

**COP 2020**  
**GLOBAL COMPACT**  
BIG-BJARKE INGELS GROUP



BIG NYC OFFICE, NEW YORK

## OUR COMMITMENT

At BIG, architecture is the art and science of continually refurbishing the surface of our planet so it better fits the way we want to live. We are pleased to reaffirm our unwavering support of the Ten Principles of the United Nations Global Compact in the areas of Human Rights, Labour, Environment, and Anti-Corruption again this year. In this year's Communication on Progress, we describe our continued actions to integrate the Global Compact and its principles into our business strategy, culture, and daily operations, as well as our efforts to integrate the 17 UN Sustainable Development Goals in our projects. We hold ourselves to the high standards set by the Global Compact and remain committed to sharing this information with our stakeholders. In 2020, we, the Partners of BIG, sign this document to assure the United Nations that we are committed to the continuous respect for the human race and to the integrity of its environment.

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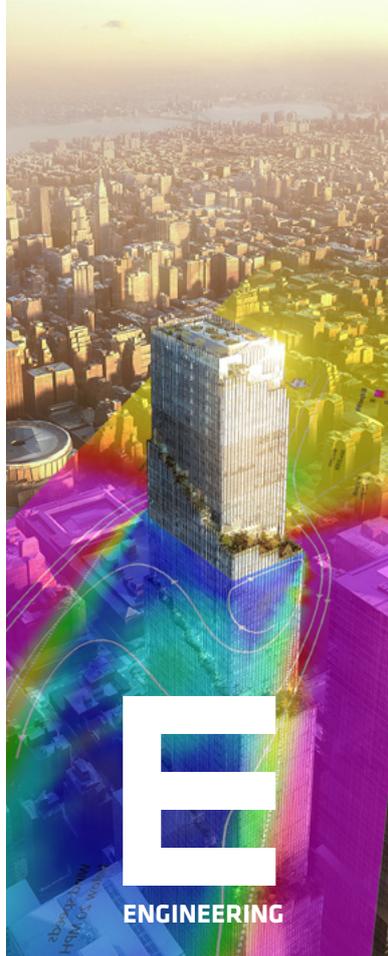
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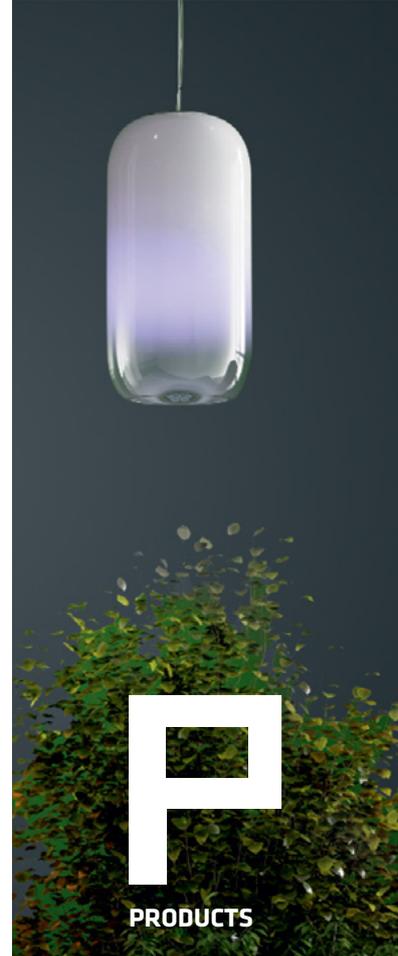
L  
LANDSCAPE



E  
ENGINEERING



A  
ARCHITECTURE



P  
PRODUCTS

## INTRODUCTION

BIG – Bjarke Ingels Group is a group of architects, engineers, landscape architects and designers operating within the fields of architecture, landscape, urbanism, interior design, product design, research and development across our five offices in Copenhagen, New York City, London, Barcelona, and Shenzhen.

Since BIG's founding in 2005, our work has centered around making our cities more livable, resilient, and sustainable. Our early projects were civic and affordable housing projects in Denmark designed around giving communities new green, social and recreational spaces. As the studio expanded into a team that includes landscape architects, engineers, and urban designers, we have continued this approach to nature and public space in the design of projects at a much larger scale. Now that our office has grown to over 600 employees, we have transitioned our design approach to a much more holistic one that we call the **BIG LEAP** comprising a diverse skillset in Landscape, Engineering, Architecture, and Planning. This holistic approach allows us to use our collective creative knowledge to redefine our industry, streamline our design process and impact, and give form to a future that we all want to live in.

Through the success of our projects and research, we are being commissioned by forward-looking developers and municipalities across Europe, North America, Middle East, and Asia. In these projects, we apply our research-based approach and study to local conditions and concerns in an effort to realize their global aspirations. We have active projects in over 30 countries which allows us to collect the best practices in each and bring this collective knowledge to any of our projects we are currently working upon. We strive to understand the nuances of the cultures within which we work, translating it into our own fresh approach to the given task.



## **OUR HUMAN RIGHTS POLICY**

BIG firmly believes that human rights are indisputable universal truths. We are unwavering in our determination to, as far as we are able, provide all humans the rights and freedoms they wish to enjoy. BIG will never knowingly be complicit in human rights abuses, and instead always seek to uphold the rights and freedoms of all, contributing where we are able.

Our ongoing goal has not changed from previous years—we continue to ensure that human rights are developed and supported in the designs of our projects and the way we run our business. As part of our global-diversity, BIG employs aspiring students from countries around the world to enable people from various cultures, backgrounds and experiences to work together, learn from each other, and respect the universal rights we strive to uphold. As we select our clients, our projects, and the regions in which we do work, we carefully consider the positions prospective clients take relative to human rights.



BIG CPH OFFICE, COPENHAGEN, DK

## OUR LABOR RIGHTS POLICY

The Global Compact's principles relating to labor rights are interpreted literally and so followed. BIG opposes any form of forced and compulsory labor, condemns child labor practices, effectively recognizes the right to collective bargaining, and does not practice discrimination. BIG upholds labor rights principals and respects the rights of employees in the many countries where we work.

BIG's greatest asset is its employees. At BIG, we take employee well-being, development, and engagement as seriously as we do architectural design. The larger we grow as a company, the more we strive to create a workplace that encourages input, dialogue, interaction, and collaboration across the network of relations of BIG's flat hierarchy. We believe it is a prerequisite for both our creative processes as well as our project delivery methodology that everybody knows that they can speak their mind and that their opinion counts. All BIG employees, regardless of position held or field of expertise, are given a voice—a voice that will be heard and valued. Employees are more aware of their importance to the company by being encouraged to communicate with the management regarding all areas of the growing company.

As a company headquartered in Copenhagen, BIG follows Danish labor laws, which are known for their labor-friendly employment terms on salary, working hours, overtime pay, holidays, pension, notice periods, and maternity/paternity leave (e.g. every full-time employee is entitled to 30 days' annual leave on the basis of 2.08 day earned every month of work and 5 extra days yearly). A pregnant employee is entitled to absence from work from 4 weeks before the expected birth, and each childbirth gives the parents a legal right to 52 weeks maternity pay from the government.

The unions which exist in the Danish architecture industry are extremely strong, and, should employees choose to join any of these, this choice is respected. However, it is not actually necessary for employees to become members of any such unions to benefit from collective bargaining.



BIGSTERS ACROSS ALL LEVELS HAVE LUNCH TOGETHER IN THE CANTEEN, BIG NYC OFFICE

## **OUR LABOR RIGHTS POLICY (CONTINUED)**

BIG is a member of Danske Arkitekt Virksomheder, the Union of Danish Architect Companies and is therefore bound to implement the benefits negotiated by the architects' unions for architects. There are union representatives for the two biggest employee groups (architects and construction architects) at the office in Copenhagen, and meetings between these and management representatives happen on a regular basis and at least four times a year. BIG also has employee representatives in the well-established Health and Safety Committee and in a Training Committee that reviews the need for continued education for our employees. In addition, there are numerous groups and formalized networks at the office that meet during working hours—with or without management participation.

Our ongoing goal is to ensure the health, well-being, and development of our employees, and we also continue to encourage feedback from and to all employees and aim to better integrate employees into the countries in which they are working as we branch out from our home base in Copenhagen into the rest of the world.

There are several feedback mechanisms installed to ensure we capture feedback from employees on their engagement and well-being—ranging from quantitative surveys, onboarding evaluation conversations with each individual two and a half months after startup, and exit interviews. They allow us to constantly evaluate if there are any employee engagement issues we need to address. Also, we have an additional, voluntary opportunity for employees to have focused input on how to strengthen skills.

An important part of the workforce at BIG are students (interns), as it is common practice to spend six to eighteen months during the training to become an architect or construction architect. This group has a formalized forum where it can meet during working hours. We have also established an intern evaluation system, which allows interns to discover their strengths and weaknesses following the completion of projects as part of their architectural education.



## **OUR LABOR RIGHTS POLICY (CONTINUED)**

### **NO FORCED LABOR**

There is neither forced nor compulsory labor at BIG, and we do not condone or tolerate this within our own office or in the offices of our collaborators. Should any managing partner be informed that employees are forced to work, the situation will be swiftly resolved. We do not accept policies of companies, clients, colleagues, or collaborators that employ forced labor. In countries where this could be an issue, and where we are able to influence the construction process, forced labor of any kind will not be tolerated whether the collaborators are from the private or public sector.

### **ABOLITION OF CHILD LABOR**

BIG is not involved in any projects that make use of child labor, nor will we ever be. The epitome of BIG's philosophy of hedonistic sustainability is the opposite of children forced into a situation of labor. Hedonistic sustainability is about creating tolerable situations in which all peoples may live happily; BIG will never tolerate child labor and will always support all efforts to abolish this practice.

### **WORKPLACE SAFETY**

As an architecture studio, BIG maintains workshops fully equipped with the most advanced laser cutters, wood cutters, and tools and materials necessary to produce architectural models, in addition to the facilities of an average office. Thus, we have strict guidelines for use of the model workshops and take extreme precautions to ensure the safety of anyone handling said tools and machinery. All employees are given a workshop orientation with the workshop manager, covering basic safety guidelines and proper workshop protocol to ensure the workshop is a safe place to work for all. Proper ventilation is provided for the spray painting and foam cutting areas. The office first aid supplies are kept on an easily accessible and clearly visible shelf, and are regularly checked and restocked.



BIGSTERS SHARE THEIR UNIQUE SKILLS IN BIG SCHOOL

## OUR LABOR RIGHTS POLICY (CONTINUED)

### EMPLOYEE ENGAGEMENT

As mentioned above, BIG has a well-established Health and Safety Committee that oversees the safety and health of all employees. BIG also conducts work place assessments regularly and since 2017 the focus on the psycho-social and engagement-related matters has been expanded.

In addition, BIG has instituted a number of activities to support the health of our employees, such as a healthy company-subsidized lunch, discount deals for employees at gyms and fitness-centers, and company subsidized participation in sporting events.

BIG is committed to offering growth and learning opportunities across all offices. Hence, we have established BIG LEARN - an umbrella of various initiatives that support this development. In 2020, we established BIG ACADEMY, an internal education program, that offers courses in project leadership and management, BIM, Computational Design, Tech, Sustainable Architecture and the UN SDG's. Additionally, we offer an in-house lecture series, BIG PICTURE, inviting external, inspirational speakers to present at our offices, as well as BIG SCHOOL, where BIG employees are invited to share their own expertise in monthly presentations and training sessions available to all employees. BIG also supports staff with a \$250 continuing education fund per employee which can be used towards memberships, certifications, or outside courses. With these initiatives we aim to give our employees the opportunity to growth their skillset and develop unique competencies.

BIG participates in the Global Goals World Cup, a sports and advocacy game geared towards forwarding the UN Sustainable Development Goals by 2030. With past games having been conducted in Copenhagen & Nairobi, representatives of BIG NYC took part in the finals in New York in 2017. The game was opened by her Royal Highness the Crown princess Mary of Denmark and was refereed by UNDP Goodwill ambassador Nikolaj Coster-Waldau & Nobel Peace Prize nominee Victor Ochen.

Finally, BIG has always offered profit sharing as a means to ensure that when the company is doing well, all employees—from kitchen and reception to executive's office—are recognized for their contribution and receive their share. There is no discriminatory risk in the program as employees in the same job family receive the same percentage of their salary.



BIG NYC OFFICE, NEW YORK



*BIGsters come from 30 home countries to help forge a truly international office that applies lessons from our work around the world to each project.*

## OUR LABOR RIGHTS POLICY (CONTINUED)

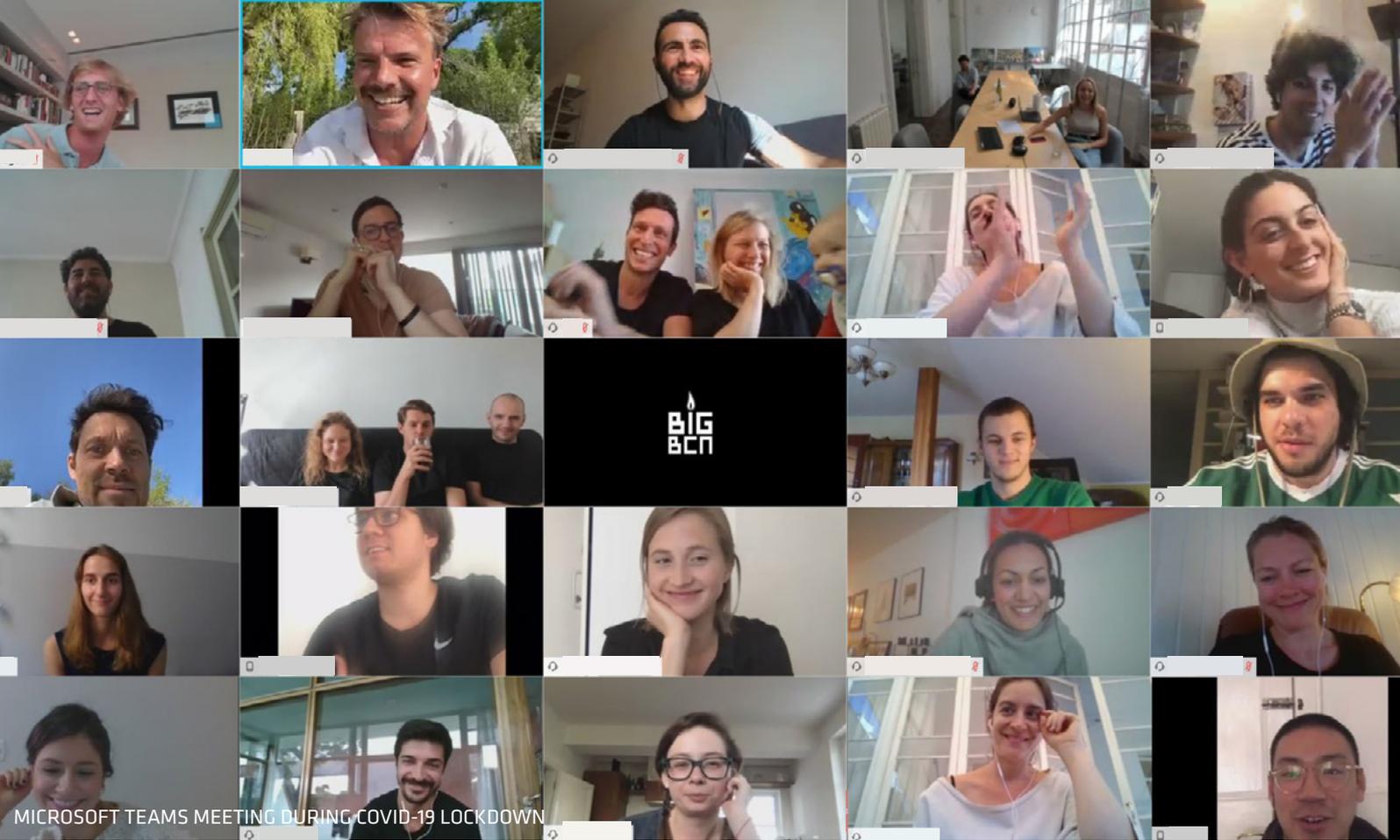
### ELIMINATION OF DISCRIMINATION

BIG upholds this principle by choosing to not practice discrimination of any kind. All employees are chosen on their talents and skills alone, as well as the requirements for the project. Diversity has been part of our DNA since BIG's foundation. A multitude of cultures and backgrounds creates a new point of reference which leads to amazing insights. At BIG, we celebrate and support diversity because it makes our team, work, and the built environment better. We are proud to be an equal opportunity workplace and take affirmative action to employ equally regardless of race, color, ancestry, religion, sex, national origin, sexual orientation, age, citizenship, marital status, disability, gender identity, or Veteran status.

BIG has a zero-tolerance policy with regard to discrimination in or outside of the workplace. BIG is committed to providing a work environment that is free of discrimination. In furtherance of this commitment, BIG strictly prohibits all forms of unlawful discrimination, including on the basis of race, religion, or any other category protected by applicable state or federal law. Beyond discrimination, we do not take bullying and harassment of colleagues lightly. The BIG personnel handbook states that bullying and harassment are not tolerated in or outside of the workplace.

As BIG employs nearly 30 nationalities, we have a particular focus on ensuring that all feel treated with respect and are included at the work place. This comes naturally due to the diversity of the workforce. English is installed at the official language at work, ensuring all work on equal terms. The above-mentioned employee representatives come from all parts of the world (India, Hawaii, Denmark, China, France etc.). We have national diversity in all managerial levels and report on this internally on an annual basis.

We treat gender equality with the same focus. As a company led by a female CEO and where a third of the Group Management (C-suite) are female, BIG strives to have a gender distribution at all managerial levels that mirror the organization. In 2020, 46% of the total workforce at BIG were women: 43% of architects/designers; 31% of Associates, and 39% of all in a managerial position are women. While this is a satisfactory reflection, we continue to strive for a better balance and in particular to see more women in the Partner group.

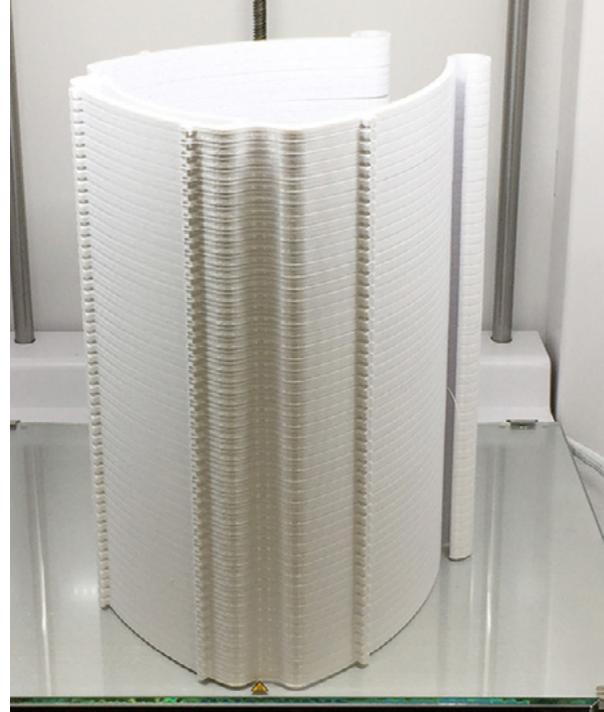
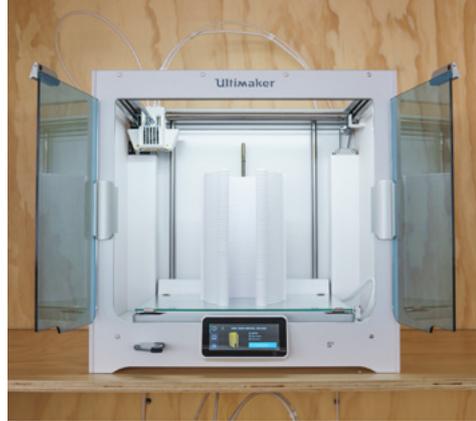


## COVID-19 INITIATIVES

Due to the international pandemic of COVID-19, this year has been utterly different and challenging for our company and employees, due to working from home, the increase of online formats, and decrease of social interaction. As a mean of the situation, it has been, and still are, a high priority for BIG to help where help is needed. This include both internally in our organization, caring for all employees and ensuring both a physical and mental well-being, as well as externally, helping society with the increasing challenges we are facing.

### BIG CARES

This year, it has been important for us to ensure the well-being of all BIG employees working remotely. Therefore, we have established a group of employees, BIG CARES, with the focus to fight loneliness and all the effects caused by working from home. Throughout the year, BIG CARES has mobilized various initiatives, among others an increased amount of regularly check-in meetings across all departments, online Friday bars with different events and activities, online workouts twice a week etc. Additionally, due to the travel restrictions, BIG arranged Christmas Eve celebrations for employees not able to travel home to their families, as well as encouraged other employees to invite anyone sitting alone to join their Christmas Eve.



3D-PRINTING FACE SHIELDS

## COVID-19 INITIATIVES (CONTINUED)

### CARING FOR THE SOCIETY

In response to the acute and escalating need for scarce life-saving equipment requested by doctors and nurses in New York City and elsewhere, we joined the effort by mobilizing all our 3D printing and model making capabilities to efficiently produce visors. By adapting and optimizing the open-source file design for high volume print production, made by Erik Cederberg from 3DVerkstan, we were capable of printing up to 50 visor components simultaneously. We printed nearly 5,000 visor a week in-house in our offices in Copenhagen and New York City, and in total an amount of 20,000 visors were delivered to various hospitals in Spain and USA, including Cornell and Mount Sinai Hospitals in New York City.

Additionally as a result of school lockdowns, many students were not able to study from home due to not having access to a computer. To help, we mobilized BIG Shareware Computer Donation 2020, donating several unused hardwares to schools in Brooklyn, in New York, to ensure students without access to computers were capable of continuing their studies throughout the lockdown. All students receiving a computer were asked to sign a code of conduct, stating that they would participate and complete all remote learning lessons. The ambition was to encourage and support all the students to study and not feel limited by the current situation influencing many aspect of their lives.



*Our goal is unwavering: BIG neither subscribes to nor encourages any form of corruption.*

## **DISADVANTAGED BUSINESS ENTERPRISES**

BIG's philosophy of an inclusive and proactive design process extends to how we assemble our project teams; BIG regularly works with consultants from various fields, such as civil engineering, landscape, and historic preservation, who are registered as disadvantaged business enterprises. These include Minority- or Woman-Owned Business Enterprises (M/WBE), Local Disadvantaged Business Enterprises (LDBE), Veteran-Owned Small Businesses (VSOB), and other such classifications. BIG supports the goals of Requests for Qualifications/Proposals offerors to include disadvantaged enterprises, and, as a respondent to these RFQ/P's, BIG composes teams to meet and even exceed these goals. One example is the pursuit of an academic project in Virginia, we put together a team comprising 50% Small, Women-owned, and Minority-owned Business (SWaM) certified consultants.

## **ANTI-CORRUPTION**

BIG values transparency and does not tolerate any form of corruption. We are determined to maintain the highest standards of integrity and work ethics among our staff and across all areas of activity. We therefore maintain a zero-tolerance policy towards corruption in all its forms.

Externally, when submitting to Requests for Qualifications (RFQs) or Requests for Proposals (RFPs), we always inform the client if there is any potential conflict of interest and make sure that the collaborators on our team do so as well. When choosing projects to pursue, BIG also makes sure that our collaborators and clients are not involved in any activities that suggest corruption. We will not give or accept bribery in any form, and we will not use deception, trickery or breach of confidence to gain an unfair or dishonest advantage.

BIG will not participate in corruption; BIG will not contribute to corruption; BIG will not support corruption.

# BIG Planet



**BIG is taking steps to help earth and are making strides to generate a healthier company where we can be proud to say that we are doing our part for the environment.**



**A truck load of plastic is dumped into the ocean every minute. For every square mile of ocean, there are 46,000 pieces of plastic floating on the surface.**

**Therefore, we are switching to all green and reusable supplies, and we need your help in discarding of your trash in the proper containers. Please be mindful and discard your waste responsibly.**

*Buildings move slowly, cities move slower, and the world is even slower; but every step counts.*

## **OUR OFFICE ENVIRONMENTAL POLICY**

On the smallest of scales and on a daily basis, BIG follows the “reduce, reuse and recycle” principles in the office. Due to COVID-19, we have had limited access to working in all our offices this year. However all our efforts to reduce the overall carbon footprint as a company are still continuing and highly prioritized.

When making architecture models, we save material by optimizing the space on a block of foam or wood and reuse leftover material whenever possible. Leftover material that cannot be reused is systematically recycled according to type—wood, paper, foam, plexi, and other plastics. We are continuing to use Polyactic Acid (PLA) as a primary material for all our 3D printing. PLA is a renewable corn sugar-based biodegradable plastic. We are always finding greener alternatives for all products and materials that we use in our office, and educating our staff on best practices to ensure that materials are recycled and reused to our best abilities office wide.

Since moving to DUMBO in 2018, BIG has encouraged its NYC staff to spend more time outdoors, taking advantage of our office’s rooftop overlooking the Manhattan bridge and Eastern waterfront, to make phone calls, take a break, or enjoy lunch with colleagues. Conveniently near public transportation, our office also features ample bike storage and actively encourages employees to bike to work from Brooklyn or Manhattan. This year, the copenhagen office has replaced the diesel driven BIG van with a hybrid car, offering a ‘sharing’ concept that allows all employees to use it in business and private matters. With this initiative, we encourage alternative transportation, reducing the need for cars in the city. We continue to have 2 meatless days per week from our catered lunch program. We purchase only organic produce and prioritizing local, farm fresh vendors for all office meals and snacks. Our office staff makes a concerted effort to cut down food waste and compost whenever possible. Finally, we work diligently on smart, sustainable waste management and try to donate food or materials rather than throwing them out whenever possible.

Due the global nature of the company, having projects in every part of the world, we are conscious of the environmental impact of travels. Previously, we have set up web-conference facilities in all offices and laptops, allowing for on-line meetings to replace flights when possible. When travelling, hotels are booked via a social-impact hotel platform, Goodwings, that ensures that approx. 5% of the hotel spend is allocated to NGOs whose work supports one or more of the UN’s SDG’s. Due to this year’s travel restrictions, we have realized online meetings can be as efficient as travelling for meetings, which will be considered much more going forward.



BIODIVERSITY IN PENANG, MALAYSIA

## OUR ENVIRONMENTAL APPROACH

### SUSTAINABILITY AND FIRM GOALS

Our innovations in the industry derive from a plethora of in-house professional perspectives. As human presence and impact on the planet escalates in the form of climate change the scope of our responsibility must rise along with it. As architects, we have applied holistic architectural thinking at the scale of the building, the neighborhood, the city, the country, the region, and even the planet. The collective knowledge of BIG LEAP allows our five studios in Copenhagen, New York, London, Barcelona, and Shenzhen to address complex global challenges from a vast range of perspectives, using our expertise and curiosities to build sustainably and equitably. The holistic approach to our projects allows BIG to find solutions to larger societal issues tailored to their place and time.

BIG's fully integrated and holistic design process breaks down the barriers between disciplines. BIG engineers, architects, landscape designers, and urban planners collaborate at every step of the project from sketch through construction, bringing the art and science of design together to advance both beautiful and practical design iterations. Our collective approach streamlines the design process with a shared culture, workspace and language, allowing us to more quickly work toward one ultimate goal—a better and more sustainable project. Our data and technologydriven approach allows our team to amplify sustainability in design and construction through a wider lens than the traditional scope of architecture, so that sustainability is not an afterthought, but an integral part of every project from day one.

BIG is a part of Architects Declare US, Denmark, UK and Spain, a volunteer-led initiative stating that the world faces a joint emergency of climate change and biodiversity loss and pledging to do something about it. Projects of this character demand a will to deal with the futures of unknown possibilities. This includes technological breakthroughs, developments of new materials, climate changes, economical variations, human mobility, and social experiments. As humans are the greatest force shaping the planet today, we've expanded our sustainable practices to promote the design of cities that are sustainable not only in their effects on the environment, but people too, developing social and cultural resources and destinations for populations globally.



GOOGLE CHARLESTON EAST IN MOUNTAIN VIEW, CALIFORNIA, USA

## OUR ENVIRONMENTAL APPROACH (CONTINUED)

*We see our projects as opportunities to increase the quality of life, and we approach the question of sustainability not as a moral dilemma but as a design challenge.*

### DESIGN APPROACH

We have always incorporated sustainable initiatives into our projects by thinking outside the box. The general perception of sustainability is an idea of a moral code: How much of our existing quality of life are we prepared to sacrifice to afford being sustainable? It is the perception that it has to hurt to be good and that a sustainable life means doing less than a normal life. But we are looking at how sustainable cities, or sustainable buildings, can increase the quality of life; we look for ways of designing cities and buildings as double ecosystems that are both ecologically and economically profitable, and where the outcome doesn't force people to alter their lifestyles to have a better conscience. People can live exactly the way they want, or even better, because the world and the city are designed in such a way. We continue to strive for what we call "hedonistic sustainability," which is sustainability that improves quality of life for everyone while minimizing the impact on the surrounding environment.

We begin every project with a climatic analysis which then allows us to choose the appropriate sustainable strategies and technologies. We site buildings to optimize their solar orientation, integrate inventive daylighting measures, green roofs, geothermal systems, and greywater systems, and address the challenges of brownfield sites. Our strategies always look at the ongoing life cycle value by reducing material, money, and time dedicated to maintenance.

Our internal department of Computational Design Specialists, including architects, engineers, programmers and researchers, called BIG Ideas, acts as a research and development consultancy meant to support the designs coming out of BIG's offices, as well as develop new products and building materials using comparative methods for energy modeling. This further builds on our holistic design approach and body of knowledge that can cross-pollinate our projects across offices and can exponentially improve how we approach every project and select best suited systems over time.

BIG strives to consider and design with environmentally friendly materials, even on larger scale projects – essentially always thinking out of the box to create innovative building solutions with materials that haven't necessarily been employed before in a similar context. We prioritize pioneering ambitious design and construction to pave the way with precedents for future projects and become an example in the greater architectural field.



## OUR ENVIRONMENTAL APPROACH (CONTINUED)

### CERTIFICATIONS

We are currently building projects seeking certifications in LEED, Green Mark, Minergie, DGNB, BREEAM NO, HQE, Estidama, and Passive House Standards.

Current projects that have received or are seeking LEED certification include among others Shenzhen International Energy Mansion in China (Gold), two residential towers, The Grove at Grand Bay, in Miami (Gold), Omniturm Tower in Frankfurt (Platinum), Google Charleston East Headquarters (Platinum), the Heights School in Arlington (Gold), Telus Sky Tower in Calgary (Platinum), the Vancouver House tower in Vancouver (Platinum) and an office building in Philadelphia (Gold). To name a selection of projects achieving other certifications: King's Cross Google Headquarters in London (BREEAM Excellent & LEED Gold), The Plus factory in Oslo (BREEAM Outstanding), BIG Headquarter in Copenhagen (DGNB), and Audemars Piguet Museum in Le Brassus (Minergie). Our designs have received sustainability awards including the Scandinavian Green Roof Award for our 8 House residential development in Copenhagen. For the BIG U, the design has received the 2015 AIA National Honor Award for Regional and Urban Design, 2015 APA National Planning Excellence Award for Urban Design, the 2015 Bronze Holcim Award for Sustainable Construction, and many others. The Superkilen Masterplan in Denmark has been recognized by the Aga Khan Award for Architecture as well as the International Civic Trust Award winner.

Additionally, as a member of the UN Global Compact, BIG has pledged to support the 17 UN Sustainable Development Goals. We use these goals as internal metric to understand how our projects can have a positive impact on people's live and the environment, and carry those metrics through the project to completion.





COPENHILL IN COPENHAGEN, DENMARK

## **BUILD INCLUSIVE AND ACCESSIBLE GREEN AND PUBLIC SPACES, THAT FOSTER A SUSTAINABLE DEVELOPMENT IN CITIES**

*"BIG takes the industrial architectural typology and transforms it ... offering a new breed of waste-to-energy plant."*

*- MIPIM Future Award Jury*

Last year, the celebrated BIG-designed Copenhill in Copenhagen was open to the public - the Waste to Energy Plant. The plant is the first of its kind—economically, environmentally, and socially profitable. Not only is it the cleanest waste-to-energy plant in the world, but also a recreational destination for everyone from Olympic skiers to locals looking to hit the slopes, climb the tallest rock wall in the world, hike, mountain bike, or enjoy views of Copenhagen. The project is our most blatant manifestation of social infrastructure: a piece of public utility that opens with positive social and environmental side effects from day one. CopenHill converts 440,000 tons of waste annually into enough clean energy to deliver electricity and district heating for 150,000 homes, producing 25% more energy than the original plant from the same amount of waste. Copenhill harvests local resources, rainwater, daylight and natural airflows. The 10,000 M<sup>2</sup> green roof includes 400 plant species, addresses the challenging micro-climate of an 85m high park, rewilds a biodiverse landscape and adds social spaces for all species not just human.

As a new typology, CopenHill is a great example of hedonistic sustainability. It goes beyond being only environmentally profitable, by adding a new urban spaces for citizens and becoming the bedrock of the social life in the city. Hence, the plant has stimulated many conversations around sustainability. In its opening week, Copenhill hosted C40 Cities sustainability talks, and became an important part of the Mayor's commitment to achieving carbon neutrality for Copenhagen within the next 5 years. The power plant has become an international landmark for visits from global leaders including Michael Bloomberg and Greta Thunberg.



10 REDUCED INEQUALITIES



DORTHEAVEJ 2, COPENHAGEN, DK

*As life evolves, so should our cities and buildings. If they don't fit with the way we want to live our lives, it is our responsibility to make sure we change the city and make our physical world a bit more like our dreams, or our fantasies.*

## **REDUCE INEQUALITY WITHIN AND AMONG COUNTRIES**

“Yes is More” is our optimistic motto for inclusivity—an architecture that is driven by saying yes to all the demands and concerns of the surrounding society. Buildings are never stand-alone entities. Instead, they are part of a larger network, a campus tied together by rich public spaces and the complex urban context. As such, we involve and engage our clients, the community, future users, and any other experts and stakeholders early in the design process, to broaden our own understanding of a project through their input, which directly impacts our examination and analysis.

Similarly, we seek opportunities to work in all parts of the world—from hot to cold, and even, in outer space—to promote a more inclusive and equitable society through our design of the built environment. By working internationally, BIG has a unique opportunity and responsibility to try to affect change throughout the world and break down socio-economic barriers across borders. While some companies refuse to work in certain countries for political reasons, we believe our work in the Middle East, for example, which builds on our extensive cultural experience, can have a positive impact in helping establish a new social infrastructure for the local community by translating our beliefs and principles into the architecture that ultimately shapes society. Across all of our projects, we challenge clients, subvert programs, and shift typologies in an effort to create a more equitable environment for all.



CCF INSTITUTE FOR GIRLS, CAMBODIA

## REDUCE INEQUALITY WITHIN AND AMONG COUNTRIES

We are committed to finding unique ways in which our projects can benefit underserved communities. In Cambodia, we are working on the CCF Institute, a pro-bono project to provide educational, healthcare and community development opportunities for 250 girls living in extreme poverty. The CCF Institute for Girls will ensure that these girls, and future generations of Cambodian girls, are given the resources to be successful in Cambodia's economic developments. The quality and breadth of education provided will mean CCF's girls can enter society as competent, confident leaders who will not only have the opportunity to engage in, but also have the capacity to positively influence, their country's development and that of the region.

BIG is also committed to creating equitable housing throughout the globe. Since 2014, we have been collaborating with World Housing to build a new home in Phnom Penh for every unit of housing of the Vancouver House. This partnership with Wesbank and World House—a one-for-one commitment—is the first of its kind to World Housing by a developer. To date, we have helped build 320 homes out of a total of 375, forming 24 communities and housing 1,500 people, and a projected 375 additional people by completion. With 100 new units of affordable housing built each year, to date we have developed over 200 affordable housing units in New York City alone. In projects including VIA 57 West in New York City and The Smile in Harlem, 20% of units are designated for affordable housing. In Copenhagen, we fulfilled our "Homes for All" mission for non-profit social housing association Lejerbo. The building offers 66 new homes to low-income citizens featuring unprecedented 3.5m ceilings, generous floor-to-ceiling windows and outdoor terraces, realized on a strict budget. The residential building, Vejlevej, in Denmark, includes a total amount of 64 homes divided between 22 private, 31 affordable housing and 11 nursing homes, creating a new community.

Lastly, we are currently undertaking a pro-bono effort to design 3D printed community center for a 500 affordable home community in Tabasco, the third-poorest state in Mexico.



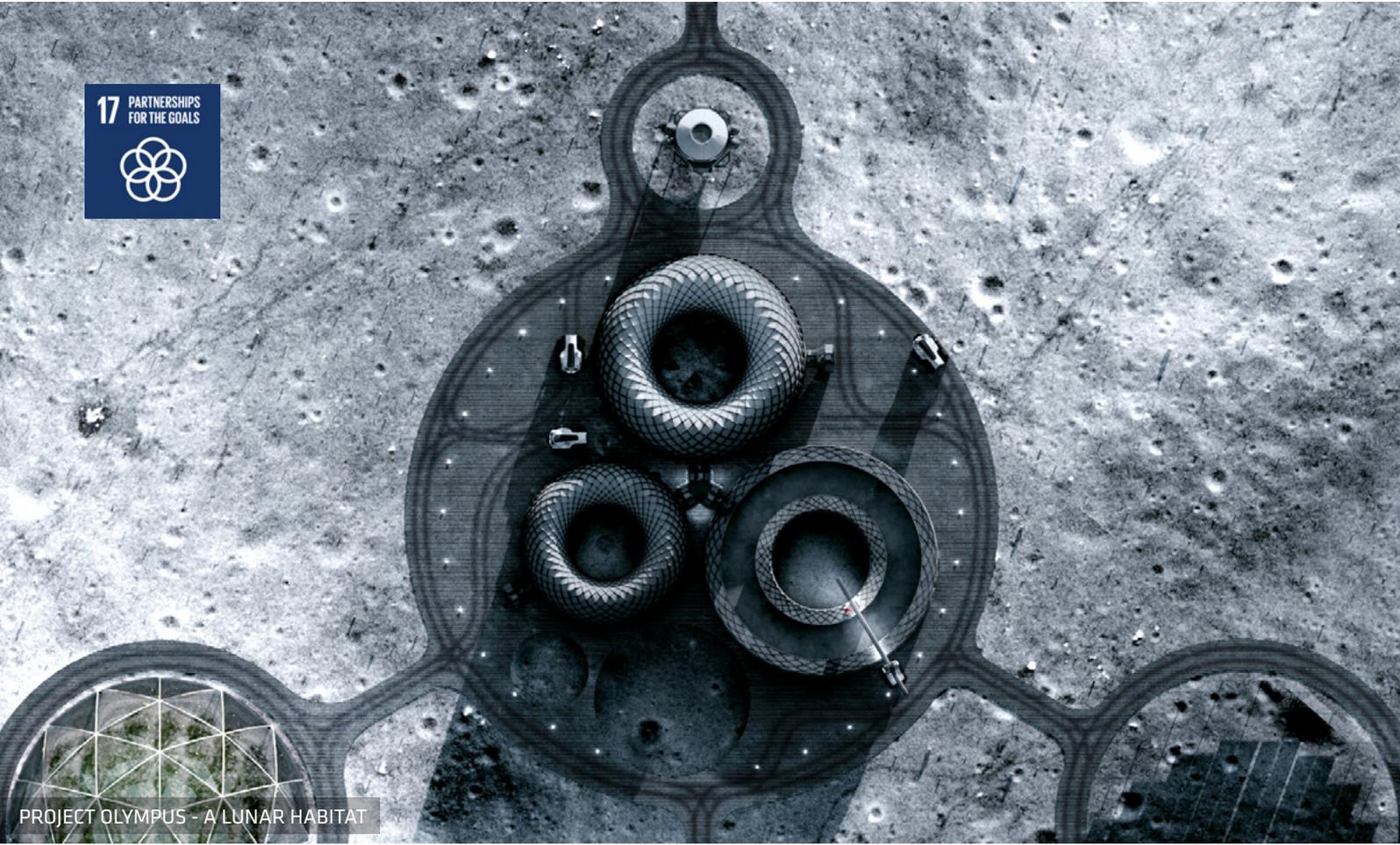
THE PLUS - VESTRE'S FACTORY &amp; EXPERIENCE CENTER

## **BUILD TO ENCOURAGE SUSTAINABLE PRACTICES AND RESPONSIBLE CONSUMPTION AND PRODUCTION**

With the Paris Agreement from 2015, the goal is to prevent the global mean temperature from rising by more than 1.5° C or 34.7°F. Achieving this goal will require greenhouse gas emissions to be halved in less than ten years. At the same time, the world must halt the loss of biodiversity and protect precious natural environments. These are the two key objectives for the Norwegian furniture manufacturer, Vestre, to create green growth: creating economic growth by managing the world's natural resources in a sustainable way. They aim to strengthen the long-awaited green shift in the manufacturing industry, by building the world's most environmentally friendly furniture factory in Norway.

In 2020, BIG realized this ambition, designing the world's most sustainable furniture factory, The Plus, dedicated to the high-end fabrication of urban and social furniture in the heart of the Norwegian forest. Not only is the production inside the factory but also the building itself set to be an example of CO<sup>2</sup> and waste reduction to ensure a long living, flexible and profitable production facility - open and friendly for everyone interested in sustainable furniture manufacturing, landscape design and architecture. The 6.500 M<sup>2</sup> factory located in the woods becomes a new landmark and the evidence that industrial production can be sustainable and profitable in a high cost country like Norway.

With high ambitions for sustainability, The Plus is designed to achieve the very highest environmental rating, BREEAM Outstanding, meeting the goals of the Paris Agreement. The Plus will generate 50 per cent less greenhouse gas emissions than a conventional factory, going beyond the goal of cutting greenhouse gas emissions by 40 per cent by 2030. This is only possible due to carefully choosing all materials by their environmental impact: the building shell meets Passive House Standards and the load-bearing structure is constructed from local, solid wood, as well as low-carbon concrete and recycled reinforcing steel. In addition, a combination of fossil-free and emission-free machines will be used at the construction site. The Plus is designed to inspire manufacturers to become global innovators, strengthening the development of global sustainable practices and responsible production.



PROJECT OLYMPUS - A LUNAR HABITAT

## CREATE PARTNERSHIPS THAT SUPPORT AND IMPLEMENT THE GOALS OF SUSTAINABLE CITIES

*“I have seen hundreds or thousands of presentations about space architecture and work on the Moon, and this is the best I have ever seen.”*

– Mark McDonald,  
NASA Chief Architect

In all our projects, we always strive to create international partnerships and strategic collaborations supporting sustainable innovation and development, as well as knowledge sharing of science, technology and innovation. Since we always seek opportunities to work in all parts of the world—from hot to cold, and even in outer space—we are continuously searching to create strong partnerships across nations to promote a more inclusive and equitable society through our design of the built environment.

As we strive to design the best solutions to the world's most challenging problems, we are currently experimenting with the technologies, robotics, 3D printing and AI. These technologies will be the future of construction as it increases productivity, reduces costs, and allow new design opportunities for optimizing the performance of buildings. Therefore, one of our most significant partnerships is the collaboration with ICON, a developer of advanced construction technologies that help humanity by using 3D printing robotics, software and advanced materials. They have used these technologies to 3D print social housing since 2018.

This year, we extended our partnership with ICON, and teamed up with SEArch+ (Space Exploration Architecture) to work with NASA on beginning research and development of a space-based construction system that could support future exploration of the Moon. As part of NASA's Artemis program, we are designing Project Olympus, a sustainable lunar habitat that will be the first human foray into extra-terrestrial construction with robust structures that provide better thermal, radiation, and micrometeorite protection than metal or inflatable habitats can offer. The construction system includes a 3D-printed structure using local materials found on the moon's surface, which makes the design highly sustainable and reduces waste. In collaboration with NASA's Marshall Space Flight Center, our team will use a simulant of moon soil to investigate a 3D-printable robotic construction. Together with ICON, SEArch+ and NASA, the aim is to develop future building techniques that can be used for sustainable development both in Space and on Earth. Hence, the collective efforts exemplify how we strive for partnerships that support sustainable change.



THE BIG U, NEW YORK, NY

*The Big U approaches the mandate to create large-scale protective infrastructure with a commitment to meaningful community engagement and fine-grained urban experiences.*

## **BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION**

We believe we are at a turning point where the needs of our cities and communities take on increasing importance in waterfront planning. As urban centers around the country turn away from highly trafficked ports and degraded shorelines back towards the kind of harbor life that founded them, these projects represent a new vision of a balanced habitat for a wide range of human, plant, and animal communities. New York City took an unprecedented step in being the first major city to tie its sustainability and resilience plan reporting to the UN Sustainable Development Goals and we are very proud to have taken on a significant role in this series of initiatives.

The Big U is a protective system that encircles Manhattan, responding to the needs and concerns of the island's diverse communities. Stretching from West 57th Street south to The Battery and up to East 42nd Street, the Big U protects 10 continuous miles of low-lying geography that comprises an incredibly dense, vibrant, and vulnerable urban area. The proposed system not only shields the city against floods and stormwater; it provides social and environmental benefits to the community, and fosters an improved public realm. For Phase 3 of Rebuild by Design, the Big U team created coordinated plans for three contiguous but separate regions of the waterfront dubbed "compartments." Each presents unique opportunities for integrated social and community planning. The compartments work in concert to protect and enhance the city, but can also stand on their own. Proposed solutions for the components were designed in close consultation with the associated communities and many local, municipal, State and Federal stakeholders; each proposal has a benefit-cost ratio greater than one; and each is flexible, easily phased, and able to integrate with existing projects in progress.

Projects of this character demand a will to deal with the futures of unknown possibilities. This includes technological breakthroughs, developments of new materials, climate changes, economical variations, human mobility, and social experiments. With this in mind, our urban resiliency projects always include a research phase where relevant problems and potentials are explored. Based on the research we then formulate and develop visionary concepts and thoroughly discussed urban interventions.





BIODIVERCITY, PENANG, MY

## **DESIGN QUALITY, RELIABLE, SUSTAINABLE AND RESILIENT INFRASTRUCTURE TO SUPPORT ECONOMIC DEVELOPMENT AND HUMAN WELL-BEING**

By 2050, 90% of the world's largest cities will be exposed to rising seas. The vast majority of coastal cities will be impacted by coastal erosion and flooding, displacing millions of people, while destroying homes and infrastructure. Following the completion of the BIG U masterplan, we have developed resilient and sustainable toolkits paired with technological innovations for vulnerable coastal cities from San Francisco to Penang, Malaysia.

This year, we won the international design competition for Penang South Islands, initiated by Penang State Government to transform Penang into a sustainable, global destination by providing the area of approximately 4,6 km of public beaches, 600 acres of parks and 25 km waterfront. We have designed a new district around biodiversity - named BioDivercity - using development to actually increase the green space, plant and animal species, and overall health and well-being of the environment, rather than destroy it. The project includes 4,500 acres across three islands off the coast of Malaysia, that integrates localized water resources, renewable energy and waste management, tied altogether in a human-made ecosystem. Rather than designing a city for cars, we designed BiodiverCity for waterways, rail and different kinds of personal mobility, aiming for a car free environment where streets serve as a safe and welcoming thoroughfare for bikers and pedestrian.

The buildings in BiodiverCity will be designed to perform efficiently, hence we have incorporated local natural materials and traditional building practices paired with innovative manufacturing techniques and smart building technology. Buildings utilize bamboo – a 100% renewable material that has six times the tensile strength of steel, a negative carbon footprint, and can be grown on the neighborhoods themselves – and Malaysian timber in conjunction with green concrete and recycled materials. Modular prefabricated systems offer economies of scale and can have greater degrees of customization with advanced robotic technology or on-site 3D printing.



SUSTAINABLE FLOATING CITIES, GLOBAL

## CONSERVE AND SUSTAINABLY USE THE OCEANS, SEAS AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT

*“It is our goal to make sure sustainable floating cities are affordable and available to all coastal areas in need.”*

*– Marc Collins, Co-Founder and CEO of OCEANIX*

As part of UN-Habitat’s New Urban Agenda, we proposed a vision for the world’s first resilient and sustainable floating community for 10,000 residents. Designed as a man-made ecosystem, Oceanix City is anchored in the UN Sustainable Development Goals, channeling flows of energy, water, food and waste to create a blueprint for a modular maritime metropolis.

Oceanix City is designed to grow, transform and adapt organically over time, evolving from neighborhoods to cities with the possibility of scaling indefinitely. Modular neighborhoods of 2 hectares create thriving self-sustaining communities of up to 300 residents with mixed-use space for living, working and gathering during day and night time. All built structures in the neighborhood are kept below 7 stories to create a low center of gravity and resist wind. Every building fans out to self-shade internal spaces and public realm, providing comfort and lower cooling costs while maximizing roof area for solar capture. Communal farming is the heart of every platform, allowing residents to embrace sharing culture and zero waste systems. Below sea level, beneath the platforms, biorock floating reefs, seaweed, oysters, mussel, scallop and clam farming clean the water and accelerate ecosystem regeneration.

Floating cities can be prefabricated on shore and towed to their final site, reducing construction costs. This paired with the low cost of leasing space on the ocean creates an affordable model of living. These factors mean that affordable housing can be rapidly deployed to coastal megacities in dire need. The first Oceanix Cities are calibrated for the most vulnerable tropical and sub-tropical regions around the globe.



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