

8 Design Challenges

Based on The Danish Plastic Federation's publication 'Planetary Plastic Pavilion'

The Royal Danish Academy has developed 8 Design Challenges in collaboration with The Danish Plastics Federation and based on the publication 'Planetary Plastic Pavilion' (2022). Successful projects can be part of Plastic Design Student Award 2023.

Challenge 1

Perfectly Imperfect

Challenge:

How to disrupt the common practice of perfectionism in the plastic industry.

And how does the use of recycled plastics become an aesthetically pleasing experience? From cultural reading, context, identity, and form

Description:

Explore, navigate the high potential recycled plastics and their possible applications while being aware of their limitations and advantages in today's world.

Original Industry Challenge (From Planetary Plastic Pavilion, 2022)

How can we do away with the culture of perfection in plastics - how can using recycled plastic become something beautiful to experience?

Keywords:

Recycled Plastic, Storytelling, Perceived Quality and Objects of Desire.

Challenge 2

Material Driven Design

Challenge:

How can we reimagine the process of design with a predetermined material?

And how this suggested process could establish a dialog, that improves both, between raw materials and its applications to foster a sustainable future.

Description:

The common design process determines first the function, form and aesthetics, and the materials are chosen to fulfil these at a later stage. In today's world we are obliged to re-think all parts of the built environment and improve every node in the process. Materials are at the core of an object's carbon footprint. In order to make radical improvement in creating a sustainable environment we must try and reimagine the process of design that already considers sustainable materials at an early stage.

Creating a stronger link between design and manufacturers as they hold the raw material knowledge and can make material bases sustainable improvements at the manufacturing level.

Original Industry Challenge (From Planetary Plastic Pavilion, 2022)

How can the know-how of material manufacturers come into play early in the game?

Keywords:

Material Driven Design, Design Tools, System Change, Knowledge Loops.

Challenge 3

When Plastic is Good or Bad in Architecture

Challenge:

How do we design a framework that continually allows the replacement of energy intensive materials with sustainable materials in the built environment?

Description:

Some materials in the construction industry are resource demanding and are widely used. This is due to their quality and attributes but in some cases, they could be replaced with more sustainable materials that perform the same or even better. This replacement process usually faces an industry pushback as it requires change, knowledge and disrupts the common practices.

Original Industry Challenge (From Planetary Plastic Pavilion, 2022)

Where and how can plastic replace CO2 burdensome building materials?

Keywords:

Material Driven Design, System Change, Material Analysis, Plastics & Architecture.

Challenge 4

Made for Disassembly

Challenge:

How to create solutions in plastics that are easier to reuse, either by disassembling and repurposing or by reusing directly?

Description:

The building and construction circle must be closed. It is no longer viable that new materials and products are used only once and afterward end up as waste. Plastics consist of many elements and come in many variations and combinations to accommodate to the hyper specialized material demands from the construction industry making them hard to recycle.

Original Industry Challenge (From Planetary Plastic Pavilion, 2022)

How do you make plastic solutions that are easier to recycle, either because they can be reused 1:1 or can be disassembled again?

Keywords:

Material Driven Design, Re-Design, System Change, Material Analysis, Circular Economy, Re-Purpose, Mono or Multi, Plastics in Design

Challenge 5

The Price for Sustainability?

Challenge:

How to create a systematic approach for collecting, sorting, and recycling plastics in the construction industry.

Description:

The recycling process of plastics from the construction industry is an unclear ownership/responsibility and lacking incentives across the value chain making it a difficult challenge. The sustainability aspects need to be assets and a system needs to be design amongst the stakeholders to ensure we live in a more conscious environment.

Original Industry Challenge (From Planetary Plastic Pavilion, 2022)

How do we collect plastic for recycling when it is spread out in so many places?

Keywords:

System Change, Value Creating, Circular Economy, User Perspectives

Challenge 6

Sustainability – A Holistic Approach

Challenge:

How can the properties of plastics be used to transform our cities and ways of living?
- Or not?

Description:

There is a close relationship between materials and architecture. A holistic perspective calls for particular materials. And the materials available to us influence how holistically we can think, ultimately, build. How can a material make tomorrow's sqm conscious sustainable housing affordable, which will affect many people around the globe who are moving into the cities.

Original Industry Challenge (From Planetary Plastic Pavilion, 2022)

How can the properties of plastics be used to transform our cities and ways of living?

Keywords:

Affordable Housing, Material Driven Design, Urban Development.

Challenge 7

When Smaller is Better

Challenge:

How to create and foster a system that enables small scale product development and production possible in a domestic setting? And what are the environmental positiveness of such system.

Description:

Plastics production still exists in Denmark, although the high salaries, because plastic production is carried out rationally in large series and in facilities that are highly automated. This keeps costs down and ensures products of a high, uni-form quality.

But this high degree of automation is not unproblematic for the development of new and possibly more sustainable material compositions. It is costly to convert machinery and hence expensive to experiment. And mixed qualities of recycled plastic are difficult for finely tuned production facilities to handle.

Original Industry Challenge (From Planetary Plastic Pavilion, 2022)

How can we make product development and small-scale production again possible in a domestic setting?

Keywords:

DIY, Small Scale Production, System Change, Production Technologies

Challenge 8

Plastics Free World

Challenge:

Can we imagine a world without plastics?

Description:

There are a lot of criticism and negative opinions about plastics and its usages. Plastics exist all around us, some objects are visible but a lot hidden or just pass unnoticed. The last is very true when it comes to the built environment and the buildings and objects around us. Therefore, when we imagine a sustainable future in which the construction industry and object design play a big role, we must take a deep look into plastics and reveal its current need in today's state, climate and cultural context.

Original Industry Challenge

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Keywords:

Future scenarios, societies without plastics, speculative design