

DESIGNING FOR THE FUTURE

HOW THE CLIMATE CRISIS IS REDEFINING THE INDUSTRY AND PROMPTING DESIGNERS TO USE SUSTAINABLE STRATEGIES WHILST CREATING SPACES.



SUSTAINABILITY...

Fig 1 Sustainability text graphic, London (2020) created by Shannon Sutton (2020) (created 15 January 2021)

SUSTAINABLE

[ADJECTIVE]

DEFINITION OF SUSTAINABLE

1: CAPABLE OF BEING SUSTAINED

2 A: OF, RELATING TO, OR BEING A METHOD OF HARVESTING OR USING A RESOURCE SO THAT THE RESOURCE IS NOT DEPLETED OR PERMANENTLY DAMAGED

B: OF OR RELATING TO A LIFESTYLE INVOLVING THE USE OF SUSTAINABLE METHODS¹

WHAT IS SUSTAINABILITY?

'Sustainability is based on a simple principle: Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment.'² To strive for sustainability, we need to ensure we avert the exhaustion of natural resources. Humans need to aim to exist holistically with the natural world around us to sustain our current modern way of living. Protecting it from damage and destruction.

WHY IS SUSTAINABILITY IN THE BUILT ENVIRONMENT IMPORTANT?

For far too long, operators and designers within the built environment have focused solely on maximising profits and creating 'well designed' modern spaces at the expense of good environmental practices. The construction industry is a catalyst for climate change and is also an extensive user of natural resources. '47% of all UK CO₂ emissions are linked to the construction and operation of the built environment.'³ Furthermore, this industry alone 'contributes to 35% of waste to landfill across the globe.'⁴ It's easy to overlook how wasteful this industry can be, especially when it's responsible for putting a roof over our heads. However, research has shown that if we continue on our current trajectory, we run the risk of destroying our planet. 'Researchers predict that by 2030, if nothing changed, mankind would need two planets to sustain its lifestyle.'⁵ Thanks to the advances in technology, the many new inventions and knowledge we have gained there are a number of ways we, (designers) as a community can start to make change. Adaptive reuse, Circular economy as a design strategy and the Integration of recycled materials are the examples this essay aims to explore.

ADAPTIVE REUSE

Adaptive reuse is 'The renovation and reuse of pre-existing structures for new purposes.'⁶ This allows Buildings to 'Retain unique and authentic characteristics that cannot be manufactured in new construction.'⁷ In addition to this, It's an essential process to ensure materials are not used and wasted any more than necessary.⁸ However, there are often reasonable explanations as to why designers opt not to reuse. In some cases when a structure or a material is not viable, the designer has no choice. 'Historian Daniel Abramson is concerned with a different culprit: obsolescence, or the process of becoming 'obsolete.'⁹ Kiannane stated that 'Architecture both abhors and benefits from obsolescence. obsolescence dissolves the historic and cultural contribution of architecture, but it also creates space for architecture to serve.'¹⁰

"WHOEVER MUST BE A CREATOR ALWAYS ANNIHILATES."¹¹

Nietzsche's idea extends to how many designers approach their projects. Kiannane and many others have argued 'Architecture

needs obsolescence.'¹² Whereas Cairns and Jacobs explore the idea that a human connotation of buildings will force us to think deeper about the nature in which we use buildings. 'Buildings, although inanimate, are often assumed to have "life" And it is the architect, through the art of design, who is the authorised conceiver and creator of that life.'¹³ Yet, giving buildings this kind of human connotation could be indirectly in support of obsolescence. Humans have a lifespan; we inevitably cease to exist at the end of this lifespan. Buildings have their own life span and only cease to exist if we make it so. Therefore, through methods such as adaptive reuse we now have the power to extend their lifespan and potentially 'fix obsolescence.'¹⁴ As this new process saves pre-existing buildings from 'death.'¹⁵ Pre-existing buildings can now be re-purposed and brought back to life which changes the process of annihilation to rejuvenation. A more sustainable alternative to the latter.

Shanghai, Southbound district houses a new development, The Waterhouse. The project is by NHDRO, an architecture and design practice founded by Lyndon Neri and Rossana Hu.¹⁶ NHDRO used a building from the 1930s that was once a three-story

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Fig 1. Sustainability text graphic, London (2020) created by Shannon Sutton (2020) (created 15 January 2021)

6. Merriam-Webster (n.d). Adaptive reuse. In Merriam-Webster.com dictionary. Available at: <https://www.merriam-webster.com/dictionary/adaptive%20reuse> (Accessed: 20 December 2020).

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11. Cairns, S. & Jacobs, J., (2014). Buildings must die: A pervers view of architecture. Cambridge, Massachusetts: The MIT press.

12. Kiannane, O. (2020). Calculating the Cost of Building: Obsolescence, Architecture and Climate Crisis, 1, pp. 13 Available at: https://www.researchgate.net/publication/359570435_Calculating_the_Cost_of_Building_-_Obsolescence_Architecture_and_the_Climate_Crisis (30 November 2020).

13. Cairns, S. & Jacobs, J., (2014). Buildings must die: A pervers view of architecture. Cambridge, Massachusetts: The MIT press.

14. Kiannane, O. (2020). Calculating the Cost of Building: Obsolescence, Architecture and Climate Crisis, 1, pp. 13 Available at: https://www.researchgate.net/publication/359570435_Calculating_the_Cost_of_Building_-_Obsolescence_Architecture_and_the_Climate_Crisis (30 November 2020).

15. Cairns, S. & Jacobs, J., (2014). Buildings must die: A pervers view of architecture. Cambridge, Massachusetts: The MIT press.

16. ArchDaily. (2012). The Waterhouse at South Bund / Neri&Hu Design and Research Office' Accessed 15 Dec 2020. <<https://www.archdaily.com/263158/the-waterhouse-at-south-bund-neri-hu>> ISSN 0719-8884

THE WATERHOUSE



FIGURE 1: THE WATERHOUSE HOTEL. Exterior view showing the collision of the old and new. The architects merged the authentic gritty wall with the new red brick.



FIGURE 2: FRONT ELEVATION

A large window punctuates the exterior wall allowing users to see the bar/communal area. The grittiness of the exterior can detract people from wanting to enter. However, seeing inside helps to provoke curiosity as to what exists in this half 'run down' building.



FIGURE 3: FACADE/ENTRANCE.

Double door entry clad with recycled steel and reclaimed wood. With overhead spotlighting



FIGURE 4: THRESHOLD/RECEPTION

Showing the authenticity of the mould stained walls and the use of white on the bridge.

Japanese Army headquarters.¹⁷ Using the adaptive reuse method, they gave the existing building a new lease on life. Instead of demolishing the building, The Waterhouse, a 'boutique hotel which amasses over four stories and has 19-rooms was Inserted into the decaying shell.'¹⁸ Not only is this a cost-effective method for the design practice, but this also enriched the town as 'Heritage assets make a significant contribution to the townscape.'¹⁹

'Their approach is underscored by the industrial locale and the lucid yet poetically expressed articulation of what is old and what is new.'²⁰ Figures 2-3 shows the façade. The distinction between the old and the new is apparent. They

decided to embrace all its 'imperfections, quirks and the grittiness'.²¹ The 'Original concrete structure has been restored, yet still retains a sense of grungy friability'.²² They're not hiding the ugliness of it. Instead, they're broadcasting that a structure, no matter how old and dirty, is still worthy of being brought back to life.

Figure 4 shows the threshold. You can see how raw and authentic the wall looks. 'Taking its cues from the industrial spirit that permeates the still working dockland surroundings'.²³ 'The new additions paid homage to Hyuangpu; a working dockland by using Cor-ten steel'.²⁴ Vertical beams ascending from floor to ceiling; extruding from the structure works to reinforce the old shell to ensure its structurally sound. Though new, beams

¹⁷ AR editors, (2010) *The Waterhouse at South Bund* by Neri & Hu Design and Research Office, Shanghai, China. [Online]. Available at: <https://www.architectural-review.com/awards/ar-emerging-architecture/the-waterhouse-at-south-bund-by-neri-hu-design-and-research-office-shanghai-china> [Accessed 16 November 2020].

¹⁸ AR editors, (2010) *The Waterhouse at South Bund* by Neri & Hu Design and Research Office, Shanghai, China. [Online]. Available at: <https://www.architectural-review.com/awards/ar-emerging-architecture/the-waterhouse-at-south-bund-by-neri-hu-design-and-research-office-shanghai-china> [Accessed 16 November 2020].

¹⁹ McLeod, R. (2019) *Adaptive Reuse - recycling buildings*. [Online]. Available at: <https://www.cbe.co.uk/services/business-lines/building-consultancy/build-insight/article/adaptive-reuse-recycling-buildings> [Accessed 25 November 2020].

²⁰ AR editors, (2010) *The Waterhouse at South Bund* by Neri & Hu Design and Research Office, Shanghai, China. [Online]. Available at: <https://www.architectural-review.com/awards/ar-emerging-architecture/the-waterhouse-at-south-bund-by-neri-hu-design-and-research-office-shanghai-china> [Accessed 16 November 2020].

²¹ AR editors, (2010) *The Waterhouse at South Bund* by Neri & Hu Design and Research Office, Shanghai, China. [Online]. Available at: <https://www.architectural-review.com/awards/ar-emerging-architecture/the-waterhouse-at-south-bund-by-neri-hu-design-and-research-office-shanghai-china> [Accessed 16 November 2020].

²² AR editors, (2010) *The Waterhouse at South Bund* by Neri & Hu Design and Research Office, Shanghai, China. [Online]. Available at: <https://www.architectural-review.com/awards/ar-emerging-architecture/the-waterhouse-at-south-bund-by-neri-hu-design-and-research-office-shanghai-china> [Accessed 16 November 2020].

²³ AR editors, (2010) *The Waterhouse at South Bund* by Neri & Hu Design and Research Office, Shanghai, China. [Online]. Available at: <https://www.architectural-review.com/awards/ar-emerging-architecture/the-waterhouse-at-south-bund-by-neri-hu-design-and-research-office-shanghai-china> [Accessed 16 November 2020].

²⁴ AR editors, (2010) *The Waterhouse at South Bund* by Neri & Hu Design and Research Office, Shanghai, China. [Online]. Available at: <https://www.architectural-review.com/awards/ar-emerging-architecture/the-waterhouse-at-south-bund-by-neri-hu-design-and-research-office-shanghai-china> [Accessed 16 November 2020].

THE WATERHOUSE

like this can appear to appeal to both old and new aesthetics. This is then complemented by the use of textures like the rough and weathered floor. 'The rusting flanks of a new floor grafted on to the concrete shell resemble the ships hulls that putter along the river'.²⁵

Furthermore, the rooms explore a more subtle and restricted take on the old and new. Despite how well the grungy/old aesthetics of the public spaces is working, the design practice realised that this is impractical for sleeping spaces due to the negative connotations it will bring. Sleeping spaces are the epitome of comfort and cleanliness. People expect hotel rooms to be pristine. Therefore, having a wall covered in mould stains would do the overall design a disservice. **Figures 7-9** shows us how they conveyed the old aesthetic by using discoloured and dull brickwork to contrast with the stark white and clean walls. Without this addition, the rooms would feel disconnected from the rest of the building. This is a more appropriate way at getting across a gritty aesthetic.



FIGURE 5: STAIRCASE

Constructed out of concrete. This staircase works in unison to deliver a 'gritty' aesthetic.



FIGURE 6: HALLWAY

Figure 6 shows the contrast between the stark white, black steel and stained walls.



FIGURE 7: BEDROOM 1

Rooms showing how the architects have integrated older authentic elements (brick) to work in unison with the white raw walls. To add warmth and colour a warm finish was chosen for the wooden flooring.



FIGURE 8: BEDROOM 2

Using less of the older elements makes this image of one of rooms feel disconnected from the design scheme

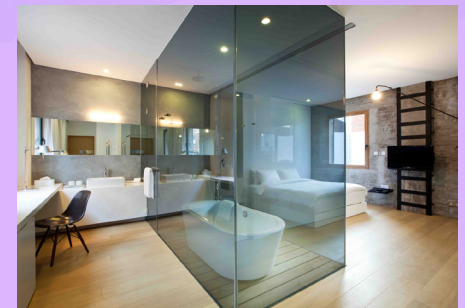


FIGURE 9: BEDROOM 3

Modern elements have been incorporated within the design

²⁵ AR editors, (2010). *The Waterhouse at South Bund* by Neri & Hu Design and Research Office, Shanghai, China. [Online] Available at: <https://www.architectural-review.com/awards/ar-emerging-architecture/the-waterhouse-at-south-bund-by-neri-hu-design-and-research-office-shanghai-china> [Accessed 16 November 2020].

CIRCULAR ECONOMY

The next sustainable practice this essay will be exploring is Circular economy. 'The Circular Economy (CE), also known as a closed loop' economy.²⁶ Is an 'industrial and social evolutionary concept that pursues holistic sustainability goals through a culture of no waste.'²⁷ In a Linear economy 'materials flow in a straight line from resource extraction through manufacturing to landfill'.²⁸ **Figure 10** shows us in simple terms how natural/raw materials get collected and made into products that get discarded after use. **Figure 11** shows the Circular economy as a closed loop that's designed to cut waste out completely. In this new sustainable system, Materials are reused, repurposed, repaired and re-manufactured. Moreover, it makes significant strides at redefining our waste culture. Instead of the materials flowing from extraction to waste they now operate in a loop that 'Reuses and redevelops resources already operating within the production cycle

via renewable means'.²⁹ Thus, makes the economy 'Restorative & regenerative'.³⁰

There are difficulties in designing a space that is 'Entirely sustainable'.³¹ Nevertheless, designers can and should endeavour to include sustainable principles that are 'less damaging to build and more efficient in use than the norm'.³² Since the industrial revolution, our economies have developed a 'Take-make-consume and dispose'³³ pattern of growth. 'A linear model based on the assumption that resources are abundant, available, easy to source and cheap to dispose of'.³⁴ The system the Revolution created endangers natural resources and is harmful to the environment. Despite being detrimental it's a fast and effective system that provides unlimited access to materials all over the globe as well as being cheap. Therefore, it's dominating the way interior designers and architects create their spaces

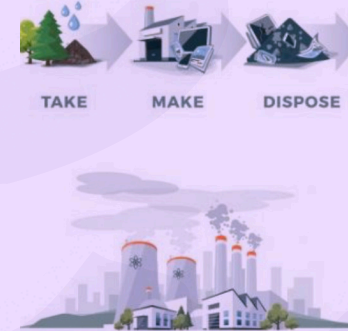


FIGURE 10: LINEAR ECONOMY

Our current take - make - dispose

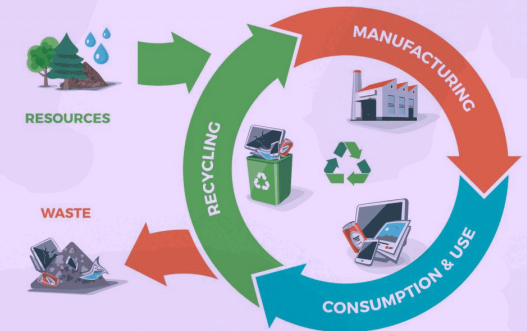


FIGURE 11: CIRCULAR ECONOMY

What the world should endeavour to have. A circular economy. Displaying how wasteful it is.



FIGURE 12: LINEAR , RECYCLING AND CIRCULAR ECONOMY

Showing the journey all three economy's have from production to waste. In a linear economy objects go straight to the bin. In a recycling economy items are reused several times before going to the bin. In a circular economy objects are constantly being reused with very little amounts ending up in the bin.

26. Rios, I. Charilly, F. (2017) 'Skills and capabilities for a sustainable and circular economy: The changing role of design', *Journal of Cleaner Production*, Volume 160, pp.110. doi:<https://doi.org/10.1016/j.jclepro.2016.10.150>

27. Rios, I. Charilly, F. (2017) 'Skills and capabilities for a sustainable and circular economy: The changing role of design', *Journal of Cleaner Production*, Volume 160, pp.110. doi:<https://doi.org/10.1016/j.jclepro.2016.10.150>

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32. Moxon, S. (2012). *Sustainability in Interior Design*. Laurence King Publishing, London. Available from: ProQuest Ebook Central. [12 December 2020].

33. European parliament; the council, the european economic and social committee and the committee of the regions (2014) *Towards a circular economy. A zero waste programme for Europe*. Brussels: publisher. Publications of the European Communities Available at: <https://ec.europa.eu/environment/circular-economy/pdf/circular-economy-communication.pdf> (Accessed 10 January 2021).

34. European parliament; the council, the european economic and social committee and the committee of the regions (2014) *Towards a circular economy. A zero waste programme for Europe*. Brussels: publisher. Publications of the European Communities Available at: <https://ec.europa.eu/environment/circular-economy/pdf/circular-economy-communication.pdf> (Accessed 10 January 2021).

CIRCL PAVILION

“YOU CAN’T SAVE THE WORLD, BUT YOU CAN SET IT AN EXAMPLE.” ALVARO ALTO, FINNISH ARCHITECT AND DESIGNER.”³⁵

Doepelstrijkers, an interdisciplinary design studio is one of the many practices that have proceeded to set an example through the use of forward-thinking ways.³⁶ Located in Amsterdam on the lower floors of a bank lies Circl pavilion. An innovative multi-purpose space that the studio designed with core sustainable principles and CE in mind.³⁷ Sustainable concepts incorporated in this interior include ‘5 different material and object approaches: reuse 1:1, reuse + re-manufacture, recycle, reusable and object as a service’.³⁸ Which can be seen in figure 16. Further reading of this case study will begin to break down these principles and show how Doepelstrijkers incorporated them within the space.

REUSE & RE-MANUFACTURE

Circl pavilion is defined as ‘A space intended to provide flexibility and adaptability.’³⁹ Being adaptable, it can hold many different purposes and activities. Including ‘Day-care to dance

events, catering, meetings, exhibitions” and many more.⁴⁰ The founding partner Eline Strijkers stated that “Interior concepts that can be changed according to future needs are automatically more future proof.”⁴¹ Her claim was backed up by Moxton who agreed ‘Flexible spaces are sustainable because they make maximum use of available space and allow the interior to be altered rather than replaced’.⁴²

She also mentioned that ‘Flexible projects call for interior designers to be ingenious and innovative’.⁴³ Doepelstrijkers have demonstrated forward-thinking by creating a space with moveable walls. **Figures 13-17** demonstrates just how adaptable this space can become with minimal effort. ‘The shifting walls are remotely operated by pushing a button enabling the floor-plan to be completely transformed.’⁴⁴ This means space can be reused on a day-to-day basis and can accommodate activities that require more long-term spaces. This is one of the principles Moxton noted that was required of a space like this. ‘A flexible project is one that needs to accommodate changes in layout or use, either being flexible enough to accommodate daily changes or adaptable to adjust to longer-term changes.’⁴⁵ **Figures** show the sequence



FIGURE 13: PANELS IN SPACE

Showing an open space when the panel is lifted up.

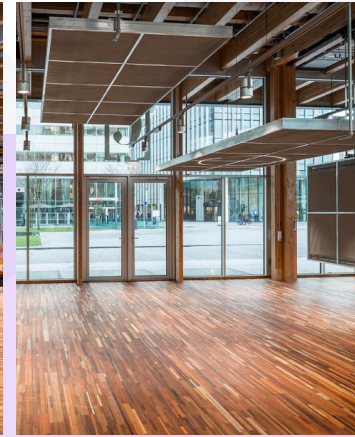


FIGURE 14: PANELS IN SPACE

Showing how panels exist horizontally throughout the space as well as vertically.



FIGURE 15: PANELS IN SPACE

Showing how panels can be dropped to section off spaces and divert the public flow around the space.

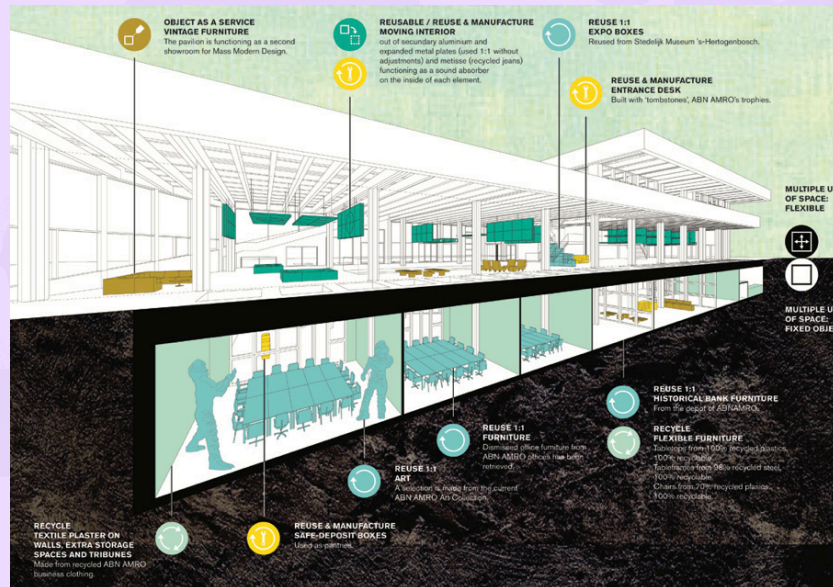


FIGURE 16: ILLUSTRATION SHOWING SUSTAINABLE PRINCIPLES USED

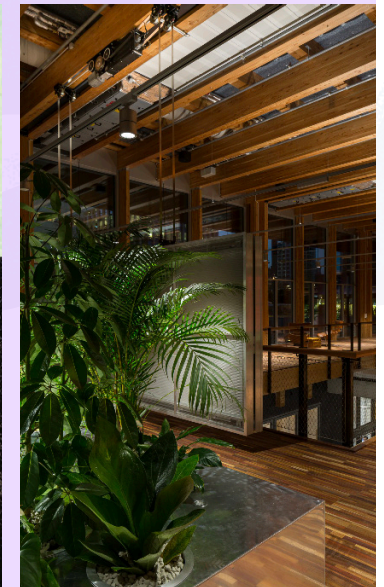


FIGURE 17: INTERIOR LIGHTING

Showing how the use of lighting and planting can alter the aesthetics and create a friendlier and calmer atmosphere.

35. Moxon, S (2012). *Sustainability in Interior Design*. Laurence King Publishing, London. Available from: ProQuest Ebook Central. (12 December 2020).

36. Doepelstrijkers. (2017). CIRCL INTERIOR ABN AMRO. [Online] Available at: <http://www.doepelstrijkers.com/en/projects/circl-interior-abn-amro> [Accessed 25 November 2020].

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38. Doepelstrijkers. (2017). CIRCL INTERIOR ABN AMRO. [Online] Available at: <http://www.doepelstrijkers.com/en/projects/circl-interior-abn-amro> [Accessed 25 November 2020].

39. Griffiths, A. (2018). Doepelstrijkers applies circular economy principles to Circl pavilion. [Online] Available at: <https://www.dezeen.com/2018/05/25/doepelstrijkers-applies-circular-economy-principles-to-flexible-and-sustainable-circl-pavilion/> [Accessed 16 November 2020].

40. Griffiths, A. (2018). Doepelstrijkers applies circular economy principles to Circl pavilion. [Online] Available at: <https://www.dezeen.com/2018/05/25/doepelstrijkers-applies-circular-economy-principles-to-flexible-and-sustainable-circl-pavilion/> [Accessed 16 November 2020].

41. Ingram, T. (2019). ArchitectureNow. [Online] Available at: <https://architecturenow.co.za/articles/from-the-inside-sustainability-in-interiors/> [Accessed 16 November 2020].

42. Moxon, S (2012). *Sustainability in Interior Design*. Laurence King Publishing, London. Available from: ProQuest Ebook Central. (12 December 2020).

43. Moxon, S (2012). *Sustainability in Interior Design*. Laurence King Publishing, London. Available from: ProQuest Ebook Central. (12 December 2020).

44. Griffiths, A. (2018). Doepelstrijkers applies circular economy principles to Circl pavilion. [Online] Available at: <https://www.dezeen.com/2018/05/25/doepelstrijkers-applies-circular-economy-principles-to-flexible-and-sustainable-circl-pavilion/> [Accessed 16 November 2020].

45. Moxon, S (2012). *Sustainability in Interior Design*. Laurence King Publishing, London. Available from: ProQuest Ebook Central. (12 December 2020).

CIRCL PAVILION

that the walls move in. Areas can be sectioned off to offer privacy or opened up to allow for a continual flow around the space

MATERIALITY

'Throughout the interior, steps were taken to minimise the use of materials and waste by utilising the intrinsic properties of raw materials.'⁴⁶ Structures were assembled with dry fixings. This method removes the use of 'harmful chemical adhesives and allows them to be easily dismantled and reused'.⁴⁷ A perfect example of circular economy within an Interior as this closes the waste loop of the materials.

Recycled timber, metal and concrete were used within the Circl pavilion. However, how these materials were applied vary throughout the space. Clear industrial aesthetics are holistically carried throughout each space. **Figures 13-15** shows recycled timber as the key material. The warmth of the timber directly contrasts the cold, monotone pallet used for the black frames and the Aluminium panels. Square and rectangular forms dominate the space with a variety of thickness's and lengths. **Figures 18 - 24** show how both shapes are working in unison to build the space, from the floors to the walls and the ceilings. Floors consist of different sized timber slats with a variety of finishes due to the timber being reclaimed. This adds dimension and depth to the floor. Additionally, the wood is also featured on the ceiling. Exposed timber joists run horizontally through the length of the space and gives the illusion of greater width. Moreover, squares are often assembled to form greater rectangular shapes. This is present in the Aluminium wall panels that **figures 13-15** shows. Doepelstrijkers opted to use recycled materials to form acoustic panels. 'End users of the building were involved in the process

and contributed by donating their old company uniforms. (See **figure 20**) Which were then recycled into acoustic textile plaster for walls and ceilings.'⁴⁸ This is a great way of reducing the waste left by the previous tenant. Uniforms are often designed to fit the brand which reduces their ability to be recycled. Without Doepelstrijkers innovative way of thinking they would have ended up in landfill. The integration of acoustic elements in the panels allows the walls to have another function. Now when sectioning of a space they can offer the users a quieter experience due to blocking out outside sounds.

Circular lights, curved elements and softer furnishings (as shown in **figures 21, 22 & 24**) are used to counteract the liner and rigid forms. The lines used in these forms are generally thin giving the opposite aesthetic to the main rectangular forms. Instead of being heavy, the thin lines offer a sense of delicacy.

It's easy to see the benefits of incorporating Circular economy strategies into Interior spaces. More and more designers are moving away from permanent fixings to allow for flexibility within the space. Having walls that can be easily detached and moved to a different location is not only great for the Circular economy of the space, but also because it opens the design up to a vast number of possibilities. Giving users the freedom and ability to choose allows them to develop much deeper and personal connections to the spaces.

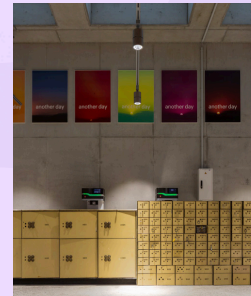


FIGURE 18: INDUSTRIAL AESTHETICS



FIGURE 19: ALUMINIUM PANELS
Showing the construction and the mechanisms



FIGURE 20: RECYCLED UNIFORMS
The previous tenants uniforms ready to be made into acoustic panels

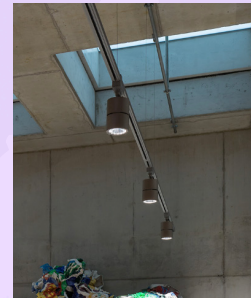


FIGURE 21: LIGHTING
Thin tube spotlighting hang above the area



FIGURE 22: SEATING
Like the lighting, thin metal frame chairs were used to counteract the heaviness the forms created.

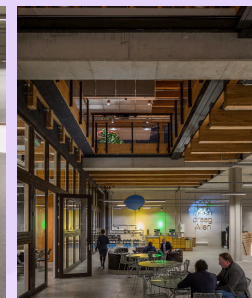


FIGURE 23: COMMUNAL SPACE
Showing how the timber joists flows from the main space to the communal space in order to merge the warmth from the timber and the cold aesthetics of the steel

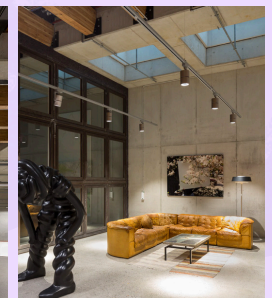


FIGURE 24: SCULPTURES & FURNITURE
Soft furnishing helps to make the space feel less harsh

⁴⁶ Griffiths, A. (2018). Doepelstrijkers applies circular economy principles to Circl pavilion. [Online] Available at: <https://www.dezeen.com/2018/05/25/doepelstrijkers-applies-circular-economy-principles-to-flexible-and-sustainable-circl-pavilion/> [Accessed 16 November 2020].

⁴⁷ Griffiths, A. (2018). Doepelstrijkers applies circular economy principles to Circl pavilion. [Online] Available at: <https://www.dezeen.com/2018/05/25/doepelstrijkers-applies-circular-economy-principles-to-flexible-and-sustainable-circl-pavilion/> [Accessed 16 November 2020].

⁴⁸ Doepelstrijkers. (2017). CIRCL INTERIOR ABN AMRO. [Online] Available at: http://www.doepelstrijkers.com/en/projects/circl_interior_abn_amro [Accessed 23 November 2020].

ACE & TATE X PLASTICIET

The last case study shows how recycled materials can be assembled to form the interior of a retail space. 'Waste is considered within a dead-end scenario of a linear process, out of sight, out of mind. And as a formless substance.'⁴⁹ Waste doesn't have value. This collaboration shows how waste materials are not only valued but celebrated and simultaneously helping to clean up the environment. '1000 kilograms of plastic'.⁵⁰ were recycled to create the design.

Ace & Tate the sought-after eye-wear brand got people talking when they collaborated with Plasticiet to create the concept for the store in Amsterdam. 'Plasticiet is a brand that collects plastic waste and transforms it into a sheet material.'⁵¹ Due to the nature of plastics consistency, this material can be applied to different surfaces. For example, the walls as shown in figures 27-29, floors, used as an object and in furniture. Ace & Tate are known for creating thought provoking concepts within their spaces and for this store they chose to cast light on plastic pollution.⁵² The window's display not only hints to how plastic pollution affects the land, but it also offers users an inside peek at the process that collected plastic waste goes through before it is turned into the terrazzo panels.

MATERIALITY

This collaboration resulted in a 'terrazzo effect with large chips of bright blues, reds, yellows and green.'⁵³ Figure 26 shows us the scale of these pieces which differ in sizes and shapes. There is no way of creating identical patterns. This gives an honest

feeling to the terrazzo sheets. They are a representation of our waste culture being the accumulation of the waste we discard on a day-to-day basis. It almost seems wrong that they've been presented in a way that makes them beautiful. However, Plasticiet mentions that it was their intention. 'We want to inspire others to find long term appliances for materials that are reusable or recyclable rather than misusing the world's precious materials by readily disposing of them.'⁵⁴ What better way is there to show value in something worthless then taking that worthless item and giving it importance and seniority within a space?



FIGURE 25: FACADE
Showing the window display of plastic terrazzo chips

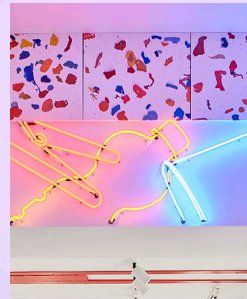


FIGURE 26: LIGHTING
Neon lighting



FIGURE 26: MIRRORS
Showing how the terrazzo is reflected to add depth



FIGURE 27: showing a combination of plain & terrazzo walls

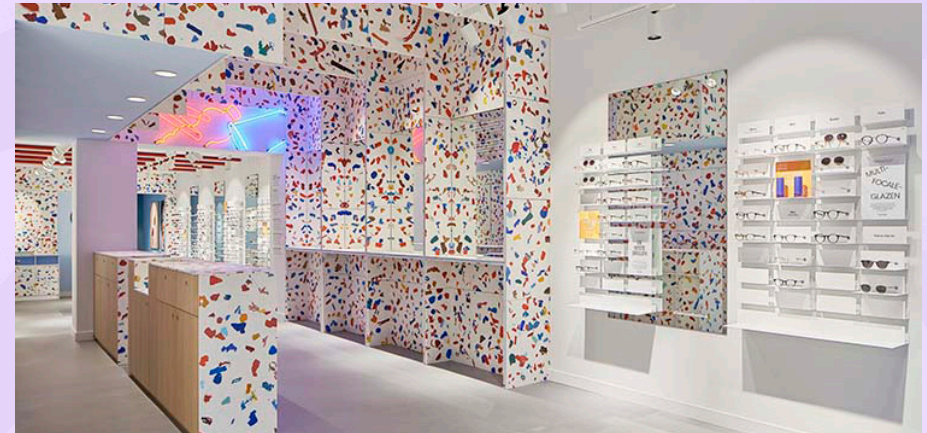


FIGURE 29: INTERIOR - Showing how the store has built shelving and tables from within the constraints of the size of the terrazzo sheets.

FORM

Ace & Tate have taken the dimensions of the sheet material and built the space around it. This further helps to reduce waste as there are less material off cuts. 'Panels of plastic terrazzo cover the walls, arches, shelves and counters of the shop.'⁵⁵ Figure 29 gives us an overview of what building within the constraints of the sheets looks like. To avoid looking repetitive they've opted to create longer and shorter planes when building elements. 4 1/2 panels were used vertically but two horizontally to build the shelves which hold the mirrors. Furthermore, the display stands in the middle are horizontally longer than it is in height. Placing mirrors within this built section adds illusion and depth to the space as the terrazzo pattern is reflected in the mirror. This 'Allows the viewers to indulge completely into the

recycled world.'⁵⁶ The users are guided through the space where terrazzo cladding is dominating the walls. Then into a space that offers users a more tranquil feeling due to the reduction of terrazzo used. 'The space then opens up again into a more serene environment where they can comfortably find the eye-wear that suits them best.'⁵⁷

Its widely known that Ace & Tate isn't the first and won't be the last brand to work with recycled materials.⁵⁸ Brands like Precious Plastic are using similar methods too. One of the founders of Plasticiet, the company that collaborated with Ace & Tate said that 'Despite brands awareness for recycling, it isn't always the answer to the problem.'⁵⁹

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CONCLUSION

DESIGNING FOR THE FUTURE. FOR BETTER OR FOR WORSE?

We're in an age where the ephemeral nature of how we design buildings generates the need for designers to create spaces considered to be the first of their kind, best and most exciting. Therefore, creating sustainable spaces becomes secondary. The throwaway culture exists in many different aspects of our lives and has managed to seep its way into Architecture. However, the climate crisis has caused an awakening which has forced the design community to put forward more sustainable strategies that are less detrimental to the environment. Several strategies have been mentioned within this essay, each making their own contribution to helping the environment. With the desire for newness, we forget the beauty in the old and used. The old can work to inform the new in a variety of positive and successful ways which are

evident in the case studies used within this essay. The Waterhouse consisted of concrete, brick and recycled steel. Circl pavilion features an abundance of recycled timber and aluminium and lastly the Ace & Tate store has used plastic waste as the main material. This shows us that some value still remains in old and discarded materials. After discovering the vast number of possibilities of a sustainable interior I will be incorporating reuse within my first semester project. Looking at how I can re-purpose used & existing materials.

Whilst this essay focuses solely on sustainability within the interior it would be worth continuing to read into sustainability within the exterior and how society is exploring how to build buildings that are less harmful to the environment. Both is as important as the other to help build a better future.

1



FIGURE 30: THE WATERHOUSE

2



FIGURE 31: CIRCL PAVILION

3



FIGURE 32: ACE & TATE

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Fig 3: Amitabha Garden, Horseferry Place. London, Greenwich (2020) Photographed by Michael Westthorp 2020

Fig 4: Amitabha Garden, Horseferry Place. London, Greenwich (2020) Photographed by Michael Westthorp 2020

Fig 5: Amitabha Garden, Horseferry Place. London, Greenwich (2020) Photographed by Michael Westthorp 2020

Fig 6: Amitabha Garden, Horseferry Place. London, Greenwich (2020) Photographed by Michael Westthorp 2020

Fig 7: Amitabha Garden, Horseferry Place. London, Greenwich (2020) Photographed by Michael Westthorp 2020

Fig 8: Amitabha Garden, Horseferry Place. London, Greenwich (2020) Photographed by Michael Westthorp 2020

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Fig 1: 1.5L Buxton bottle. Ipswich, Suffolk, UK (2020) Photographed & Edited in photoshop by Shannon Sutton 2020

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Fig 18: DoepelStrijkers. CIRCL INTERIOR ABN AMRO Amsterdam, the Netherlands (2017). Photographed by Peter Tijhuis (no date). Available at: http://www.doepelstrijkers.com/en/projects/circl_interior_abn_amro (Accessed: 15 January 2021)

Fig 19: DoepelStrijkers. CIRCL INTERIOR ABN AMRO Amsterdam, the Netherlands (2017). Photographed by Peter Tijhuis (no date). Available at: http://www.doepelstrijkers.com/en/projects/circl_interior_abn_amro (Accessed: 15 January 2021)

Fig 20: DoepelStrijkers. CIRCL INTERIOR ABN AMRO Amsterdam, the Netherlands (2017). Photographed by Peter Tijhuis (no date). Available at: http://www.doepelstrijkers.com/en/projects/circl_interior_abn_amro (Accessed: 15 January 2021)

Fig 21: DoepelStrijkers. CIRCL INTERIOR ABN AMRO Amsterdam, the Netherlands (2017). Photographed by Peter Tijhuis (no date). Available at: http://www.doepelstrijkers.com/en/projects/circl_interior_abn_amro (Accessed: 15 January 2021)

Fig 22: DoepelStrijkers. CIRCL INTERIOR ABN AMRO Amsterdam, the Netherlands (2017). Photographed by Peter Tijhuis (no date). Available at: http://www.doepelstrijkers.com/en/projects/circl_interior_abn_amro (Accessed: 15 January 2021)

Fig 23: DoepelStrijkers. CIRCL INTERIOR ABN AMRO Amsterdam, the Netherlands (2017). Photographed by Peter Tijhuis (no date). Available at: http://www.doepelstrijkers.com/en/projects/circl_interior_abn_amro (Accessed: 15 January 2021)

Fig 24: DoepelStrijkers. CIRCL INTERIOR ABN AMRO Amsterdam, the Netherlands (2017). Photographed by Peter Tijhuis (no date). Available at: http://www.doepelstrijkers.com/en/projects/circl_interior_abn_amro (Accessed: 15 January 2021)

ACE & TATE

Fig 25: Ace & Tate, Plasticiet. Antwerp (2020). Photographed Ace & Tate Antwerp Photography, Lennart Wiedemuth. (no date). Available at: <https://www.we-heart.com/2020/08/13/ace-tate-antwerp-plasticiet-marten-joost/> (Accessed: 15 January 2021)

Fig 26: Ace & Tate, Plasticiet. Antwerp (2020). Photographed Ace & Tate Antwerp Photography, Lennart Wiedemuth. (no date). Available at: <https://www.we-heart.com/2020/08/13/ace-tate-antwerp-plasticiet-marten-joost/> (Accessed: 15 January 2021)

Fig 27: Ace & Tate, Plasticiet. Antwerp (2020). Photographed Ace & Tate Antwerp Photography, Lennart Wiedemuth. (no date). Available at: <https://www.we-heart.com/2020/08/13/ace-tate-antwerp-plasticiet-marten-joost/> (Accessed: 15 January 2021)

Fig 28: Ace & Tate, Plasticiet. Antwerp (2020). Photographed Ace & Tate Antwerp Photography, Lennart Wiedemuth. (no date). Available at: <https://www.we-heart.com/2020/08/13/ace-tate-antwerp-plasticiet-marten-joost/> (Accessed: 15 January 2021)

Fig 29: Ace & Tate, Plasticiet. Antwerp (2020). Photographed Ace & Tate Antwerp Photography, Lennart Wiedemuth. (no date). Available at: <https://www.we-heart.com/2020/08/13/ace-tate-antwerp-plasticiet-marten-joost/> (Accessed: 15 January 2021)

CONCLUSION

Fig 30 (4) : Neri & Hu Design and Research Office. The Waterhouse, Shanghai, China, (2012). Photographed by Pedro Pegenaute , (2010). Available at: https://www.archdaily.com/263158/the-waterhouse-at-south-bund-neri-hu/5029c9f228ba0d25610000aa-the-waterhouse-at-south-bund-neri-hu-photo?next_project=no (Accessed: 15 January 2021)

Fig 31 (17): DoepelStrijkers. CIRCL INTERIOR ABN AMRO Amsterdam, the Netherlands (2017). Photographed by Peter Tijhuis (no date). Available at: http://www.doepelstrijkers.com/en/projects/circl_interior_abn_amro (Accessed: 15 January 2021)

Fig 32 (26): Ace & Tate, Plasticiet. Antwerp (2020). Photographed Ace & Tate Antwerp Photography, Lennart Wiedemuth. (no date). Available at: <https://www.we-heart.com/2020/08/13/ace-tate-antwerp-plasticiet-marten-joost/> (Accessed: 15 January 2021)