



# DESIGNKIND: How Can Design Elevate Mankind?

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Imagine a new world where we break with the past and begin again. For many, the post-pandemic world is causing major shifts in human behavior and design is following suit. We call this Designkind, where humanity is in flux, pushed to the limits, experiencing the vulnerability and fragility of life as we know it, and rethinking the value of what's important. This will create a new design language in uncharted territory focused on rebuilding a more resilient and inclusive world, where mankind sustains during these extreme times.

In the groundbreaking 2002 book *Cradle to Cradle*, William McDonough and Michael Braungart lay out their concepts for circularity in design. This quote from the book resonates today, twenty years later: "Nature doesn't have a design problem. People Do." Here the authors are referring to the way that nature designs, which is that waste in nature becomes food for something else. In this sense, there is truly no waste. They also highlight how insects, like ants for example, build more biomass than humans, and yet cause no destruction to nature or habitats like humans do.

Why are we such a destructive species that harms the earth in the extraction of resources, rather than nurturing our planet? We are finally at a place where mankind acknowledges the damage to our own biosphere and is perhaps ready to do something about it. But are we too late? Let's look at examples that show that we can indeed imagine a restorative future that can embrace design as the solution.

## Sustainers

Are you a Sustainer? Sustainers value sustainable living, zero waste lifestyle, and worshipping the Earth. They strive to reach the Ecocene. This is the utopian vision of life after the Anthropocene, where we not only sustain but thrive. The Anthropocene, our current era of decline due to depletion and destruction of earth's natural resources, has over-burdened our planet's ecological footprint. Mankind has claimed much of the usable land and resources for ourselves at the expense of our planet. 60% of the world's biodiversity has disappeared over the last 40 years. This loss of forests and biomass, as well as rising seas and acidic oceans, also affects plants,

animals, birds, fish, and insects. If ecocide continues, our planet will become unlivable and uninhabitable for humans and half of other species between 2050 and 2100. Scientists say that we are heading towards the sixth mass extinction on earth. Sustainers want to reverse this decline and reimagine the earth as a place of nourishment in the Ecocene. Sustainers value these beliefs over our traditional consumerist lifestyles since the Industrial Revolution. And they imagine that if we succeed in regeneration, humans –along with thousands of other species– will survive into the future. If humans do not survive, scientists think biodiversity will eventually recover without us over a five-to-ten-million-year period. That is the price we will have paid for living beyond our means.

With declining natural resources and the world population expected to be 11 billion by the end of this century, we are facing food scarcity. As we know, food is a core basic need for all humans to survive. Global agriculture is on the decline, as it is directly related to the effects of climate change, government investment, technology, and globalization. Just in the US alone, small rural farms are facing hardships and being replaced by fewer large, consolidated corporate farms. For these smaller farms, farming is no longer feasible, and this causes problems in the food supply chain. And for larger farms, we can't put all our eggs in one basket. What if those farms that supply the nation have bad crops, or drought, or contamination? This makes the streamlined supply chain vulnerable. Small organic farmers are one group that are thriving in the contemporary food market, as they have a targeted, local customer base. We know, however, that this model is not feasible to supply the world with fresh food - from cost to volume. The way we sustain farming for the future will very much determine how successful we will be in establishing food security for future generations. Half the world's population lives in cities and this number is growing, and thus cities need to be positioned to serve people where they live with optimization of space and resources. In the next 50 years, 80% of food will be eaten in cities. The demand is high and urban farming can be one solution.

One Dutch architecture firm called Van Bergen Kolpa is on the forefront of designing projects for vertical farming on a grand scale. The Netherlands is one of the world's largest agricultural



exporters, and Van Bergen Kolpa has designed significant projects to secure a future of high-tech food production.

In addition to their publication “Architecture for Food”, which introduces the concept of vertical farming in cities, they have two standout projects: Agrotopia and Van Gelder Taste Valley. Agrotopia is a research greenhouse and living lab that sits on the roof of an agricultural auction market. There is a cultivation area for produce in four climatized zones. One area accommodates indoor growing with artificial light, and another grows vegetables vertically to maximize space, along with developing best practices for hydroponic growing. Like Agrotopia, Van Gelder Taste Valley makes use of climatized zones for growing produce, but instead uses terraces that open to the rooftop greenhouse. If urbanization continues and traditional farming declines further, it is quite possible that the future will be vegan.

Other architects are looking at connecting individuals in cities with the process of growing their own food. One such example is “The Farmhouse” by Studio Precht, an Austrian design firm that designed a modular residential tower to serve as home and farm to its residents. Precht believes that since the start of the industrial revolution, humans have grown apart from food, and this has a harmful effect on the health of people and planet. The design firm themselves grow most of their food and get the rest from neighboring farms (which is part of a movement called social sourcing), resulting in a different relationship to food that instills greater social value. Also, this model seeks to reconnect architecture to agriculture, which has been lacking, while the demand for food keeps increasing. The benefits of local vertical growing include shorter supply chains, less packaging, and safeguarding the food supply from climate and pollution. The Farmhouse project encourages the inhabitants to grow their own food, which is supported by the architectural systems. Circularity is designed into the structure, so that heat, water, and waste can be harnessed back to the greenhouses in the building.

The Farmhouse concept is prefabricated and then delivered flat-packed to the site, ready to be installed. The design takes its inspiration from A-Frame houses and connects to a diagonal grid that shares the building load. Each wall of the frame has three layers: an inside one with pipes, electricity, and finishes; a second layer with insulation and structure; and a third with water supply for gardening. Natural light and ventilation have been incorporated, and the goal is to offer the sense of living in nature versus living in a concrete landscape.

Occupants can select their own design features of the space based on their individual needs for living and farming. Everything can be selected a la carte as add on modules for the various systems. With these design interventions, Precht believes that we can return our cities to nature and thrive, while giving back natural resources, all while sustaining ourselves.

## Social Signs

Related to the decline of the environment is the decline of socio-economic conditions for humanity. There is growing economic inequality, with 800 million people living in extreme poverty. Millions of people are refugees, displaced by climate change. One billion people don't have clean drinking water. There is growing instability around the world caused by lack of resources, lack of opportunity to work and survive, and lack of healthy environments. As such, we are seeing signs now of design being used to create social change.

Designers in all disciplines are more aware of the need to re-balance our planet and are using design for social impact. They are designing for underserved populations with a new sense of purpose. They are addressing inclusivity, human health, the aging, and climate change. And they are designing climate resilient structures to protect man from the extremes of nature. Architects especially are looking at how we use buildings today to connect back to land and social issues, like fostering local engagement. They are addressing the needs and aspirations of the community, and not just the client who hired them. Ultimately, designing for social impact lives at the intersection of sustainability and humanity, where design can improve place and planet for all.

One example of urban development in the service of social impact is Majara, a series of colorful residences made of rammed earth domes on Hormuz Island, Iran designed by ZAV Architects. Historically, Hormuz has been a port in the Persian Gulf that controls the shipment of petroleum from the Middle East, and yet the inhabitants of the local village struggle economically. Additionally, tourists come to this region, known as Rainbow Valley, to see these mountains encompassing over 70 types of colorful minerals. To revitalize this community and provide it with social agency, the architects created both residential and shared cultural and public spaces to accommodate the villagers and tourists alike with an adaptive and future-proof spatial scenario that can



respond to unpredictable needs. They used a “superadobe” technique developed by Iranian born architect Nader Khalili, using raw earth as a building material, one that’s already there on site. With this method, they could include local craftspeople and unskilled workers to participate in building the community. They dedicated a larger share of the budget to labor costs rather than expensive imported materials. This also benefits the local population by empowering them with construction skills. ZAV believes that architecture can not only improve communities but be able to mediate where there is conflict between different groups of people. In this case, it’s the landowners near the port, the investors, and the locals, who typically bear the brunt of real estate development. This project was designed to generate social change for all parties involved.

Another example of design for the greater good is by Francis Kéré, an architect from Burkina Faso who now lives in Berlin. His global practice incorporates social commitment through design, using local input and resources to drive design solutions. For his first architectural project, his own hometown of Gando was the recipient of a new school in 2001, when Kéré learned that the existing school was in disrepair. He designed the new school with a large roof overhang to protect the walls from the extreme Sahara Desert climate and allowed space between the ceiling and roof to increase air circulation for interior comfort. He used traditional hand-made mud bricks as the main building material, as this sustainable and readily available material in Gando could hold up to the heat and rains. Using participatory design, locals were trained to assist with the project construction and helped to make the school an important landmark of pride for the community. This was made feasible by a foundation Kéré created to realize and fund this project.

Since then, an annex to the school was built to accommodate more students, which was completed in 2008. The annex included four additional classrooms, as well as a shaded lounge area between buildings where students can socialize out of the hot sun. This gathering space has become an important social function for the area. The design of this school addressed problems common in the area: poor lighting and ventilation. For the annex, Kéré included a vaulted ceiling, which allows hot air to escape upwards through the built-in ventilation gaps. Natural lighting can be controlled by occupants through the colorful shutters. This project would not have happened if it wasn’t for Kéré’s own experience growing up in Burkina Faso. In his youth, he had to travel 40

kilometers to go to a school that was lacking in resources. As an architect, he decided to reinvest in his hometown. His foundation and professional work show that design can have direct and immediate impact of communities in need when we direct our attention and prioritize resources.

## Material Mend

How can we mend our relationship with materials in this new era? Currently, the resources used to make all our homes, buildings, and consumer products exceed natural renewable resources. We are making synthetic things that will be the fossils of the future, unless we can reset our relationship to nature to practice circular design and manufacturing, or design for end of life. Designers are rethinking how materials are made and embracing biomaterials. These materials come from and return to nature, made from things like mushroom, corn, algae, hemp, etc. Designers are also reimagining seeds as materials of cultural value. They reuse and recycle and remake – inventing and using new materials from waste and even zero waste. New forms in these biomaterials are becoming a new design language and creating a new path forward. They are not only mending our vision of materiality, but also our relationship with nature. The clothing industry, especially fast fashion, is one of the most polluting in the world. Global emissions, synthetic materials with chemicals of concern, and landfill waste are the biggest culprits with fashion.

Sneakers are no exception. In fact, they are harder to recycle due to their complex construction and use of different materials in one shoe. One designer trying to solve this problem is Emilie Burfiend with her new sustainable sneaker called “Sneature” (a combo of the words sneaker and nature). Burfiend designed a new kind of shoe that uses natural and renewable materials and is biodegradable after use. Her shoe is made from materials in three structural zones: the membrane, the transition, and the sole. It only uses three bio-based materials, compared to a traditional sneaker that has eight to twelve ingredients, many of which do not biodegrade and will survive for over 1000 years in a landfill. There are no shoelaces, keeping the sneaker as dematerialized as possible. It is also dematerialized in that it does not use any petrochemicals, so it has a very low footprint. The membrane, which forms the covering for the foot, was 3D knit. This is a new type of wool using combed dog hair that was discarded from grooming and spun into yarn. Called “Chiengora” from



the French word for Dog, this wool yarn was developed for use on industrial knitting machines. Knitting the sock membrane is also sustainable, as there is no waste, the machine knits the fabric to the exact shape and size needed with no seams. The sock also has varying textures as part of the design in different areas of the foot for maximum performance. The sole is made from mycelium, the root structure of mushrooms, in a mixture with a hemp cellulose substrate. The transition zone that connects the sock and sole is natural rubber. This is added by dipping the sock into liquid natural rubber sap to create a water-repellant seal. When the shoe is done being used, it can be separated and the components recycled, or alternately biodegrade in a composter.

Another designer looking to mend with materials is Fernando Laposse. His work incorporates humble and overlooked plant fibers like corn husk, loofah, and sisal from his home country of Mexico where these plants have strong cultural roots. He also works with indigenous communities in Mexico to create local jobs as a source for these materials, and help share stories of traditional craft, so they won't get lost over time. He also tackles issues of loss—loss of biodiversity, and loss of community through migration and globalization. Laposse seeks to also bring back handmade crafts that have become obsolete, like making rope, rugs, and fishing nets from sisal, which is raw fiber from agave plant leaves, and a byproduct of the tequila industry. Laposse has one reminder for all of us who practice design, and that is we should not re-invent the wheel, but rather look to older traditions that were wiped away by industry and technology. By reviving historical techniques with indigenous materials, we can practice sustainable design that is respectful to the planet and each other's heritage.

Another designer working with concepts of cultural identity and materiality is textile designer Jacob Olmedo. The project "Your Land is Our Land" is a thoughtful series of work that starts with beads made from seeds and then get embellished into clothing. Olmedo's inspiration for this project is complex, covering a wide range of societal issues today such as migration, cultural and gender identity, and colonialism all tied to sustainability. The project focuses on wearable and spatial activism, creating work about intersectional identity in the context of the climate crisis, asking questions of identity and access and privilege to land as a minority body. The textile that Olmedo created is made from all-natural materials: wool is used as the yarn base and biomaterial isomalt is used to make the beads. The creation starts with a 3D model, which is cast to create a silicone mold of the beads. Once the molds

are made, the isomalt is heated and cast in the silicone while being injected with seeds. The seeds are seeds of repair; perennial prairie seeds that reform systematically- destroyed soil for better soil health. Once the beads are fabricated, they are crocheted into garments. The hope and expansion of this project is that the seed beads themselves are used to grow the perennial prairies. One garment is the equivalent to 70 square feet of regenerative soil creation.

## Homegrown

The word Home carries a lot of weight. For many people, as we saw with Laposse and Olmedo, it means Homeland that shapes your identity. For others, it means a safe and accessible place to live. It also can mean family, a sense of place, and a sense of shelter and refuge. During the Covid lockdown of 2020, being home took on new meaning. Many of us slowed down and rediscovered the joy of being home and having time for the simple life. We rediscovered things from past generations, such as baking bread, sewing, crafting, growing gardens for food, and tending to plants. We also used what he had around the house, not spending to buy new things but instead being flexible and creative. Luxury was found in humble things. Homegrown here refers to all that, but also to being connected to our ultimate home, which is nature. We all belong to nature and have a responsibility to take care of our planet as stewards of the earth. Let's look at some examples of designers who are putting this into practice.

Architects Virginia San Fratello and Ronald Rael have a design firm in California that serves to question society with disruptive projects. A part of their studio – called Emerging Objects - is dedicated to 3D printing architectural materials and even buildings. Rael San Fratello, as their firm is called, created a project called Casa Covida in the San Luis Valley as a respite during the pandemic. The structures for the house were 3D printed from the local and indigenous building materials of sand, silt, clay, and straw– all which comprise the ground beneath them. Historically, the earth was used to make adobe buildings and crafts like pottery in this region, and Rael San Fratello seeks to unearth these materials and present them in new ways. The house was designed for just two people to visit comfortably within the three connected sections of shelter. Each section has a specific function: one for sleeping, one for bathing, and one with a hearth for cooking and staying warm. The bathing room accommodates ancient waters from an aquifer below, where heat is retained from the surrounding



ground. This is surrounded by river stones. The hearth is surrounded by two earthen benches. Each section also has an open roof that allows in light and looks out to the sky. If the weather is not cooperative, a pneumatic roof that looks like the flower of a blooming cactus closes the roof oculus. The interior elements all are made from local craft traditions. The cookware is also 3D printed with regional clay harking back to New Mexico Pueblo pottery. The soft goods are sheep skin, textiles, or churro blankets made by a local weaver. The doors are locally harvested beetle kill pine, which was flame-charred to treat the wood. And the door handles were 3D printed as well, using aluminum from littered cans found in the desert. This project is exemplary of what Rael San Fratello is interested in, combining additive manufacturing through 3D printing with nature. This perhaps is a new definition of Homegrown.

An architecture firm in India called Wallmakers, led by Vinu Daniel, also embraces local, sustainable practices in their work by just using what is readily available. Their projects are climate-responsive, low cost, and most importantly, come from a sense of place embedded in the earth. One project, the IHA Residence, is a two-story house in Kerala made from compressed earth blocks. These blocks are made from dampened soil of the region and were used to create the brick façade. The brick blocks were strategically oriented to allow for ventilation in the hot, humid climate while creating patterns from light and shadow. The residence was sited as if coming up from the ground, with incorporating a rainwater harvesting tank at the lowest point. In addition to the beautiful brickwork, the residence features a sculptural staircase both inside and outside the house. For the exterior stairs, bamboo reinforced with steel rods was used to support the staircase at the entrance. Another hallmark of the residence is the use of salvaged scrap metal, like the washing machine motor parts that created the screening material in the windows. The millwork and furniture were made with scrap wood and found uprooted trees in the area. An interesting note about Wallmakers is that they do not have their own permanent office. They practice design at each project site, embedded into the local place, also re-imagining what it means to be Homegrown.

## Conclusion

We examined concepts such as urban farming; designing for social impact; building with indigenous materials; building

restorative architecture; and growing design. These topics all have one thing in common: respecting all of nature and ensuring that we nurture our planet and our natural resources so that they may thrive in the Ecocene. It's up to us to create the Ecocene, we are not there yet. We have a lot of work to do, and hopefully you will be inspired to be a member of Designkind and help to regenerate our planet, which in turn will regenerate all species including us humans.