

VAN BRANDENBURG: UNFURLING IN AN ERA OF WASTE CRISIS

Leoni Schmidt

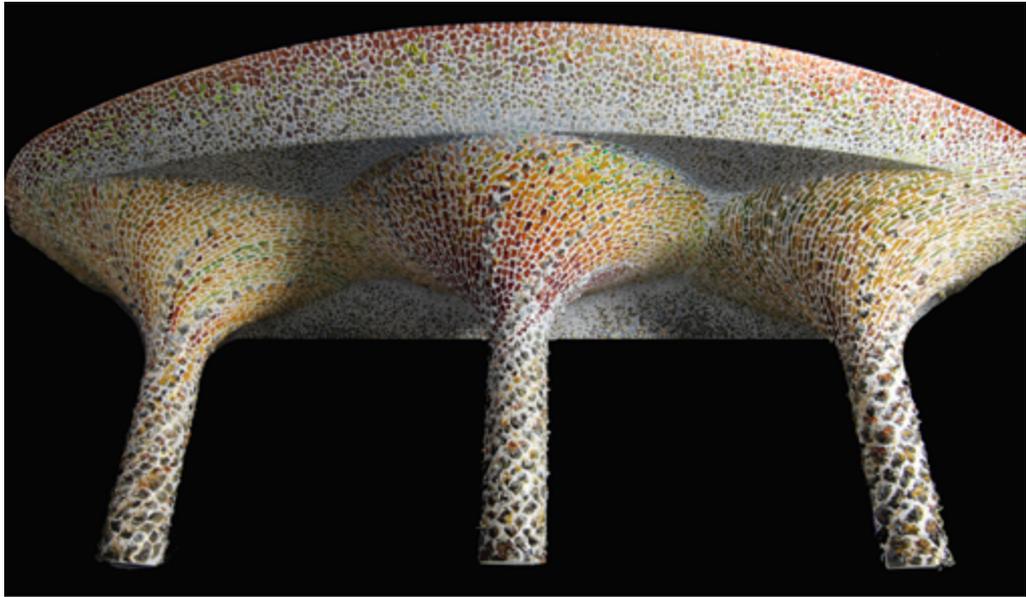
Biomimicry and Ecology

Architecture van Brandenburg has a studio in Dunedin, New Zealand, from where they participate in some of the major architectural discourses of our time. One of these revolves around 'biomimicry' or the ways in which architecture can reference the natural world to escape from its Eurocentric reliance on geometrical structure and the single façade. This is evidenced in the design for the Chinese Marisfrolg Apparel Headquarters in Shenzhen. Following a tactile epistemology that favours haptic experience of matter over privileging the ocular view, their work displays an intimate knowledge of the structural particularities of natural forms. A hand has held and touched a leaf, a frond, a shell, and this shows as a creative *unfurling* in the work. Johani Pallasmaa has brought this kind of thinking into the fore with his publications titled *The Eyes of the Skin: Architecture and the Senses* (2005) and "Hapticity and Time: Notes on Fragile Architecture" (2000) where he quotes Maurice Merleau-Ponty to argue for the primacy of touch "in the task of architecture to make visible 'how the world touches us!'"¹

In an era of heightened awareness around issues of sustainability, researchers at Eindhoven University have written: "Why biomimicry? The more our world functions like the natural world the more likely we are to endure in this home that is ours, but not ours alone."² Michael Pawlyn concurs where he studies biomimicry as "ways of translating adaptations in biology to solutions in architecture...mimicking the functional basis of biological forms, processes and systems to produce sustainable solutions."³ Architecture van Brandenburg positions their practice firmly within this discourse. Not only do they do this; they also extend an involvement with the organic into the way they work as an ecology wherein they are sculptors, designers, architects, builders, painters, ceramicists – whatever the Marisfrolg project needs is paramount at any given time in their process. In an age of digital fusion in integrative design, they maintain the handmade, the tactile epistemology of the crafts, and the sculptor's sense of the weight and volume of materials, whilst embracing the digital in all its aspects. Inspired by the work of Spanish architect Antoni Gaudí (1852-1926), the team set out to research geometric codices to enable nature-inspired forms to be built in practical ways. Most recently, the finishing of these forms has moved into central focus and, again, an ecological approach is proving productive while positioning Architecture van Brandenburg within another topical discourse: material sustainability in a post-industrial era of waste crisis.

Scarcity and Waste

In times of materials scarcity, architecture gained prestige through the use of scarce materials: marble, lapis lazuli, and gold foil for example. It also gained prestige through highly worked materials: tooled stone, ornamented cornices, intarsia patterns, for example. Craftspeople contributed to long histories of material manipulation and used their special skills learnt in guilds to produce goods made from scarce materials through skilled labour for the rich and powerful. The guilds led to the emergence of the first universities in Europe: Bologna, Oxford, and Paris around c. 1200. In these early universities the figure of the architect-artisan continued and extended the material genealogies integral to their craft. Despite the rise of the cult of the individual – Brunelleschi, Alberti, Michelangelo, Palladio – during the Renaissance, the architect retained oversight of projects on the ground as, for example, the level of



structural calculations remained within their scope. However, with the rise and extension of the Industrial Revolution, the relationship between architect, materialities, and production processes underwent a major change. The architect became more specialized and lost in part the oversight of an integrated project; machines produced building and other materials *en masse*; the seeds were sown for over-production and concomitant over-consumption; subsequently waste has become one of the largest problems of our time. Architecture van Brandenburg responds to these shifts from a 21st-Century perspective through not only *being* an ecology but also through *creating* an ecology of materialities.

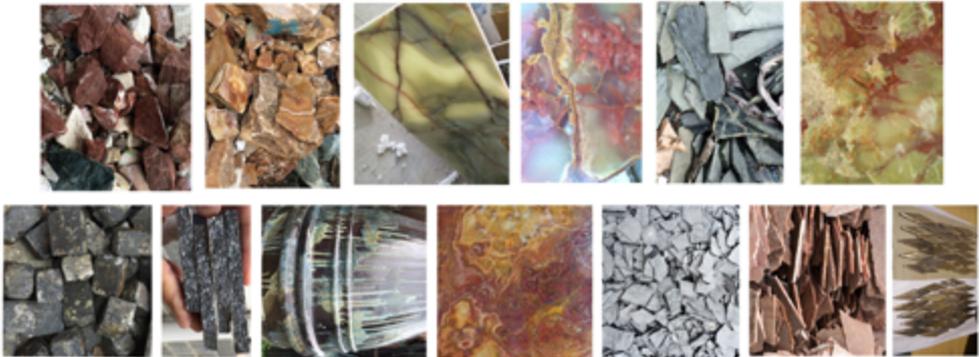
Recycling and Ornamentation

Now that Marisfrog Apparel Headquarters is in the finishing stage, a cross-disciplinary integrated design approach is paying off. Again, there is a respectful nod to Gaudí. On the one hand, he commissioned artists to provide ceramics, stained glass, carpentry and wrought iron forged work for integration into this buildings. On the other hand, he also used waste ceramic pieces in his *trencadís*, which is a type of Catalan mosaic made from ceramic shards sourced from broken tiles or plates, an example being the finish of the lizard in Guell Park, Barcelona. Architecture van Brandenburg goes much further: they refuse to use any new materials in their finish – all are recycled. Fred van Brandenburg writes: "...using only recycled material [for finishes]. The source is waste from factories in China – especially off-cuts of imported marble, granite, etc. where suppliers to the building industry cut their quarried material into precision shapes and therefore generate waste from the irregular shapes that come from the quarries. The other source is broken earthenware: terracotta pipes, pots, roof tiles, etc. – all rejects. Similarly, the glass blowing industry produce giant balls of beautiful coloured slag. In short: all waste products that factories and suppliers have on their site are transported to and stockpiled on our site."⁴

What one now sees emerging in the finishing of Marisfrog Apparel Headquarters is a circulation of existing waste rather than the creation of new products in an already over-saturated field of production and consumption. One also sees an explosion of texture and tone. These are simultaneously exuberant and carefully composed within structural boundaries. Some areas are highlighted through the use of bright colours referencing attraction in nature; other areas are toned down referencing camouflage in nature. Gaudí wrote: "Ornamentation has been, is, and will [always] be [in] polychrome. Nature does not present us with an object in monochrome, totally uniform with respect to colour – not in vegetation, not in geology, not in topography, not in the animal kingdom. Always the contrast of colour is more or less lively, and for this reason we must colour wholly or in part every architectural element."⁵

Roughly a century after Adolf Loos's famous lecture titled "Ornament and Crime" (1910)⁶, Architecture van Brandenburg participates in current architectural discourse via their practice in freeing us from the dictums of an aspiring – and even aggressive – modernism which proclaimed that the "evolution of culture marches with the elimination of ornament from useful objects".⁷ Read in the context of an exclusionary progressionism, Loos's dictum in relation to its current 'overturning' brings to the fore a range of serious concerns: 'ornament as crime' had a subtext: ornament was for women and 'savages', for 'gays' and children; for those marginalized by a progression-obsessed society, Architecture van Brandenburg's celebration of ornament participates in the recuperation and restoration of something that was lost or hidden away during the long reign of modernist architecture and its underlying philosophies that now seem outmoded in our Anthropocene with its understanding of what that world left us with: waste, both literal and figurative.

The team's celebration of a relatively new-found freedom in the use of materialities and a concomitant recycling purpose is evident from an exuberance in the use of a range of waste products: variously coloured marble offcuts, green, blue and ochre ceramic shards; recycled red brick; blue stone and brown rock; glazing bricks and plates from ceramic kilns; gold and silver glazed ceramic pieces; and oyster shells. All these fragments are reconfigured into densely patterned surfaces rich with the combined material references and associations of its parts. In *Building from Waste: Recovered Materials in Architecture and Construction* (2014)⁸, Dirk E. Hebel, Marta H. Wisniewska, and Felix

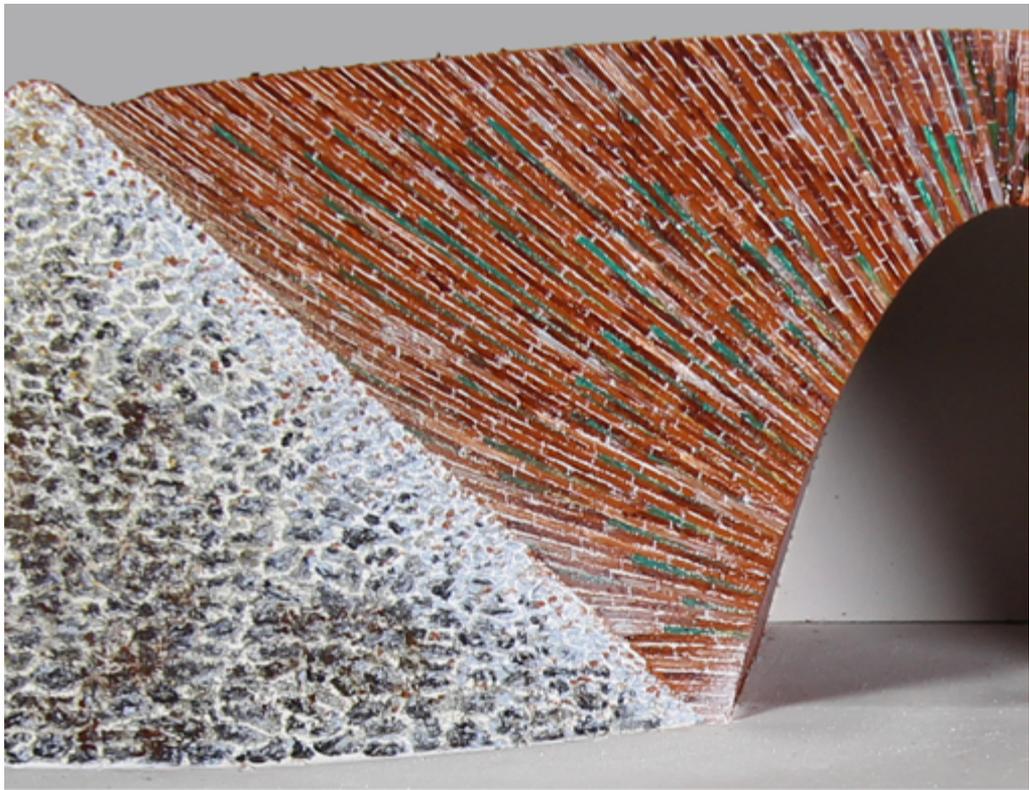




Heisel write critically about linear views on waste: "Instead of being included in a metabolic cycle and flow model of goods and resources, waste is considered within a dead-end scenario of a linear process; to be literally buried from view – out of sight, out of mind – as a formless substance that has no value...It is the story of a resource being wasted."⁹ Waste can be a renewable resource. Waste is densified, reconfigured, transformed, designed and cultivated innovatively as a choice over newly manufactured alternatives. In "Going Around in Circles: Regimes of Waste", Marc Angéllil and Cary Siress write: "Waste and its meticulous handling are valued as gifts, offered by society to itself. Where we turn the parable's missed opportunity to our advantage, a modified economy would be set into motion."¹⁰ They in turn refer to the ideas of French philosopher Georges Bataille (1897-1962) on waste as a "gift" rather than the "dirty secret" it is called by Mira Engler in 2004.¹¹ Bataille presaged much of later 21st-Century thinking about waste.¹² He argued for a new understanding of "refuse in all its heterogeneity as wealth to be mined, as a material endowment to be recycled, re-processed, and re-circulated. Framed as an economic principle, waste is expenditure with return."¹³ Architecture van Brandenburg is currently participating in the sustainability discourse in our era of waste crisis. In this respect they are joining a growing global community of architectural practice looking back to Bataille and looking hard at the future.

Community and Practice

Currently the smooth white surfaces of Marisfrolg Apparel Headquarters are being finished with waste produced in China, a country fast becoming one of the major waste accumulators in the world. "The World Bank estimates that China will produce more than half of the total of solid waste by 2025."¹⁴ In recycling some of this waste, Architecture van Brandenburg is part of a community of concerned architects worldwide. Some of the writers who have joined this brigade are mentioned above. Many practitioners are also working on the ground to either diminish waste or to transform it into a new productive life. The New York-based firm of McDowell Espinosa has created a new term for this kind of endeavour: "Trash Tectonics".¹⁵ Another firm that comes to mind is the Dutch group called "Superuse". Led by Jan Jongert and previously called "2012 Architecten", this team recycles metal offcuts, fragments of timber cable reels, bits of car windscreens and even coffee grounds. In the Villa Welpeloo they used only waste materials and currently they are taking ideas developed for that project on the road in a materials library aimed at educating students and potential clients about an economy wherein nothing goes to waste.¹⁶ Dutch architect Chris Collaris agrees and is now involved with a project called "Black Gold" aimed at finding new housing uses for obsolete oil





tankers along the Arabian Peninsula.¹⁷ It seems that the Dutch are at the forefront of such developments, possibly due to their tradition of innovative hydro engineering. In this regard it is interesting to note that Architecture van Brandenburg has itself got Dutch roots.

Their practice brings together the unfurling of beautiful natural forms in space with an ecological system of working that makes possible crossovers between architecture, sculpture and painting in outcomes that are at once tectonic, haptic and densely coloured. In a productive twist, the waste materials used add value to their work while allowing it to perform not only a reversal of waste production but also the transformation of base materials into a higher aesthetic whole: the alchemy of consummate artists.

Architecture van Brandenburg's practice actively contributes to what has been called the "circular economy", one that replaces a "linear economy". Harking back to Bataille's ideas, these terms came into use in 1966 when Kenneth E Boulding used them in relation to potential futures¹⁸ and in 1976 when Walter Stahel and Genevieve Reday wrote a report for the European Commission sketching their ideas about an economy that would work in loops rather than in straight lines.¹⁹ "The circular approach is a framework that takes insights from living systems. It considers that our systems should work like organisms, processing nutrients that can be fed back into the cycle – whether biological or technical – hence the 'closed loop' or 'regenerative' terms usually associated with it."²⁰ The 1960s and 1970s texts looked to the future in an almost apocalyptic fashion, imagining the advent of a diseased world, which would need new ways of managing. That world has arrived with our current waste crisis being one of its symptoms. In the context of China – where Marisfrolg Apparel Headquarters is situated – it is important to note that this crisis is acknowledged with a circular economy identified as national policy in that country's 11th five-year plan starting in 2006.

In a previous text on Architecture van Brandenburg, this author came to the conclusion that their biomimicry eschews "the first of the triad of [Vitruvius's] principles of architecture, namely *firmitas*, [leading to] the box-like

structures resulting from the three proportional orders and the humanist-centred focus on the body.²¹ It has since become clear that they also eschew the traditional linear economy of technologies and materials in favour of the transformation of waste in a circular economy: a fitting strategic complement to the absence of straight lines in their unfurling aesthetic.

Images supplied courtesy of Architecture van Brandenburg.

Leoni Schmidt is the Head of the Dunedin School of Art at Otago Polytechnic in New Zealand. Her research centres on drawing practices and also on interfaces between architecture and the visual arts.

- 1 *Architectural Review*, May 2000, p.78.
- 2 Ir.A.D.C. Pronk, Monique Blacha and Anne Bots, "Nature's Experiences for Building Technology", in *IASS-SLTEBook of Abstracts: New Materials and Technologies, New Designs and Innovations*, ed. JGO Salinas (Acapulco: Ajusco Coyoacan Grupo Editorial Formato, 2008), s.p.
- 3 Michael Pawlyn, *Biomimicry in Architecture*, 2011 <http://www.ribapublishing.com:1-2> (accessed 26 September 2015).
- 4 From an email correspondence between the author and Fred van Brandenburg dated 4 September 2015.
- 5 See Caren Yglesias, *The Innovative Use of Materials in Architecture and Landscape Architecture* (Jefferson NC: McFarland, 2014), 63.
- 6 Adolf Loos wrote this lecture in 1908 and delivered it in 1910; first published in French in 1913 and in German in 1929. Now available at http://www2.gwu.edu/~art/Temporary_SL/177/pdfs/Loos.pdf (accessed 26 September 2015).
- 7 See Marian Moffett and Michael W. Fazio, *A World History of Architecture*, on Adolf Loos and Ornament and Crime (London: Lawrence King, 2013).
- 8 Basel, Birkhäuser.
- 9 *Ibid.* p. 7.
- 10 "Going Round in Circles: Regimes of Waste", *Log: Observations on Architecture and the Contemporary City*, 18, Winter 2010, pp. 101-112.
- 11 Mira Engler *Designing America's Waste Landscapes* (Baltimore: Johns Hopkins University Press, 2004), 14.
- 12 See Allan Stoekl, *Bataille's Peak: Energy, Religion and Postsustainability* (Minneapolis: University of Minnesota Press, 2007), Chapter 5, "Orgiastic Recycling", pp. 115-149.
- 13 See endnote 9, p. 112.
- 14 See endnote 6, p.7.
- 15 See www.mcdowelllespinosa-architects.com (accessed 26 September 2015).
- 16 See www.superuse.studios.com (accessed 26 September 2015).
- 17 See www.cargocollective.com (accessed 26 September 2015).
- 18 Published in 1981 as *Jobs for Tomorrow: The Potential for Substituting Manpower for Energy* (Burlington: Vantage Press).
- 19 To be found at www.ub.edu/prometheus21/articulos/obsprometheus/BOULDING.pdf (accessed 26 September 2015).
- 20 See https://en.m.wikipedia.org/wiki/Circular_economy (accessed 26 September 2015).
- 21 Leoni Schmidt, "Van Brandenburg Unfurled: Architecture in the Expanded Field of Contemporary Practice", *South African Journal of Art History*, 2014, 29 (2), pp. 173-179.