ABOVE THE ROOF. DESIGNING SECOND CHANCES

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Over the past few years, one of the means employed by architecture to demonstrate its concern for climate change and endangered nature has been the creation of indoor replicas of at-risk biotopes and habitats, often set up within white pavilions, vacant art museum spaces, and geodetic greenhouses[1].

These reproductions not only aim to raise awareness on the environmental crisis, but also suggest architecture may act as a protective ark, safeguarding these environments from the threats of destruction and loss caused by the impacts of the Anthropocene. However, as soon as nature is transformed into an object placed within the confines of a white box, its ecological value in terms of its ecosystemic relationships and its profound connection to our physical and psychological well-being and survival is lost, alongside with the awareness of the threats we face. As the traditional monument, according to Mumford, is the antithesis of renewal and evolution (Mumford 1938, pp. 433-440), and as Young argues, if we rely on monuments "to do our memory-work for us, we become that much more forgetful" (Young 1993, p. 5), in a similar vein, when nature is placed on a pedestal, enclosed behind glass, or accompanied by a tombstone-like caption, it becomes impossible to fully experience and embody with all the meaning we associate with and seek in the natural world.

"Homo urbanus," indeed, primarily relies on nature for leisure and as an escape from the pressures of urban lifestyle. While they find sustenance and their working environment in busy cities, they seek out nature for immersive experiences of relaxation, spiritual contemplation, learning, and physical excitement. From this perspective, climate change not only poses a threat to nature and ecosystems but also, along with the changes to the Earth's crust and extreme temperature variations, jeopardizes the feasibility of these experiences. Activities such as trips to the countryside, hiking, skiing, and swimming may become unviable or undergo radical transformations, as may do our current forms of interaction with natural environments where we currently perform these activities. We still lack a clear vision of how these experiences might adapt or change. Future scenarios of nature depicted in contemporary narratives portray the environment as devastated by climate change, our original sin; in such a world, there is no space for leisure and enjoyment.

For different reasons, our era is already familiar with the evolution of leisure activities in natural settings: humans have spread capsules worldwide, enclosing artificial environments with the aim of recreating specific natural scenarios, even in locations far from their natural occurrence.

2124: sea levels have risen, snow has melted.
CopenHill is the only mountain available for skiing.
Drawing by Francesca Zanotto, 2023.

Indoor ski slopes in the desert, indoor beaches, and tropical habitats in inland China or outside Berlin: these capsules are not designed to faithfully reproduce natural scenarios with the ambition of being realistic, but to make accessible the leisure activities that are performed in such scenarios.

Some contemporary architects are going beyond both of these mentioned approaches. In recent architectural projects, they transcend the intention of merely depicting and conserving nature "as it is," and they also avoid recreating natural scenarios for traditional forms of enjoyment of nature. Instead, they propose a deliberate distortion of nature, presenting an intentionally altered version of natural settings that expressly blend both natural and artificial elements. This gives rise to entirely new, fabricated natural landscapes where new leisure activities occur within augmented ecosystems, resilient or adapted to the radical transformations caused by climate change, finding their spark of innovation in what Michael Jakob recognizes as a "surplus" (Jakob 2022, p. 12), evident in the imitation of nature by large-scale artifacts that convey diverse messages.

Since its establishment in the early 1990s, the Dutch firm MVRDV has been investigating the relationship between architecture and landscape in an innovative and pragmatic manner. In a country literally reclaiming land from the sea to create its own territory, MVRDV's work has particularly focused on envisioning future scenarios enabled by "carrying density to extremes" (MVRDV, *FARMAX*, 2006). The building-manifesto for this research is the Netherlands Pavilion designed by the firm for Expo 2000 in Hanover. This pavilion stacked six artificial Dutch "typical" or "stereotypical" landscapes, offering a model to reduce land usage and demonstrating the feasibility of expanding existing surfaces: a dunescape, an oak forest, a tulip field, agricultural land, and a polder landscape, with wind turbines on the roof reaching toward the sky. The building's concept aimed to propose the possibility of manufacturing landscapes and replicating them endlessly, essentially presenting "a practical model for the reinvention of the world" (Liebs 2000). However, when reconsidered from the perspective of climate change, the pavilion represents an abstract solution to address future land requirements due to issues such as soil depletion and rising sea levels, proposing "adapted forms" of cultural fruition at the same time. In a 2006 statement, the firm prophetically described the pavilion as a "survival kit," attempting to find a solution for "a lack of light and land" (MVRDV 2006).

The approach of fabricating nature and landscapes, along with expanding the usable surface of the world through archi-

tecture, all while exploring new ways to use space, enjoy nature, and express in the spatial dimension, is a recurring theme in much of MVRDV's work. The Depot Boijmans Van Beuningen in Rotterdam, unveiled in 2021 and featuring a 'flying' forest on its rooftop, is no exception. The Depot returns a larger surface area to the Museumpark compared to the building's footprint, while offering an inflated experience of an urban park. Within this "surplus" of floor area created by design, the enjoyment of the park takes on new qualities, perspectives, and dimensions, potentially enabling new uses and rituals.

This concept reached an extreme with BIG's Amager Bakke waste-to-energy plant in Copenhagen. Here, trees grow on the sides of a synthetic ski slope, enduring Baltic winds and vapors emitted from the chimneys. This 85-meter-high structure forms Denmark's only "mountain," where design makes hiking, skiing, and climbing possible. The project introduces mountain culture to a flat country through innovative rituals and amenities such as ski rentals, ski lifts, and an Alpine-inspired wooden lodge. The man-made panorama for skiers and hikers offers views of Copenhagen's industrial landscape; beneath the ski slope a mountain of waste is incinerated to produce energy, underlining the connection between our consumption patterns and the transformation of our environment and the potential to craft nature through technological means. Known as CopenHill in English, the site provides a distorted mountain experience. While it may be less captivating than experiencing a "real" mountain, it "interpret(s) citizens' dreams" (Covatta 2018) and remains accessible in a context where such an experience was previously unavailable. Furthermore, given the ongoing impacts of global warming and the gradual decline of natural snow, CopenHill could serve as a preview of the potential future of winter sports and recreational activities.

Snøhetta stands out among architectural firms as actively envisioning future scenarios and reimagining public spaces, visual aesthetics, and spatial poetry within the context of climate change. They designed an expansion and visitor center for the Svalbard Global Seed Vault, recognizing the necessity of envisioning a potential future that embraces beauty, learning, and enjoyment for our imperiled natural world. They also designed Under, an underwater restaurant located near the town of Båly, which appears to have washed up on the Norwegian coast as a deliberate wreck, or "the latest architectural victim of coastal erosion" (Lloyd-Smith 2022).

The restaurant serves as a futuristic capsule, offering a glimpse of the potential dinner-with-a-view experience in an

era marked by rising sea levels. One of Snøhetta's prominent achievements is the Oslo Opera House, unveiled in 2010, which aimed to transform the perception of the Oslo waterfront. Often referred to as an iceberg, the defining feature of the structure is its distinctive "roof-façade," creating a "full public space" (Mikolajska, Haupt 2019, p. 6) that enables individuals to reconnect with the water, evoking the sensation of being on a beach. However, this space offers many activities beyond what a typical beach might provide:

> Parents push baby carriages to the top; tourists pull suitcases from the train station; swimmers, sunbathers, kayakers, and swans treat the western edge as a beach. Dog walking, Tai Chi, and sunset watching are popular. For a performance of 'Carmen' in 2009, the opera company showed a free simulcast on a large screen in front of the building, and some five thousand people spread picnic blankets on the roof to watch it (Owen 2013).

At the bottom, the roof of the Opera slides into the water and disappears, proposing a seashore adaptable to sea level rise, perceived as an urban park despite the lack of greenery, according to an approach frequently seen in contemporary urban design where "blue is green" (Dubinina, Wawrzyńska, Krośnicka 2022, p. 9).

The illustrated architectures establish hybrid environments, revealing the altered state of natural ecosystems⇓. Their purpose is not to freeze an idea of pristine nature at risk due to the effects of climate change but, otherwise, they activate and bear witness to a playful, non-alarmist relationship between humans and nature. These projects will preserve leisure rituals, even though the climate crisis may irreversibly alter them; furthermore, they serve as manifestos, envisioning future forms of leisure and open-air experiences. In a certain sense, they function as counter-monuments:⩚ rather than perpetuating the mourning of nature, they provocatively suggest fun as a strategy to celebrate it. In the present day, these architectures provide recreational spaces for the public to enjoy, where "new kinds of public engagement with energy and sustainability have the potential to emerge" (Kall, Ford, Schick 2021, p. 50).

Throughout their research on density, MVRDV has envisioned new spatial paradigms and experiences in dozens of their projects, endorsing the "compact city," where maximum density also means achieving maximum functions, and typological innovation fosters new uses and urban experiences. This paradigm extends to the integration of nature and biodiversity into the dense urban environment where, despite their love for their urban house,

"homo urbanus seeks the excitement of the unknown and needs a certain degree of anarchy to stimulate him" (Pozo Gil 2013, p. 54). In alignment with this conviction, architect Marta Pozo Gil, formerly the Sustainability leader at MVRDV, raises the question: "Can the combination of city and wilderness bring together the rational and the unpredictable for the stimulation of people? "(Pozo Gil 2013, p. 54).

Nature can, therefore, become an integral element in the project, bringing innovation to design and urban experiences while challenging traditional approaches to outdoor activities:

> The old idea of splitting rural and urban ecologies is not attractive in either environmental or social terms. The challenge of providing lodging for people, animals, and plants can lead to innovative and enriching spaces and experiences. However, this requires shifting the points of reference where current urban and architectural patterns would be neither applicable nor desirable. Overturning concepts are not easily acceptable, but smartly brought into practice can renew urban reality and go beyond its current repletion (Pozo Gil 2013, pp. 54-55).

The Netherlands Pavilion in Hanover managed to extend this new urban reality even after its decommissioning: "Thousands of birds started to inhabit the vacant structure. [...] Partyseekers started to use the forest. It became a real park so to say" (MVRDV, *Expo 2000*, 2006). CopenHill waste-to-energy plant/ski slope, perfectly embodies BIG's "yes-ideology" (Bjarke Ingels Group 2009, pp. 391-395), a disruptive concept capable of fundamentally transforming our expectations for urban spaces and the potential uses and experiences we can envision in nature: architecture should say 'yes!' to all the demands of a project, all the desires and needs of the client, politicians, the public, and thus should accommodate any unforeseen function that the consumerist generation may imagine, such as skiing on a waste treatment plant. With a lower profile, the roof of the Oslo Opera House facilitates a broader range of activities than a natural beach, ready to adapt and evolve in response to rising sea levels. In the words of Kjetil Thorsen, co-founder of Snøhetta, it enables people to "experience certain things they hadn't experienced before. I think that's interesting in architecture—to generate new situations" (Owen 2013). Clearly, these desires, needs, new urban realities, and new situations find a prominent stage: the roof. In the examples examined, roofs have few or no programmatic connections with what occurs below, as they were in the middle of two overlapped yet distinct worlds, as climbing onto them means crossing a threshold into a new realm.

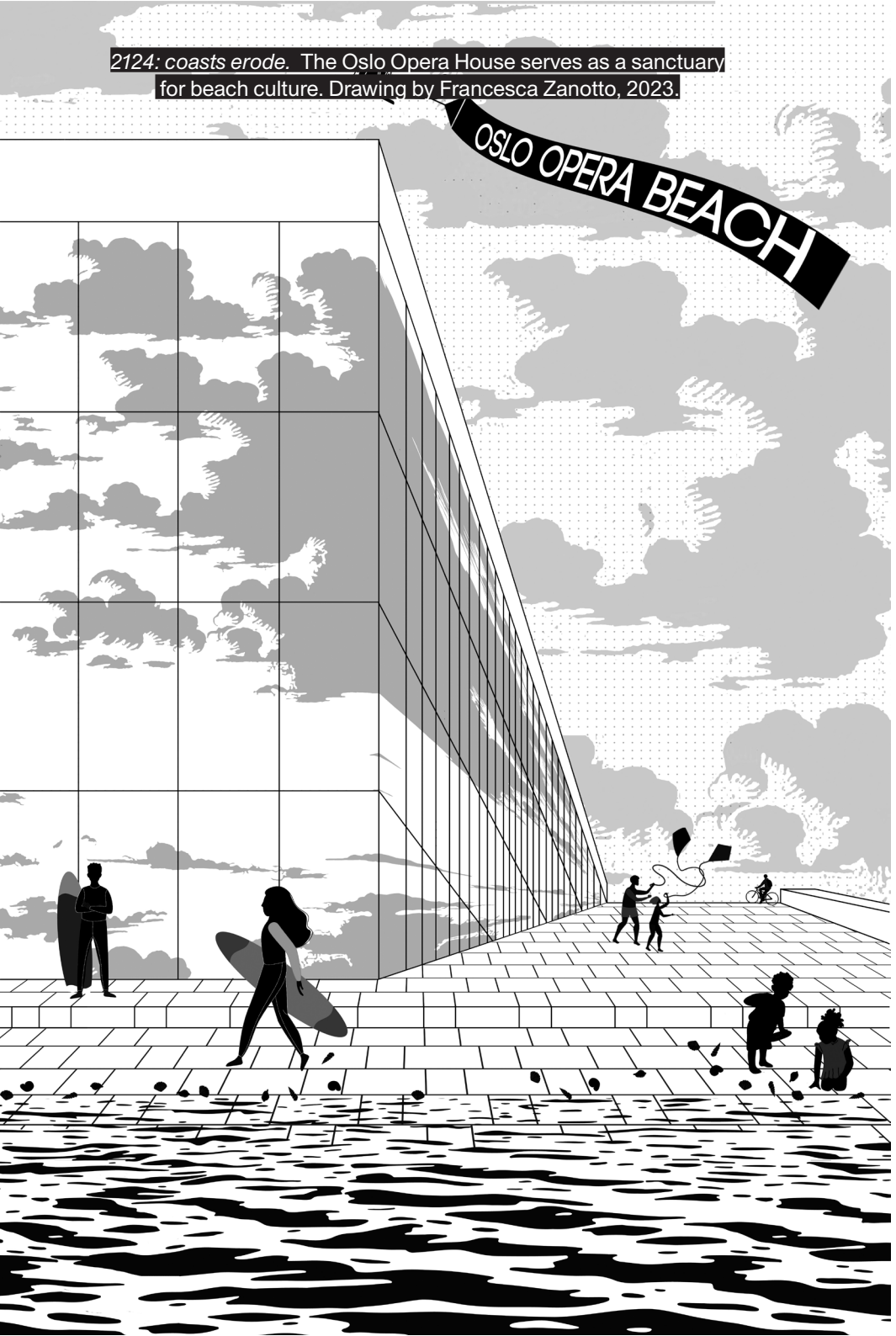
2124: the Earth is a continuous, dense city. A stack of lost Dutch landscapes can be enjoyed at the Expo 2000 Pavilion in Hanover. Drawing by Francesca Zanotto, 2023.

MVRDV has spent over three decades expanding the vertical dimension of architecture, populating roofs, crowns, and attics with structures like parasites, stairs, and lifts, and elevating people as high in the city as possible [1].

Much like green roofs, which have, for years, provided a space to compensate for the ground space occupied, roofs in contemporary architectural designs provide a second chance, an alternative terrain to enjoy nature and create a new world, a new soil overlapping with the one compromised at ground level. The 1909 theorem in form of a cartoon published by Life magazine and referenced in Koolhaas' *Delirious New York* portrayed the skyscraper as a "utopian device for the production of unlimited numbers of virgin sites on a single metropolitan location" (Koolhaas 1978, p. 69), a range of social aspirations and lifestyles, multiplying the surface area of the original plot potentially infinitely, creating inhabitable space where there once was none. Contemporary architecture has already demonstrated that we can generate space seemingly out of thin air; it now strives to elevate the ground level several meters higher, essentially starting anew from clean slate. The base, the ground floor, the relationship with the ground is no longer the central focus; level 0 will be submerged as temperatures rise, becoming an unhealthy, invisible, and undesirable realm in the dense urban landscape. All attention and the opportunities offered by architecture now extend above the roof, marking the dawn of an age of "sky consumption."

The portrayal of new activities and realities above the roofs appears to be approached, both in the design process and its narrative, through a language that is already well-established in contemporary architectural discourse but takes on new significance in the context of climate change: humor and irony. Both BIG and MVRDV are part of a wave of firms adopting a "populist" (Zaera-Polo 2016, p. 263) approach in their architectural storytelling. This approach exhibits a "comic-book-like directness, [...] a sort of caricature of the design process" (Zaera-Polo 2016, p. 263) conveyed through diagrams, the distortion of generic forms, comical exaggerations, and a return to a recognizable architectural vocabulary, facilitating strong and easily communicated associations. This language is accessible and playfully challenges Modernist architectural conventions, evolving from post-modernist irony as the emphasis shifts towards responding to daunting scenarios of climate change and the "modest" lifestyle required to conserve resources and reverse consumption patterns, all approached with a lighthearted and hopeful attitude.

While MVRDV adopts a subtle approach, engaging in "comical" (Wainwright 2021) design processes that involve replicating objects, rotating buildings vertically by 90 degrees, and designing "spaces that make you smile" (MVRDV 2023) to make the public realm "no longer boring" (MVRDV 2023), BIG developed the concept of "hedonistic sustainability" (Bjarke Ingels Group 2009, p. 50). According to BIG, sustainability, or an environmentally aware lifestyle, "isn't pain – but pleasure!" (Bjarke Ingels Group 2009, p. 34). Embracing climate change awareness does not mean enduring sacrifices or downgrading life quality, but making life even more enjoyable than the alternative, without adhering to the notion of a "modest and humble lifestyle" (Kall, Ford, Schick 2021, p. 52) that may be perceived as necessary to slow down – or expiate? – climate change. This joyful and optimistic approach appears to align with Pier Vittorio Aureli's viewpoint: in the face of the "design rhetoric on sustainability [...] based on the dilemma between survival or extinction" the architectural culture "is forcefully invited to do something, to be responsible, to find a solution. In other words, the rhetoric of sustainability eliminates any possibility of a negative response a priori. Within such rhetoric we are condemned to optimism" (Aureli 2013, p. 125). This necessary optimism thus finds expression on the clean slate of architecture's roofs, akin to a *tabula rasa*: "we are no longer expected to do something; rather, we should make room, we should create the space for something else to happen" (Aureli 2013, p. 126). Following these lines of thought, Snøhetta does not rely on an explicitly fun or ironic narrative, at least not always. Their visionary depictions of the future, whether near or distant, contrast with the dramatic scenarios we are used to confront in contemporary narrations of climate change. With a "quiet optimism," they dare to design the space for imagining a transformed world, a changed nature where joy, beauty and poetry remain possible.



2124: coasts erode. The Oslo Opera House serves as a sanctuary for beach culture. Drawing by Francesca Zanotto, 2023.

ᚼ See, for example, the recreation of the indigenous grassland inside Australia's Venice Architecture Biennale pavilion in 2018 by Baracco+Wright Architects; the rooms of Louisiana Museum of Modern Art in Copenhagen filled by an ancestral rocky landscape by Olafur Eliasson in 2014; the indoor forest at Singapore's Changi Airport enclosed in a steel and glass 'donut" structure designed by Safdie Architects in 2014.

ᛟ See, for example, the work by Austrian photographer Reiner Riedler: R. Riedler, *Fake Holidays*, Moser, Munich 2009.

ᛇ See, for example, the studies on microplastics and their pervasive presence in different ecosystems: X. Lim, X., *Microplastics are everywhere — But are they harmful?*, in "Nature", 593, 2021, pp. 22-25.

ᚾ Counter-monumentaslim has been firstly defined by Californian English and Judaic & Near Eastern Studies scholar James E. Young. See, among others: J.E. Young, *The Counter-monument: Memory against Itself in Germany Today*, in "Critical Inquiry", 18, 1992, pp. 267-296; and, already referred in the text, J.E. Young, *The Texture of Memory: Holocaust Memorials and Meaning*, Yale University Press, New Haven 1993.

ᛚ See, among the others: Didden Village, Rotterdam, 2006; Anyang Peak, Anyang, 2006; Galije Resort, Budva, 2009; Maquinnext, Barcelona, 2012; The Couch, Amsterdam, 2013; The Stairs to Kriterion, Rotterdam 2016; The Podium, Rotterdam, 2022; Rotterdam City Walk, Rotterdam, 2022; Tainan Market, Taiwan, 2022. (Joor et al. 2020, p. 303).