

Module #6A

Green Design









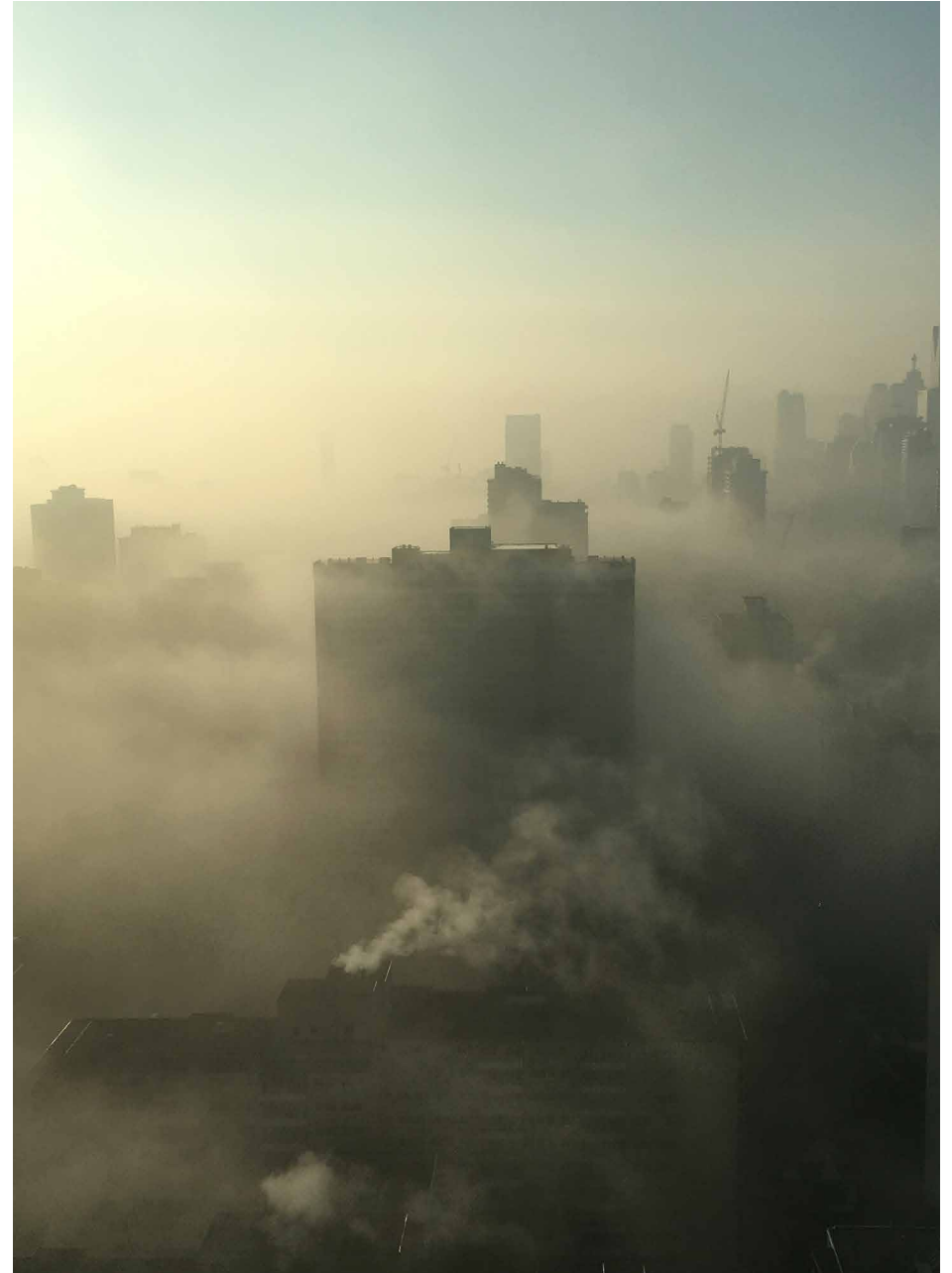






Climate change facts

- Climate change could be irreversible by 2030
- Greenhouse gas levels are at an all-time high
- More than 1 million species face extinction
- Climate change is creating a refugee crisis
- Our oceans are dying
- We use more of the earth's resources than it can renew



Climate change

- The greenhouse gas (GHG), emissions generated by humans (concentrations of carbon dioxide, methane, and nitrous oxides)
- The burning of fossil fuels like coal, oil, and gas for electricity, heat, and transportation is the primary source of human-generated emissions
- deforestation
- fertilizer use
- agriculture and road construction



The effects of global climate change

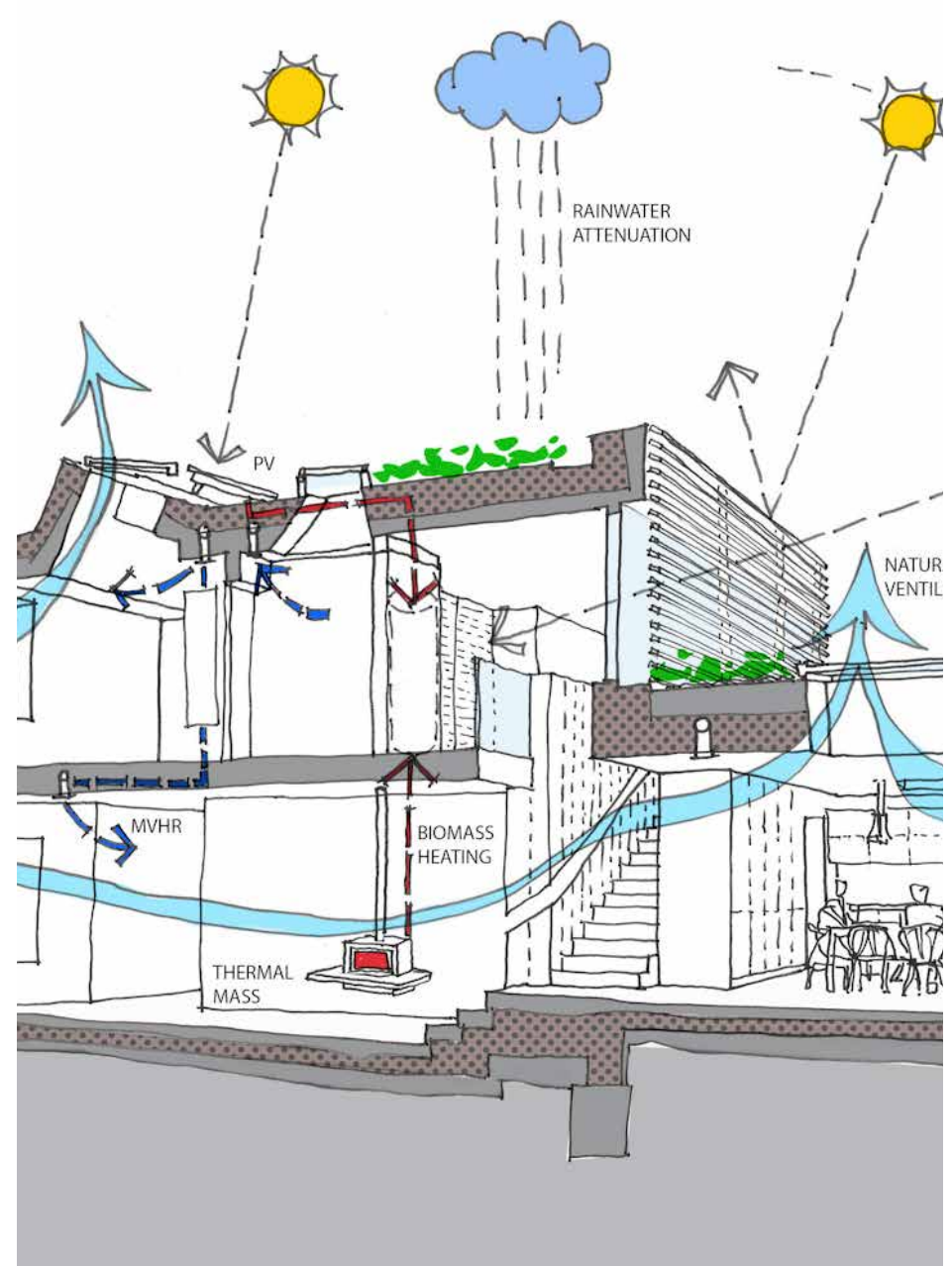
- Extreme weather
- Dirty air
- Health risks
- Rising seas
- Warmer, more acidic oceans
- Imperiled ecosystems



How can designers help?

What is sustainable design?

- Sustainable design is the intention to reduce or completely eliminate negative environmental impacts through thoughtful designs
- This concept can be applied across all fields of design such as designing buildings or products



A sustainable design, regardless of the application, will seek to incorporate environmentally-preferable outcomes such as:

- Lower energy and water consumption through the entire lifecycle – from manufacture to daily use to disposal
- Minimize impact on climate change by reducing greenhouse gas emissions or mitigating them through carbon neutralizing activities
- Limit resource consumption through waste-free manufacturing, a preference for renewable resources, and an emphasis on recycled materials
- Reduce or eliminate waste by minimizing consumption, reusing when possible, and recycling when necessary
- Minimize impact on the local ecosystem and look for ways to incorporate biomimicry principles where possible
- Emphasize quality and durability over price

The Role of Design in Sustainability

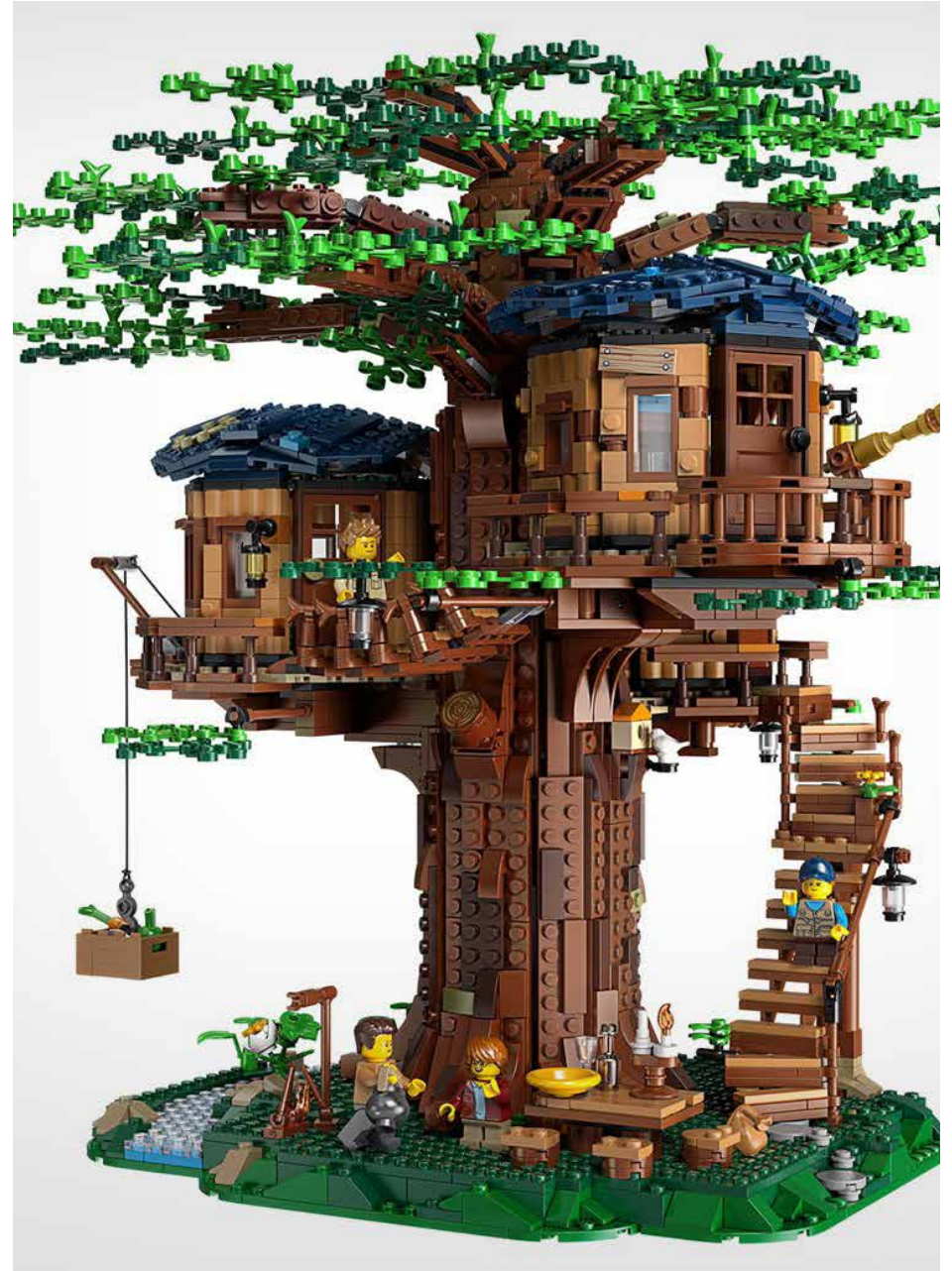


- One of the designer's roles is to solve problems and provide innovative solutions through products or services
- Designers must find innovative and sustainable solutions that can ensure lower consumption of resources and less waste
- Policies inside companies or organizations can unlock untapped capabilities to consider sustainable solutions that can replace old ones in existing products or envision new ones in the new product development (NPD) process

LEGO®

Lego

- Made with plant-based material
- Pledged to make Lego products entirely sustainable by 2030
- Many Lego shapes, particularly round shapes, can now be manufactured using sugar cane
- Lego plans to make all of its packaging sustainable by 2025





Apple

- Electricity consumption during the sleep mode on the Apple iMac has improved 97 percent compared with the first iMac introduced in 1998.
- The product design team has eliminated toxins from the whole design process



The designer's role starts with the very first design thoughts in the process of development and extends to the evaluation of the final product and analysis of consumers' feedback.

Through every part of the process, sustainability should be considered wisely.

In order for the designer to consider sustainable design throughout the process, the question becomes what are the stages of the design process and design development that you can consider changing in order to make a more sustainable product?

Form

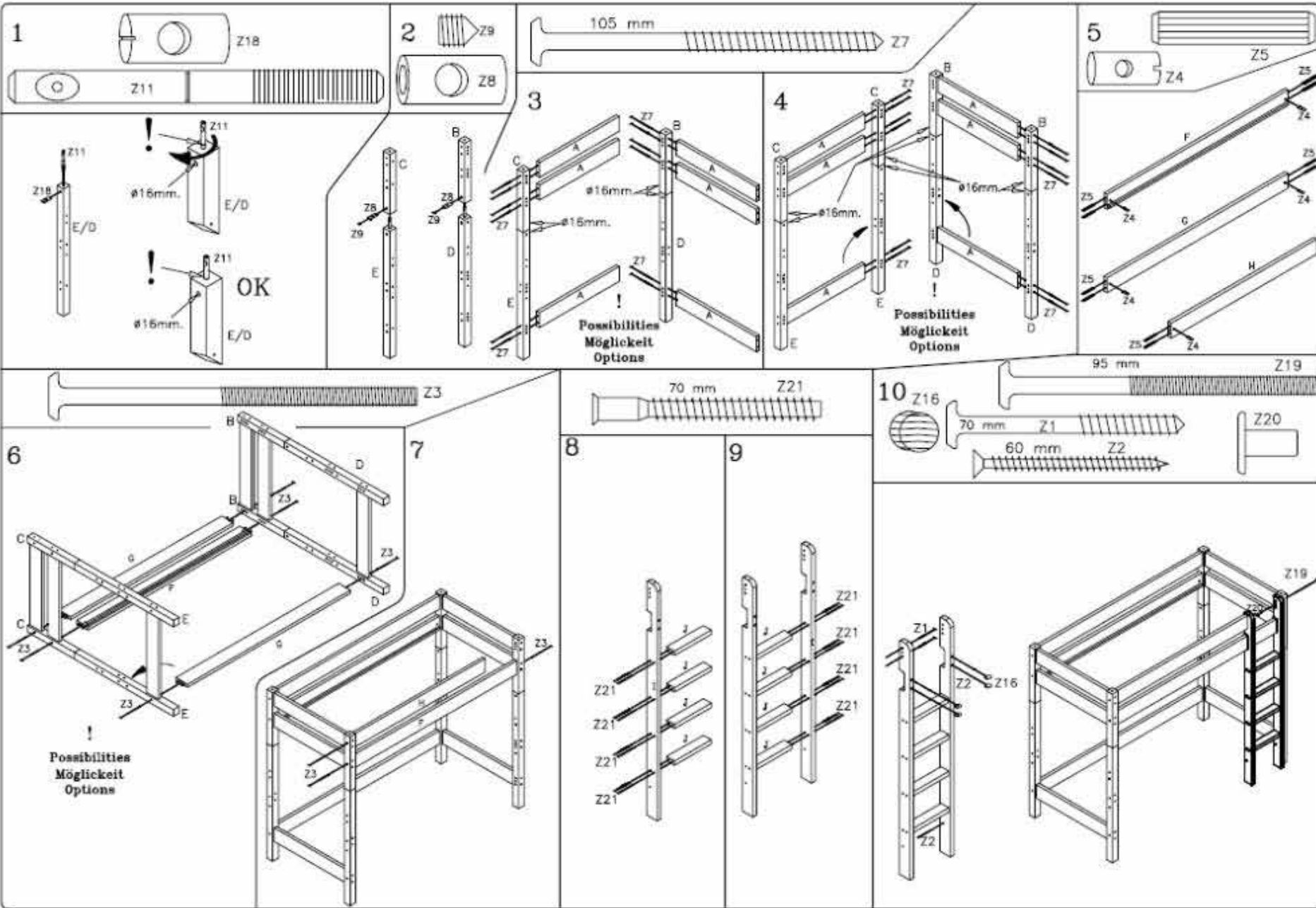


- The form represents the visual shape of the product and is usually perceived to be the main element of the design
- Before designing a product's layout, however, the designer should ask questions like how will the shape affect energy consumption; and how will the size affect the packaging, transportation costs, and fuel emissions?



Ikea

- Delivering an innovative product at the lowest price possible is essential
- Cost was considered a barrier to selling its creative products to a large number of consumers
- Applying self-assembly and flat packaging solutions were among the successful design strategies that helped IKEA achieve its goals
- Products are designed to align with this self-assembly strategy, and flat packs are designed to take up as small a volume as possible during storage and transportation, which subsequently reduces the final product price
- Self-assembly and flat packaging do not only help IKEA reduce the final price of its products but also contribute to achieving its sustainability goals. The small storage area helps it reduce usage of transport and fuels, which align with its Design for Sustainability model



Function and Usability



- The function and usability of the product contributes to its sustainability in an indirect way
- It helps consumers use the product more easily in less time and with less energy consumption
- People do not want to keep hard-to-use products
- Usable products can ensure less waste and throwaways

ALLBIRDS

- Allbirds created an innovative wool fabric made specifically for footwear
- Use of naturally existing materials
- Produces a pair of comfortable shoes from a company that found a new use for naturally existing materials, rather than relying on cheaper synthetics



ONYA

THINK REUSABLE

- Made from 100% food-safe silicone
- Designed to be reused over & over again
- 100% recyclable
- Packaging which is made from post-consumer recycled material and printed with water based inks so it is suitable for both recycling or composting
- Ships low waste and plastic free
- Reuses boxes & packing materials



Recover Brands

- Recover Brands produces clothing that's made entirely out of recycled material.
- They also use the most environmentally sustainable manufacturing methods possible — by eliminating the use of dyes and minimizing chemical, water, and energy use



Cost-effective solutions

- Cost is one of the key barriers that prevents many customers from making the switch from their dependence on non-sustainable products
- Designers and decision-makers are responsible for reducing the cost of current sustainable products



Wal-Mart

- Wal-Mart attributed more than \$100 million of its 2009 revenue to a decision to switch to a recyclable variety of cardboard in shipments to its 4,300-plus stores in the United States
- Now it sells the cardboard to a recycler rather than paying to ship the waste to a landfill
- Sells photo frames made from its polystyrene waste and recycles plastic scraps leftover from producing Wal-Mart-brand diapers into material used in building new Wal-Mart stores



Renewable Energy

- Designers should stop depending on carbon energy and think in terms of building products that depend on renewable energy, such as solar panels and wind farms



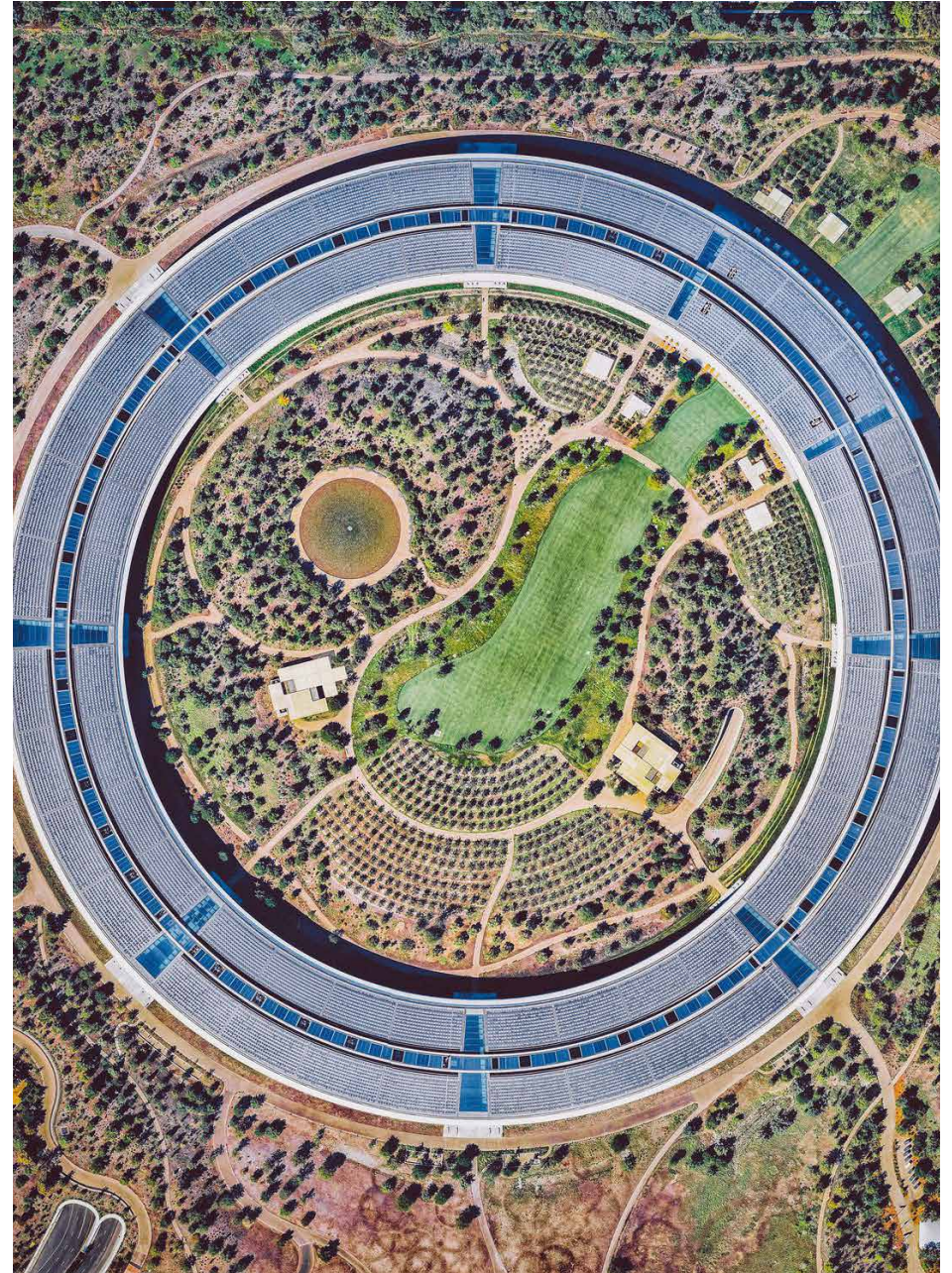
Intel

- The green energy is drawn from sources including wind, solar, hydro and biomass
- It has 18 on-site solar panels which generate electricity capacity of 7,000 kW
- Intel Company uses the green energy to power its electric operation requirements in the manufacture and processing of processors as well as other computer accessories
- The company intends to operate on 100% green energy



Apple

- Runs on 100% green energy
- Has 25 operational renewable energy projects—with 15 more now in construction—in 11 countries
- Apple Park headquarters has one of the largest solar roofs on the planet
- Convinced 23 companies in its supply chain to sign a pledge to get to 100% renewable energy for the portion of their business relating to Apple products





Materials and Recycling

- Materials play an essential role in sustainable design
- Every designer should search for materials that can be easily recycled for which the planet can recreate in a short amount of time



Patagonia



- Patagonia has been making recycled polyester from plastic soda bottles since 1993
- First outdoor clothing manufacturer to turn trash into fleece
- It makes its recycled polyester fibers from a blend of used soda bottles, unusable manufacturing waste, and worn-out apparel
- Recycled polyester can be found in a wide range of Patagonia's collection, ranging from packs to T-shirts to winter weather gear



Everlane

ReNew

- ReNew collection — a line of jackets and sweaters made with recycled plastic bottles
- By 2021, Everlane will eliminate all virgin plastic from its supply chain
- Also, reducing single-use plastic in offices and stores by 50% (March 2019)
- Orders are shipped in 100% post-consumer recycled poly bags (2019)





Adidas x Parley

For the Oceans

- Each sneaker repurposes approximately 11 plastic bottles intercepted before they could enter the ocean
- The colorways mimic the environments they seek to protect — seafoam blues, deep greens, and a spectrum of navy species
- Adidas' goal is to phase recycled plastic into all of its shoes by 2020





1

MARINE PLASTIC WASTE IN COASTAL AREAS SUCH AS THE MALDIVES...



2

...IS COLLECTED BY PARLEY AND ITS GLOBAL CLEAN UP NETWORK...



3

...BALED AND SENT TO PARLEY SUPPLY CHAIN PARTNERS...



7

FROM PLASTIC WASTE TO PRODUCT

THE JOURNEY OF AN ADIDAS X PARLEY PRODUCT

...WHICH IS USED TO CREATE ADIDAS X PARLEY PRODUCTS.



6



5

...TO BECOME A HIGH PERFORMANCE POLYESTER YARN: PARLEY OCEAN PLASTIC™...



4

...WHERE THEY ARE SHREDDED AND REWORKED...



Buffy

- Constructed with a mix of microfiber and eucalyptus fiber
- Aside from being fluffy and naturally cooling, the interior is also filled with no fewer than 50 recycled bottles
- Reclaimed over 750,000 plastic bottles from entering the oceans and landfills
- Saved over 15 million gallons of water by using eucalyptus rather than cotton



Durable Design Solutions



- In order to reach zero waste, products have to either be durable enough to last for a long time or be fully recycled and transformed completely into new products
- Depending on both methods can help recycle products more than one time and decrease the dependence on Earth's resources

Thousand

- Launched a special Climate Collection of its signature Heritage helmet to raise money for 1% for the Planet
- Dedicated to raising awareness about climate change & sustainability
- The helmets sell for \$89 with \$10 from every purchase going to 1% for the Planet





Purist

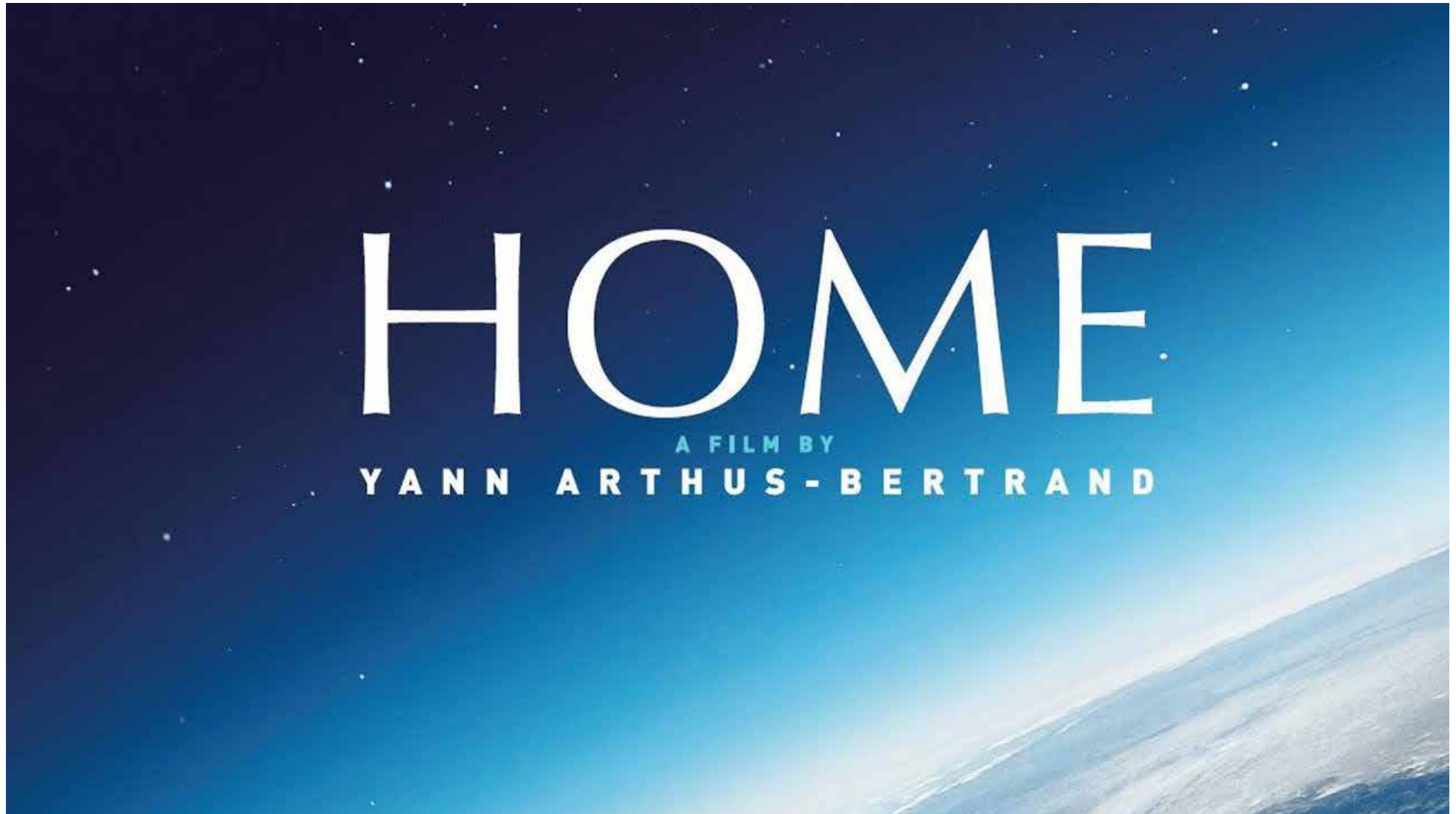
- Stainless steel with an interior glass finish
- Teamed up with p:ear to support homeless and transitional youth



Hydro Flask

- Creates reusable goods that reduce plastic and other single-use consumption
- Hydro Flask products are composed mostly of steel
- They are currently undertaking a greenhouse gas emissions inventory and are working with key suppliers to track their emissions data
- Hydro Flask bottles are recyclable at the end of their life





<https://www.youtube.com/watch?v=E9-k7wtS3bg>

For next class:
Module #6B

Green Design