of organic waste far away from civilization has problematic consequences. It is removed from the material cycle, harms nature, can get into the groundwater and poses a potential threat to wildlife. In addition, organic waste disposed of in nature impairs the aesthetic quality of the habitat. *Organic Cycle* focuses on the transportation and energy recovery of organic waste during nature trips. Energy is abstract - the container communicates the energy potential and promotes awareness of organic waste as a recyclable material. The systemic approach supports a self-sufficient energy supply for accommodation. Travelers interact with them, creating a recycling cycle without wasting raw materials and using biowaste as an energy-rich resource. A valve allows the resulting gases to escape, and the nutrient-rich liquid can be drained and used as fertilizer.

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## *In Sich Stark*

*In Sich Stark* is an innovative approach to reinforcing clothing fabrics, particularly trousers, to address specific textile “problem areas”. The project focuses on the needs of plus-size individuals outside societal “body norms” and highlights the potential of interdisciplinary work in fashion and textile design.

The development of partial fabric reinforcement and its production on a Jacquard loom improves the durability of clothing fabrics. By modifying the conventional pattern construction of trousers, the optimised seam arrangement is tailored to the needs of the target group. In addition, the directly woven trousers demonstrate new possibilities for streamlining production processes.

*In Sich Stark* offers a promising approach to creating durable garments that cater to diverse body types while promoting sustainable practices in the fashion industry.

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## *Zwischenraum*

The repurposing of existing buildings offers significant potential for reducing resource consumption and meeting the growing demand for housing. This project for the transformation of department stores into communal living spaces - using the example of Galeria Kaufhof Saarbrücken - includes a concept for room partitioning and a modular façade system.

The department store’s skeletal structure allows for flexible room division, making it adaptable to new usage demands. Private spaces are separated from common areas through the use of wooden modules that are integrated into the new façade. This creates dynamic intermediate spaces and large common areas. Different façade elements and the modular structure enable different uses and sizes of the intermediate spaces. The façade system can also be adapted to different floor plans and is suitable to repurpose other skeletal structures.

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## *Regentürme*

The aim of the project is to get urban green strips through the dry summers and transform them into attractive green spaces that contribute to cooling. The free-standing rainwater towers collect and store rainwater from neighboring roof surfaces before it enters the sewerage system. The water is supplied to the plants and trees via a controlled drip irrigation system. Two flags rise with the water level and inform passers-by about the water balance in their city.

Depending on their location, the rain towers can be extended with seating and an interactive irrigation system. The city finances the project and citizens come together in workshops to build the towers for their neighborhood. All information is made openly available.

The concept responds to the urban challenges of climate change by strengthening existing urban greenery, decoupling rainwater from the sewage system and creating cool places to spend time.

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## *ReTurn*

The funeral culture in Germany is characterized by old traditions and conservative thought patterns. The topic of death and all its aspects is taboo for most people. Insofar as people are reluctant to talk about death, it is difficult to bring about change with regard to its practical consequences. The project has set itself the goal of revising the funeral culture by designing a new kind of deathbed. *ReTurn* is dedicated to the development of a sustainable burial method in order to optimally return the body to the biological material cycle after death. The project aims to create a new form of burial that gives new space to the desire for an ecologically compatible farewell and respect for nature.

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**Re:vise**

## Resilience and regeneration as a response to climate change

Designers are increasingly dealing with the tangible consequences of climate change for people, nature and cities - and with the measures we take to meet these challenges. The intensive use of finite resources has left clear traces. The Anthropocene is characterized by man-made objects and interventions. Since 2020, there have been more man-made objects than plants, animals and other living creatures on Earth. But it's not just humans who are feeling the effects of climate change - plants and animals are also affected by heat, water shortages and changing living conditions.

How can we strengthen our resilience to heat, drought and extreme weather events? How can we make invisible dangers for people and the environment visible? How can we better predict and usefully evaluate the consequences for non-human life forms? How can innovative technologies help?

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## *Cold Layer*

Continuous warming as a result of progressive climate change is also leading to temperatures of over 40°C and more in Europe. To support human thermoregulation and cool the body, three cold layers have been created for the head, forearms and calves. The cooling layers are designed to prevent the body from overheating in extreme temperatures and have a positive effect on the wearer's health and well-being as well as providing protection from UV radiation. The layers are moistened with water for optimum cooling. The textile absorbs the moisture inside the fiber and evaporates when worn, depending on the respective body and ambient temperature and humidity.

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## *Waterplant*

Extreme climatic conditions such as periods of heat or heavy rainfall are becoming increasingly common in our everyday lives. Climate change has become noticeable and is influencing life in our cities. The urban tree as an ecological all-rounder is often neglected, although it is essential for future life in urban areas. Young trees in particular need support during longer periods of drought, as their root systems are not yet fully developed. Civil society engagement is a necessary prerequisite for successful climate change adaptation. *Waterplant* creates incentives to irrigate young urban trees and sensitizes city dwellers to their protection. The water is poured into the flower and reaches the root system of the young trees directly via the root waterer, which enables efficient irrigation. *Waterplant* supports Sustainable Development Goal 11 (SDG) for sustainable cities and communities.

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## *Wald im Wandel*

*Wald im Wandel* is an interactive exhibition concept within the context of environmental education that explains and makes tangible the effects of the forestry method known as “assisted migration” on the near-natural forest habitat. This method involves selectively introducing tree species from warmer and drier regions in small percentages to reforested areas of local forests to enhance their resilience to climate change. In Rhineland-Palatinate, the Forestry Office recommends 16 carefully tested species for this purpose.

At the heart of the concept are immersive experience spaces where scent exhibits make these additional tree species perceptible through the senses. Trees communicate via VOCs— volatile organic compounds that humans perceive as scents. This natural communication is translated into the exhibition, allowing visitors to connect with the trees in a unique way—through their “language”.

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## *Sammler*

Environmental protection needs reliable data, especially in remote areas that are difficult to access. *Sammler* enables cooperation between science and volunteering in the collection of environmental and biodiversity data that can't be collected through conventional measurements such as satellite imagery.

*Sono*, the bioacoustic sensing device provides information on illegal poaching, tree felling and species populations by measuring sound waves and evaluate them with existing software-based analysis methods. Volunteers can attach the sensor to their outdoor equipment via a multifunctional mount made of laser-cut spring steel or stationary in nature, collect additional sensors and maintain them by transferring data and changing batteries. The sensor technology is based on the citizen science initiative *Soundscapes2Landscapes* and the electronics developer *Open Acoustic Devices*.

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## *Trennbar*

Nowadays, shoes are mostly made of materials that are sewn or glued together, which means that the shoes end up in the incinerator as hazardous waste. *Trennbar* is a modular winter shoe and addresses this problem by being able to be separated into its individual parts by hand. This means that it is not only modularly adaptable to current weather conditions, but can also be repaired independently, while the waste materials can be disposed of or recycled by the manufacturer in an appropriate manner. This circular principle saves money, resources and energy. The materials used are chosen to be as natural as possible, from the sole made of natural rubber, to the socks made of merino wool, the straps made of cotton, the buckles made of plastic and the fox fur outer sock made from old fur fashion or forestry. In Germany, around 420,000 foxes are shot every year for species protection reasons.

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## *(Un)Pave*

*(Un)Pave* is an inclusive paving stone system that can be planted. Cities are struggling with flooding, groundwater problems and too many isolated and disconnected biotopes. *(Un)Pave* aims to green pavements without restricting walking comfort. To achieve this, the stones have only small planting holes in the more frequented areas of the pavement and larger ones in the less frequented areas, such as on the sides, to allow more space for plants.

The kerb has a contrasting colour for people with visual impairments and the holes in the stones are designed to prevent wheelchairs and prams from getting stuck. *(Un)Pave* is made of river clay, which can be reused after dismantling.

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## *280+ The Suncare Project*

*280+ The Suncare Project* is a modular bag design that seamlessly incorporates UV protection into everyday life, redefining the UV index check as an intuitive and stylish experience. Inspired by the aesthetics and power of the sun, the bag features a photochromic textile print that reacts to UV exposure, changing reversibly to violet and visually indicating the presence of ultraviolet radiation. An integrated UV index check in the strap provides real-time UV data and practical sun protection guidance via a QR code linked to the German Weather Service. By combining innovative design with functionality, the bag 280+ enhances awareness of UV exposure in a subtle yet effective way—promoting responsible sun behavior worldwide, all year round.

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**Re:charge**

## Perspectives for the post-fossil energy future

The urgent need for alternative energy sources is closely linked to ecological, economic and social problems. The future of energy is necessarily ought to be based on renewable resources. Designers play a crucial role in the transformation to a post-fossil energy future. They create connections between technology, society and culture by developing solutions that consider not only technological innovations, but also social, aesthetic and cultural dimensions.

The projects shown here shed light on how design can contribute to the generation, storage and use of energy in a more sustainable way. For example, they focus on self-sufficiency by developing solutions that enable individuals and communities to meet their energy needs independently and sustainably - from designing self-sufficient products to local, decentralized systems.

Which new and existing materials and technologies offer potential for more efficient use of sun, wind and water? And how can energy consumption be reduced through creative interventions in everyday life, while at the same time rethinking mobility, housing and local heating and cooling systems?

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## *SolaRescue*

*SolaRescue* enhances disaster relief efforts by combining self-sufficient energy generation with tools for coordination and communication. The integrated solar panel charges a large internal battery, ensuring autonomy in electricity-deprived areas. Efficient red light conserves energy and preserves night vision during extended operations. Stored energy powers additional critical tools like defibrillators and communication devices, reducing the need for extra equipment. An integrated walkie-talkie ensures reliable communication in areas without networks, improving team coordination.

The removable high-resolution camera with extra lighting facilitates precise wound documentation, with video data directly sent to a central station for expert feedback. Hands-free operation ensures user safety, shielding vital organs while enhancing mobility.

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## *PowerPlant*

Electricity is crucial in our digital world, yet often inaccessible in public spaces. *PowerPlant* introduces solar-powered charging stations that merge with urban landscapes, using fluorescent acrylic to complement aesthetics. The stations are placed in calm spots like parks, offering free device charging. They enhance city visuals and foster social gathering spots, making electricity universally accessible.

Using the LSC (luminescent solar cell) technology the screen breaks longwave into shortwave lightrays and concentrates the solar energy along the edges, where it gets harvested by solar cells. This technology is especially effective in diffuse light conditions and almost doubles the efficiency of the solar cells. From there, the power is led via cable into the holding bracket where two batteries are stored and get charged continuously. This allows for charging at night or in poorer light conditions, as well as quick charging.

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## *Hotspot*

We will have to switch to sustainable and renewable energy sources in the future, as fossil fuels do not offer any long-term prospects. Furthermore, conventional heating systems with complex infrastructure can only insufficiently meet individual heating needs.

The project *Hotspot* explores the possibilities of decentralized, electricity-based heating. By creating smaller heat zones in the room, heating is both more comfortable and more efficient. The product family includes a heating panel for large-area heating and mobile, modular heat storage units for heating close to the body. The objects are able to respond flexibly to individual heating requirements and fit seamlessly into living environments.

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## *Tereco*

*Tereco* is a decentralized cooling unit that makes use of the cooling properties of terracotta with the aid of a fan. The heat sink can be positioned individually in the room and works with or without a power socket.

The cooling element with air supply pipe is filled with approx. 1.5 litres of water. The 3D-printed fan shell is placed on the clay heat sink and draws the warm room air into the inside of the heat sink with a small fan via a pipe. Evaporation on the outside of the heat sink extracts heat energy from the ambient air and lowers the ambient temperature. The insulating properties of the clay support the cooling effect and keep the water inside cool for longer.

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## *Pella*

*Pella* is a practical tool for igniting and optimizing fire. It ensures efficient combustion, reduces smoke, and helps utilize fuel more sustainably – regardless of the fire’s location. The steady airflow can be focused using a fan or connected to a wood gasifier stove. *Pella* is collapsible and fits compactly into the stove, and it can be stored in a bag with a cleaning cloth. All parts are made from durable stainless steel with a matte finish. The simple mechanics and all-metal design make *Pella* long-lasting, heat-resistant, and easy to repair. The material is also fully recyclable. *Pella* is not only a useful tool but also a product that brings joy when cooking and grilling over an open fire.

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## *HRG-75 Handrührgerät*

The responsible use of resources is a fundamental issue of our time on a planet whose resources are finite. Nevertheless, a large proportion of today's goods are produced in such a way that the recovery of used materials is only possible under difficult conditions or is uneconomical. Production methods that escalate the problematic use of resources by artificially manipulating product lifetimes can be seen above all in electrical appliances. *HRG-75* is the design of a mixer that counters the short lifespan of small kitchen electronics. The power transmission is purely mechanical, so there is no need for electronics at all. In addition, modular attachments combine the functionality of various kitchen electrical appliances. All components are assembled in such a way that they can be detached from each other, allowing independent repairs. The use of standardized components leaves the option of upgrading open.

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## *Varmsten*

*Varmsten* is an innovative solution for sustainable power generation and storage. The system uses the heat absorption of granite stones, which are heated by solar energy or other heat sources. The stored heat is continuously transferred to Peltier modules, which efficiently convert it into electrical energy. The electricity generated is stored in a powerful lithium battery and is available when needed. The granite stone cylinders used are a waste product from natural stone processing.

Thanks to its portable design, *Varmsten* is suitable for both indoor and outdoor use and offers a reliable energy source for a wide range of applications.

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## *Papilio*

Global light pollution and the growing energy consumption for public space lighting have severe impacts on plants, animals, and humans alike.

The innovative streetlight *Papilio* significantly reduces the ecological footprint of street lighting by generating renewable energy through an integrated wind rotor while simultaneously minimizing light pollution. To achieve this, the light is shielded from the night sky and emitted exclusively downward. Additionally, an infrared sensor activates the light only when it is actually needed. The emitted light spectrum, with its warm color temperature is less attractive to insects. A battery stores the generated energy, ensuring operation during windless periods and enabling fully autonomous functionality.

The street light *Papilio* turns climate-neutral energy generation into an aesthetic experience that enhances public spaces - both during day and during night.

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## *C.O.W. - Circular Organic Waste*

*C.O.W.* recycles organic waste into fuel gas and fertilizer through natural decomposition. Like a cow's stomach, a mini bioreactor enables the bacterial decomposition of cellulose into methane, but it exerts much more control over the emission of the harmful greenhouse gas than a ruminant. In a circular open-source system, the gas is first directed to a reservoir, where it remains clearly visible, until it goes on to a cooking unit, where it serves a fuel for food preparation. The ensuing organic waste is then returned to the process as an energy source. Thus, the "home-made" organic fuel promotes an awareness for energy consumption and for organic waste as a valuable resource. *C.O.W.* illustrates in a tangible way how independent energy can be provided at a local level for the preparation and production of food and also promotes social interaction within the community.

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