Review Article

What Will the Architect Be Doing Next? How is the profession of the architect evolving as the focus of society shifts from sustainability to resilience or reactivist-driven design demands?

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Introduction

Something seems to be afoot in the field of architecture. Several experts, among others the former RIBA president Angela Brady, have been quoted as stating that given the current economical and ecological circumstances, architects will have to approach their (sustainable) profession differently from before.[1] A more engaging and visionary role for architects is supposed, altering the focus from the current technological advisor to a more sociological engineer or entrepreneur.

To verify this supposition, an inventory of stances held by architects and scholars needs to be made, stating the various opinions about how the architect's role is developing and changing. The main purpose of this is to distil some kind of consensus within architectural practice about the evolution of the architect's role in the foreseeable future. A key factor involved lies in analysing the perception of the role of the *architect*, not of the role of *architecture* itself. The reason for this distinction is that although many texts, scholars and philosophers reflect upon the role of architecture in our society, significantly fewer seem to have written about how architects themselves perceive their role. Therefore, taking instruction from such names as Baudrillard, Deleuze, Derrida and Foucault, as Roland Faber suggests, may perhaps provide valuable insights regarding the viability of sustainability or resilience as a new paradigm for architecture in the near future.[2] It is more likely, however, that conversations *with* architects or personal manifestoes *by* them,

as described by Hyde,[3] Zaretsky,[4] Maxwell and Pigram,[5] and others, will offer a clearer view on how *architects* foresee the evolution of their profession.

A parallel to this shift from the *object* of architecture to the *subject* of architects, may be found in the recent developments in research within the profession itself: various architects and scholars referred to here state that a practice which until now has been dominated by a reward structure dependent on the creation of buildings, or at least on plans for buildings, is now having to reinvent itself. How, then, can an architect be otherwise compensated for a project that doesn't lead to either a building or even a design for one? How, then, will the architect fulfil his/her role as the provider of 'spatial intelligence', as Hill likes to describe architecture's core aim?[6]

The perceived paradigms of architecture

In order to offer a point of departure for answering these questions, it is firstly necessary to search the current architectural discourse for what seem to be current and upcoming paradigms of architectural practice: to set the playing field as it were. Yet it is very hard to state what the current paradigm might be. Even distilling previous paradigms could prove quite difficult. How, then, can we focus on an apparent shift or evolution?

If we read the introductions to the architectural publications of this last decade cited here, time and again one aspect is made clear: something has changed or is changing in the field of architecture,

whether it be comments by Oosterman in his editorial for Volume's *Unsolicited Architecture*,[7] Hill in his foreword for *Future Practice*, or Van 't Klooster in her introduction to *Reactivate!,*[8] they all describe the apparent change from the traditional role of architect – whatever that may have been – towards a new reality or paradigm. Hill and Van 't Klooster in particular seem to identify a movement away from sustainability, the defining element in architectural practice of the last decade, towards a more reactivist stance. Meanwhile, articles by Zolli[9] and Weessies[10] in the popular (architectural) media seem to point towards the emergence of resilience architecture as the upcoming movement shaping the new paradigm. Others like Schneider and Till[11] state that agency in architecture is the defining element changing the practice as we speak.

For this reason, this review will focus mainly on the following various, and possibly overlapping movements or practices within contemporary architecture, namely: sustainable architecture, resilient architecture, agency in architecture and reactivist architecture. Although highly arbitrary, examining such a list may demonstrate the various current developments within architectural practice and the way the architect's role is evolving right now. In other words, in what direction is the profession of architect moving as society's focus shifts from sustainability to resilience, or to reactivist-driven design demands?

What is the sustainable architect's role?
In finding an answer to this question one might presume to start by asking what sustainable architecture actually is. The problem here is that sustainability 'has come to mean all things to all people', as Jantzen puts it.[12] In his experience as a principal partner at the renowned *sustainable* architecture office Behnisch Architekten, Jantzen is possibly justifiably fearful of it becoming a 'mere label' or 'add-on'. And it is proving to be a very unclear label at that!

In further exploring the meaning and suppositions invested in the term 'sustainable architecture', Guy and Farmer distil up to six possible manifestations, or 'logics' as they call them, of sustainability in architecture, each of them used simultaneously or in a contrary way to each other.[13] These six varying approaches or logics are:

1. *Eco-technic* logic, based upon the techno-rational and scientific discourse, and the belief that both can offer solutions for the environmental problems society faces.[14] This approach sees sustainable architecture as a manifestation of architecture's ability to improve the world through technological innovation.

2. *Eco-centric* logic, contrary to the former, sees architecture and its technology as an invasive practice, emphasising its possible negative impact and calling for a holistic approach to sustainable architecture. This ecologically based point of view asks whether it is necessary to build at all, and, if so, how it should then reduce architecture's footprint and impact on world sustainably.

3. *Eco-aesthetic* logic is the approach wherein architecture is required to act as an icon or metaphor, inspiring increased identification with nature and making its appearance in relation to New Age forms more important than its actual performance. Architecture's ability to act as a 'symbolic' sustainable beacon through its 'green' image seems to be paramount here.

4. *Eco-cultural* logic considers the vernacular and local tradition as the most sustainable manifestation of architecture, and in doing so tries to counteract the past deficiencies in globalist modernism. Its main statement, therefore, is that to create sustainable architecture one merely has to reinterpret cultural archetypes and historic typologies and adapt them to the current societal reality.

5. *Eco-medical* logic focuses on the possible detrimental effects the built environment may have on the individual with regard to the quality of air and water, emissions, and the urban space it produces.

This logic aims to counteract these nefarious effects by using a 'healthy', sustainable architecture, paying more attention to the quality of the interior and its 'tactile and natural' aspects.

6. *Eco-social logic* believes that most environmental problems originate in an oppressive societal system and because of a lack of democratic process. Only through the use of participatory, decentralised and local processes in building can architecture truly be a sustainable phenomenon.

Each of these logics has its own aesthetic, its underlying body of knowledge and its preferred applied technologies. One cannot simply select one narrow definition, or even amalgamate a number of them, to create a coherent definition of sustainable architecture.

Faber recognises this 'elusive' nature of sustainability but sees it as more 'hybrid' in its identity: sustainability in part 'describes' the way cycles of energy transform and in part it 'prescribes' our understanding of the mechanisms of those natural cycles and how they are needed for humans to thrive.[15] Given this elusive nature, how can we then describe the role of the 'green' architect in the realisation of architecture?

Perhaps it is therefore more useful to merely investigate how several architects known to practise sustainability describe the nature of sustainable architecture and their role within it. To begin, one might take the 'grand master' of sustainable architecture in the Netherlands, Jón Kristinsson, and try to distil his vision on the matter.[16] Kristinsson is well known for his opinion that sustainability is a state of mind influencing every facet of life and architecture.[17] In reference to the above-mentioned logics of sustainable architecture, one might qualify him as both eco-technic and eco-centric: his belief in the positive effect of technological innovation in design, his emphasis on the otherwise detrimental effects of the current building industry, and his call

for a holistic approach, justify this description. Yet the description might also prove to be too limiting since he also expresses his admiration for the inherent sustainable wisdom of local, vernacular architecture, making him an eco-culturalist as well.[18] Kristinsson's view on the role of the sustainable building process is less explicit. Although his much-used handbook provides many examples and case studies on the matter, a precise role is not revealed. If anything, what is made clear is that Kristinsson sees the architect as a technological expert and advisor, showing the construction industry the 'right' way to build.

Behnisch Architekten is another well-known practitioner of sustainable architecture, noted, among other work, for their projects for the Genzyme Corporation. Partner Christof Jantzen, mentioned earlier, expresses his firm's desire to fully integrate sustainability into the design of buildings. To this, however, Jantzen adds two main desires: 'The first is to fully maximise user comfort; the second is to establish an understanding of what constitutes responsible design'.[19] According to the logic of Guy and Farmer, the first desire makes him a more eco-medical kind of architect.[20] However, further on in his conversation with Zaretsky he reinforces the firm's 'holistic' view on design too. The parallels with Kristinsson do not end there. The way in which Jantzen describes the role of the architect 'in educating the client, owner and user', can be easily interpreted as reaffirming the role of technological advisor as well. This conclusion is further subscribed to by the description of the Genzyme Center design process, in which fine-tuning the performance of the building with the client and builder is made clear and appears to be preeminent.

In Shannon May's analysis of the designers McDonough and Braungart, known mainly for the highly influential sustainable manifesto *Cradle-to-Cradle*,[21] she calls the above-mentioned role of the technological 'designer expert' something

'unabashedly modernist' in its attitude towards development.[22] The no less than seven reasons she mentions to underpin this statement are too many to repeat here, and would go beyond the premise of this review, but May basically states that McDonough and Braungart are prone to repeat past modernist mistakes, which they risk making by being too 'critical and utopian', and claiming 'omniscience and omnipotence' in their role as environmental designers and advisors. May continues by describing MacDonough's master plan for Huangbaiyu, China, a sustainable city she claims lacks the element of 'community'. Her main criticism is that the concept 'community building' has been taken far too literally, without talking to the local community or taking their actual needs into consideration: one cannot simply build a community using only bricks and mortar.

It is precisely this top-down element of the current practice of sustainable architecture by technological experts and advisors that seems to have prompted the emergence of practising architecture in a more inclusive way, together with the end-users. In the following sections, two variants of this, resilient architecture and agency in architecture, will be discussed further.

Resilient architecture
In his article for the New York Times, Andrew Zolli claims that the world of sustainability is currently being challenged from within. According to Zolli, various experts from differing fields of design and engineering appear to be moving away from sustainable development in the traditional sense. The aim of this newfound development strategy, which is apparently ever more broadly embraced, is 'to imbue […] communities, institutions and infrastructure with greater flexibility, intelligence and responsiveness to extreme events', and by doing so, make society and its architecture more resilient.[23] Zolli states that whereas 'sustainability aims to put the world back into balance, resilience looks for ways to manage in an imbalanced world'. One could argue that this, too, is a kind of sustainable development of architecture. This ambition to deal with an imbalanced system can easily be placed within the aforementioned eco-social logic of Guy and Farmer.[24] Yet it seems the main difference lies in the expected role of the architect or designer within this strategy, with reference to the society or client s/he serves. Not only is it important how buildings are able to cope with a changing world, but it matters equally how the people using those buildings can adapt to new circumstances. This approach could, of course, help to bypass the top-down, community-ignoring schemes described by May.[25]

To deepen our understanding of the process of resilience in architecture, Roche offers some perspective. In his essay introducing the theme of resilience and resistance in society and architecture, Roche calls for a fusion of the bottom-up and top-down elements in the current 'architectural protocols'.[26] He proposes to marry two opposed philosophies within architectural and societal reality today: the perhaps conformist movement that sees 'technology as a vector of invention' supporting a system of 'free enterprise and the ideology of progress […] as a basis for the democracy empire' and the more resistant movement of 'bio-political tribes, suspicious' of a 'corruptible system that needs to be renovated by […] the multitudes and their creative energy'.[27]

Sterner puts this in perhaps more practical terms. In his analysis based on three case studies of the applicability of 'Complex Adaptive Systems Theory' in sustainable design, Sterner concludes that a resilience enhancing strategy offers 'a great potential' for tying together the 'social and ecological considerations of sustainability'.[28] This means fusing the current practice of technological advice and sustainable design with community-based development, as required by a changing societal reality proposed by Roche. According to Sterner, the resilience element

also adds a certain longevity to sustainability ambitions and systems by looking differently over a longer term. Resilience does not only focus on the sustainability of ecological systems, but integrates it over time with socio-economic and technological networks and the changes therein, thus responding to society's newfound need for communal involvement. However, it is debatable whether or not this is a truly different architectural practice as Zolli and Roche seem to suggest. It could be seen as a form of sustainable architecture in which the emphasis has simply come to lie with the eco-social logic, as described by Guy and Farmer. Sterner seems to hint in his analysis that this incorporated resilience is merely a further development of sustainable design attempting to cope with ever more complex systems. The aim is to create a system able 'to absorb disturbance and adapt to change' without losing a certain level of quality.[29] The question remains whether or not resilience in architecture is truly shifting focus towards community-based design. What would the role of architects be in this development? None of the above-mentioned sources seems to provide a clear vision for the actual practice of designing *with* the community and its implications for the architect.

It is perhaps necessary to further investigate this claim of resilience in architecture in order to fully incorporate the community factor in a different manner. Yet there is another development in current architectural practice that claims a similar involvement and empowerment of social agents and the community: agency in architecture. In the following section this variation will be discussed further to see whether it is something different, or part of the evolution of sustainable and resilient architecture discussed above.

Agency in architecture

In their analysis of agency in the architectural discourse, Schneider and Till touch upon the essence of its application by architects. The architect is merely one of the many agents in the building process, not the sole 'agent of change'.[30] Architects in this sense are just one of many contributors to the process of architecture, together with end-users, and therefore a more modest approach from the profession is called for. Architecture requires an 'anti-hero'; a relinquishment of sole authorship of the architectural creation. Schneider and Till add to this new role of the architect the responsibility for governance over the 'social space' within the context of 'spatial agency'. They claim that the introduction of social space, in which space has acquired a temporal dimension, has introduced within spatial agency a 'dynamic' and 'continuous process' of space making. In doing so, this has added a new dimension to the evolution of architecture: it no longer depends upon the creation of a static, built environment. In this way it incorporates the ambition of resilience architecture as described by Sterner by being adaptable to change, without the pitfalls described by May of being top-down and literally rigid. Hence, architects can act as agents 'on behalf of others', keeping in mind 'the longer-term desires and needs of the multitude', and clearly connecting with the desired fusion of architectural protocols described by Roche. By *co-authoring* the social space, end-users and architects will be linked in the creation of space long after the building, if any, has been realised.

The implications of creating architecture and space without buildings will be discussed further on. However, a final movement within current architectural practice has still to be mentioned: so-called reactivist architecture. The way in which this relates to the movements mentioned earlier, or if it advocates a wholly different approach, will be discussed next.

Reactivist architecture

The phrase reactivist was coined by Indira van 't Klooster in her book on the current, 'innovative' generation of architects, particularly, but not exclusively, in the Netherlands. The concept of reactivism

was borrowed from the field of chemistry to describe the 'ease with which small units' in the field of architecture are reacting to the changing circumstances of the practice. The implied activism suggested by the term appears to be merely an added bonus of the phrase. Van 't Klooster found that as the economic building reality changed following the worldwide economic crisis in 2008, more and more small architectural offices began to manifest a wholly different approach to the profession. She came to distinguish three distinct ways in which these small offices aimed to give new meaning to the practice of architecture:[31]

1. *Performative design and collaboration*: small offices collaborate in flexible configurations with each other and/or other building practice experts, asking the end-users not to describe a final product but a desired performance of the architectural process – an attitude that is certainly reminiscent of the spatial agency concept as described by Schneider and Till.
2. *Testsite NL*: these offices approach architecture not as a form of *design* but as kind of *strategy*, allowing for an 'assertive role' in the building process as moderators of an experimental strategy, or as developers of the process themselves.
3. *Unsolicited architects*: by adopting this role, architectural firms seek out societal problems themselves and propose solutions without having to wait for an actual commission, suggesting independence from the whims of the client, or economic circumstances.

Van 't Klooster continues to typify the reactivist architect as one who combines all three of these methods into an adaptable strategy, continually changing the weight of each of the ingredients as the situation demands.

In this sense reactivist architecture seems to be a further development of agency in architecture, with the more assertive stance and role of the unsolicited architect added to provide greater independence. Yet it clearly still borrows elements from

sustainable and resilient architecture in the way it expresses (respectively) the ambition to develop architecture sustainably and to empower communities.[32] It simply chooses to no longer associate itself with one or the other – an independence of thought that Van 't Klooster refers to on various occasions.

The concept of unsolicited architecture, however, requires more clarification. Both Hyde and Van 't Klooster describe it as the point of departure leading away from conventional architectural practice, and part of the movement of the upcoming generation of architects towards a new architectural practice. The following section will try to examine its importance in providing an alternative view of the architect's role.

The concept of unsolicited architecture as a blueprint

Ole Bouman founded the *Office for Unsolicited Architecture* as a MIT studio, and being a former editor of *Volume*, he was invited to publish the studio's work in a dedicated edition of the magazine. *Volume*, issue 14, *Unsolicited Architecture*, ended up not only containing the overview of the studio's student work, conversations with experts from the field and essays on the subject of unsolicited architecture, but most importantly, it contained a manifesto by Bouman himself, providing a kind of blueprint on how to create unsolicited architecture.[33] In particular, the scheme on 'How to Make Unsolicited Architecture' was recognised as having a clear and singular potency.[34] In the scheme, designed by Andrea Brennen, Ryan Murphy and John Snavely, Bouman offers a five-step plan on how to make unsolicited architecture:

1. Pro-actively find new territory for architecture.
2. The absence of a traditional client, site, budget, and/or program, necessitates the transgression of status quo assumptions.
3. Design…
3a) The architectural object

3b) The marketing plan (reading of…)

3c) The financing plan (implementation of…)

4. Reflection upon reaching the 'turn-key' stage.

5. Action, solicit and tell us about it!'[35]

The second point in particular seems to connect with the new circumstances within the current architectural reality for the 'new generation' of architects, touched upon by Van 't Klooster and Hyde. Its importance is underlined by the comment next to the point in the scheme itself, declaring that if the project at hand does not demand the 'rethinking' of any of the mentioned 'cornerstones of architecture', these being the client, plan, site and/or budget, then one is 'doing regular practice',[36] with the suggestion that this should be avoided at all cost!

The scheme also appears to connect the relevance of agency as described by Schneider and Till, and the three principles of reactivist architecture stated by Van 't Klooster. It does so by stating, in another side note to the third point of the scheme, that only through providing the financing, the marketing and the object is one truly an architect, rather than a mere academic, politician or capitalist. It calls for the architect to develop a different role or skill set.

The question remains, how did the architects of that so-called new generation translate this scheme into architectural practice? The following section presents a selection of this generation's architects, chosen for their clear expression of how architectural practice is evolving and how it seems likely to evolve in the foreseeable future, including a reflection on this new architectural practice.

How architects perceive their supposedly new role

In their influential *Compendium for the Civic Economy*, Johar and his colleagues from 00:/ (pronounced 'zero-zero') identify a shift towards a more open-ended approach in planning buildings.[37]

In his conversation with Hyde, Johar adds to this vision the need to create 'conditions for behavioural nudges, self-organisation and a deep influence on systems'.[38] This statement demonstrates Johar responding to the desire to include community involvement in a manner comparable with both the reactivist philosophy described by Van 't Klooster and the architect as agent of change mentioned by Schneider and Till. Johar goes on to say that the architect's current main role concerns 'place-making as opposed to the design of a physical product'.[39] Again, this statement clearly locates Johar within the practice of reactivist architecture, in particular its strategy of performative design.[40] A third element of the new practice according to Johar, is the architect's new role as a civic enterpeneur. He explains this role as a kind of programme developing architect, allowing 'a deep democratisation of process liberating […] people to organise themselves locally', creating 'institutions and organisations […] fundamentally focussed on a civic purpose'.[41] With this stance, Johar not only establishes himself within the reactivist practice, but he also connects with the eco-social and eco-cultural logics of sustainable architecture as described by Guy and Farmer.[42]

In order to voice the resilient architectural view on the current practice it is perhaps wise to share the opinion of Maxwell and Pigram on the matter. In their essay on the practice of resilient architecture in *Log 25,* they, too, state that the 'shift away from object-centric models focused only on end products' is currently changing architecture. Maxwell and Pigram give special importance to the 'removal of the divide between design and making' allowing for 'more open-source societies of knowledge' to emerge between architects and end-users.[43] By this, they mean the ability to produce and print design elements anywhere in the world, freeing up architects to produce objects themselves, or to engage with the end-user directly. It underlines the ambition of both resilient architecture and agency in architecture to have an *inclusive* relationship with

the end-user and the community at large, including sharing authorship, as previously expressed by Roche, and Schneider and Till.

Yet this liberating aspect of the technological revolution and the liberation of production currently taking place are not exclusively tied to the practice of resilience. DUS Architects mention similar benefits in an interview with the Dutch popular media on the subject of 3D printing.[44] Their inclusion in the review of firms discussed by Van 't Klooster clearly places them within the realm of reactivist architecture. In a second interview with Hyde, they demonstrate that there are more connections with the ambitions of resilience and agency. Among others, the interview refers to their manifesto in which they state that architects should 'avoid authorship',[45] reminiscent of the statement made earlier on the requirements of agency by Scheider and Till. Yet most parallels are to be found with reactivist principles.

For instance, DUS Architects remark that they want to challenge the idea of a building as 'a fixed thing'.[46] And previously, they expressed the importance of 'architectural beta-testing'; i.e., experimenting as you build and develop. These two elements directly relate to the first two principles of reactivism: Performative design and collaboration and Testsite NL, as described by Van 't Klooster.

Perhaps at this point, it is time to put all these connections and evolutions into perspective, for clearly a pattern is emerging: certain elements within all four practices of architecture recur more than others, and there are obviously similarities between them. The following section will conclude with an overview of these connections.

The next evolution of the architect's role
To recapitulate what has been said so far, a certain evolutionary path seems to emerge. Urged by a perceived lack of direct community input in traditional, sustainable architecture, architectural practice seems to have chosen to introduce this element through agency. Even though this community element might already have been present within sustainable practice through eco-societal and eco-cultural logic systems, it was deemed necessary to go beyond the role of the sustainable, technological advisor and fuse it with a more bottom-up approach. This introduction of resilience-providing architecture, however, did require an adaptability to change that went beyond the lifespan of the current praxis; it demanded space to acquire a temporal dimension known as social space. Only by incorporating this temporal element is it possible to free the architect to operate beyond the constraints of the architectural object and to focus on performative design and collaboration in the service of communities. Aided by the principles and blueprint of Unsolicited Architecture, and forced by the new economic reality since 2008, has meant that the architect can now operate as a civic entrepreneur. By developing the financing, marketing and the architectural object, the architect can maintain his/her relevance and find a new autonomous role in society. In this capacity, the architect shares authorship with the end-user and the community at large. This new role is partly made possible by the opportunity of bridging the divide between design and making through the decentralisation of production. It allows the architect to have direct contact with either the end-user and/or the architectural object.

All of the above seems to have been absorbed into a set of principles described as the elements of reactivist architecture. This descriptive, not prescriptive, set of principles appears to have incorporated elements of sustainability, resilience and agency in architecture, becoming more than the sums of its parts. Neither is it static in its nature, since it clearly advocates experimentation in the field. The remaining question is whether reactivism will develop to define a generation and a stance in architecture. Will the term 'stick', or is it merely another phase of the evolution of sustainable

development and architecture into something new? Only time will tell.

Final reflections

The research prior to this review has for some time been preoccupied with the need to define sustainable, resilience and reactivist architecture. Yet this proved to be more and more a matter requiring a thesis of its own. Moreover, it was never the intention to make this a mere exercise in labelling. Only after clarifying these definitions by simply stating a number of architects' opinions on these matters, and hopefully distilling them to workable definitions, could some progress be made.

For this reason it was necessary to clearly state in the introduction what this text was *not* going to address. It has hopefully provided a significant and enlightening description of the transformation architectural practice seems to be undergoing. This was, after all, the main reason for researching this topic, arising from the distinct feeling that, as the profession shifts paradigms, a fundamental change is taking place in the way both society *and* architects see their role within architectural practice. In other words, what will the Architect be doing next?

Notes

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2. Roland Faber, 'Cultural Symbolizations of a Sustainable Future', in *New Directions in Sustainable Design*, ed. by A. Parr and M. Zaretsky (Boston: Routledge and Kegan Paul, 2011), pp. 242-55.

3. Rory Hyde, *Future Practice*: *Conversations from the Edge of Architecture*, ed. by Rory Hyde (New York, London: Routledge and Taylor & Francis, 2012).

4. Michael Zaretsky, 'Interview with Christof Jantzen of Behnish Architekten', in *New Directions in Sustainable Design* (2011), pp. 202-06.

5. Ian Maxwell and Dave Pigram, 'In the Cause of Architecture: Traversing Design and Making', *Log* (2012), pp. 31-40.

6. Dan Hill, 'Forward, the Disruptive Power of an Edge', in *Future Practice* (2012) pp. 6-15.

7. Arjen Oosterman, 'A Profession Apart; Editorial in Unsolicited Architecture', *Volume* (2008), pp. 2-3.

8. Indira Van 't Klooster, *Reactivate! Innovators of Dutch Architecture* (Amsterdam: trancityxvaliz, 2013).

9. Andrew Zolli, 'Learning to Bounce Back', The New York Times, (2012) <http://www.nytimes.com/2012/11/03/opinion/forget-sustainability-its-about-resilience.html?smid=pl-share> [Accessed 06 February 2013].

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11. Tatjana Schneider, and Jeremy Till, 'Beyond Discourse: Notes on Spatial Agency', *Footprint,* 4 (2009), pp. 97-111.

12. Zaretsky, 'Interview with Christof Jantzen of Behnish Architekten', (2011)

13. Simon Guy and Graham Farmer, 'Reinterpreting Sustainable Architecture: The Place of Technology', *Journal of Architectural Education,* 54 (2001), pp. 140-48.

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17. Jón Kristinsson, *Integrated Sustainable Design* (Delft: Delftdigitalpress, 2012), p. 312.

18. Guy and Farmer, 'Reinterpreting Sustainable Architecture'.

19. M. Zaretsky, 'Interview with Christof Jantzen of Behnish Architekten'.

20. Guy and Farmer, 'Reinterpreting Sustainable Architecture'.

21. Michael Braungart, and William McDonough, *Cradle to Cradle, Remaking the Way We Make Things* (New York: North Point Press, 2002).

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Making of a New Working Class', in *New Directions in Sustainable Design*, ed. by A. Parr and M. Zaretsky (Boston: Routledge and Kegan Paul, 2011), pp. 37-52.

23. Andrew Zolli, 'Learning to Bounce Back', The New York Times, (2012) <http://www.nytimes.com/2012/11/03/opinion/forget-sustainability-its-about-resilience.html?smid=pl-share> [Accessed 06 February 2013].

24. Guy and Farmer, 'Reinterpreting Sustainable Architecture'.

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26. François Roche, 'Reclaim Resi[Lience]Stance // ...... R2', *Log* (2012), pp. 1-5.

27. Ibid.

28. Carl S. Sterner, 'Designing Resilience', in *New Directions in Sustainable Design*, pp. 152-67.

29. Ibid.

30. Tatjana Schneider, and Jeremy Till, 'Beyond Discourse: Notes on Spatial Agency', *Footprint,* 4 (2009), 97-111.

31. Indira Van 't Klooster, *Reactivate!, Innovators of Dutch Architecture* (Amsterdam: trancityxvaliz, 2013).

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33. Ole Bouman, and Rem Koolhaas, 'Unsolicited Architecture', *Volume* (2008).

34. Rory Hyde, 'Unsolicited Architecture' 2009) <http://roryhyde.com/blog/?p=294> [Accessed 29 November 2013].

35. Ole Bouman, 'Unsolicited, Or: The New Autonomy of Architecture', *Volume* (2008), 26-40.

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37. Tim Ahrensbach et al., *Compendium for the Civic Economy: What Our Cities, Towns and Neighbourhoods Should Learn from 25 Trailblazers*. ed. by 00:/ and Nesta (trancityxvaliz, 2012).

38. Indy Johar, 'The Civic Entrepeneur', in *Future Practice: Conversations from the Edge of Architecture*, ed. by Rory Hyde (Routledge, 2012), pp. 42-55.

39. Ibid.

40. Indira Van 't Klooster, *Reactivate!, Innovators of Dutch Architecture* (Amsterdam: trancityxvaliz, 2013).

41. Indy Johar, 'The Civic Entrepeneur', in *Future Practice: Conversations from the Edge of Architecture*, ed. by Rory Hyde (Routledge, 2012), pp. 42-55.

42. Guy and Farmer, 'Reinterpreting Sustainable Architecture', pp. 140-48.

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44. DUS Architects, 'Print Een Grachtenpand', VARA, (2013) <http://dewerelddraaitdoor.vara.nl/media/233759> [Accessed 29 November 2013].

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46. Ibid.

Biography

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