

Title: Values for self-build urbanism.

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Abstract: Self-build is lately attracting much interest as a solution to housing supply that can complement the insufficient delivery of housebuilding by the construction industry. The historical trajectory of self-build shows that from a practice which had a conflictual stance towards central authority in the past, it is now promoted by the same authority within a framework of empowerment of and central power devolution to local communities. Against this backdrop, the challenge is to preserve the spirit of independence that still pervades self-build and yet merge it with the planning frameworks which are used to control development generally. This approach has recently been experimented with by some large-scale self-build projects. Through literature review, this article firstly identifies important values that motivate self-builders; secondly it recognises rule-based, rather than prescriptive codes such as generative codes, as those that can facilitate autonomy within a loose form of control; and finally it develops case studies that help understand how such values have been interpreted in different ways, reflecting the context. Elaborating on case studies, the discussion section outlines how values can inform different types of generative codes while increasing participation and an enhanced democracy of the planning process.

Keywords: Self-build; Custom-build; Self-build urbanism; Generative codes.

Word count: 8692 (including references)

1 ***1. Introduction.***

2 Self-build is receiving renewed interest from national and local authorities in the UK (Hamiduddin,
3 2018) and it has been experimented with at a large-scale across Europe (Stevens, 2018). A practice
4 that was relatively common in the pre-industrial age (Hall, 1989), self-build showed an evolutionary
5 character and with urbanisation gathering pace in industrialising countries, it became an opportunity
6 for those who could not afford high rents and the cost of properties, to procure themselves a home. In
7 some European countries, an anti-authoritarian stance was often taken by settlers occupying urban
8 land and constructing their homes without permission from the authorities (Novy, 2012). Anarchist
9 ideological positions were also behind the self-build communities inspired by Turner (see Bower,
10 2016) and Segal (Gierszon, 2014). Today, within a context of housing supply delivered through
11 speculative building construction, self-build has become one of the possible approaches promoted by
12 national and local authorities in order to augment an unsatisfactory housing stock, particularly of
13 affordable homes, which could be interpreted as a form of retreat of responsibility from the authorities
14 to deliver housing (Nederhand et al., 2016). This results not only in new models to organise and
15 implement self-build but also, more importantly, in the emergence of new values moving people to
16 embrace this practice. In addition to autonomy (from state control, from the market and so on) which
17 was the main motivation driving settlers over the first part of the 20th Century, a new set of values
18 emerged, connected to a desire for more effective ways to build communities, contain investments
19 and live sustainably (Heffernan and de Wilde, 2018) or even embrace libertarian values through a
20 rejection of planning constraints (Lloyd et al., 2015).

21

22 Some key factors contributed to form these new values. The first one is the emergence of self-
23 provisioning, described by Duncan and Rowe (1993) as the practice in which a household organises
24 and procures, but not necessarily builds, a home (see also LGA/PAS, 2016) as opposed to self-build,
25 in which the household is directly involved in the construction process. Self-provisioning is an
26 important advancement from the original concept of self-build since it sanctions the idea of the
27 household independently managing complex processes in collaboration, rather than autonomously or
28 in conflict, with local authorities, professionals and the construction industry. Self-build as defined by

29 Duncan and Rowe is still practiced in many communities (Sullivan and Olmedo, 2015; Ward and
30 Peters, 2007), but it is the self-provisioning model that has branched off into several other models,
31 which vary depending on the roles of home-owners within the design, planning, construction, and
32 procurement process, the particular social relationships established between home-owners or the
33 management approach to ownership of land and homes. Terms used to designate these different
34 models include cooperatives (see Mullins, 2010); co-housing (see Scanlon and Fernández Arrigoitia,
35 2015), community land trust (Field, 2018) and self-help (e.g. self-managing refurbishment for
36 residential (Pattison et al., 2011)).

37

38 The second key factor is the inclusion of self-build and self-provisioning in urban policy and planning
39 frameworks together with the system of incentives provided across Europe. In the UK, self-
40 provisioning (a form of which is defined in policy reports and acts as custom-build) has been seen as
41 an opportunity to increase national housing supply. Planning instruments such as neighbourhood
42 plans, embedded in the Localism Act (DCLG, 2011) and the National Planning Policy Framework
43 (2012) as well as the register for self-builders prescribed in the Self-Build and Custom Housebuilding
44 Act (HM Government, 2015) require authorities to record and respond to local demand for self-build,
45 and offer the opportunity for local communities to shape urban development according to their needs.
46 Moreover, the Housing and Planning Act 2016 provides mechanisms for particular grants and rights
47 to make serviced plots available to house-builders. These policy tools serve to stimulate self-build and
48 self-provisioning in order to augment the rate of self-build, which in the UK is lower than in other
49 European countries (Barlow et al., 2001), consistent with a pledge by the Conservative Party in 2015
50 to double UK self-build by 2020 (Field (2018). In Germany and France, countries with higher rates of
51 self-build, portions of housing schemes are routinely reserved to self-build groups, with parcels of
52 land sold at a fixed price (Stevens, 2018).

53

54 Together with these policies, there are attempts to implement self-build and self-provisioning projects
55 on a larger scale, in which density poses particular issues of complexity of use and management of the
56 public space as well as social and practical functionality of the built environment (Hamiduddin,

2018). With projects such as Homeruskwartier in Netherlands, Vauban in Germany and the forthcoming Graven Hill in the UK, self-build/provisioning moves away from typically rather contained developments started by a group of people (e.g. Ashley Vale in the UK, totalling 31 homes) toward a neighbourhood scale (e.g. Vauban, totalling 2,200 homes) or above, thus requiring the integration of public services, infrastructure as well as the reconciliation between individual household aspiration, communities' vision and city plans. Against this backdrop, it is important to question the extent to which existing regulatory mechanisms for planning and construction allow the individual freedom that self-build promises. How, for example, can community-specific visions for urban development be coordinated with that of the wider city? More generally, how can local planning frameworks be formulated in order to harmonise individual independence and control? And how can self-build on a large scale be harnessed in order to establish new communities, attachment to place and local identity? Although these questions arise in many large-scale attempts at self-build/provisioning urbanism, they have not been directly and sufficiently investigated.

To this end, this article identifies new values motivating self-build and self-provisioning (both henceforth termed simply self-build) and proposes generative codes based on these values as mechanisms fit to regulate self-build urbanism. Codes and principle-based regulations are adopted in countries such as the UK and attract the interest of scholars (Carmona et al., 2006; Talen, 2011), although an investigation of the effect of this non-prescriptive approach to planning has not yet been fully researched (Alfasi, 2017). Code-based regulation enables urban development to grow following broad rules, rather than specific requirements, thus being in line with the aspiration of self-builders to take control of the design and construction process. The article explores this opportunity by firstly, briefly reviewing the values behind self-build as they changed over time. Subsequently, it introduces generative codes as those fit for self-build urban developments. It then reviews case studies of large scale self-build to discuss how the planning instruments that enabled them facilitated or hindered the independence embedded in the very concept of self-build. In the discussion section, values identified as those motivating projects of self-build are proposed as drivers for the formulation of a generative code for self-build urbanism and as yardsticks to appraise the effectiveness of large-scale self-build

85 projects. Case studies and legislation referenced in the article are from the UK and other European
86 countries, with findings that can be applied in this geopolitical area.

87

88 **2. Old and new values behind self-build.**

89 Self-build has a long history. Novy (2012) gives a detailed account of the self-build movement that
90 occupied land in Vienna between the two World Wars and, over time, organised the construction of
91 an entire settlement, to the extent that carpentry laboratories were established on site in order to
92 produce building components, and pro-bono architects were recruited to design affordable and easy-
93 to-build dwellings. The scale of this intervention (7000 settlers between 1924 and 1933) was such that
94 it succeeded in being institutionally recognised as a cooperative. In 1946-7, other working-class
95 groups in Western France, ranging from 20 to 150 dwellers, constructed autonomously many self-
96 build settlements (Wakeman, 1999). The Castor (i.e. beaver) movement was mainly composed of
97 union activists, organising themselves in cooperatives, and seeking funds and planning consent from
98 local authorities, whom, although in principle in favour of the construction of new, much needed
99 dwellings, were concerned by an approach to urban development which they perceived as a rejection
100 of progress, differing ‘radically from the technocratic standard of individual consumption harmonised
101 by public policy and state control’ (Wakeman, 1999:362). Other past examples of self-build include
102 those developed in Germany between the two World Wars (Henderson, 1999) as well as in Finland,
103 Denmark and Greece in the 1920s (Harris, 1999).

104

105 If autonomy from central authority and freedom to determine the character of shared open spaces
106 through practices of resistance can be seen as the common thread of these urban settlers, the direct
107 involvement in the construction of their dwellings was another powerful driver too. This driver was
108 much emphasised in the work of Segal and Turner, within the context of post war reconstruction and
109 economic growth that characterised the decades of the 1960s and 1970s. In these decades, the idea
110 that people could build their dwellings autonomously, and in doing so resolve issues of housing
111 scarcity and disempowerment of the disadvantaged, was taking centre stage. Turner and Segal
112 promoted this idea from two different perspectives. Based on extensive studies on informal

113 settlements, Turner (1976) promoted such settlements as a solution rather than a problem. Control
114 over the design of their dwellings can result in correspondence of the end result with the real needs of
115 self-builders: personal fulfilment, higher control on individual financial investments and, ultimately,
116 assumption of responsibility (of the design and construction).

117

118 Although based on similar principles, Segal's work had a more hands-on character. His view of the
119 architect as an activist (Gierszon, 2014) was in line with the architectural debate of the time, which
120 was shifting the scope of the profession (and the discipline) from elitist specialism to democratisation
121 of the professional skills, user-centred design (see Papanek, 1984) and participatory approaches
122 (Albrecht, 1988). Segal was concerned with the technicalities of self-build practices. Individual
123 fulfilment, community building and alternatives to a housing market structured to reach those with
124 financial means, motivated him to design a toolkit for self-builders, de-facto providing them with a
125 pattern book and, to an extent, a basic code composed of structural elements and building components
126 determined by availability, affordability and minimum material waste. Today, it is Turner's idea of
127 self-build as a solution to the housing crisis that is being endorsed, albeit with a different perspective,
128 by self-builders, and by central and local governments. In fact, only two decades after Segal
129 introduced his method, a report by the Joseph Rowntree Foundation (Barlow et al, 2001) gives a
130 snapshot of the shared hopes for self-build; whilst the expectation that self-build can contribute to
131 meet housing demand remains, the context in which self-build is practiced and the motivations of self-
132 builders have changed, thus shifting the driving values of this practice. It is the need (more precisely,
133 desire) for enhanced individuality through personalisation that appears to be the driver for self-build
134 projects. After decades of mass volume housebuilding, with the highly sophisticated mechanical
135 methods of production and the development of a construction industry providing abundant options of
136 materials and components, home-owners now choose self-build as a means of independence (intended
137 as freedom to exert individual choice), customising their own house in order to reflect their
138 personalities and needs (Schoenwitz et al, 2012).

139

140 This is not the only motivating value. Triggered by the financial crisis and by an awareness of a
141 market failure in meeting housing demand for low and medium income households (Field, 2018), the
142 resurgence of self-build has the potential to increase civic participation by empowering communities
143 to take strategic planning decisions (Nederhand et al., 2016) while reducing state intervention (Lloyd
144 et al., 2014). National and local policies are designed to facilitate this process. In the Netherlands,
145 self-build is recognised in the Spatial Planning Act 2003 as a distinct housing type; communication
146 routes with authorities for self-build supply and demand are established; subsidies are available; and
147 building regulations have been simplified in order to facilitate construction processes (Bossuyt, et al.
148 2018). In Austria, particular laws at a national, regional and local level allow collaborative housing
149 projects (i.e. different forms of participatory and community-oriented housing) by recognising
150 collaborative housing legally, providing incentives (albeit only in some regions) and allocating land
151 locally for this type of housing (Lang and Stoeger, 2018). Germany has been experimenting with a
152 trial and error approach to urban development. Innovative projects are initiated and these are
153 monitored with the intention of replicating successful models. Here too, group self-build
154 (baugruppen) is encouraged by making serviced plots available for this purpose (Hameduddin and
155 Gallent, 2016). Success of such policies is based on a spirit of collaboration through shared
156 responsibilities, which makes collaboration a new value for self-build, albeit understood differently
157 depending on the standpoint. Local authorities can appreciate collaboration for its potential to reduce
158 their obligations while handing them over to communities, whom in turn, need local authorities to
159 create conditions (infrastructure, procedures, affordability and so on) enabling self-build housing
160 developments.

161 Another motivating value is the power of self-build to establish community bonds. The making of
162 communities is a cornerstone of the idea of the sustainable city as promoted in the 2000s by the UK
163 government, sanctioned in the report 'Towards an urban renaissance' (Urban Task Force, 1999; Raco,
164 2007), as well as in Europe generally (European Commission, 1998) and beyond (Bajracharya and
165 Khan 2010). Within this idea of communities and sustainable cities, planning and the urban form are
166 understood as directly contributing to a strengthening of an existing community or a forming of new

167 communities. Broer and Titheridge (2010) make this explicit by defining an urban community as one
168 that directly connects social relationships to the location in which these happen. Likewise,
169 Hamiduddinn (2018) argues that self-build shapes space while, in a feedback loop, spaces generated
170 shape communities. At the same time, the process of community building requires the creation of new
171 bonds between citizens and authorities, facilitated through participatory mechanisms (Raco, 2005),
172 social integration and degrees of self-governance (Colomb, 2007). This interpretation is highly
173 relevant to self-build, a practice that requires high levels of participation and mediation within the
174 groups of households involved, as opposed to the speculative housing delivery model (Purvin, 2011).
175 Community building is therefore one of the values with which self-build is associated. For example, a
176 report by The Centre for Housing Policy York claims that countries like the Netherlands have
177 demonstrated how local authorities can stimulate the growth of self-build communities (Burton,
178 2010). A report from the Building and Social Housing Foundation on self-help (in this report defined
179 as the practice of renovating abandoned buildings through self-build approaches (Pattison et al.,
180 2011)), maintains that it generates a sense of community and substantially contributes to the
181 eradication of blight and dereliction in neighbourhoods.

182

183 Arguably, these are not the only values associated with self-build, the practice being embraced by
184 some groups as an opportunity to experience new forms of communal living within a sharing society
185 perspective (Bianchetti and Samperi, 2014), providing opportunities for young homeless people and
186 other minority groups to build dwellings (Hutson and Jones, 2002) and live sustainably (Broer and
187 Titheridge, 2010). However, it is in the recent experimentation of large scale housing developments
188 that these values are more evident as local authorities show an ambition to deploy, and invest in self-
189 build models considerably, and local communities are given the opportunity to shape and manage
190 entire neighbourhoods. This is the case with projects such as Vauban in Freiburg, and
191 Homeruskwartier in Almere, where planning frameworks had to be customised or largely redesigned
192 to enable the self-determination of individuals and groups within the context of a broader urban
193 strategy. In this perspective, the regulatory framework enabling sufficient freedom within a broader
194 system of control becomes key to the implementation of a self-build urbanism based on values of

195 collaboration, community-building, mixed-tenure (i.e. integration) and independence. In order to
196 comprehend the significant role that such frameworks can play in inhibiting rather than enhancing the
197 new values of self-build, the following section reviews some relevant models of urban planning.

198

199 **3. Planning tools and self-build.**

200 Codes have been utilised for centuries as a form of regulation for urban development (Talen, 2009). In
201 this article, a distinction is made between codes and guidelines; the former offering a prescriptive
202 regulatory framework and the latter a set of principles allowing conformity to a context-specific
203 vision or policy. Such vision or policy can be shaped around general concepts (e.g. sustainable
204 development, place-making and the prioritisation of flood-proofing land for urban development), thus
205 requiring more specific variations of the guideline on a project basis. In the UK, for example, national
206 planning guidelines are used locally to generate more specific and detailed guidelines and codes (see
207 DCLG/HCA, 2012). Codes can be divided into two broad, basic types: form-based and generative.
208 The form-based code, as the term suggests, focuses on the physical features of buildings and other
209 elements of the built environment. Generative codes, instead, provide basic rules driving construction
210 decisions (Talen, 2009). By doing so, they leave greater freedom in terms of building form. Mehaffy's
211 (2008) definition for generative code is a method through which the geometric results that will emerge
212 from the construction process cannot be known in advance.

213

214 Worldwide, form-based codes are the predominant form of regulation. The Smart Code, promoted by
215 Duany and the New Urbanists in the US, for example, intends to replace zoning with a framework
216 specifically designed to endow coherence in streetscapes and the public realm in a variety of urban
217 settings (from densely built to semi-rural) (Mehaffy, 2008). A number of UK reports suggest that
218 there are benefits in using codes (see DCLG, 2005). Carmona (2009) maintains that codes can help
219 ensure not only coherence within the built environment but also mitigate possible conflicts between
220 stakeholders. By limiting the options available, the agenda of each stakeholder (e.g. design excellence
221 and financial return) will not prevail over another, thus minimising the risk of clashes and power
222 imbalances. Codes do not need to be complex and all-encompassing in order to be effective. In fact,

223 over time, codes tend to reduce the number of prescriptions. The UK Department for Communities
224 and Local Government (2005) suggests that codes are more effective when applied at a large scale,
225 where a variety of players can result in great and possibly undesired diversity (of styles, arrangements
226 and approaches generally).

227

228 Generative codes have proved to be a fertile ground for experimentation in theoretical studies but, at
229 present, there has been little application of such studies. Two innovative factors come into play for
230 these types of codes; the concept of self-organisation and the inclusion within the scope of the code of
231 diverse factors such as participation (see Rauws, 2016). Guidelines, and building and urban codes
232 generally refer to physical aspects and sometimes governance issues, whereas generative codes can
233 address factors that are highly relevant to the built environment and that are increasingly believed to
234 be critical for the well-being of users. Alexander's code, for example, addresses financing,
235 ownership, management, sourcing and subsequent changes to the original design (Mehaffy, 2008).
236 Recent evolutions of generative codes rely on computational parametric modelling, capable of
237 developing complex configurations that consider physical and environmental factors (Ellis, 2014;
238 Toker and Pontikis, 2011). Applying the parametric logic to real planning is problematic, due to the
239 complexities of regulatory frameworks, land ownership and more (see Çalışkan, 2017), but the logic
240 of generative codes can also be used beyond the computational parametric field as a rule-based
241 process. A case in point is illustrated by Alfasi and Portugali (2004; 2007) in their formulation of a
242 'Just-in-Time' urbanism. The term 'Just-in-Time' conveys the idea of an unpredictable evolution of
243 the city, which is no longer influenced by politics and ideology, rather the aggregation of many
244 individual initiatives. According to a 'Just-in-Time' model of the city, housing supply should no
245 longer be established centrally but should emerge from bottom-up demand, which in turn should be
246 facilitated through targeted policies.

247

248 As tools for control, form-based codes and guidelines can clash with the autonomy underpinning self-
249 build. Instead, generative codes can endow sufficient freedom to individuals within a set of conditions
250 agreed centrally, which can protect basic requirements of health, environment and justice. One of the

251 outcomes of this system can be that the identity of the place will be generated through enhanced
252 diversity as well as the active involvement of individuals in negotiating over time the use and
253 meaning of public spaces. The conventional process of urban development, which implies the
254 determination from local authorities of use, quantity and overall appearance before implementation, is
255 therefore subverted into one in which the input of each individual and local group will ultimately
256 create spatial and functional characteristics of the development. If used wisely, this generative process
257 has considerable potential to augment participation and sense of belonging while transforming the
258 way the housing market and the making of the urban realm is understood. The following section will
259 briefly outline and learn from three case studies. The analysis of each project intends to elicit to what
260 extent new values underpinning self-build were met as well as the advantages and risks of generative
261 codes when or if applied.

262

263 *4. Case studies.*

264 The following case studies were selected in order to analyse in what way the scale and the planning
265 instruments influence the outcomes of the self-build housing development in terms of attainment of
266 values associated with it. To this end, a case study of contained size (Ashley Vale, UK) was included,
267 together with two other housing developments (Vauban, Germany and Homeruskwartier,
268 Netherlands) at a neighbourhood scale. Each case study followed a different planning approach.
269 Ashley Vale was developed in conformity with the national planning framework, with no specific
270 regulations available at the time of planning and construction to facilitate this type of housing;
271 Vauban was established through enhanced forms of participation; and in Homeruskwartier, a new
272 form of generative code was experimented with. The diversity of case studies allows differences and
273 vulnerable factors to emerge. The analysis is based on literature review, however, the authors visited
274 the three locations and were capable of appreciating and perceiving the quality of the spaces,
275 infrastructure, services, connections and general environment.

276

277 *Ashley Vale* – Ashley Vale, in Bristol, UK, is a former scaffolding yard that was earmarked for
278 development. The community group behind this project (Ashley Vale Action Group) initially teamed

279 up with a housing association to apply for planning consent and manage the construction process.
280 Subsequently, due to the withdrawal of the housing association, the community group decided to
281 continue the project independently as a group of self-builders (Miles, 2013). The initial group
282 members recruited other households by word-of-mouth and selected through interview those who
283 conformed to their vision of sustainable, eco-development (Broer and Titheridge, 2010). The project
284 developed across a decade (1990s-2000s) resulting in 31 dwellings. One of the first and main
285 obstacles the group encountered was a lack of recognition from the local authorities of self-build as a
286 housing type, which became recognised only in 2015 with the Self-Build and Custom Housebuilding
287 Act. In fact, the community group had to follow conventional planning application procedures, which
288 are typically particularly demanding for those without appropriate resources and skills.

289

290 Reports documenting the process of design and construction which can be found mainly on the web or
291 on design evaluation documents produced by CABE (Commission for Architecture and the Built
292 Environment – a UK non-governmental organisation promoting excellence in architecture and
293 urbanism), point to some drawbacks of the project
294 ([http://webarchive.nationalarchives.gov.uk/20110118101837/http://www.cabe.org.uk/case-](http://webarchive.nationalarchives.gov.uk/20110118101837/http://www.cabe.org.uk/case-studies/ashley-vale)
295 [studies/ashley-vale](http://webarchive.nationalarchives.gov.uk/20110118101837/http://www.cabe.org.uk/case-studies/ashley-vale)). These include the lack of a legitimate committee empowered to coordinate the
296 project from the outset, resulting in difficulties in developing and sharing a common vision for the
297 Ashley Vale and a shared understanding of the approach to sustainability, and the absence of a
298 mechanism to ensure that properties retain an affordable value over the lifetime of the development.
299 This last drawback resulted in houses being sold by the initial home-owners at relatively high prices
300 (Miles, 2013), attracting more affluent families, with very different cultural attitudes from those
301 involved in the initial development.

302

303 Two significant lessons can be learned from this case study. The first relates to the process of building
304 a community, in which individual households must negotiate between them a common vision. Whilst
305 it is easy to see how problematic this process can be for a large-scale development, Ashley Vale
306 shows that the small scale can also present similar difficulties. It is therefore legitimate to question

307 whether there should be an assumption of responsibility from local authorities not only to make
308 planning procedures more accessible to self-build communities but also to facilitate the development
309 of a shared vision. A second issue is ownership and affordability, therefore the need to decouple the
310 property values of self-build dwellings from the logic of the market, which risks turning affordable
311 dwellings into properties for medium to high income groups, hence transforming the original
312 character of the community. This point however can be contentious and difficult to define. Bianchetti
313 and Samperi (2014), for example, write about the perils of a concept of community that can imply the
314 exclusion, rather than inclusion, of others that do not belong to the group.

315

316 *Homeruskwartier* - Homeruskwartier is a large scale development comprising 720 individual plots on
317 100ha of the Flevoland polder, reclaimed from the former Zuiderzee (now Markermeer and
318 IJsselmeer), and masterplanned from the municipality of the new city of Almere, in the Netherlands.
319 Local authorities have defined plots, and designed and provided all fundamental infrastructure; from
320 roads to street bumps (Hopkirk, 2011). This project is significantly ambitious in scale and conception,
321 challenging the conventional mechanisms of house building and relying on the supply of cheap land
322 to attract self-builders and also more conventional prospective homebuyers prepared to purchase the
323 quota of dwellings constructed by developers. Given the size of the development, commissioning was
324 diversified between self-build, collective self-build (a self-build model similar to the German
325 *baugruppen*) and co-commissioning, a form of participative development in which developers involve
326 home-owners in the design process (Bossuyt et al., 2018). This diversification aimed at ensuring a
327 variety of options and homebuyers, rather than self-builders only, thus potentially resulting in a varied
328 social composition of inhabitants. However, whereas there was high demand of serviced plots for self-
329 build, collective self-build plots remained unsold and subsequently offered to developers, whilst co-
330 commissioning was not successful. Reasons for this are not clear, although as far as the latter is
331 concerned, Bossuyt et al. (2018) mentions difficulties encountered by developers in the participatory
332 process, with homebuyers asked to comment on plans for development which had been already
333 completed.

334

335 Almere municipality allocated a high number of small, affordable plots (as small as 86m²) to low-
336 income households, totalling 30% of all the affordable plots made available annually in Almere to
337 self-builders (Bossuyt et al., 2018; Hopkirk, 2011). Great independence was given to customise
338 buildings according to individual needs and preferences, with only a few rules established by the
339 municipality in terms of distances from the borders of each plot and the height of the buildings. The
340 set of rules differed depending on the quarter chosen (Portschy, 2016). The masterplan divides the
341 entire area into 15 quarters, each one with a specific character, which is captured by names such as *I*
342 *Build*, *I Build Sustainable*, *I Build Town Centre* and *Developers Area*. For example, *I Build Free*
343 comes with only 5 rules: the dwelling must be self-build, must be built within the plot and on the
344 street line, it must not exceed 14m in height and the dweller's vehicles must be parked within the plot.
345 Sets of rules are also used to endow specificity by referring to the Dutch tradition (e.g. *I Build Canal*
346 *Houses*) or to global imperatives (e.g. *I Build Sustainably*). Communities within the broader
347 development are therefore encouraged through shared interest or affinity, although not always
348 successfully (Hopkirk, 2011).

349

350 Homeruskwartier is an attempt to design a code that allows enhanced individual choices to form the
351 character of the place and regulate growth. The generative code is an attempt to develop a
352 neighbourhood based on principles of choice and individual freedom and collaboration between self-
353 builders and the authorities providing serviced plots and easy access to planning consent. Although
354 dwellers are given the freedom to design their homes and agree the use of public space, the overall
355 masterplan suggests that the formation of communities is not left to a process of collective
356 identification of common objectives, but rather to the selection of characteristics of each quarter,
357 which can hardly become a desirable collective vision informing the development. The failure in
358 attracting groups of self-builders and the co-commissioning of residential buildings suggests that the
359 generative code was not successful in stimulating the formation of groups or small communities. In
360 particular, co-commissioning was an attempt to gather consent on, rather than co-design, proposals
361 presented to prospective groups by developers. Similarly, the masterplan offering self-build thematic
362 quarters is a way to establish a priori a predominant character that is supposed to attract self-builders

363 sharing a similar interest. The mechanism of demand-driven growth, with the neighbourhood
364 expanding as new plots are purchased, resonates with the ‘Just-In-Time’ model.

365

366 *Vauban* – Vauban offers an example of how an institutionalisation of relationship between actors can
367 lead to a remarkable self-build community, developed within an existing, overall conventional
368 planning framework. Vauban is a large-scale neighbourhood in Freiburg, comprising 2,000 homes to
369 house 5,000 people, as well as business units to provide about 500 to 600 jobs (Schroepfer and Hee,
370 2008). The process leading to its implementation followed a very different route than the one outlined
371 for Homeruskwartier. It is a large scale experiment aimed at empowering the communities of
372 residents to determine the contextual characteristics of the neighbourhood. The initial intention of the
373 city to develop a former French military base and to build on previous participatory experiences of the
374 city (i.e. Riesfelden), led to the institution of an organisation, Vauban Forum, whose purpose was to
375 facilitate community engagement and to be the point of liaison between future residents, local
376 authorities and other stakeholders. As Scheurer and Newman (2009) point out, traditionally, urban
377 regeneration projects are developed without a formed community to consult. In Vauban, the
378 institutionalisation of the Forum and the long time frame within which the Forum operated, allowed
379 community groups to form, issues to surface and be debated, and bottom-up visions to be mediated
380 with authorities from the early stages of the process (see Bayulken and Huisingsh, 2015).

381

382 The process attracted local organisations collaborating in the project, such as housing cooperatives,
383 groups of co-builders, organic food cooperatives, associations for children, associations for the elderly
384 and more, with the result that future residents have the opportunity to debate every aspect of their
385 urban life, from the transportation network to models for financing construction, to visions for shared
386 spaces (Medved, 2016). Whilst the Forum became the reference point of all local communities, it also
387 allowed smaller groups to form cooperatives, acquiring residential blocks, and determining, within a
388 given masterplan, layouts and other design and building systems features (Scheurer and Newman,
389 2009). These cooperatives also had power to determine the use and character of open spaces between
390 buildings. Reflecting a shared vision that emerged in the course of the engagement activities of

391 Vauban Forum, the neighbourhood developed a remarkable green character, with spaces between
392 buildings predominantly turned into gardens, vegetable gardens and small parks. Vauban Forum was
393 instituted in 1995, funded by the municipality and other sources such as the EU programme LIFE, and
394 ended in 2000, leaving behind neighbourhood associations that still self-manage the place. It must be
395 noted, however, that evidence suggest that low-income and disadvantaged households do not have
396 ease of access to schemes available in Vauban (Hamaduddin, 2018:27).

397

398 Although innovative in its approach to participation and development, the initial masterplan for the
399 neighbourhood was the result of a competition held in 1994 by the city of Freiburg. The size of the
400 plots and the prevailing building type (three-storey apartment blocks) indicated in the masterplanning
401 therefore played a role in the visual and typological coherence characterising the neighbourhood. The
402 self-build, formal character becomes explicit mainly through a variety of choices that enrich the
403 typical linear apartment block, including colours, cladding, rooftop terraces and so on. Planning
404 instruments enabling the design and construction of Vauban are quite traditional, with the only
405 significant variation that of establishing an entity (i.e. Vauban Forum) to foster grassroots movements
406 and make land for development available to cooperatives. This in turn enabled the sharing of intents
407 and the formation of a community in the course of the timeframe of a development, rather than after
408 occupancy.

409

410 ***5. Discussion***

411 In a generative code, the identification of a set of rules that form it depends on a particular purpose, a
412 concern, an area of intervention that the code is designed to address. For example, by generating
413 urban development directly in response to demand, the purpose of the 'Just in Time' code is to allow
414 cities to grow according to real needs, rather than according to decisions deliberated through
415 centralised urban planning. Inevitably, the particular scope of the code will result in rules addressing
416 some specific issues while excluding others, making it selective. A generative code for self-build
417 therefore requires a deep understanding of the motivations behind this practice in order to establish
418 correct boundaries and formulate effective rules, considering them against local requirements and

419 socio-economic conditions in order to make them appropriate for each particular type of development.
420 In fact, the interpretation of values or even their addition or substitution is a necessary step for the
421 generative code to be aligned with local needs and imperatives of self-builders and local authorities. It
422 also enables the establishment of a yardstick for an evaluation of each particular self-build project.
423 Self-generated developments allow a high degree of freedom but are unpredictable in their patterns of
424 growth. Evaluating them against their conformity to the intended values enables a qualitative
425 appraisal, which can lead to refinement and higher effectiveness in future self-build developments.
426 What follows is a discussion on the characteristics of a generative code that takes into account the
427 self-build values identified in this article, learning from the case studies presented above.

428

429 *Community-building* - The scale of projects such as Vauban and Homeruskwartier poses critical issues
430 for community building mechanisms and social composition at a neighbourhood level, which
431 necessitate facilitation through effective strategies rather than an expectation that these processes are
432 initiated from below. The failure of collective self-build and co-commissioning in Homeruskwartier
433 shows that, in Almere, land availability at affordable cost is not sufficient, and conventional
434 consultation too mild an approach, in order to aggregate individuals into groups with shared intents.
435 By contrast, the participatory process in Vauban allowed grassroots groups to form and discuss the
436 use of public space, enabling a vision for the development to emerge over an extended period of time.
437 Equally of importance, the constitution of the Forum as an organisation to represent groups and
438 negotiate with local authorities is a form of governance which represents an exception to conventional
439 planning procedures. Developments at the scale of Ashley Vale, typically started by a group of like-
440 minded people, require that attention be paid to community building too, although this may be easier
441 to address because of the limited number of households involved. Yet, careful consideration must be
442 given to mechanisms that allow affordability and its protection against changes of ownership that
443 could alter the character of the initial group of self-builders in undesirable ways.

444

445 In fact, the making of communities could require also a mechanism for mixed-tenure. UK surveys
446 suggest that the typical self-builder belongs to medium-income groups (Brown, 2008; Hutson and

447 Jones, 2002). It is possible that today, a mixed social composition requires not only financial but
448 cultural incentives, that is, the opportunity to live in urban environments with desirable characteristics
449 for diverse income groups, which seems to be the attempt of the municipality of Almere in offering
450 quarters characterised by particular cultural features such as sustainability and waterfront life.
451 Whatever the scale, a generative code promoting values of community-building needs to start from an
452 analysis of the successes and failures in self-build developments that avoids generalisations and
453 understands the local cultural mechanisms for social aggregation, in order to formulate effective rules
454 that help facilitate, for example, the establishment of timeframes for the aggregation of groups, social
455 composition of these groups, routes to communicate with such groups and the bottom-up
456 identification of shared priorities.

457

458 It is useful to mention the distinction between self-organisation and self-governance in urban
459 development proposed by Rauws (2016). The former is attained when each individual project (of a
460 house, a workshop and any other non-residential use) is not coordinated with the others and all
461 projects do not work towards an end stipulated within a community. The latter happens when
462 individuals operate within the frame of an agreed vision, thus coordinating choices and creating
463 permanent mechanisms of management. These two approaches, corresponding broadly to
464 Homeruskwartier (self-organisation) and Vauban (self-governance), represent different forms of self-
465 build urbanism underpinned by varied combinations of values, each one with its own advantages. In
466 evaluating effectiveness in Homeruskwartier, for example, it must be asked whether the mechanisms
467 of commissioning established by the municipality, together with the offer of affordable dwellings
468 within diverse quarters, steered the self-build development to meet the initial intention of local
469 authorities while matching the socio-cultural dimension of local self-build communities.

470

471 *Independence* – In a similar way to community-building approached diversely through self-
472 organisation or self-governance, independence too can be understood and achieved differently,
473 depending on the social profile of dwellers, local culture and the specific objectives of each self-build
474 development. Independence in Almere focuses largely on the freedom to customise each dwelling as

475 desired, therefore on individual choice (see Wallace, 2013); a generative code lends itself well to cater
476 for this type of independence and produce formal diversity in unpredictable ways. In doing so, a
477 formal language for self-build settlements is experimented with, mimicking the random growth of
478 informal settlements, albeit developed within a commonly recognised planning framework. The
479 expansion of this development, growing by demand rather than in planned phases, is also an attempt
480 to experience urban growth differently, which can have an impact on the way the urban environment
481 is perceived and gradually owned by dwellers. At the other end of the spectrum, Vauban interprets
482 independence as a way to produce shared objectives without central impositions. Communities in
483 Vauban focused more on the use of public space and on the general vision of the development, rather
484 than on its formal aspects, with independence being generated not by a single household but rather at
485 a community level. In this perspective, it must be noted that the generative code in Almere was
486 established by the local authorities, whereas the rules of engagement and participation in Vauban were
487 developed in a collaborative spirit. Group self-build such as Ashley Vale offer an understanding of
488 independence as a group dynamic, in which individuals with common beliefs are strongly motivated
489 to pursue alternatives to a speculative housebuilding market (Heffernan and de Wilde, 2018), hence
490 the construction following imperatives of sustainability and alternative lifestyles that the market
491 cannot offer. For these values too, generative codes must be in tune with the scale of intervention and
492 individual aspirations, which can translate into rules sanctioning formal independence, self-
493 governance or right to affordable land.

494

495 *Collaboration* - In appreciating collaboration as a value behind self-build urbanism, and making it
496 explicit in a generative code, there is an opportunity that this can significantly contribute to the
497 development of innovative systems of participated urbanism. Collaboration is a necessary value,
498 albeit pursued in different ways (with local authorities reducing state intervention and communities
499 relying on the provision of affordable land and infrastructure). At the same time, there is still a large
500 number of documented examples in which contained self-build projects become a form of resistance,
501 rather than a collaboration (Forde, 2018). The large-scale self-build projects presented here are
502 therefore an occasion to experiment with models of participatory democracy in urban planning which

503 can advance planning practices and further promote collaboration. Urban development based on sets
504 of parameters that can be centrally determined, as found in Homeruskwartier, or surfacing from
505 below, as found in Vauban, are two cases in point in which local authorities have implemented
506 alternative planning methods, aimed at a high involvement of urban dwellers. To this end, particular
507 attention must go to the decision-making process leading to the definition of a generative code and the
508 power balance within this process. Case studies pose the problem of who decides and on what basis.
509 Does the generative code developed by Almere municipality effectively correspond to the value of
510 individuality understood and embraced collectively by Dutch self-builders? Has such correspondence
511 been assessed in a post-occupancy appraisal? Would the rules have been different if co-designed with
512 prospective self-builders? Here, the lesson to be learned is that generative codes may need to be co-
513 designed in order to elicit such a correspondence.

514

515 A generative code with rules addressing the values discussed in this section has not yet been designed.
516 In fact, the only generative code, formulated with the specific aim of initiating a process of growth
517 that is not defined from the beginning, is the one used in Almere, which addresses only a particular
518 interpretation of the value of independence. Rules fit to fulfil the other values can be gleaned from the
519 process of self-governance experimented with in Vauban or from the drawbacks identified in Ashley
520 Vale. The formulation of a comprehensive code, encompassing all values, represents a considerable
521 challenge, but the advantage is that rules would be considered systemically, rather than being partially
522 included in a code and complemented by existing policies for, say, affordability. This paper proposes
523 that such a code be developed, allowing further advancements in the way democracy can be
524 embedded within planning processes for self-build.

525

526 **6. Conclusions**

527 The fast urbanisation process that the global North experienced during and after the industrial
528 revolution has been regulated through planning policies giving great powers to national and local
529 governments to determine the use, functionality and image of the built environment. Whilst this
530 resulted in ever more sophisticated infrastructural networks and mass volume housebuilding in order

531 to meet housing demand for all income groups, it has also limited the opportunities to establish
532 mechanisms for a more democratic approach to decision-making. With this in perspective, the brief
533 historical review with which this article commences serves to envisage self-build today in the global
534 North as a form of collaboration between self-builders and the authorities, and as such as a process
535 that can endow higher levels of democracy in urban development. It also serves to discuss the most
536 suitable form to regulate self-build whilst still retaining its current objectives, which are a demand for
537 greater independence and the necessity to build community bonds, especially in large-scale self-build
538 developments such as those presented here.

539

540 The contribution of this paper is to identify and emphasise values currently motivating self-builders
541 and to propose a generative code as an approach to regulate self-build developments that is in line
542 with such values while at the same time is not prescriptive or open-ended. The composition of such
543 codes will make such values explicit and as such collectively recognised and understood as initially
544 interpreted in the making of the code. Although universal, values can be interpreted variedly within
545 different socio-cultural contexts. Understanding how particular interpretations of values can match
546 such contexts is therefore a critical process which needs to be developed collaboratively, leading to a
547 community vision, whilst still allowing individual identities to surface and take responsibility for their
548 built environment.

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