

Sustainability-based analysis of deontological codes in technical architecture

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Abstract

In the context of the current climate and biodiversity emergencies, the significant impact of technical architecture in the ecosystem is by far the greatest ethical implication of the profession. As such, it should be the backbone of every up-to-date deontological code. In this work we review the extent to which current deontological codes in Spain address sustainability-related issues and provide constructive criticism with the aim to contribute to their needed improvement. We also propose an upgrade of the classical framework between client and professional that includes Nature not as a third-party issue, but as a subject in its own right.

Keywords: Ethics, Technical architecture, Ecosystem, Sustainability, Ecological impact, Building engineering, Deontological code

1 Introduction

Across the world, buildings are responsible for 37% of greenhouse emissions (United Nations Environment Programme, 2021), 30% of global final energy draw (IEA, 2022) and over 35% of the EU's total waste generation (European Commission, n.d.). They are main contributors to the two big crises of our era, global heating and loss of biodiversity, through extensive pollution of soil, air and water and also through indiscriminate destruction of wildlife habitats (Greenfield et al., 2022). Such impact of the building profession on the ecosystem needs to be addressed from an ethical point of view, since actions (and lack of them) in this field will be determinant in the course of such crises.

The extent of these impacts needs to be on a par with the profession's accountability, which is a challenge that universities must face with will and determination, but also with resources and through an acute awareness-raising process that cannot be delayed any further. Classrooms are where our future lies and most efforts need to be focused there. Already in 2005, the Conference of Rectors of Spanish Universities (CRUE) published a set of "Guidelines for the Inclusion of Sustainability in the Curriculum" (CRUE, 2005) and, more recently, a series of manifestos for "integrating SDG's into university education" (CRUE, 2022), "biodiversity and climate" (CRUE, 2023) and "the role of university in sustainable agri-food" (CRUE, 2021).

According to the *Guidelines for the Introduction of Sustainability in the Curriculum*, approved by the Conference of Rectors of Spanish Universities (CRUE) in 2005 (and extended in 2011), curricula should contain several principles, including ethics. The same document proposed the Transversal *SOS4 Competence in the application of ethical principles related to the values of sustainability in personal and professional behaviour*, which implied the revision of the curricula and the inclusion of sustainability criteria in evaluation systems. Based on this premise and thanks to the institutional impulse given by the proposal of a Pilot Plan of Competences in Sustainability and Social Commitment, a review of the competences in the academic curriculum of the Degree in Technical Architecture were carried out during the academic years 2020/21 and 2021/22.

One of the activities proposed by these guidelines was the extent to which ethical aspects are addressed in the syllabus. From laws and regulation to social commitment and corporate social responsibility, these sustainability-related aspects should be introduced in the first courses in order to make the students aware of the deontological codes of their future profession. However, the challenges are not only on the students' side and sometimes they show more ecological and social awareness than the degrees' syllabuses. On their 2022 graduation ceremony, a group of students denounced the enormous gap between the training received and their environment-related ideas and values (Cerveaux Non Disponibles, 2022). They symbolically refused their degree while saying: "let's not waste our time, and most of all, let's not allow our boiling energy to escape from somewhere inside us". They encouraged their classmates to abandon their workplace when directly related to "social and ecological devastation". After gasping in surprise, the public burst into applause.

Consequently, a revision of current deontological codes in Spain to elucidate the extent to which they are up to date with the social and ecological challenges of our present world is of critical importance before their dissemination in the syllabus is promoted. With this goal, we compare here the two Deontological Codes for Technical Architecture available in this country in order to identify the degree of their commitment to sustainability issues and with the aim to provide suggestions for a better alignment between the profession of construction and the avoidance of ecological destruction.

2 Goals and methodology

The main goal of this work is twofold. On the one hand we address the professional deontological codes available in Spain with a close reading and a critical analysis of them in terms of sustainability. On the other hand we bring sustainability into focus twenty years after universities of Spain, through the CRUE, began to incorporate this set of competences into the academic curricula.

The methodology of this text is organised from a global (Technical Architecture Schools) to a more local scale (University and Schools). Firstly, we analyse the two available deontological codes of Technical Architecture in Spain, one from the Spanish College (Consejo General de la Arquitectura Técnica en España, 2014) and the other from the Catalan College (Consell de Col·legis D'Aparelladors Arquitectes Tècnics i Enginyers D'Edificació de Catalunya, 2016). We perform a close reading of these documents focusing on eco-linguistic analysis, counting keyword occurrences, distilling relevant aspects and performing comparisons between them.

This hopefully constructive criticism aims to address the Review Commission of the General Council that, according to the deontological code of Spain, will study and modify its document after three years. Being the last version from 2014, we think it is time for this feedback-and-update mechanism to align with the current emergency scenario.

Secondly, we review existing ethics-related documents in the [Universitat Politècnica de Catalunya \(UPC\)](#), some of them stemming from the already cited CRUE documents. The list of UPC documents includes: the UPC Code of Ethics (Code of Ethics of the Universitat Politècnica de Catalunya, 2022), a compilation of cohabitation rules (Normes de convivència de la UPC, 2023), a decalogue of recommendations and an Integrity Code (Code of Research Integrity of the Universitat Politècnica de Catalunya, 2022).

3 Deontological codes in Spain: criticism

3.1. Linguistic analysis

Deontological codes, understood as sets of moral duties associated with a profession, are an essential tool to regulate practices and behaviours that may cross the lines of what is considered acceptable from an ethical perspective. Thus, it is of capital importance that Technical Architecture Colleges (the organisms responsible of these documents) draw these lines with standards high enough to keep the quality of the profession at the maximum level. Such requirements evolve with time and, given the impacts of the profession on the ecosystem and the societies that depend on it, these codes need to be updated, not only in content but also in the language they use, both aspects being equally important.

We have detected two distinct deontological codes now in force. On the one hand, the code of the Spanish Council of Technical Architecture, approved in 2008 and modified in 2014. On the other, the code of the Catalan Council, approved in 2016. The later is the deontological reference for the five Catalan Professional Colleges, whereas the former is the reference text for the rest of Colleges in Spain.

Table 1. Keyword occurrence analysis of deontological codes in Spain. Keywords are searched under unifying all characters to ASCII, and by using wildcards represented by an asterisk (*) or by negated wildcards !(*). All searches are case insensitive. When the keyword differs between Spanish and Catalan languages they are separated by a forward slash (/). When different from English, the equivalent keywords are also written in this language, in parenthesis. All searches have been performed with the Vim text editor.

Keyword	Occurrences (Spanish code, 4997 words)	Occurrences (Catalan code, 6708 words)
etic* (ethic*)	3	1
sostenib* (sustainab*)	1	4
ambient (environment*)	2	5
natura* (natur*)	0	0
client*	6	36
econ*	2	11
ecol*	0	0
libre*/lliure* (free!(d)*)	3	4
liber*/llibre* (freed*)	1	1
individ*	0	3
sociedad/societat (society)	0	9
social*	1	3
compet*	14	15
coop*	0	0
colab*/col·lab* (collab*)	8	9

A first approach to these documents under an eco-linguistic analysis consists in a frequency count of keywords that are relevant to our exposition. In Table 1 we show the keywords used and their frequencies. We can see how $N(\text{ethic}^*)$ (meaning the number of occurrences of the keyword in parenthesis) is surprisingly low, given the

nature of the documents. Focusing in the main topic of this text, we find how $N(\text{sustainab}^*)$ and $N(\text{environment}^*)$ are low as well, despite being the target of the worst impacts of this field. The Catalan code shows slightly but not significantly higher N's for these keywords. *Natur*^{*} does not make a single appearance whereas *client*^{*} is ubiquitous, significantly more in the Catalan text. Furthermore, $N(\text{ecol}^*) = 0$ while $N(\text{econ}^*)$, especially in the Catalan text, shows a greater number of occurrences. These differences already reveal significant trends, which are oriented towards people and economic matters. Interestingly, $N(\text{free}^*)$ is high, but all occurrences of this keyword are in the lack-of-restriction sense. The classical meaning of the term, to be the rational master of your own actions and will, being able to differentiate between what is truly wanted, long term, and what is just desired, short term, is never mentioned in these texts, which are aligned along the short-sighted professional-client axis.

A positive result in the Catalan text is that society-related terms are more frequent than those focused on the individuals. It is worth mentioning that from *society* and *social*^{*} we have removed all results referred to the professional society, which were many and unrelated to the analysis at hand, where only society in general is meaningful. As we will discuss later, societal and ecological issues are inseparable, hence their presence in this analysis. Finally, $N(\text{compet}^*)$ is significantly high in both texts, while *coop*^{*} does not even appear and *collab*^{*} has lower numbers than its competition-related counterpart. In essence, this keyword-occurrence analysis reveals an ideology of this field, being predominantly focused on an unrestrained market scenario where competition and economy-centred aspects are dominant, while Nature, despite being the source of all resources, is left aside without prominence and with neither official representative figures nor cooperative terms to support it.

3.3. Close reading

3.3.1. List of topics

By closely reading the two deontological codes we can distil the most relevant topics regarding the interests of Nature in the building field. Sorted from more general to more construction-related, they are 1) Conflicts of interests: *ecol*^{*} vs *econ*^{*}, 2) Human supremacism, 3) Ethics and moral, 4) Socioecology, 5) Freedom, 6) Loyalty and Legality, 7) Alienation from Nature, 8) Scientific attitude, 9) Economy, 10) Education vs Training, 11) Public Administration, 12) Whistleblowing, 13) Disqualification system, 14) Risk prevention, 15) Degradation ladder, 16) Reaction mechanisms. We proceed to discuss each topic in separate subsections.

3.3.2. Conflicts of interest: ecol vs econ**

The stark and undeniable collision between the (short-termed) interests of (industrialised) humans and Nature (Ceballos et al., 2017) is the single most important issue to consider when studying the interaction between the building construction field and the ecosystem. Rationally speaking, our long-term interests are deeply aligned with the interests of Nature, since our very existence, let alone our professional activity, is not even possible without a healthy natural world. However, a greedy and unrestrained framework dominates the field (Fuller, 2022), hence the aforementioned collision. Just as the obscure art of astrology evolved towards the science-oriented discipline of astronomy, so too economy needs to transition to ecology if we want to overcome this self-destructing scenario. Preserving Nature is, or should be, our first interest. Compared to this, everything else is secondary.

The Spanish code states that “members shall refrain from accepting assignments/work where there is a possibility of collision of interests or unfair competition”. In this sense, the written framework is adequate. What is missing is the scope of interests that are to be considered. Even though there is a Deontological or Disciplinary Commission of the College, and even if it is in the best interest of the College to sustain a healthy ecosystem, there is a need for independent institutions regulating conflicts of interests with it, since professional Colleges, after all, represent one side of this conflict, and such important matters cannot only rely on good will.

3.3.3. Human supremacism

In the classical humanist view, the world is inhabited, on the one hand, by people, who possess free will. On the other hand, there are also (other) animals, which barely surpass the label of mere automata, whereas other even “lesser” beings like plants are just things (Savater, 2004). Overall, the world is divided into humans and resources for humans, both from philosophical and legal points of view. Until the late 20th century, only a few foresaw the consequences of this way of thinking. However, in 2023 no one can seriously deny its far-reaching implications (Kopnina et al., 2018).

The deontological codes literally talk about “persons and goods/property”, reflecting the duality we just mentioned. Ethics, if limited to a human scope, is self-defeating, the same way that construction, if limited to human construction, is in fact destruction. These codes need to open the perspective to a non-anthropocentric point of view so that our profession can consist in constructive construction. In order to achieve this, Nature and all its biodiversity must become ethical and legal subjects (more on this later).

3.3.4. Ethics and moral

In deontological writings there is always a latent duality between ethics and morality. Classically, morality is a set of rules that are considered useful, whereas ethics is the act of conscious thinking about these rules. The former term has fallen into disuse because of its historical association with a repressive church, but the distinction between these two terms is still useful and the use of both should be encouraged. A deontological code, as a set of practical rules, is itself a moral text, given without a sound ethical justification. This can be seen as enforcement, and has the risk of losing its contact with its foundations if not periodically revisited, but it has also a positive and practical side: we can't be thinking in deep philosophical terms every day, so it is useful to have a set of rules that summarise that thinking in simple and actionable words. The process of writing the codes is, however, of ethical nature, and frequently (but not too frequently) rethinking and rewriting them is essential. In this sense, both codes in force in Spain right now have been around for more than seven years without revision, quite a stretch of time for a world under emergency conditions.

3.3.5. Socioecology

Social and ecological are inseparable concepts. Society depends on the ecosystem and, unfortunately, right now the ecosystem (Klein, 2014) depends on society as well, both forming a tightly coupled system with a common future. In fact, the term *society* is misleading, since we don't currently have an integrated humanity, but a fragmented one, where inequalities are deep and becoming even more pronounced as the ecological crises gain traction. Some societies are already suffering harsh consequences, and the ones with less resources and those that have polluted less are suffering the worst outcomes first.

Furthermore, any attempt to overcome these crises needs values like cooperation and collaboration, which are in direct opposition to the predominant market values. Both deontological codes use a language and reveal a framework strongly aligned with the latter values. Even when they mention a “commitment to social service”, the link between *eco* and *social* is missing in the texts. From the building profession we need to be aware of when and how our activities promote or shred our social cohesion. The absence of any mention of *parity*, *feminism* or simply *women* in the texts is a proxy that reveals this lack of social awareness. In this aspect, the Catalan code uses a more inclusive language than the Spanish.

3.3.6. Freedom

As discussed before, the classical notion of freedom has fallen into disuse, in favour of a meaning that is literally equivalent to that of power (Savater, 2009). Freedom as in free market, instead of freedom as in free thinking or free choice. All mentions to freedom in the codes refer to the former, in the context of a free an unrestrained market. However, all the impacts of the profession point to the latter, because these impacts are something we truly want to avoid in the long term, no matter how profitable they look in the short term.

A profession that promotes a free market is in fact a slave of it, being subjected to its desires and whims. The relevant questions that a truly deontological code should raise are not related to the freedom of the clients and professionals to contract or execute, but concerned about the impacts of those contracts and executions on the ecosystem and, by extension, on our societies. Ethical freedom is all about using rationality to foresee the long-term consequences and acting in accordance.

3.3.7. Loyalty and legality

The Spanish code frequently uses the term *loyalty* applied to colleagues and regarding our behaviour. This is an interesting concept because it arises whenever a conflict of interests appears. The deontological codes should state what the loyalty hierarchy should be. In our view, a professional should be loyal to the client as long as such loyalty is not in conflict with being loyal to the profession. And, more importantly, the loyalty to our ecosystem should take the highest priority. Is there something more disloyal than hurting our planet and, as a consequence, to ourselves?

Etymologically related is the term *legality*, which also appears in the codes and which, after ethics and moral, is nothing more than the third step towards a coherent society. The Catalan code mentions “professionals with the right to unilaterally terminate the agreement”. If only Nature had such a right. But Nature has no rights, it seems, as a mirror image of our species not having a Universal Declaration of Human Duties. As long as Nature does not become a legal subject, our legality will remain disloyal to it.

The codes also mention that there are basic requirements established by the Technical Building Code, but are these strong enough and sufficiently enforced? What are the consequences for those professionals that produce ecological damage and what are the associated punitive mechanisms?

3.3.8. Alienation from Nature

The codes frequently mention “third parties”, revealing a professional interaction that is essentially bilateral, i.e. between the client and the Technical Architect. Third parties are only tangentially considered, not being an intrinsic part of the profession. Nature, being the main source of resources and also the main target of all impacts, plays a tertiary role when it comes to rights and acknowledgements.

This is a consequence of a human-centred perspective, where cities and Nature are disjoint domains, and where the latter is relegated to an external and distant place, as the literal meaning of the term *environment* reminds us. Does human construction literally mean Nature destruction? A good deontology should address this issue and develop a framework where both natural and artificial constructions are not only compatible but even synergistic. In short, not constructing against Nature should be the first and foremost principle in these codes.

3.3.9. Scientific attitude

Both codes explicitly mention the importance of rigour and neutrality in data. The Catalan code explains that professionals “will refrain from misrepresenting or introducing gross inaccuracies in the documentation” and it emphasises the need for “accuracy of the documentation of professional work”. This introduces an interesting topic, since the drive to be objective and accurate immediately leads to the inclusion of hidden impacts. We are not accurate by just considering the positive and negative parts of what is visible. When it comes to impacts on Nature, these are largely hidden, either by lack of inquiry or through active denial. So, when the codes state importance of veracity in the documentation, they should emphasise the need to uncover hidden consequences, which are usually the most severe.

3.3.10. Economy

Completely related to hidden impacts is the issue of the hidden costs. A professional must be held accountable for every impact it produces and must pay all the costs, and this is where deontology should give the strongest emphasis, because it is too easy to avoid costs by hiding impacts, pretending they don't exist or simply downplaying their relevance (Morgan, 2015). Economy has unacceptably become an art of profiting at the expense of hiding impacts and avoiding the associated costs. In a more ecology-oriented market, every impact is considered before being executed, and if so, every cost is accounted for. Thus, deontology, when well understood, is a tool to help our profession evolve from harmful economic ideologies towards an ecology-based framework.

A practical question here is how are Nature-related costs paid and who manages the reception of such payments to ensure that the final recipient is Nature itself. All this discussion, as we will see, leads to the proposal to make Nature a legal subject with an explicit set of rights. The graph of contractual relationships must be upgraded to include a third node: the ecosystem. The alternative, to insist in a bilateral human relationship where ecological considerations are third-party issues, is not sustainable.

3.3.11. Education vs training

The codes should explicitly state mechanisms for their own dissemination. For example, it should be a deontological principle that Technical Architecture Schools should include these codes in their syllabuses. They should also remark the relevance of both training and educating the future professionals, since not only technical knowledge but also ethical principles are necessary in such a delicate field. If a degree does not offer a complete set of values and facts regarding the impacts of the profession, where will the future technical architect learn them? An even more difficult question is who can train and educate the teaching staff when their technical knowledge and awareness related with the ecosystem crises are not up to date.

3.3.12. Public administration

The role of Public Administration is twofold here. On the one hand, it is usually the client with the heaviest footprint, but on the other it is the only possible representative of Nature in those contractual relationships. An effective separation of powers is essential here, otherwise the conflict of interests becomes unavoidable. What are the organisms and agents that publicly represent Nature? What resources are allocated to them? And how deontological codes adapt to describe such a complex contractual scenario?

3.3.13. Whistle-blowing

Since irregularities occur, the existence of effective and safe mechanisms to denounce them is essential (General Assembly United Nations, 2015). The two codes under analysis are ambiguous and incomplete here. On the one hand, they remind the duty to report to the College any observed anomaly, but on the other there are penalties for those who inform if the given information is not accurate, which means that those reports are not anonymous. Moreover, they focus on mechanisms for clients to have available complaint forms and for professionals to report on colleagues.

But they should be room for full anonymity, since this is the only way to safeguard the integrity of the whistle-blower. Reporting on ecosystem-related irregularities is an extremely brave and thus dangerous action that needs the maximum level of safety for the informer, since the economic stakes for those who are supposedly committing such irregularities can be enormous. Despite the inconveniences of potential slander, the benefits of truly anonymous paths for whistle-blowing surpass other considerations. Clearly, deontological codes should describe the mechanisms for such paths, and Professional Colleges should set them up and maintain them according with the just-approved Spanish law (Ley 2/2023, de 20 de febrero, reguladora de la protección de las personas que informen sobre infracciones normativas y de lucha contra la corrupción, 2023). Good journalism plays a big role here, and local media should provide alternative ways to spotlight such valuable information.

3.3.14. Disqualification system

Sanctions for fraudulent activities are essential tools to regulate the profession. The codes mention mechanisms for these but they are not clear enough regarding either the penalties or the organisms in charge of applying them. Also, from a conflict-of-interest perspective, it is not clear whether a Professional College, whose members are deeply rooted in the network of the profession, should be in charge of dealing with such irregularities. How is the Deontology Committee formed and under which criteria? A public dissemination of its resolutions would improve its understanding.

3.3.15. Risk prevention

Regarding risk prevention, Technical Architects are responsible for the safety in buildings during the decade following their construction. This makes them the leading experts in building-related hazards. However, this field not only faces visible or short term risks, but also subtle or long-term issues that are much harder to address. The codes focus on occupational, health and safety hazards, which are of undeniable relevance. But addressing more indirect and long-term aspects is precisely what ethics is about.

Nevertheless, indirect risks are most of the time unpredictable, and if we incur in the mistake of trying to predict them, we can fall into a false sense of security that every prediction, no matter how incorrect, provides (Taleb, 2016). From a deontological point of view, what makes more sense is to apply the precautionary principle to give more prominence to those hazards with potentially more severe consequences, regardless of their impossible-to-quantify probabilities.

In particular, the risk of disrupting the whole ecosystem, no matter how ignorant of its complex dynamics we still are, is the issue that any precautionary approach should focus on, since its potential implications are of an existential grade, and will percolate through all other types of hazards, including those related to occupational, health or safety matters. In summary, risks need a precaution-based hierarchy based on their potential consequences.

3.3.16. Degradation ladder

The race for price cutting and the subsequent chain of subcontracting that it produces does not really reduce costs, but simply hides them under the carpet of low-income communities and delayed-payment ecological damage. The codes partially describe the existence of this degradation ladder, focusing on how it also degrades the professional quality of an execution, but they lack a description of the social and environmental aspects of it.

3.3.17. Reaction mechanisms

When an execution begins, many unpredicted events can unfold, and many neglected parameters can surface that can alter the course of the project. What are the paths to alter, even terminate the contract based on them? A good deontology should provide mechanisms to ensure that every contract is dynamically updated after every new piece of data is revealed, and most importantly, to ensure that every voice is properly listened to, especially from local neighbours, independent scientists and activists.

4. Discussion

To summarise our approach to deontology, we can say that the ethics of a profession relies on the awareness of the impacts that such profession produces on the world and the actions taken after such evaluation so that they minimise such impacts. As these consequences ultimately bounce back to us, or our successors, ethics is an enlightened form of well-understood egoism. The classical humanist approach, usually based on white and colonialist men imposing their freedom on the rest of the world, has already begun to show its pernicious consequences, although the ones who have contributed the most are going to be the last to face them, which makes any attempt to change their opinion or behaviour a daunting challenge.

Being the building construction field a main contributor to ecological damage, developing a strong deontology should be a priority with two cornerstones in mind. On the first hand, the awareness to take into account the direct impact of its activities and use this information to abandon the unrestrained-market approach in favour of an ecology-oriented profession. On the other hand, the accountability of not only the execution but also the uses for which the buildings are intended. For example, a new airport terminal built with environmentally-friendly materials and processes would still represent a huge ecological damage. Both the construction and the use of a building are crucial for sustainability, so technical architecture needs to address not only how, but also *what* they build.

To formalise this approach, we explicitly propose an expanded model for the contractual relationship in a professional project, where three subjects, instead of two, are at play: client, professional and Nature. This model upgrades the system's graph from two nodes with a single link to three nodes with three links. These three links are 1) client-professional, the one we already know; 2) Nature-professional, where we consider the impact of construction; and 3) Nature-client, where we consider the impact that the client produces from the use of the building.

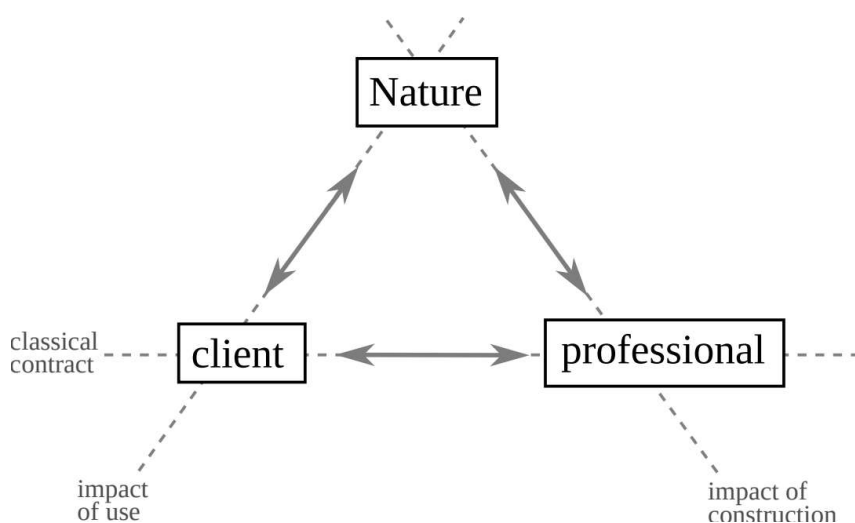


Figure 1. Diagram of our proposed model for sustainable technical architecture contracts. It features three nodes (client, professional and Nature) and three links that represent the three axis of this contract. The horizontal link depicts the classical axis that describes the contractual relationship between clients and professionals. The Professional-Nature link provides a new axis to be considered: the impact of the construction on the ecosystem. Similarly, the Client-Nature axis shows the impact of the use of the building. Notice how impacts here could be either negative or positive.

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