# ECOLOGIES OF INCEPTION

## DESIGN POTENTIALS ON A WARMING PLANET

SIMONE FERRACINA

ROUTLEDGE

## 3.6 Material Context vs. Design Context

When commissioned to design a new building, the architect agrees upon a program, a set of objectives and aspirations, a budget, and a site (often a vacant plot). The site, the only element that—in a typical brief, and in the pragmatic context of the architectural profession—exceeds the terms of the commission, is surveyed and investigated to ground decisions and weave the project, which would otherwise remain on paper, into existing social, environmental, and infrastructural fabrics—building regulations, community benefit clauses, transportation networks, utility lines, topography, climate data, views, drainage, the direction of the sun, and so on. The information thus collected, and its presentation in maps, soil boring tests, zoning diagrams, interview transcripts, utility plans, photographs, and a range of other documents, inform design proposals that address the client's expectations while also delineating the architect's own "creative agenda." The latter—the so-called *architectural intent*—combines conceptual underpinnings and disciplinary ambitions with the architect's *habitus* (her authorial preferences and proclivities).

What transpires from this ordinary—if oversimplified—sequence of events is that architectural intents—the ideas, purposes, and aims associated with the design of a building—precede even the most feeble and preliminary engagement with materiality. Largely absent from a project's groundwork and from site surveying procedures, materials enter the design stage only as a means to translate, declare, or fulfill intents: a wide-spanning overhang might invoke the use of reinforced concrete or steel; a desire to visually connect interior rooms with out-of-doors spaces might call for large glazed surfaces and extruded aluminum mullions; the acoustics in a triple-height atrium might require sound-absorbing materials such as perforated timber panels and upholstered furniture. Materials (or, rather, their projected effects) are selected on the basis of their adherence to the architect's intentions. Their purity is measured in compliance, in the fidelity of their appearance or performance to an architectural or engineering script.

The fact that ambitions precede materiality might seem reasonable—how do you begin to discuss *how* something will be built if you don't know *what* that something is? Yet this apparently uncontroversial position disguises a predilection for novelty, control, and individual authorship: the assumption that *how* and *what* can never coincide, and that the act of designing and that of finding reside at opposite ends of the creative spectrum (or, in other words, that the creativity of a human or nonhuman "other" is not worth considering as such). Furthermore, it assumes that materials are universal and equidistant, mass produced and smoothly exchangeable across the globe—forgetting the diverse and uneven geographical, climatic, social, and political conditions surrounding their production, and that their metastability (in Lloyd Thomas' extended sense) depends, in the best of cases, on local knowledges, skills, and traditions.[60]

60 I am thinking particularly of the exemplary non-Western and Indigenous technologies and tectonic inventions presented in Julia Watson and Wade Davis, *Lo-Tek: Design by Radical Indigenism* (Taschen, 2020) as compared, for example, to the deskilling of labor imposed by the modernist adoption of reinforced concrete, as described in Sérgio Ferro, "Concrete as Weapon," trans. Silke Kapp and Alice Fiuza, and with an introduction by Silke Kapp, Katie Lloyd Thomas, and João Marcos de Almeida Lopes, *Harvard Design Magazine*, Fall/Winter 2018. Skills are, of course, indispensable for reuse. Susan Strasser writes that "[f]ixing and finding uses for worn and broken articles entail a consciousness about materials and objects that is key to the process of making things to begin with. Repair ideas come more easily to people who make things. If you know how to knit or do carpentry, you also understand how to mend a torn sweater or repair a broken chair." Susan Strasser, *Waste and Want: A Social History of Trash* (New York: Owl Books, 2000), 12. Similarly, Steven J. Jackson asks: "Can breakdown, maintenance, and repair confer special epistemic advantage in our thinking about technology? Can the fixer know and see different things—indeed, different worlds—than the better-known figures of 'designer' and 'user'?" Steven J. Jackson, "Rethinking Repair," in *Media Technologies: Essays on Communication, Materiality, and Society*, ed. Tarleton Gillespie, Pablo J. Boczkowski, and Kirsten A. Foot, Inside Technology (Cambridge: The MIT Press, 2014), 229.





Against a materiality that is fully subordinated to the desires and aspirations of a project's stakeholders, and against Leon Battista Alberti's bias towards the "lineaments" of buildings—the idea that lines and angles define a project's form and appearance "without any recourse to the material"[61]—I propose here a different notion of contextuality that is not exhausted by harvesting data towards effective or even thoughtful decision-making, but is, perhaps more crudely, engaged with sourcing a building's very bricks and mortar. The pragmatic privileging of a *design context* predicated on the acquisition of information and on decisions does not preclude the possibility of a *material context* predicated on encounters.

Indeed, the rift between site and material survey, the Albertian architect and the medieval master-builder, designing and making or finding, produces two distinct and qualitatively different conceptions of site-specificity. Both expand the significance of *site* and *context* beyond the mere boundaries of a plot: while the former—the *design context*—includes the constraints, pressures, flows, and networks affecting a site and its development, the latter—the *material context*—corresponds with the stuff out of which the building will be constructed.[62] Again, this is not limited to the mud, rocks, or bricks presumedly found on the premises, or even to existing buildings or materials, but encompasses an expansive survey of *localized* and codesigning substrates; of objects that are emplaced (nongeneric, experienceable, physically present on a specific site) and predate the design process, which they help to steer and orientate. Based on this expanded notion of context, one might describe reuse and repurposing as the operations that endow materials with the ability to propose and impose their own lineaments.

Yet, the difference between a design context and a material one cannot be reduced to the neat distinction between a goal-oriented and a means-oriented design approach, or between use and reuse.[63] Rather, it promotes a more nuanced understanding of how the scope of the terms *reuse* and *repurposing* changes in different settings. In a design context, they might refer to interior design or "adaptive reuse" projects that rehabilitate existing buildings by combining them with new material layers and volumes—ones that are not necessarily reused or repurposed.[64] For the sake of a more precise set of labels, I will refer to these cases as instances of *design reuse* or *design repurposing*. One such example is Anne Lacaton & Jean-Philippe Vassal's celebrated transformation of a housing estate in Grand Parc, Bordeaux, where—rather than razing the three existing apartment blocks to build something "better," as others might have shortsightedly suggested—the architects extended the modernist towers by adding a generous 3.8-meter layer of prefabricated concrete balconies and winter gardens; replacing the original façades with floor-to-ceiling windows and sliding doors, and flooding the flats with views and natural light.[65] [**Figures 3.7 + 3.8**] Another example is Heatherwick Studio's *Zeitz MOCAA* in Cape Town, South Africa, where a grain silo complex was carved and extended to become a museum of contemporary art.[66] [**Figure 3.9**]

61 Leon Battista Alberti, *On the Art of Building in Ten Books*, trans. Joseph Rykwert, Neil Leach, and Robert Tavernor, (Cambridge and London: MIT Press, 1997), 7.

62 I am not implying that the distinction between a design context and a material one is universally valid—the opposite is often true, demonstrating that the ability to potentialize objects does not depend on the purifying force of a *tabula rasa*, on hypermateriality, or on the division between intellectual and manual labor. However, I do mean to suggest that this rift in Western architectural practice is fueled by the refusal to tell purity (mastery) apart from potency, and by the dualisms this refusal mobilizes (nature/culture, matter/form, etc.) towards the perpetuation of social, racial, and environmental injustice.

63 For this distinction, see Ed van Hinte, Césare Peeren, and Jan Jongert, *Superuse: Constructing New Architecture by Shortcutting Material Flows* (Rotterdam: 010 Publishers, 2007), 77.

64 Graeme Brooker and Sally Stone write of *intervention* when old and new are intertwined and indivisible; of *insertion* when they remain independent but the new has been formally/dimensionally dictated by the existing; of *installation* when the two remain relatively separate. Graeme Brooker and Sally Stone, *Rereadings: Interior Architecture and the Design Principles of Remodelling Existing Buildings* (London: RIBA Publishing, 2017), 79.

65 See also Frédéric Druot et al., *Plus: Large-Scale Housing Developments, an Exceptional Case*, 2G Books (Barcelona: Ed. Gustavo Gili, 2007).

66 In this case, cutting the original silos also required lining them with new concrete walls.

**Figure 3.7** Lacaton & Vassal, Druot, Hutin, *Rehabilitation of 530 dwellings*, Grand Parc, Bordeaux, France, 2017. Building G (before and after). Photographs by Philippe Ruault.

In a material context, on the other hand, the additions curated by a project are embodied—they don't rely on hypermaterials—but might involve a more extensive construction program. I will refer to these cases as instances of *material reuse* or *material repurposing*. One such example is the *Lions Park Playscape* designed by Rural Studio in Greensboro, Alabama, where galvanized drums, originally used to store mint oil, are turned into floors, walls, soffits, and light wells; [**Figures 3.10 + 3.11**] another is the studio's *Shiles House* in Hale County, where tires form structural walls, and shipping pallets—cut into shingles—clad the façade.[67] [**Figures 3.12 + 3.13**] It is of course the case that these approaches can be dosed, mixed and combined, as in the *Sala Beckett* by Flores & Prats, where a derelict workers' cooperative in Barcelona is evocatively transformed into a drama center (an instance of design repurposing) and the existing doors and windows are inventoried, reconditioned, repainted, modified, and moved to different locations (an instance of material reuse).[68] [**Figure 3.14 + 3.15**]

In the 2007 book *Superuse: Constructing New Architecture by Shortcutting Material Flows,* Ed van Hinte, Césare Peeren, and Jan Jongert offer a provocative take on material contextuality. Aiming to re-link design with embodied (locally available) materials, and having coined the term *superuse* to extend reuse and repurposing strategies to industrial byproducts and dead stock, the authors suggest that projects should be coupled with a "harvest map"—a map of the area around a building site, where "superuse scouts" might find reusable materials, both diverting waste flows and minimizing the transportation needs of a project.[69] According to Peeren, these local metabolisms would transform buildings into "living organisms, constantly changing, growing and degenerating, absorbing the superfluous that they find in their surroundings and setting free whatever is no longer needed."[70] Accordingly, a design might either be prompted by the availability of local materials or, inversely, a project might establish a "shopping list" according to which available materials will be sought and selected. For the *Wikado Playground* discussed in Chapter 2, for example, Superuse

67 Rural Studio is the design–build programme at Auburn University. Founded in 1992 by D. K. Ruth and Samuel Mockbee, it aims to "provide a decent community for all citizens." Andrea Oppenheimer Dean and Timothy Hursley, *Proceed and Be Bold: Rural Studio after Samuel Mockbee* (New York: Princeton Architectural Press, 2005), 8.

68 See also Flores & Prats et al., *44 Doors and 35 Windows for the New Sala Beckett* (15-L FILMS, 2016).

69 van Hinte et al., *Superuse*, 5–17. To put this into perspective: while Jongert suggests that the harvest map could have an indicative diameter of 50 kilometers, the "Regional Materials" credits in the LEED rating system (BD+C: New Construction V3, 2009) could be attained by sourcing materials "extracted, harvested or recovered, as well as manufactured within a 500 mile [800 kilometer] radius of the project site." LEED, "Regional Materials" (USGBC, 2009).

70 Ibid., 18. *Urban mining*, and the main challenges faced in its implementation, are discussed in detail in Michaël Ghyoot et al., *Déconstruction et réemploi: Comment faire circuler les éléments de construction* (Lausanne: Presses Polytechniques et Universitaires Romandes, 2018), 90–95.





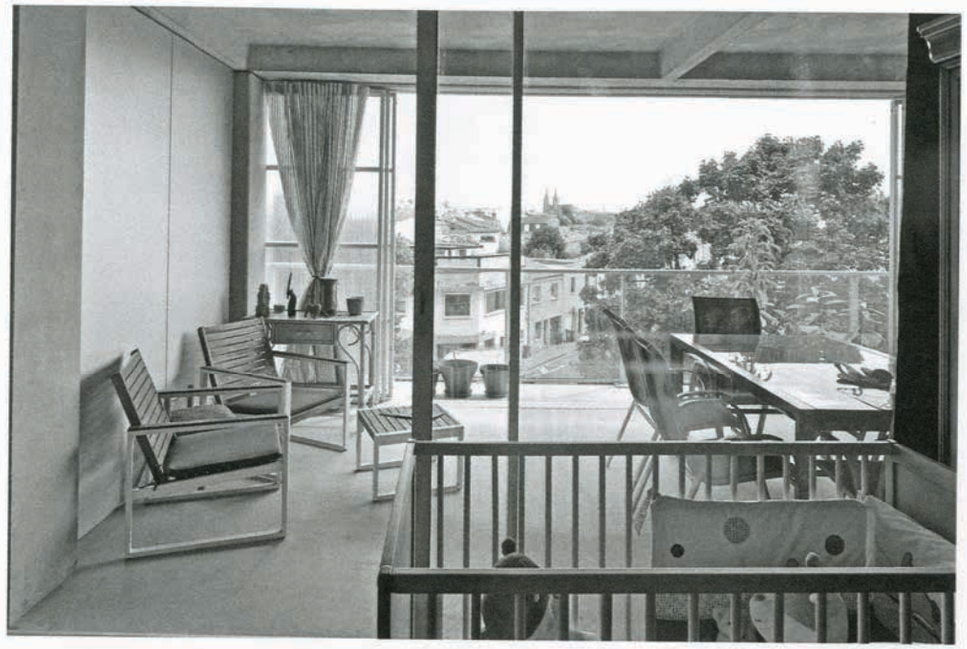


**Figure 3.8** Lacaton & Vassal, Druot, Hutin, *Rehabilitation of 530 dwellings*. View of winter garden. Photograph by Philippe Ruault.

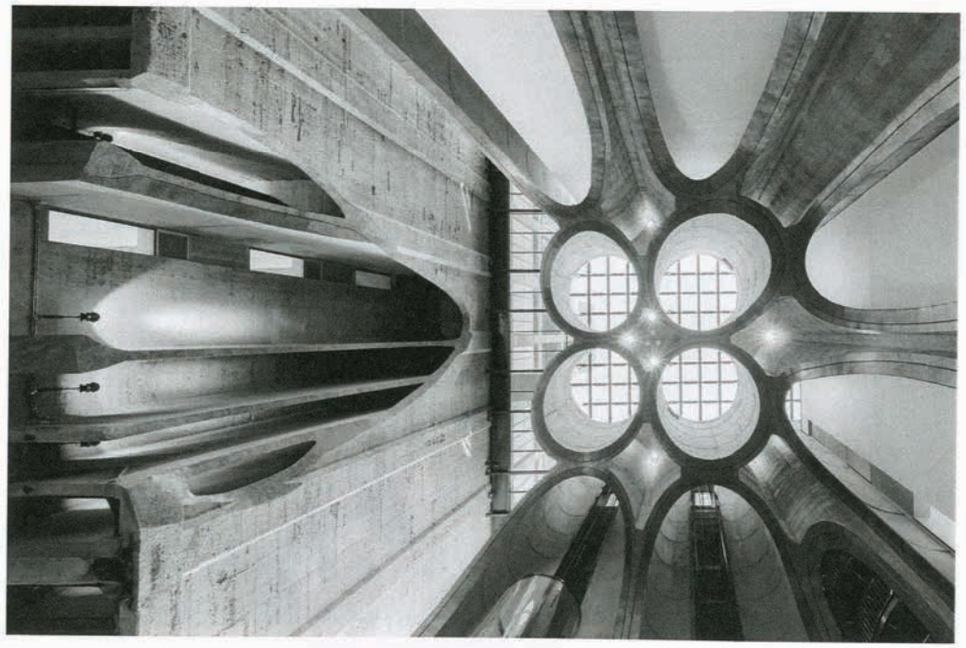
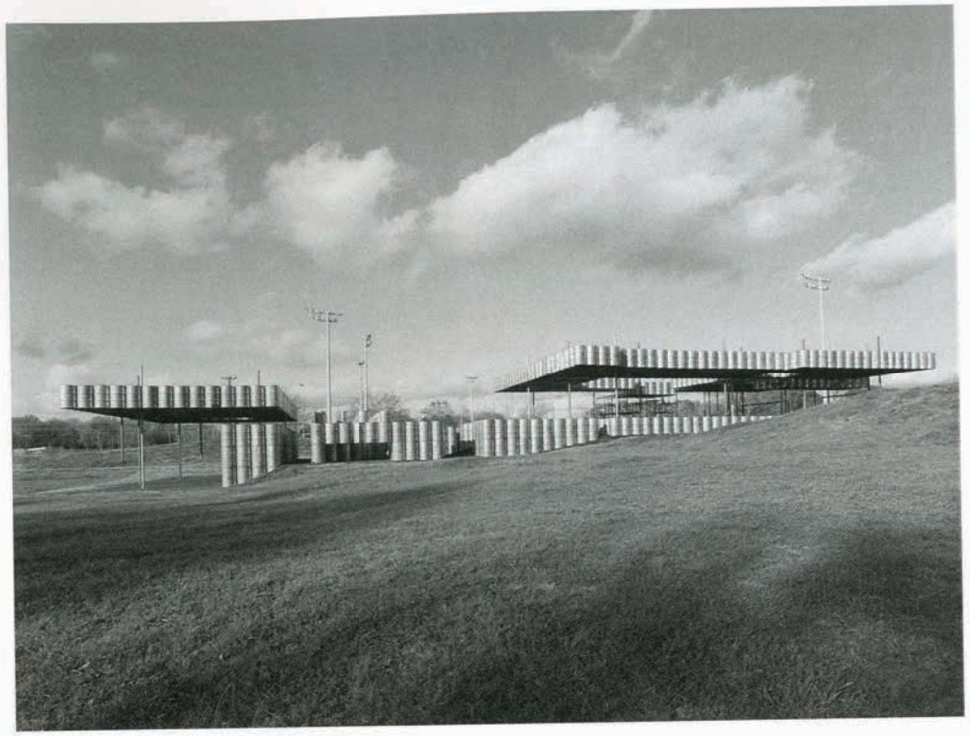


**Figure 3.9** Heatherwick Studio, *Zeitz MOCAA*, Cape Town, South Africa, 2011. Photograph by Iwan Baan.



**Figures 3.10 + 3.11** Rural Studio, *Lions Park Playscape*, Greensboro, AL, 2010. Photographs by Timothy Hursley.

**Figures 3.12 + 3.13** Rural Studio, *Shiles House*, Hale County, AL, 2002. Photographs by Timothy Hursley.

Studios sought to find "volumes" that children could inhabit and walk/play on, and considered a number of options (e.g., grain silos, cars, buses, airplanes) prior to choosing the rotor blades, largely due to their size and strength.[71]

Finally, the local harvesting of materials does, at least in principle, begin to undermine what some economists and political scientists have called "unequal exchange": the asymmetrical concentration of biogeophysical wealth (of embodied energy) in core "developed" regions, which consigns the extractive regions on the periphery to underdevelopment, resource depletion, environmental overload, pollution, and socio-political atrophy.[72]

71 Personal communication with Césare Peeren.

72 For a discussion of unequal exchange as constitutive of architecture, see Kiel Moe, *Unless: The Seagram Building Construction Ecology* (New York: Actar Publishers, 2020), 70–85.

## 3.7 Architectural Bricolage

> [A]nimals and plants are not known as a result of their usefulness; they are deemed to be useful or interesting because they are first of all known.
>
> Claude Lévi-Strauss, *The Savage Mind*[73]

A shift towards reuse and repurposing requires methodologies and evaluation criteria that challenge the modern design apparatus and its presumed superiority. *The Savage Mind* by anthropologist Claude Lévi-Strauss offers such an opening, inviting the reader to regard alternative (magical, mythical) knowledge systems—those recorded in premodern and totemic societies—not as primitive or inferior to modern science, but as operating on a different level, that of a *concrete science*.[74] Consequently, usefulness or effectiveness, understood in a narrow positivist sense, are no longer deciding factors. He writes:

> The real question is not whether the touch of a woodpecker's beak does in fact cure toothache. It is rather whether there is a point

73 Claude Lévi-Strauss, *The Savage Mind (La Pensée Sauvage)* (London: Weidenfeld and Nicolson, 1966), 9.

74 He writes: "It is [...] better, instead of contrasting magic and science, to compare them as two parallel modes of acquiring knowledge." Lévi-Strauss, *The Savage Mind*, 13.

**Figure 3.14** Flores & Prats, *Sala Beckett*, Barcelona, Spain, 2016. Photographs by Adrià Goula.

of view from which a woodpecker's beak and a man's tooth can be seen as 'going together' [...], and whether some initial order can be introduced into the universe by means of these groupings. Classifying, as opposed to not classifying, has a value of its own, whatever form the classification may take."[75]

75 Ibid., 9.





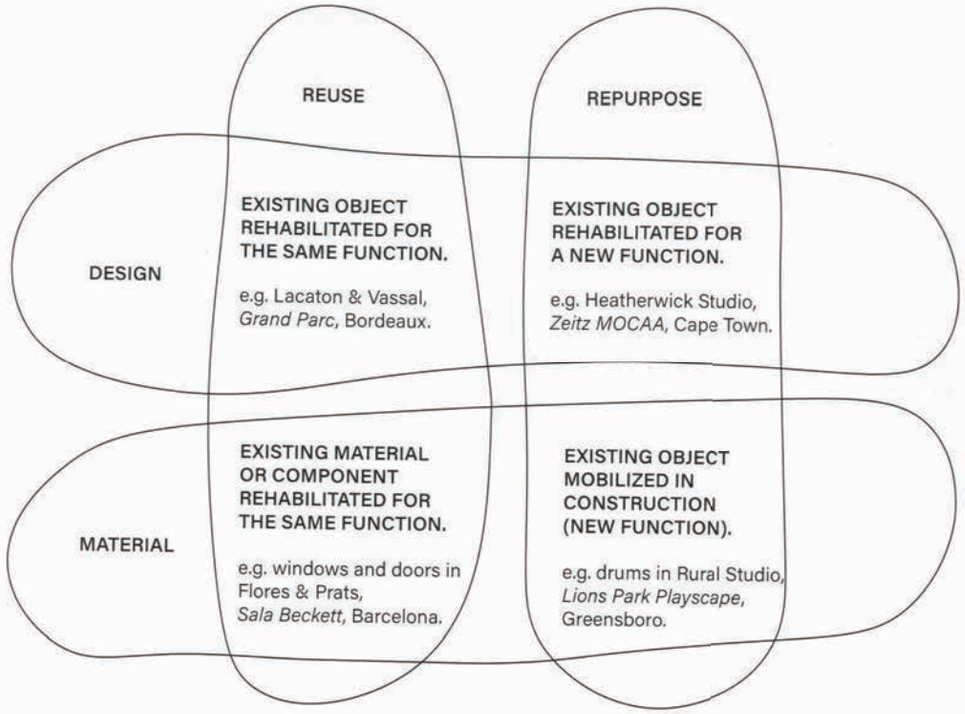



**Figure 3.15** The differences between reuse and repurposing in a design or material context.

Encounters—as opposed to actions—are not passive through and through, but prelude an active (and designerly) classification process; the intentional sorting of one's environment, and the ability to negotiate or orchestrate value systems. Again, things "are deemed to be useful or interesting because they are first of all known." Whereas an ecology of inception links objects by assigning (enforcing) equipmental roles—and thus identifies *other* humans, animals, or minerals to be sacrificed and wasted—mythical thought allows for plastic configurations and relative positions that do not depend on fixed ecological enclosures (the hammer's ability to perform hammer-ness) but on reciprocal differences (the hammer's capacities, in the broadest possible sense). As there are no stable grounds for purifications or evictions, objects remain in a state of suspension and "freeplay" (they partake in no stable relations of interiority), and meanings, as well as functions, are allowed to fluctuate and be periodically reconfigured.

Indeed, structuralist thought provides a useful counter-model to the purposive hierarchies and linear orientations of industrial manufacturing, and to the orthodoxy of the market economy.[76] Hacking an imaginary structuralist sentence, one might utter the following words: if ~~meaning~~ value is arbitrary and there is no real-world referent outside of

76 I'm referring to the work of Ferdinand de Saussure as collected by his students in the *Course in General Linguistics*, in particular to the insights regarding the designation of meaning through differential ecologies of signifiers and signifieds.

~~language~~ things, the differential tension between ~~signifiers~~ forms should be sufficient to keep them in play (out of the garbage bin), the degree or success of their participation in ecologies of inception notwithstanding. That is to say, if one substitutes *signs* (or, following Derrida's more radical stance, *signifiers*) with analogous *things*, one might describe reuse and repurposing as transversal or spectral (barrier-traversing) design languages predicated on a deep ecology of savage (floating) piles of stuff.[77] More importantly still, such an approach could help one *deconstruct* material discards and their presumed lack of value, locally and at the level of actual forms rather than potential lumps of matter.[78] Here, the ability to keep objects in circulation—to keep them suspended—is prioritized over particular aims and ecologies, which are viewed as necessarily partial and arbitrary. And while discarded polyethylene bottles, carpet tiles, and footballs, despite being more durable and stable than the use values associated with them,[79] do not actually amount to mere "floating signifiers"[80]—the industrial processes that "individuated" them also embedded them with specific properties and functional orientations—a structuralist/post-structuralist position may begin to illuminate, if only metaphorically, a different methodological ground. An illustration of what this approach may entail is offered by Lévi-Strauss himself, who, explaining the workings of mythical thought, introduces the figure of the *bricoleur*.

> The "bricoleur" is adept at performing a large number of diverse tasks; but, unlike the engineer, he does not subordinate each of them to the availability of raw materials and tools conceived and procured for the purpose of the project. His universe of instruments is closed and the rules of his game are always to make do with "whatever is at hand", that is to say with a set of tools and materials which is always finite and is also heterogeneous because what it contains bears no relation to the current project, or indeed to any particular project, but is the contingent result of all the occasions there have been to renew or enrich the stock or to maintain it with the remains of previous constructions or destructions.[81]

The bricoleur, as opposed to the engineer or to D&G's architect,[82] skips the first step of modern fabrication (the *tabula rasa*; the orientation of raw hypermaterials, according to designs/signifieds formed *a priori*) and proceeds instead from a material context of contingent (albeit limited) opportunities; from the articulation of a new language based on a collection of heterogeneous and preexisting signs—of floating parts that have forgotten, and precede, wholes.

> His first practical step is retrospective. He has to turn back to an already existent set made up of tools and materials, to consider or reconsider what it contains and, finally and above all, to engage in a sort of dialogue with it and, before choosing between them, to index possible answers which the whole set can offer to his problem. He interrogates all the heterogeneous objects of which his treasury is composed to discover what each of them could "signify" and so contribute to the definition of a set which has yet to materialize but which will ultimately differ from the instrumental set only in the internal disposition of its parts.[83]

77 Deep ecology is a philosophical movement that promotes the inherent worth of all living beings. See for instance: George Sessions, ed., *Deep Ecology for the Twenty-First Century* (Boston and New York: Shambhala, 1995).

78 In a system predicated on differences, increased differentiation at multiple scales is more interesting than homogeneity.

79 One of the chief realizations of the current geological period, the Anthropocene, is that the anthropogenic trace will outlast the Anthropos.

80 The term refers to signifiers to which no signifieds or meanings have yet been assigned or attributed.

81 Lévi-Strauss, *The Savage Mind*, 17. It is interesting to note that this is almost the exact opposite of what Simondon calls "concretization" (*concrétude*), understood as the evolutionary trajectory that progressively increases the resolution (the "internal resonance") and functionality (the pluri-functionality of parts) in technical objects. Gilbert Simondon, *On the Mode of Existence of Technical Objects*, trans. Ninian Mellamphy and with a preface by John Hart (University of Western Ontario, 1980), 15, 48.

82 Lévi-Strauss writes: "the engineer works by means of concepts and the bricoleur by means of signs." Lévi-Strauss, *The Savage Mind*, 20.





83 Ibid., 18.

In Lévi-Strauss's account, the stock or treasury accumulated by the bricoleur replaces the obedience of hypermaterials with the stubbornness of a *savage archive* made up of elements that are "pre-constrained" and have been "collected or retained on the principle that 'they may come in handy.'"[84] The anthropologist recognizes that the savage archive, as I have called it, runs on the ability of the collected items to remain in a state of suspension; to exist between value systems and roles. He writes of the collected objects: "They each represent a set of actual and possible relations; they are 'operators' but they can be used for any operations of the same type."[85] And also: "in the continual reconstruction from the same materials, it is always earlier ends which are called upon to play the part of means: the signified changes into the signifying and vice versa."[86] That is to say: while modernity claims to translate Nature into culture along a trajectory of progressive purifications, the bricoleur allows for nature and culture to mix, and for their surrogate roles—dirty/clean, meaningful/meaningless, matter/form, and the like—to be periodically renegotiated.

84 Ibid., 18–19.

85 Ibid.

86 Ibid., 21.

The term *bricolage* might conjure images of electric drills and suburban do-it-yourself garden sheds, or of the spontaneous constructions built by artists Kurt Schwitters (*Merzbau*) and Clarence Schmidt (*House of Mirrors*). At the scale of the city, one might associate it with informal settlements, or with the "highly successful and resilient traffic jam of intentions" that seventeenth century Rome offered, in Colin Rowe and Fred Koetter's view, as an "alternative to the disastrous urbanism of social engineering and total design" of the 1930s.[87] Yet, if the modernist *tabula rasa* (for example, the destructive and obtuse violence of Le Corbusier's *Plan Voisin* of 1925), with its "messianic passion" and "anxiety both to end the world and begin it anew,"[88] delivers a hyperbolic and scaled-up version of the technical *tabula rasa*, I am less inclined to embrace bricolage as a counterbalancing strategy of spontaneity and "making do" than to suggest that—quite apart from, or before, any making—what is most challenging and inspiring in the figure of the bricoleur is the commitment to establishing and maintaining a stock of "operators" capable of representing—and thus, potentially also *in*capable of representing—"actual and possible" future relations. Here as with the hoarders discussed in Chapter 1, the relationship of care and trust between the bricoleur and her treasury takes precedence over any actual instance of bricolage, or goal.[89]

It is in this latter sense that the Brussels-based design firm Rotor offers an exemplary translation of the ethos of the bricoleur in the context

87 Rowe and Koetter, *Collage City*, 106–7.

88 Ibid., 13.

89 It should also be noted that the stock or savage archive, as a figure of suspension (of taking time), is fundamentally at odds with the drive of financial capitalism toward low latency, ultra-speedy response times, ever-increasing precision in the prediction of market demand, and the algorithmic (hands-off) optimization of supply chains. See, for instance, Miriam Posner, "Seeing like a Supply Chain" (UCLA, February 11, 2021).

of architecture and construction, establishing a practice that is predicated on the recovery and reuse of existing materials and components, and placing material flows—and not designed outputs—at the center of design services and expertise. The practice's own organizational and economic trajectory may be viewed as an experiment in the implementation of what I have called savage archives—stocks of second-hand parts, materials, and components stored for future use—at the scale of entire buildings, cities, and countries. From an initial interest in the *ad hoc* usage of construction and demolition waste, the collective steadily progressed towards larger networks and scales—and towards increasing pragmatism and economic expediency.

Recognizing that reuse is, as a design paradigm, limited by an informal and disconnected ecology of companies specialized in the collection and sale of salvaged and reclaimed materials, in 2011 Rotor set out to survey and map the supply chains in second-hand and reconditioned materials around Brussels, later expanding the project to include the whole of Belgium, the Netherlands, France, and the United Kingdom. The resulting guide and website—*Opalis*—organizes the compiled information so that it may be searched by component (e.g., windows, doors, staircases, pavers, radiators), by company, and by location.[90]

90 For Belgium, the Netherlands and France, see Opalis EU, accessed May 31, 2020, https://opalis.eu/fr.

However, noting that the vast majority of the salvage and reclamation market focuses on narrow sets of components and materials (and often solely on antiques), and wishing to increase the scope of material reuse in Brussels, in 2014 the cooperative launched its own salvage company—Rotor Deconstruction—to "dismantle, condition and sell materials from quality buildings undergoing transformation or demolition,"[91] first using the buildings themselves as showrooms for off-site reclamation (during the limited time preceding the issue of a demolition permit), and later acquiring a warehouse/showroom of their own. [**Figures 3.16 + 3.17**] Yet Rotor DC treats its savage archives not as mere accumulations of materials, but as an inventory undergoing genuine re-potentializing processes (or potentializing reprocessing).[92] Aside from undertaking the classification, measuring, and reconditioning tasks that will reintegrate reclaimed materials in valuing (clean/visible/nameable) ecologies, the practice also aims to guide architects, commissioners, and contractors in navigating—and rewriting—the construction industry's workflows and protocols (tendering processes, specifications, legal and regulatory frameworks, etc.), which are implicitly formulated with first-hand manufactured materials in mind. [**Figures 3.18 + 3.19**]

91 Rotor, "Rotor DC: Reuse Made Easy," Rotordb.org, accessed May 31, 2020.

92 As Lasse Kilvær, managing director of the Oslo-based deconstruction firm Resirqel, convincingly argues, in this context "waste is a material without proper documentation." Lasse Kilvær, Personal communication (lecture at ESALA), 22 February 2021.

The group champions a model of materials recovery that resists hippie aesthetics, self-built DIY fads, the fetishization of time-worn surfaces, and the mere circulation of easy-to-reuse modules.[93] Beyond the marginal appeal of these practices and their limited impact on the materials economy (on the vast amounts of waste generated by the construction industry; on the environmental damage and carbon expenditures associated with the extraction, transportation,

93 Lionel Devlieger, "Architecture in Reverse," *Volume 51: Augmented Technology*, October 2017, 9–10.





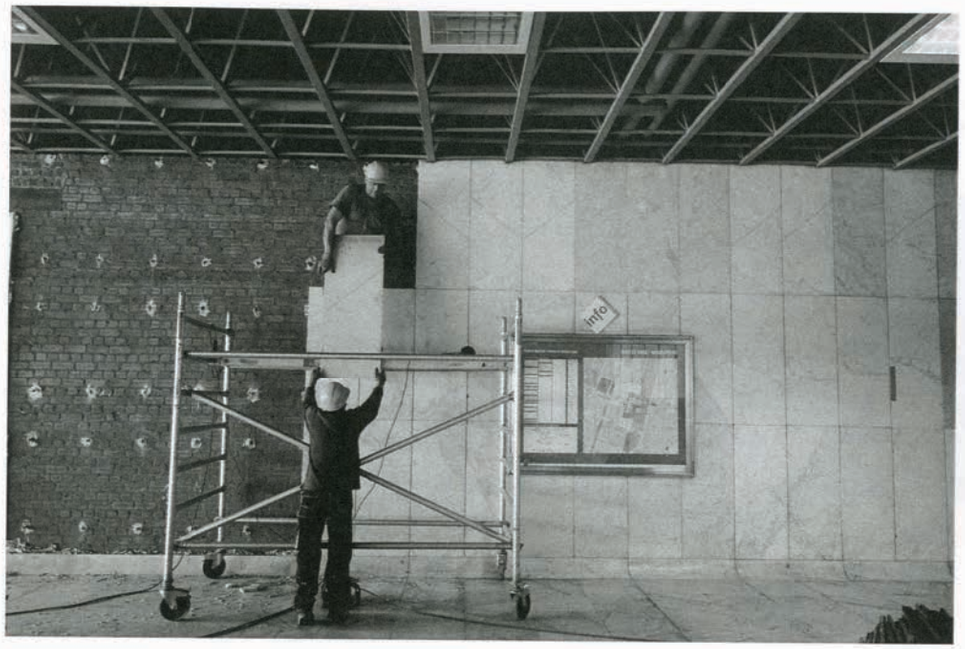


**Figure 3.16** Rotor, deconstruction process, 2018–19. © Rotor.

processing, and disposal of building materials), their architectural brand of bricolage aims to replace careless demolition (the destruction powered by tools such as hydraulic jackhammers, bulldozers, and crane-mounted wrecking balls; or by the detonation of explosives in spectacular Pruitt-Igoe fashion) with careful deconstruction and disassembly, seeking to revive a materials recovery tradition that dates back, in the West, to at least Ancient Roman times, and to extend it beyond the colonialist display of *spolia* as indexes of pillaging or as looting trophies—promoting it instead as the narrative continuation of material parts, traces, and memories across buildings, histories, and ecologies.[94] The work of Rotor—and their ability to bring reuse into the architectural limelight through publications and exhibitions—is of obvious practical relevance to this book. Yet, it also offers the opportunity for a more nuanced understanding of how potentials are maintained across ecologies of inception, and how EoIs themselves may be articulated in more complex terms—as more than simple self-contained teleological enclosures.

**Figure 3.17** Rotor, deconstruction process, 2018–19. © Rotor.

94 Devlieger, "Architecture in Reverse," 12. For a brief history of how demolition practices rapidly changed in the 20th century, see Ghyoot et al., *Déconstruction et réemploi*, 29–38. See also Jeff Byles, *Rubble: Unearthing the History of Demolition* (New York: Three Rivers Press, 2006).

The objects Rotor tends to salvage are nonstructural elements such as office partitions, lighting fixtures, false ceilings, cladding tiles, sanitary fittings, curtains, and furniture.[95] That is: not every material qualifies. Selection criteria are based on market value and demand, and include consideration of the object's weight and ease of dismantling, as well as of the number of elements available. Lionel Devlieger, one of the founders, writes:

95 In economic terms, these finishes often represent a large percentage of the building cost, despite their relatively low mass. See Ghyoot et al., *Déconstruction et réemploi*, 98.

**Figure 3.18** Rotor, reclaimed tiles, 2018. © Rotor.

> How do you select appropriate components that can be reused in a new project? The cost of extraction is a decisive factor, as is the state of conservation of the part in question, its solidity, the durability of the materials that compose it, the ease with which it can be integrated into its new state, its functional and symbolic value, … Our job is to take these parameters into consideration when we go through a building to decide what to preserve and what to leave in the hands of the demolishers. A poor judgment can be expensive. Our assessment of the monetary value of the components obviously depends on the market, but the latter can be influenced, stimulated. Where demand does not yet exist, it can be sparked; where supply is lacking, it can be encouraged.[96]

96 Devlieger, "Architecture in Reverse," 12.

And again:

> The criteria outlined above could be rephrased as follows: extracting parts of a building that needs to come down means identifying the entities that, once detached from the set, will have the best chance of individual survival. As with surgery, it is important to know where the dotted line is.[97]

97 Ibid.,13.

**Figure 3.19** Rotor, showroom, 2019. © Rotor.

> As with organs, extending the lifespan of materials—avoiding rejection—requires careful consideration of the (immunological) context into which they will be transplanted. Yet, the ability of parts to survive the demise of the specific EoIs to which they belong, all the while maintaining a consistent functional orientation and identity, necessarily betrays their simultaneous membership in multiple (overlapping) ecologies. In other words: an object's potentiality may not only rely upon an immediate set of ecological associations and emerging properties (the ability to fulfill a particular equipmental role; the unlocking and actualizing of target potentials), but also upon looser and more generic layers of ecological definition or enclosure. If the

**Figure 3.20** Rotor, dismantling tiles in the Institute of Modern Engineering, Liège, 2016. Photograph by Olivier Béart.

ceramic tiles in the abandoned Institute of Modern Engineering in Liège, Belgium, can be dismantled and refitted in a trendy grocery store in Ghent,[98] this is because the "tileness" of these colorful objects survives their "floorness" or distinct parthood (their equipmental affiliation with the Institute's floor). [**Figures 3.20 + 3.21**] Rather than describing clear-cut boundaries and univocal scripts, EoIs would therefore seem to comprise several enclosures—a thickened boundary capable of addressing a range of potential gradients and a wide spectrum of alliances and reciprocal positions.

Like the layers in an onion, EoIs may be peeled back to partially release objects of their ecological chains and facilitate transfers from one set to the next, adjusting the equipmental control knob backwards and forwards. In some cases, these shifts will require physical migrations, and their success will depend on the object's degree or manner of tethering: a chair can be easily moved across buildings, whereas a tile or cladding panel, in order to gain the required agility, might necessitate a certain amount of dismantling effort.[99] Yet, migrations might also suggest movements of a more static or subtle kind: between uses, users, languages, and values.

In any case, the layering I am proposing does not correspond with what Frank Duffy and Stewart Brand call "shearing layers"—the insight that site, load-bearing structure, exterior envelope, services, interior layout, and furnishings change at different rates; and that, in order to be able to adapt, a building "has to allow slippage" and enable these "differently-paced systems" to change independently of one another.[100]

98 See Maarten Gielen, "Lecture at CCA" (Canadian Centre for Architecture, February 4, 2016).

99 The difference between an element's resale value and the costs incurred in the dismantling operations required to "release" it will usually dictate whether its reuse is commercially viable. See Ghyoot et al., *Déconstruction et réemploi*, 98.

100 Stewart Brand, *How Buildings Learn: What Happens after They're Built* (New York: Penguin Books, 1995), 20. Brand further develops the notion of "pace layering" in Stewart Brand, *Clock of the Long Now: Time and Responsibility: The Ideas Behind the World's Slowest Computer* (Basic Books, 2008), 34–39.

**Figure 3.21** Rotor, dismantling tiles in the Institute of Modern Engineering, Liège, 2016. Photograph by Olivier Béart.

Responding to increasing levels of planetary pollution, waste generation, carbon dioxide emission and environmental collapse, *Ecologies of Inception* re-thinks potentiality—an object's ability to change—in architecture and design.

The book problematizes the still-prevailing modern paradigm of design practice: the technical *tabula rasa*, a tendency to begin from scratch and use raw, amorphous, and obedient materials that can be easily and effectively manipulated, facilitating a seamless and faithful embodiment of intentions. Instead, the philosophy of design developed in the text prompts—through a variety of case studies, thinkers, and disciplines—a collective reconsideration of value, dissociating it from the projects and signatures of any one author or generation. Whereas the merits of upcycling and circular design are canonically defined vis-à-vis status-quo economic and socio-cultural orthodoxies, this project unpacks the theoretical assumptions that underpin these practices, showing that they perpetuate the same biases and exclusions that generate waste in the first place.

As an alternative, the book introduces a nodal and exaptive paradigm for design: a conceptual and methodological toolset for engaging the durational and anthropocenic materiality of the third millennium, and for radically prioritizing practices of maintenance, reuse, care, and co-option. This approach, which is inspired by (and builds upon) evolutionary biology, technological disobedience, queer use, adaptive reuse, experimental preservation, and improvisational practices such as collage, adhocism, bricolage, and kit-bashing, refuses to reduce pre-existing material substrates to abstract lists of properties or featureless lumps, encountering them on their own terms—as situated individuals and co-authors.

*Ecologies of Inception* will appeal to undergraduate and postgraduate students, educators, and professional architects and designers interested in sustainable design and seeking to develop conceptual and design tools commensurate with the magnitude and urgency of the climate emergency.

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