

EL CONCEPTO DE LOW ROAD DE STEWART BRAND COMO FUNDAMENTO DE ESTRATEGIAS PARA LA ADAPTABILIDAD DE LOS ESPACIOS EN LA VIVIENDA CONTEMPORÁNEA
STEWART BRAND'S CONCEPT OF LOW ROAD AS A BASIS FOR STRATEGIES AND ADAPTABILITY OF SPACES IN COMTEMPORARY HOUSING

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p.57 American writer Stewart Brand has significantly explored the need to value the time factor in architecture and also its importance in the understanding of the progressive nature of space. His studies in biology at Stanford University decisively influence his vision of the processes of architecture¹, associated with the concept of continuous evolution and the learning we can extract from them.

For Brand, the logic of the city as a complex and changing mechanism transforming over time (evolutionary, with dynamics of growth but also of decay) is a more truthful and correct model than the one usually implemented in the conception and construction of buildings whose logics have frequently avoided temporality as a natural part of the process.

"What made Architecture allergic to time? What made Architecture afraid of building users? How did style obsession and the star-architect system manage to keep redominating the profession?"²

From the critical vindication on the architectural processes that this question implies, Brand places a big bet on the resolution of the apparent contradiction between the permanent character associated with architecture on the one hand, and the needs, wishes, and processes- changing over time- which users constantly ask for and which shape their spaces. A first step would entail interpreting the very terms associated with construction and the building (from a semantic point of view) not only as a result (a noun), but also as an active vector (a verb), and as an action susceptible to continuous revision.

p.58 *"The word "building" contains the double reality. It means both "the action of the verb BUILD and "that which is built" - both verb and noun, both the action and the result. Whereas "architecture" may strive to be permanent, a "building" is always building and rebuilding. The idea is crystalline, the fact fluid. Could the idea be revised to match the fact?"³*

According to Stewart Brand, the essence of inhabitable space lies in the continuous change and flow, in the constant interaction with its users and its recurring transformation. Opposing the well-known sentences by Louis Sullivan ("Form ever follows function") and those by Winston Churchill ("We shape our buildings, and afterwards our buildings shape us"), Brand proposes a cyclic sense of the modification of the spaces in which the user creates them, is influenced by them, and afterwards modifies them again in a nonstop interaction.

HIGH ROAD AND LOW ROAD

Regarding this connection between inhabitant and space, Stewart Brand differentiates two categories, which can be taken today as a basic approach for mechanisms that may produce the adaptability of spaces. Those are the cases he calls *High Road*, which are *"durable, independent buildings that steadily accumulate experience and become in time wiser and more respected than their inhabitants"* as opposed to those he calls *Low Road* *"quick and dirty (...), their speciality is swift responsiveness to their occupants. They are unrespectable, mercurial, street-smart"*⁴. In short, these are terms he uses to designate two different ways to provide flexibility and adaptability to buildings and from which we can extract different strategies regarding space as a support that permits activation at every change or alteration, which is produced inside it over time.

Within the category of *High Road*, Brand refers to those spaces and buildings, which have been settling their character and peculiarities throughout time. They are generally buildings, which are part of the patrimony and are considered to have achieved a state of harmony with their surroundings, having a high component of design, visibility, pretention and a high cost, so that one cannot make modifications on them with flippancy or impunity.

Therefore, adaptability in *High Road* buildings does not come with radical changes in their nature or their uses, but with constant, slight and meticulous actions, which renew and perfect them. As a historical example of that constant and thoughtful renovation, extension and perfection (and considering the American frame), Brand mentions three archetypal houses in American history belonging to the three presidents: George Washington, Thomas Jefferson and James Madison (Mount Vernon, Montpelier and Monticello, respectively). The three show, according to Brand, the typical inflections of the three owners' vital needs and wishes, and throughout time and in their present state they keep coherence as a whole, despite the different actions, extensions and refurbishments. This coherence and cohesion of the spaces, no matter the actions undertaken on them, is only possible thanks to the knowledge derived from the extended stay in those places and the occupants' gradual and meticulous implementation of needs.

*"This is the way to grow a High Road building. Take it by stages, with constant minute refinement and breezy innovation comfortably expressed by the attentive intelligences coevolving with the building. The result is human: a building by the people, for the people, and of the people within."*⁵

A similar course of action can be found in the shaping of Frank Lloyd Wright home and studio in Oak Park, Chicago (figure 1).

The house was extended and remodelled by the architect gradually, from the initial plan in 1889, for more than 20 years, adding up and completing new rooms, which had not been planned at the beginning. These changes took on the new family needs and growth, their change of habits, the incorporation of studies and work (and its balance

with time for the family) and even leisure, by including a playroom and a hall for family concerts. But, concurrently with those more or less ambitious extensions, and also as a result of the new needs, the use of some of the rooms changed meaning slight alterations were needed to keep on adapting them. **p.59**

The housing complex, shaped over time and which can be visited today, results in a complete coherence, expression of the footprints of specific lives and the capability of a complex space to mirror the relationship of work, family and house.

But we are mainly interested in the concept of *Low Road* proposed by Brand, in particular its possibilities for extrapolation to contemporary life and as a way to provide adaptability.

The term *Low Road* refers to a capability dealing with freedom or, more specifically, with freeing, which Brand associates with the spaces of old buildings that have survived to the present day thanks to that very quality which makes them capable of adapting to different uses in time. These constructions, Brand mentions, are in most cases remarkable for their poor maintenance and design and also for their spaciousness. These spaces work as empty platforms, as supports, which are loaded and activated at every change that takes place within, through its use, and not before. They are unpretentious buildings without style, with a low profile and a low rent, and they find in the combination of those features the mechanism which makes them space-support of an open source, versatile and with a great capability for adaptation in the long term.

Both in Europe and the United States, a long tradition of this type of space has prevailed. It covers from storehouses and factories restructured cyclically into houses (lofts), studios, offices, shops, factories again, etc. to a different type of space restricted at the beginning, like sheds and garages, which even today constitute part of the American patrimony⁶ by virtue of a strange and valued mixture of legend and commonplace⁷.

A distinguishing quality regarding that *Low Road* feature is also revealed today in the adjoining garages to those buildings resulting from the typical growth of the extensive American suburbs. Opposing those rooms excessively determined in their functionality and uses, the American single-family house of the suburbs makes the garage the least determined space, the most ambiguous (even with its assigned function) and consequently, the most "creative" and versatile, the one which can be used as a more open support for the different and changing needs of the dweller.

*"There is in fact scarcely a space in the modern American dwelling that owners themselves have not transformed in keeping with this new image. Even the backyard, freed of its clothesline and rubbish and of the obsolete garage, became a recreation area well before homebuilders saw its potential charm. Barbecue pit, plastic wading pool, power lawnmower, all antedate the developer's concept of Holiday Homestead. And the garage as a family center hall outdoors, part work area, part play area, is also a family invention, not the invention of designers."*⁸ **p.60**

It is frequently observed in any of these suburbs how the garage (almost always unfinished, without the finishes or the constructive determination of the rest of the house) is transformed into the "cushion space" of the house, the "plus" and flexible space that can hold the most diverse functions and uses. In the same residential area, where all the houses have the same look and work in a similar way, the garages very often turn into places that host wishes, of what is different and what is adapted (and misfit) to the personal life of their users. Due to its ambiguity and vagueness, it is the space of the house, which absorbs the daily needs of the new ways of life, and the needs of its residents: hobby, work, storage, recreation, leisure, etc. It is not strange, therefore, that numerous productions of the cinema industry, sensitive to the hints of daily life, have also perceived that potentiality⁹.

And the garage and its surroundings are, moreover, the space that restores the absence of shared and public areas in the suburb, where complicities take place, the one reintegrating a space for sociability. We can see how this space is activated when, at the weekends, in many of these residential areas, neighbours open their doors and offer their garages expecting random visitors or groups for chatting (figures 3, 4, 5). **p.61**

The so-called *Low Road* spaces are, therefore, spaces characterised by their generic sense, without a marked design in interiors, which appear unfinished, "raw spaces", ample, adaptable and without pretensions, and just as Brand himself summarises, "elegant because it is quick and dirty". They are spaces, which avoid the over determination of design, which is frequently an enemy of the ability to evolve:

*"The over determined project excludes the imperfect planning of buildings, which allows recent companies and communities to expand and renew themselves. This texture is the result of vague structures, which leave space for different uses to dissociate from a programme, to change direction and evolve. (...) What is difficult and what is incomplete ought to be positive events in our understanding"*¹⁰.

The lack of formal pretensions of this sort of space, which results in their ability to submit to all kinds of uses, tests and spatial experimentation straightforwardly and without remorse, and which shows their versatility is also remarkable. These *Low Road* spaces are the opposite to those excessively specified or specialised in a particular function and which, for that reason, soon become obsolete when dwelling conditions change and they have to adapt to other uses. *Low Road* spaces are then characterised by the possibility of some extent of impunity in the alteration

inflicted by the inhabitant. As Brand puts into words, “*nobody cares what you do in there*”, so the dweller can always make slight and agile modifications at any time, revealing their adaptability¹¹.

Brand provides some examples of buildings, which represent the *Low Road* concept. He refers basically to buildings of an industrial character, as an old car hangar and garage that would eventually convert to an administrative space (figures 6 and 7), accomplishing their functions with the same effectiveness. The space has not changed, but its shaping and its lack of specification or “authorship” permits a fluid conversion of the use of the building. To sum up, it permits the polyvalent condition of that space.

p.62 MISFIT AND LOOSE FIT

A basic idea Brand poses in his writings is that, from these conditions observable in certain buildings, and categorised into *High Road* and *Low Road*, it is possible to develop some “learning” about the buildings and their way to adapt to the circumstances over time. That is, it is possible to extract a set of guidelines, which may help us to achieve a disposition of the spaces to ensure their capability for adaptation and their polyvalence in time. Brand formulates some of them, but expresses them as “recipes” or little practical procedures aimed at not limiting the capacity for adaptability of future spaces.

One of those practical measures would consist of giving priority to orthogonality as compared with other irregular or whimsical shapes, which would hinder the capability for subdivision, addition, growth, and modification of the spaces. In order to facilitate adaptability he also proposes the constructive separation of the permanent zones from those considered temporary or adjustable through the articulation and segregation in different tectonic layers¹², according to their constructive duration. Moreover, Brand suggests working with materials that can be replaced, which stand the test of time and which adapt themselves to unskilled labour. Likewise he recommends the search for spatial diversity and avoiding monotony; providing storage space; arranging strategically some unfinished areas (raw space) which complete those finished and finally, as a subsequent process to construction, he advocates the instauration of a higher culture of post occupational checks, at least monitoring the workings and drift of buildings in order to be able to systematise the learning about their growth and their problems, modifications and alterations.

But more importantly, there is something about the concept of *Low Road*, which is interesting for us because of its relevance in the application of current situations and projects. We can extract from it at least two conditions of the space that we find implicit to some contemporary housing projects and which, at any extent, we could use as strategies for mechanisms that provide adaptability to the domestic space. We can include or generalise them under the terms “misfit”¹³ and “loose fit”, keys that can also be found dispersedly in the assessments of other authors¹⁴.

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From the current dynamics, buildings are rapidly built with all the regulations on inner organisation and fixed finishing aimed at a very particular and specific use so that users can take advantage of them effectively and in a complete way from the beginning.

This proposal of adaptable use puts in crisis and questions the well-known axiom “form follows function”. In contrast, it values as a natural rich of spaces a certain degree of “misfit” with their function. This leads to the ability to hold different uses throughout time, to be configured as a mechanism, which is able to adapt itself to changing requesting.

The amount of adaptability provided by the concept of “misfit”¹⁵ opposing form and function is exemplified by Brand himself with the functioning of his own office and studio inside a boat or a container (figures 8 and 9). The apparent unbalance between the formal model and the use is precisely what mechanisms promoting adaptability offer.

In short, the “misfit” is telling us about this mode of space without an accurate fitting for a specific use, unadapted and therefore, undetermined, totally alterable and modifiable regarding their condition of space “*Low Road*”.

But we can also consider a second condition derived from Brand’s concept of “*Low Road*”: the oversizing, “loose fit” of spaces as another fundamental mechanism to provide for its adaptability. Architects René Heine and Jaques Vink consider the use of this condition in the project as one of the most direct methods to guarantee the chances of the building adapting to future demands. According to them, there are number of exigible aspects, which they call *flex-building*¹⁶. One of them, related somehow to *oversizing*, is the ability to coexist with and absorb the spaces, which become available or are in a process of transformation. In order for a construction to be considered flexible, it is important that it always has a certain percentage of its space permanently available or in the process of transformation. This condition should be included somehow within the strategy and the design of the space from the *oversizing*¹⁷.

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The “loose fit” would permit in this way a certain margin, which promotes the capacity of the buildings to be modified in the future, to take in different uses, to grow or to decrease.

In general terms, the mechanisms for “misfit” or “loose fit” of the spaces usually refer to those in the buildings with a public character, administrative, commercial or public facilities. But what we consider really interesting is the possibility to extrapolate this concept to the domestic field as a mechanism to provide the house with a progressive and adaptable character.

Architect Avi Friedman is one the authors who has focused his research on the adaptability of the house. He explains his basic ideas about this in his book *The Adaptable House*¹⁸. He considers the concept of “shell” or “envelope”¹⁹ in reference to the creation of an oversized or not compartmentalised initial total volume of the house. This volume could host several levels and might be divided or adopting a different disposition of those levels in the future, or it may introduce several accesses or even be segregated into different houses²⁰.

The experimental houses by Renzo Piano in Perugia (1978-82) are examples concerning this type of oversizing. They develop from an oversized base “shell” concept to achieve a progressive and convertible house, which is compatible nevertheless with an easy set up and an accessible industrial production. Piano’s house is composed as a double shell with a “U” shape, made of prefabricated pieces, which can be set and assembled in a higher or lower quantity. They are the basic support (as a tubular framework), which offers a free, “raw”, inner space, although it is ready for a differentiation or division into two levels. The elements and pieces of prefabricated slab can be added later or be removed, composing or making more or less dense the occupation of the space depending on the preferences of the dweller (figures 10 and 11).

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The trace after using these *misfit* and *loose fit* mechanisms, associated with the concept of *Low Road*, can also be found in other particular examples in today’s housing. Brand presents this concept in his book in 1994, whereas the design of Latapie House, by the French architects Anne Lacaton and Jean-Philippe Vassal dates only from the previous year.

In this project the architects over measure (even double-the space) in the house through a great, transparent annex room which is indoors and outdoors at the same time and which works as a “misfit” and *extra space*²¹. Like the domestic rooms of the garages mentioned before, it restores a certain space of sociability in the building. In addition, the explicit and deliberate materiality of this *plus* space in the house, similar to that of the greenhouses, further highlights that the *misfit* condition between the apparent use is associated with this time of construction and its use as a house. Its relationship with the concept of *Low Road* is made evident because this materiality proposes a nature close to an installation, a “raw” and nearly industrial character. Quoting Brand again, “nobody cares for what you do there inside”, so it is the inhabitant who defines and adapts its use over time or at the different moments of the day (figures 12 and 13). This way, it is transformed into an adaptable space, in constant transformation, permanently available and in which everything has a place. A neutral sphere in the house is where any contemporary urge on the daily routine (hobby, job, rest, game, etc.), no matter how different or unusual it may be, can happen, and in which the dwellers display their world of objects and desires (figure 14).

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THE METHOD OF SIMULATING SCENARIOS OR HYPOTHETICAL SITUATIONS

“A building is not something you finish. A building is something you start.”²²

Convinced of this statement, which somehow summarises his thought, Stewart Brand proposes a method from which apparently unpredictable events and situations can be anticipated.

We understand that this method can be adapted and applied to the field of housing and may be useful in instrumentalising and complementing the explorations and discoveries which we can observe in some projects, implying the conditions of misfit and oversize, like the houses of Lacaton and Vassal or those by Renzo Piano.

It seems obvious that it would be desirable, in pursuit of adaptability, to design buildings whose starting strategy is the ability to adapt themselves to a higher or lower degree and to future unexpected situations, instead of designing hyperspecific buildings (those which respond to what is thought with certainty will be their needs and situations in the future). It would imply thinking of the spaces in the building not regarding their predictable future, but considering an unpredictable future. This means keeping in consideration the “adaptive” quality (as “potency”, possibility of assuming future changes), as opposed to what is adapted (meaning exact fixing to a function or use). Therefore, it would be necessary to forget the necessity of architects and clients who want to control and predict everything that will happen in a certain space in the future²³.

In the architectural project, spaces and their relationships are often designed according to the elaboration of a precise programme. However, the alternative proposal that Brand suggests is the strategy called *Scenario planning* (programming of hypothetical scenarios or situations), used firstly in the 1950s in military settings and later in corporations and companies, which had to foresee scenarios for possible and unexpected actions. Peter Schwartz, in his writing “The Art of the Long View”, establishes the definition and clarifications on this method:

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“Scenario thinking is about freedom. In Western societies, people are ostensibly free, but they feel constrained by the unpredictability of events. (. . .) Scenarios are a tool for helping us to take a long view in a world of great uncertainty. Scenarios are stories about the way the world might turn out tomorrow, stories that can help us recognize and adapt to changing aspects of our present environment. They form a method for articulating the different pathways that might exist for you tomorrow, and finding your appropriate movements down each of those possible paths. (. . .) Scenarios are not predictions”²⁴.

This way, it can be settled that, whereas a plan or project is usually based on a prediction, these type of strategies are designed to face unexpected changing conditions. Needs change and, as they do so, programmes and spaces become obsolete. Consequently, the programme must be nuanced and organised according to the suggestions resulting from keeping in mind coming events, circumstances, or scenarios (probable or improbable).

The planning strategy of the hypothetical scenarios or situations implies a methodology, which would start with an interview of the parties participating in the project to find a delimitation of the basic needs (major issues) as well as an agreement on the future unexpected necessities. After this first objective, the group must explore the aspects (driving forces), which, somehow, will determine the future (technological changes, competitiveness and users) and are organised and considered according to their relative importance. Concurrently, the same group must identify the known medium and long-term social data (predetermined elements), like variations in population, in the market, etc.

Following these preliminary considerations, the essential procedure would start. The group who takes part in the project must identify and lay out the "scenarios": the possible situations in the future. The most important condition of the method is that these scenarios, apart from possible, may be unexpected: probable, but also surprising. Of course, one of those scenarios will be the foreseeable future, the "official" future of the building, but that will not be the only one. Along with it, from two to five scenarios (no more, according to Brand) will have to be imagined. Next, the group must come backwards to the base approach regarding the nature and the specific and fundamental use of the building to establish a strategy, which will accommodate the different foreseen scenarios. The more this design strategy takes into consideration those scenarios, the better its future adaptability to any changes will be.

This process must be cyclic, the group has to come back to the proposed scenarios and review them. As a result, a "support" will be obtained, a basic configuration of the building and its spaces, which would respond to the uncertainty of the future and its use in the most probable way.

This mechanism, although generic, can be extrapolated to the design of the house. In the domestic space the need for division or withdrawal implies several factors related to the family life-cycle, but also the very nature of that family and its interaction with the cycles (economic, social, cultural), which are usually difficult, if not impossible, to foresee. The need for modification, for expansion or decrease in a house is one of the most frequent and most human-inherent conditions. The logical cycles of life usually involve the need for changes, which usually begins with a bigger demand for space according to the increase in the number of members. Subsequently, when some of them depart from the house, it could need to decrease or change its use and functionality, bringing in new spaces for the introduction of work, leisure or guests. It may also need to be fragmented, separating one part of the house for rent. Thence, the dynamics of growth and decrease, expansion and retreat of the spaces of the house, often forgotten in any process of the architectural project, must regain mainly in the field of housing, a relevance which they have never had in the conventional developments, only solved through the inclusion of the static concept of typology.

This way, an adaptation of the method of the scenarios could systematise the inclusion in the project of these dynamics through the recreation of different situations of growth and decrease in the family, evolution of the users, new technologies and cultural and social needs that could affect the consideration of the future adaptability of the spaces.

Thus, the method of the scenarios can be conformed into a mechanism and a tool for the project, which challenges the conventional concept of design openly. It is operating mostly with strategies spread like possible lines of behaviour, better than with formal, technical or constructive resources: with distinctive situations and "scenarios", which make the project a playing field to negotiate agreements. A method can manipulate the results that may sometimes be obtained in the house, as we have seen, through the introduction of spaces related to Brand's concept of *Low Row* and regarding the conditions of *misfit* and *oversize*, constituting a *support* which permits assumption of uncertainty and prepares the domestic space for adaptability. ■

of Boston. Boston: Houghton Mifflin Co., 1992, p. 160-161. [Quoted in BRAND, Stewart. *How Buildings Learn: What happens after they're built*. New York, NY: Viking, 1994, p. 104].

15. This mechanism induced by the "misfit" has similar connotations to the expression *design reserve*, used by English architect Nabeel Hamdi as a strategy to be applied on the project. This term refers to one of the elements in common with the mechanisms of flexibility in the house that Hamdi reveals. It involves reserving a series of decisions regarding the design of certain elements up to the last possible moment in order to facilitate adaptation. This architect also uses the term and the concept of *enablement* (ability, disposition) to introduce new hints related to the polyvalence and the underdetermination of the spaces. His consideration is based on the premise that the design must not be constituted as a process of formalisation, but as one of enablement. On that basis, when detailed information on the users in the housing processes is lacking, and in order to avoid turning to ideal abstract notions about a "typical user", he proposes using a designing methodology without detailed programmes, that is, a tool that may allow us to establish and decide on the structure of our interventions, generating mechanisms of "disposition" of the spaces that accept its indeterminacy and future uncertainty.

16. "Flex-buildings are buildings that are literally designed to respond to change. A flex-building must be able to accept different fit outs and its users must be able to easily adapt their surroundings". Citado en LEUPEN, Bernard; HEIJNE, René; ZEVOL, Jasper van, eds. *Time-based Architecture*. Róterdam: 010 Publishers, 2005, p. 58.

17. Concurrently, Dutch researcher Frank Bijndijk even establishes some basic constructive and spacial conditions, which result again in a certain nature of oversize and which are considered necessary for adaptation to be technically, functionally and economically sustainable:

"Proportionally generous floor-to-floor height leaving room for raised floors and/or suspended ceilings in the future (ground floor communicating with the street, c. 4.5-5.0m., upper storeys c. 3.3-3.6 m. gross height). -Proportionally few fixed vertical structural components, so preferably columns as supporting structure. The "everlasting" part of the facade may also be loadbearing. -Large spans, few obstacles, large open floor areas. -Proportionally high load-bearing capacity. -Proportionally generous vertical access for people, piping, ducts and cables. In short, freedom in internal subdivision and oversize on a number of points." LEUPEN, Bernard; HEIJNE, René; ZEVOL, Jasper van, eds. *Time-based Architecture*. Róterdam: 010 Publishers, 2005, p. 50.

18. FRIEDMAN, Avi. *The Adaptable house*. New York: McGraw-Hill, 2002.

19. It is similar to the concept used in the Casco Project in 1970 by Sjirk Haaksma, in which a house is proposed starting from a basic "shell", thought to be a "frame" structure with an interior whose height and compartmentalisation can be modified and transformed later.

20. This conception is similar to the one by English architect Gerard Maccreeor, who also aims to oversize, especially when regarding the height of buildings, circulations and mechanical services and facilities to permit the exploration of designs based on volume rather than on surface.

21. Quite correctly, architects Ilka and Andreas Ruby in their article on the work of these architects refer to it as "extra, extra large space". RUBY, Ilka; RUBY, Andreas. *Extra, extra large space*. On the recent work by Lacaton & Vassal. At: Lacaton & Vassal, 2nd ed. extended and updated. Barcelona: Editorial Gustavo Gili, col. 2G Libros, 2006.

22. "A building is not something you finish, a building is something you start". BRAND, Stewart. *How Buildings Learn: What happens after they're built*. New York, NY: Viking, 1994, p. 188.

23. "The iron rule of planning is: whatever a client or an architect says will happen with a building, won't. Architects always want to control the future. So do the clients. A big, physical building seems a perfect way to bind the course of future events. . .it never works. The future is no more controllable than it is predictable. The only reliable attitude to take toward the future is that it is profoundly, structurally, unavoidably perverse. The rest of the iron rule is: whatever you are ready for, doesn't happen; whatever you are unready for, does." Ibidem, p. 181.

24. SCHWARTZ, Peter. *The Art of the Long View. Planning for the Future in an Uncertain World*. New York: Doubleday, 1991.

1. "All of the biological sciences make sense -and make sense of each other- in light of one unifying concept: Darwin's Theory of Evolution. Something similar could unify the disciplines, professions, and trades that have to do with buildings. They could become, like biology, one organic body of knowledge and inquiry. The missing link is time." BRAND, Stewart. *How Buildings Learn: What happens after they're built*. Nueva York, NY: Viking, 1994, p. 210.

2. Ibidem, p. 211

3. Ibidem, p. 2

4. Ibidem, p. 23

5. Ibidem, p. 44

6. As prime examples we can mention the shed associated with the creation of Hewlett-Packard in a garage in Palo Alto (declared historical monument) or the one associated with the Apple company set up by Jobs and Wozniak in Palo Alto, too. The foundation of Google, Amazon or Disney also adheres to that myth related to the origins of a garage.

7. In order to demystify them, Brand argues: "The Garages of Silicon Valley are no myth. And no accident. High-risk creative new directions in business are best taken by tiny start-up companies with no capital to spare for plant. They take root in buildings that no one else wants, like spare garages." BRAND, Stewart. *How Buildings Learn: What happens after they're built*. New York, NY: Viking, 1994, p. 29.

8. JACKSON, J. B. The domestication of the garage. At: J. B. JACKSON, *The Necessity for Ruins and other Topics*. Amherst: University of Massachusetts, 1980 p. 109.

9. One example is the film *American Beauty*, by Sam Mendes, in which the conventionality of family relationships can be seen in connection to the conventional rooms in the house. When the development of the plot shows how that fake, conventional, private and family world collapses and personal relationships and behaviours become tense, the main character begins to use the garage as a space for personal freedom and a bastion of anticonventionality.

10. SENNETT, Richard. *El artesano*. Barcelona: Anagrama, 2008, p. 60-61.

11. "When you can make adjustments to your space by just picking up a saber saw, you know you're in a Low Road building. . .That's how Low Road buildings are made livable: just do it". BRAND, Stewart. *How Buildings Learn: What happens after they're built*. New York, NY: Viking, 1994, p. 33.

12. Brand establishes six layers of different durability in the buildings: *site, structure, skin, services, space plan and stuff*.

13. Misfit (the term usually used to define this type of space) can also be translated as "unadapted". The application of this term referring to the spaces in the buildings, far from being a paradox regarding adaptability, is precise: what is "adapted" is the opposite of what is "adaptable". Being adapted (to one use) already assumes a concept of determined space and what is intended in this case is what is adaptable or adaptive. Stewart Brand reminds us of the old saying related to biology: "The more adapted an organism to present conditions, the less adaptable it can be to unknown future conditions". BRAND, Stewart. *How Buildings Learn: What happens after they're built*. New York, NY: Viking, 1994, p. 181.

14. "Recyclings embody a paradox. They work best when the new use doesn't fit the old container too neatly. The slight misfit between old and new -the incongruity of eating your dinner in a brokerage hall- gives such places their spatial edge and drama. The best buildings are not those that are cut, like a tailored suit, to fit only one set of functions, but rather those that are strong enough to retain their character as they accommodate different functions over time." CAMPBELL, Robert; VANDERWARKER, Peter. *Cityscapes*