

AN ARCHITECTURE GUIDE
to the UN17 Sustainable
Development Goals



FN's verdensmål omsat til konkret byggeri

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Natalie Mossin

Institutleder, Institut for Bygningskunst og Teknologi, KADK

Co-chair, UIA Commission on the UN 17 Sustainable Development Goals

President of Congress, UIA 2023 Copenhagen

Leave No One Behind

Da FNs 17 verdensmål blev vedtaget i september 2015, afgav regeringscheferne samtidig et løfte om ikke at lade nogen i stikken: "Leave No One Behind".

Sammen med løftet blev der vedtaget en strategi: at starte med en indsats for at hjælpe de mennesker, der var ladt mest i stikken: "Reach the furthest behind first".



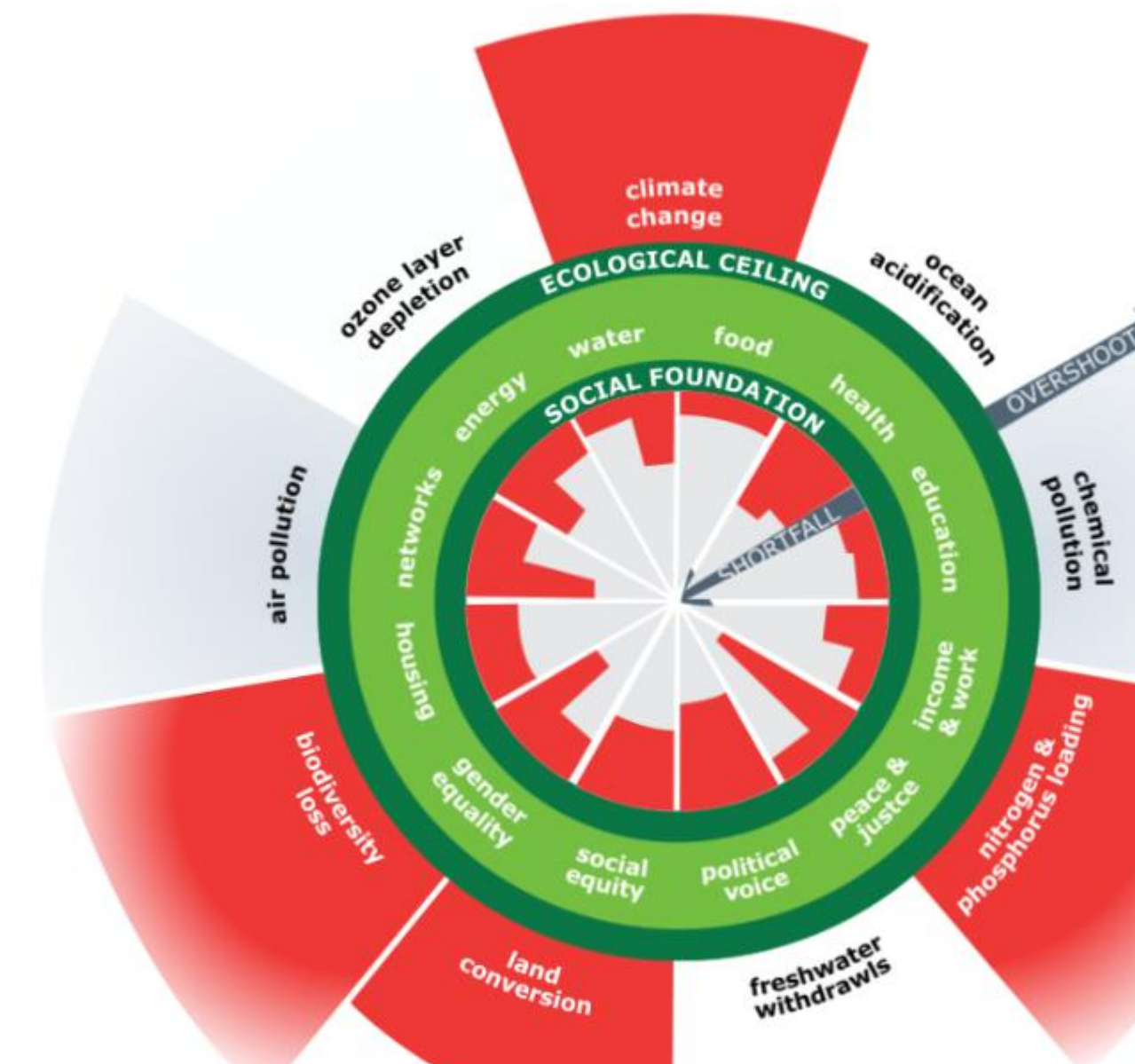
17 mål for verdens udvikling

FNs 17 verdensmål dækker hele verden og favner både humane og miljømæssige bæredygtighedsaspekter.

De er unikke fordi de ser på 17 centrale udfordringer i sammenhæng. Hvert mål er vigtigt i sig selv, men hvert mål er også forbundet med de andre.

Økonomen Kate Waworth har i 2017 defineret "the Doughnut economy" der

The Doughnut of social and planetary boundaries (2)



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1

NO POVERTY

End poverty in all its forms everywhere

Poverty is more than the lack of income and resources to ensure a sustainable livelihood. Its manifestations include hunger and malnutrition, limited access to education and other basic services, social discrimination and exclusion as well as the lack of participation in decision-making.¹

Despite the fact that the global poverty rate has been halved since 2000, intensified efforts are required to boost the incomes, alleviate the suffering and build the resilience of those individuals still living in extreme poverty.²

To find out more about Goal #1, visit:

1 NO POVERTY



Architecture cannot lift people out of poverty, but the built environment can affect the impact of poverty on people's life through access to housing and institutions that are affordable.

Through building design and planning architects can develop buildings and settlements that are cheap, safe and healthy. Examples of this can be found in social housing schemes, co-ops and projects for urban upgrading.

The overarching principle is that buildings and services must secure the highest possible value from available funds and resources. This demands the development of new architectural solutions. As part of this, buildings must be designed using products and materials that do not compromise the environment, while maintaining the affordability of current, environmentally problematic solutions, such as the metal sheet roof. Furthermore, architecture, landscape design and planning must adapt the built environment to climatic, geographical and cultural contexts, working with the surrounding environment and not against it, to increase quality of life while helping inhabitants save on electricity and other services. As part of this, architects working on development projects must engage the local communities and help weak and poor citizens gain ownership to the built environment of which they are a part. Finally, the building process itself must take place under conditions that protect the environment as well as poor and marginalized stakeholders.

Non-profit Affordable Housing on Dortheavej

Origin/team

BIG - Bjarke Ingels Group,
Lejerbo,
MOE

Photo: Rasmus Hjortshøj - COAST



4 QUALITY EDUCATION

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Obtaining quality education is the foundation to creating sustainable development. In addition to improving quality of life, access to inclusive education can help equip locals with the tools required to develop innovative solutions to the world's greatest problems.

The reasons for lack of quality education are due to lack of adequately trained teachers, poor conditions of schools and equity issues related to opportunities provided to rural children. For quality education to be provided to the children of impoverished families, investment is needed in educational scholarships, teacher training workshops, school building and improvement of water and electricity access in schools.¹

4 QUALITY EDUCATION



Schools and educational spaces are a crucial part of our investment in the future.

Whether in a refugee camp, in the slums or in Silicon Valley, access to schools and to education is defining the future of our children. Schools, universities and other educational institutions all require an architecture that enables a productive learning environment, but architecture also has a role to play in creating affordable, accessible and inclusive educational solutions for communities with limited resources for conventional buildings or limited access to an existing school system. Examples can be found in designs that enable study at night, such as solar-powered reading lamps for off-grid rural areas, in movable classrooms for the children of migrant workers and in school facilities for minorities.

Furthermore, the built environment can provide training opportunities regarding the sustainable performance of buildings, settlements and urban areas for both users and craftsmen. In development, as well as use, buildings and communal facilities can interact with and promote a sustainable culture of usage.

On the level of primary education, an increased focus on knowledge regarding sustainable design and crafts will be key in building the future of sustainable development.

Frederiksbjerg School

Origin/team

Henning Larsen, Hoffmann,
GPP Architects, Niras
Møller og Grønborg,
City of Aarhus



5 GENDER EQUALITY

Achieve gender equality and empower all women and girls

Gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world.¹

Yet, gender inequality persists worldwide, depriving women and girls of their basic rights and opportunities. Achieving gender equality and the empowerment of women and girls will require more vigorous efforts, including legal frameworks, to counter deeply rooted gender-based discrimination that often results from patriarchal attitudes and related social norms.²

To find out more about Goal #5, visit:

5 GENDER EQUALITY



To support a movement towards gender equality, the design of buildings, settlements and urban areas must be inclusive to all citizens regardless of gender.

The organization of public spaces, institutions and services must protect the security of girls, women and LGBT+ citizens and help minimize the risk of abuse. The ability to move safely in public spaces, in public institutions and at the workplace is key to the inclusion of women and girls in civil society and to women being able to hold a job outside of their homes, which is key to being self-supporting. Also needed are affordable and secure buildings to provide health services, basic sanitary services and meeting places for women and LGBT+ citizens. Examples of this can be maternity clinics, safe houses or secure public bathrooms.

Design of playgrounds, public parks and sports facilities must offer children and women equal access to leisure and physical activities and create conditions that encourage use by all.

The building industry itself must work towards equal pay, promote diversity and work to oppose sexual harassment. As part of this, the industry must support women's ability to handle heavy construction processes that are otherwise reserved for men, for example by the introduction of lifting technologies. From design through construction, the industry must

Wonder Wood – a loop of movement



Origin/team

VEGA landskab
Rebild Municipality
Frandsen & Søndergaard
Skørping School management

Drøn på Skolegården:
Realdania,
Lokale og Anlægsfonden,
Kræftens Bekæmpelse



6 CLEAN WATER AND SANITATION

Ensure availability and sustainable management of water and sanitation for all

Access to water, sanitation and hygiene is a human right, yet billions are still faced with daily challenges accessing even the most basic of services.

Clean, accessible water for all is an essential part of the world we want to live in and there is sufficient fresh water on the planet to achieve this. However, due to bad economics or poor infrastructure, millions of people including children die every year from diseases associated with inadequate water supply, sanitation and hygiene.¹

6 CLEAN WATER AND SANITATION



To take advantage of rainfall where clean water is scarce, buildings and urban areas must be designed so that rainwater can be collected, purified and used as drinking water.

In areas where rainwater needs not be collected for drinking water, buildings and urban areas must be designed so that rainwater can be collected and used without being mixed with wastewater or being polluted in other ways. As for sanitation, buildings, services, sewage systems and infrastructure must be planned and designed to keep bacteria-contaminated water separate from clean water and out-of-contact with citizens. A key part of this is to ensure access to toilet facilities that are designed to handle the waste produced. Building materials that do not contribute to groundwater contamination should be chosen, whether during extraction, construction or in use.

Furthermore, urban areas, settlements and buildings must be designed to withstand climate change related to water, such as more extreme precipitation, drought and floods. Landscape architecture and urban planning must protect freshwater resources through conservation projects and the design of recreational areas that protect, collect and handle water.

Examples of this are found in water-handling features at building level, as well as climate adaptation projects on an urban scale and communal toilet

sØnæs



Origin/team

The Municipality of Viborg,
Energi Viborg, Møller & Grønborg,
Orbicon, Svend E. Madsen,
the Danish Foundation for Culture
and Sports Facilities,
Realdania, Vandplus
The Danish Nature Agency

8 DECENT WORK AND ECONOMIC GROWTH

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

This goal is about promoting inclusive and sustainable economic growth, employment and decent work for all as poverty eradication is only possible through stable and well-paid jobs.

Today, roughly half the world's population still lives on the equivalent of about US\$2 a day with global unemployment rates of 5.7%, but having a job does not guarantee the ability to escape from poverty in many places. This slow and uneven progress requires us to rethink and retool our economic and social policies aimed at eradicating poverty.¹

8 DECENT WORK AND ECONOMIC GROWTH



The built environment interacts with decent work and economic growth on both a planning level and on a building level.

Safe public spaces and affordable transit routes to the workplace are crucial for finding employment. The ability to move from home to a place, and the time spent in transit, determine what jobs are available, making public space and transportation systems key to citizens' access to work. Cities and settlements must also be planned and designed so that poor and marginalized citizens have access to a business outlet, such as a marketplace, where local produce, handicrafts and other services can be bought and sold. Workplaces must be designed so that they support healthy and productive work environments for employees. Investing in good working conditions back a company's economic growth through higher productivity and fewer sick days.

In the building industry, focus is needed on decent working conditions and safety for workers. This entails the use of materials extracted and produced in safe and clean working environments as well as secure and controlled working conditions on building sites and in demolition processes. Furthermore, by emphasizing investment in human resources, the industry can develop towards more sustainable economic growth by using resources, skills and knowledge to reduce the amount of raw materials and energy needed while raising productivity.

SiteCover

Photo: Dragør Luftfoto ApS



Origin/team
SiteCover

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

This goal addresses the need to build resilient infrastructure, promote sustainable industrialization and foster innovation.

Economic growth, social development and climate action are heavily dependent on investments in infrastructure, sustainable industrial development and technological progress. In the face of a rapidly changing global economic landscape and increasing inequalities, sustained growth must therefore include industrialization that first of all, makes opportunities accessible to all people, and secondly, is supported by innovation and resilient infrastructure ¹

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



The building industry is producing massive amounts of waste and is consuming large amounts of natural resources and energy.

Advancing sustainability in the built environment requires a development of industry and industrial infrastructure away from current practices towards new ways of producing and assembling. We must develop the industry, its services, products and transportation systems, to pollute less, tie up less energy, produce less waste, and provide solutions that are safer and healthier than current standards.

The building industry is by nature site-specific, and we must aim at utilizing local industries and advance the development of sustainable products locally, in all countries. This requires the development of both physical and digital infrastructures to promote more sustainable trade and coexistence, including much more focus on the industry's use of materials and resources. Where advanced industry is available, the focus is on the development of products that improve existing standards and raise the level on sustainability, for example by moving from a focus on waste in production to a focus on no waste in a lifecycle perspective. This requires training and the development of new competences at all levels in the building industry, as well as research and prototypes to test the potential of new tools, processes and solutions. The resulting innovation in industry must continuously be measured against a culturally and

Soft Cells by Kvadrat

Origin/team
Soft Cells by Kvadrat

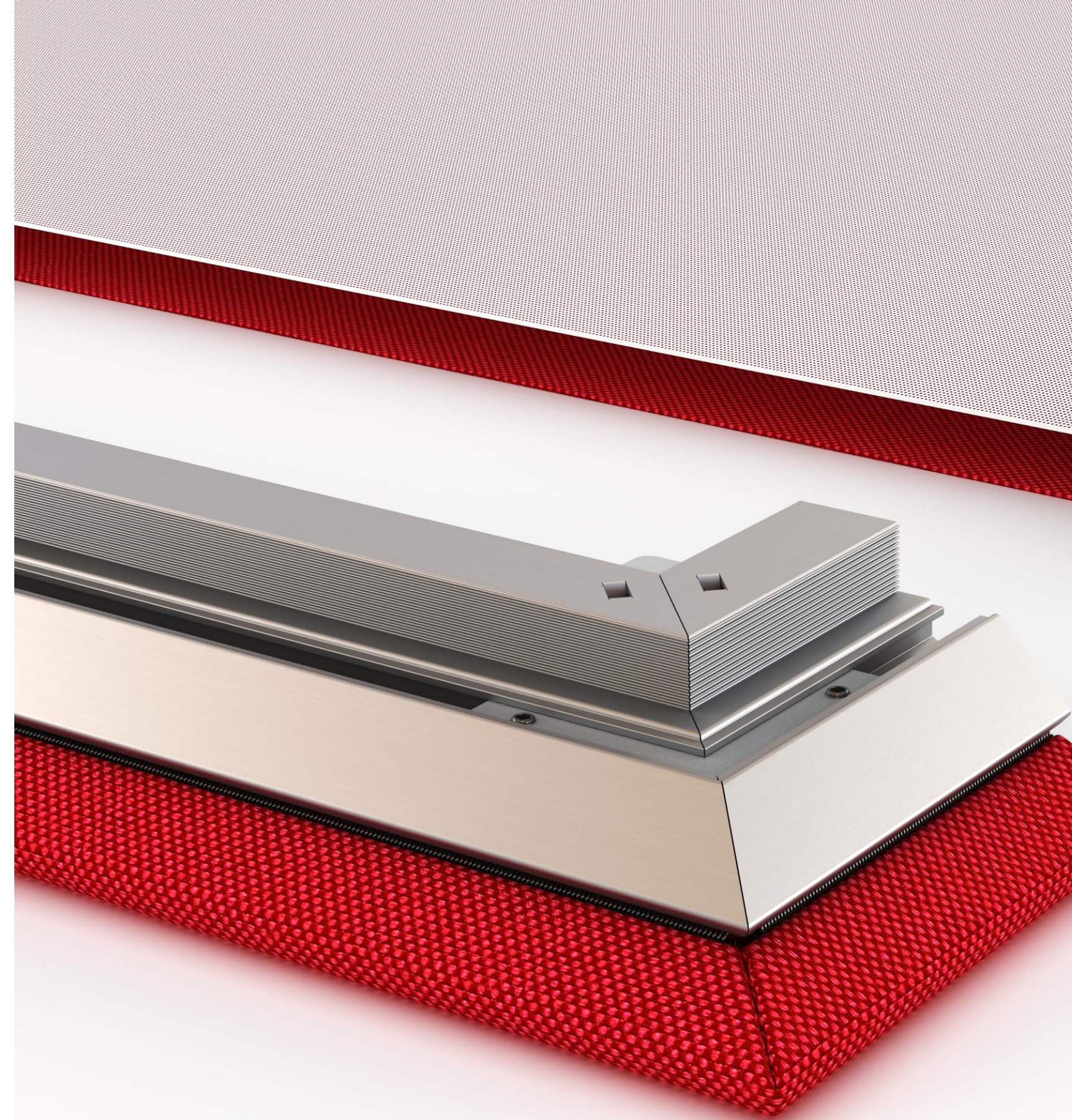


Photo: Ed Reeve



10 REDUCED INEQUALITIES

Reduce inequality within and among countries

Inequalities based on income, sex, age, disability, sexual orientation, race, class, ethnicity, religion and opportunity continue to persist across the world, within and among countries. Inequality threatens long-term social and economic development, harms poverty reduction and destroys people's sense of fulfilment and self-worth. This, in turn, can breed crime, disease and environmental degradation.

Most importantly, we cannot achieve sustainable development and make the planet better for all if people are excluded from opportunities, services, and the chance of having a better life. To reduce inequality within and among countries is therefore a key issue.¹



The built environment can act as an amplifier and enforcer of inequalities.

Disabled citizens risk being confined in their homes or unable to hold a job because stairs, steps and other design features can make streets, transportation systems and institutions inaccessible. Religious and ethnic minorities, LGBT+ citizens and women experience being confined to designated areas or secluded from educational institutions and leisure facilities. Landscape qualities like a beach or a view can be closed to the public through design and planning that make them accessible only to private owners or customers.

To reduce inequalities, architecture must be designed and executed so that it is socially responsible, inclusive and take into consideration the needs of all members of society, leaving no one behind. Building settlements and urban areas must be designed with accessibility as a core functionality, from ensuring even surfaces, lifts and ramps and finding features to giving attention to doorways and the height of windows. It also means that social responsibility and inclusiveness must guide the programming, planning and design of buildings and urban areas so that they support and allow use by all, with respect to local culture and norms. Examples span from state-of-the art office buildings adhering to universal design, over places of worship open to all religions to services and in

The House of the Disabled People's Organization



Origin/team
Danske Handicaporganisationer,
Cubo, Force4, Niras A/S

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Ensure sustainable consumption and production patterns

Sustainable consumption and production is about promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all. Its implementation helps to achieve overall development plans, reduce future economic, environmental and social costs, strengthen economic competitiveness and reduce poverty....

....Since sustainable consumption and production aims at “doing more and better with less,” net welfare gains from economic activities can increase by reducing resource use, degradation and pollution along the whole life cycle, while increasing quality of life¹

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



The building industry is a major contributor to waste.

When buildings are demolished most of the value of the existing materials and components is lost. The same applies to renovations, which transform vast amounts of materials to waste. Even the process of constructing new buildings is producing waste, from cut-off bits of gypsum board to discarded formwork and the wrapping, components are delivered in materials damaged by weather or mistreatment.

Designing for long lifetime, steady maintenance and careful adaptation of existing buildings are keys to sustainable consumption in the building environment. Design considerations for durability and life cycles can reduce the value loss and waste production in the building industry, in individual components, buildings and structures. Ideally, the design of buildings allows them to transform into different uses over time, so that the materials and other resources invested in the structure retain their value when a given use changes or becomes obsolete. Additionally, individual components and materials should be designed and employed so that they can be recycled and upcycled.

Design and construction of new buildings must give priority to reducing the amount of material resources employed and waste produced. For this we need new components and solutions that reduce the use of non-

Upcycle Studios



Origin/team

Lendager Archite
NREP A/S,
Arkitektgruppen
MOE A/S, Norrec

17 PARTNERSHIPS FOR THE GOALS

Strengthen the means of implementation and revitalize the global partnership for sustainable development

A successful sustainable development agenda requires partnerships between governments, the private sector and civil society. These inclusive partnerships built upon principles and values, a shared vision, and shared goals that place people and the planet at the centre, are needed at the global, regional, national and local level.

Urgent action is needed to mobilize, redirect and unlock the transformative power of trillions of dollars of private resources to deliver on sustainable development objectives. Long-term investments, including foreign direct investment, are needed in critical sectors, especially in developing countries.¹

17 PARTNERSHIPS FOR THE GOALS



Every city is built by many hands, and similarly we need to work together to reach the 17 sustainable development goals, as no single stakeholder can reach them alone.

The challenge of achieving the goals requires the involvement of all stakeholders, from governments and institutional actors to researchers, businesses and citizens. Architects, designers and planners can contribute by sharing knowledge, promoting sustainable solutions and engage in collaborative research and institutional partners, to develop and implement sustainable solutions. Examples span from non-profit partnerships to provide housing for the homeless to commercial partnerships to develop new sustainable products and services to the building industry. Key to the partnerships is a willingness to include new knowledge, test new practices, engage with local climate, culture and resources and work with end-users to ensure commitment and ownership in a life-cycle perspective.

Partnerships for the goals also include associations and networks of professionals who have committed to working for the goals. From the International Union of Architects (UIA) which brings together architectural associations from all over the world and represent architects in 124 countries to local study groups sharing know-how of green roofing systems. The challenges addressed by the goals are global; to achieve them we must work together across professional fields and national borders.

The Climate Tile

Origin/team

THIRD NATURE,
IBF and ACO Nordic,
City of Copenhagen,
Malmos A/S, Technological Institute,
Orbicon, Kollision, Smith Innovation,
Realdania,
The Market Development Fund





Spørgsmål og kommentarer?

Hvordan forstår I verdensmålene i relation til jeres egen praksis?