

# REFLECTION ON THE FAILURES IN MAKING ARCHITECTURE: ENVIRONMENT – BUILDING – OBJECTS

**Abstract:** The text explores the complexity of errors in architectural projects, starting with a reflection on the concept of “error” for architects and subsequently investigating the different forms in which errors manifest themselves. By defining errors, mistakes and failures as deviations from good practice, they are distinguished as unintentional human actions, deviations from accuracy and lack of success.

The concept of harmony between architecture and environment is explored through different perspectives, highlighting the importance of integrating architecture with the surrounding environment for sustainable regeneration. Error allocation and its consequences are also addressed, with a detailed analysis of where, when and how errors occur. The text emphasizes that the severity of errors is independent of scale but must be measured on the impact on ecosystems.

Finally, the text highlights the importance of a holistic and multidimensional approach that considers ecological harmony, cultural values and the integration of elements to create cohesive, sustainable and culturally significant environments. Reducing the discrepancy between cognitive maps and reality is seen as possible through multidisciplinary research and collaborative problem solving.

**Keywords:** errors, good practice, harmony, architecture, environment

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## The meaning of error, mistake, failure

May I take you to the shores of a mountain lake?

The sky is blue, the water green and everything is deep peace. The mountains and the clouds are reflected in the lake and so are the houses, ..... everything breathes beauty and peace...

But what's there?

A false note creeps into this peace. Among the houses of the peasants, which were not built by them but by God, there is a villa. The work of a good or a bad architect?

I do not know. I only know that peace and quiet and beauty are already gone. ....

And I ask then: why do all architects, good or bad, end up disfiguring the lake?

The farmer doesn't do it ..... he has marked out the land on which the new house is to be built on the green grass ..... the mason lays brick by brick, stone by stone ..... the carpenter takes the measurements for the doors and windows ..... then the farmer paints the beautiful house white.

But he keeps the brush because at Easter, next year, it will be used again.

Is the house beautiful? Yes, she's really beautiful

And I ask again: why does a good architect or a bad architect disfigure the lake?

The architect, like almost every inhabitant of civilization, has no civilization. He lacks the security of the farmer, who possesses his civilization instead.

Adolf Loos (1898, as cited in Rossi, 1987)

In arguing on the issues of errors in the architectural project, we firstly must reflect on the concept of "error" for an architect, then we will investigate the different forms in which an error can manifest itself. Error/mistake/failure in general is understood as "deviation from good practice"; they can be caused by poor reasoning, carelessness, insufficient knowledge, but there are some differences:

- \_a mistake is a human action or decision that is not intended or that deviates from the outcome that is expected or good;
- \_an error is a deviation from accuracy or correctness;
- \_a failure is a lack of success in doing or achieving something.

Stating that deviation from good practice can issue in errors or mistake or failure, it is necessary to define what is a correct practice.

According to Adolf Loos' words, "the good practice" is the farmer's law: the measure of necessity and the correspondence with the ecosystem; in these two rules there is peace and harmony.

The harmony between architecture and environment emerges as a multifaceted concept through different perspectives. The context often influences design decisions, underlining the importance of integrating architecture with the surrounding environment for sustainable regeneration (Gaskin, 2020). The close connection between aesthetics and ecology in the landscape determines that aesthetic perception can contribute to ecological awareness, suggesting that architecture, that is harmonious with the environment, can foster greater emotional connection and ecological awareness (Gobster et al., 2007). A harmonious landscape helps to provide cultural ecosystem services in transferring identity, consciousness and sense of belonging to communities (Tengberg et al., 2012, Kaltenborn and Bjerke, 2002).

In this sense, good practices qualify as interventions in harmony with the ecosystem context; cultural values, senses and balance in architectural design must contribute to a single objective of authentic harmony with the surrounding because the integration of these elements can contribute to creating cohesive, sustainable and culturally significant environments.

## Error allocation and consequences

.... because among the human arts there is none that teaches us to sin; indeed, the only master is the misuse of it. But to introduce the knowledge of the errors of badly used architecture, so that someone who is a scholar of this profession can learn to avoid them, and become excellent in it; with this being that by making mistakes one learns, and by learning one acquires with perfection any skill of science and art; since the error, by careful observation, leads to the knowledge of the thing badly done, and this let us know the good and perfect work, the

nature of the opposites being such that one is known for the other. Having therefore known, for the sake of argument, how useful it was to be aware of the errors of architects, I proposed to narrow down a part of them in a short treatise: not with the intention of forming a belt against everyone, but with the desire to teach good and regulated architecture through this knowledge.

Teofilo Gallaccini (1621)

In exploring the meaning of “mistaking” in architecture, a deep analysis on different factors affecting or deriving from an error or mistake or failure must be conducted.

The errors detection can be splitted into three aspects: Where it happens, When and How.

### Where - The place of error

“From the Spoon to the City” is the slogan created by Ernesto Nathan Rogers in 1952, wanting to explain the approach to the design of a spoon, a chair and a lamp, and, at the same time, to the project of a skyscraper. The slogan indicates that the method is common in designing both small objects and entire cities.

As the design can be at different scales, errors can also occur at different levels:

- \_Detail scale;
- \_Building scale;
- \_Environmental scale.

In referring to the scale where errors can happen, in the end we cannot assume that scale is really the extent of the error effects because a little mistake on a little component could, in fact, seriously affect a wider context (Fig. 1).



Fig. 1. Different scales of error. Source: Authors' archive

The severity of the error is independent of the scale of the object but must be measured by the extent of the impact on the ecosystem in terms of depletion of tangible and intangible resources.

The extent of the spread of an effect depends on:

- \_the specific use/common use (for the details);
- \_the role of the building in the settlement (for the building);
- \_the perceptibility, if perceivable/not perceptible, visible or hidden place, localized/widespread, one invasive operation or many small operations (for the environment).

Errors in the design of an object, a building or a landscape can have significant consequences that affect the functionality, safety and aesthetics of the work. Design is a complex process that involves the consideration of multiple variables, and even small errors can amplify with significant effects. First, design errors in everyday objects can compromise their functionality and durability; inadequate design can lead to products that do not meet user needs or that deteriorate rapidly over time. This not only affects the user experience but can also lead to wasted resources and negative environmental impacts. In the context of buildings, architectural errors can cause structural problems, reducing the safety of the building. Problems such as poor load planning, errors in materials or incorrect structural calculations can lead to structural failures, putting people's lives at risk and requiring expensive repairs; from an aesthetic point of view, design errors can influence the visual perception of an object or environment. A poorly designed building can negatively impact the urban landscape, influencing the image of a city and the well-being of its inhabitants.

In landscapes, design errors can compromise ecological balance and sustainability. Inadequate choice of plants, excessive use of pesticides or ignorance of the natural characteristics of the soil can lead to negative impacts on the surrounding environment, compromising biodiversity and the ecosystem.

### When - The time of error

The extent of the error increases inversely proportional to the development of the phases; if it occurs in the initial phase, it can compromise the entire subsequent process (both actors and products); if it occurs in the final phase, it is easier to correct.

The governance of the process must take place through successive and scheduled checks.

The needs of safety, well-being, usability, appearance, management, integrability, environmental protection represent the list of needs of potential users who, for various reasons, will benefit from the operation; these needs must be satisfied in comparison with environmental, cultural and economic factors.

For the governance of the process (Fig. 2), it is therefore necessary to define a uniquely determined control formula for each specific project, controlling the various phases and verifying the technical and cultural compatibility with the context in which it develops.

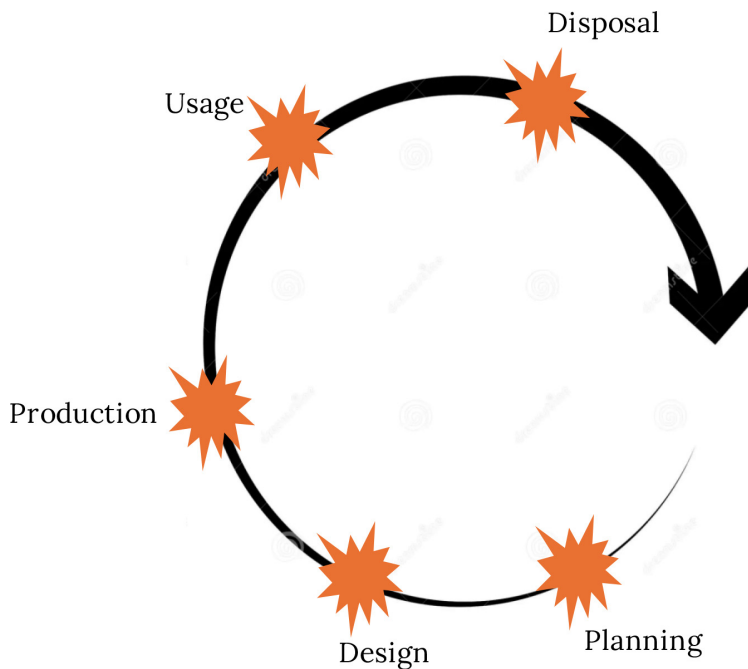


Fig. 2. The constructive process.

The **planning** is the phase necessary to achieve coordination between objectives and goals (Fig. 3).

It is the phase of the process in which the tangible and intangible resources, the implementation tools and the limits of the intervention are recognized (regulatory and physical – location of the intervention, geomorphological, climatic and environmental characteristics of the area).

**Key factors** at this stage are:

- \_technical knowledge regarding the technical means of realization;
- \_operator identifications;
- \_regulation of the assignment of works;
- \_quality control systems;
- \_definition of models of use and management of the intervention.

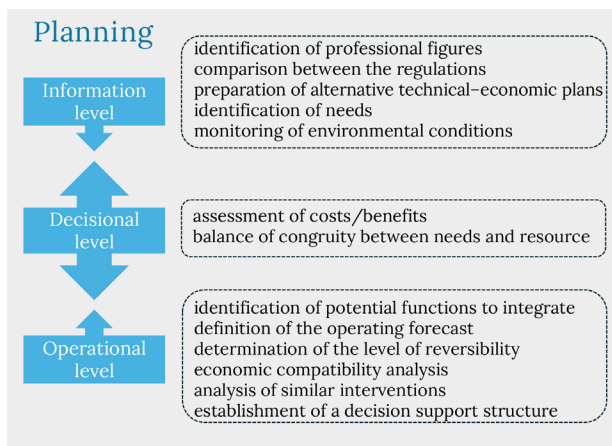


Fig. 3. The Planning phase. Source: authors

The **design** is aimed at achieving a single vision that optimizes all needs (Fig. 4).

**Key factors** at this stage are:

- \_analysis of the needs related to the specificity of the place and its socio-cultural context;



- \_documentary analysis of knowledge and technical solutions in use;
- \_summary framework of the technical experiences acquired and the specifics of the case;
- \_optimization of the solution through the information and experiments taken as a reference.

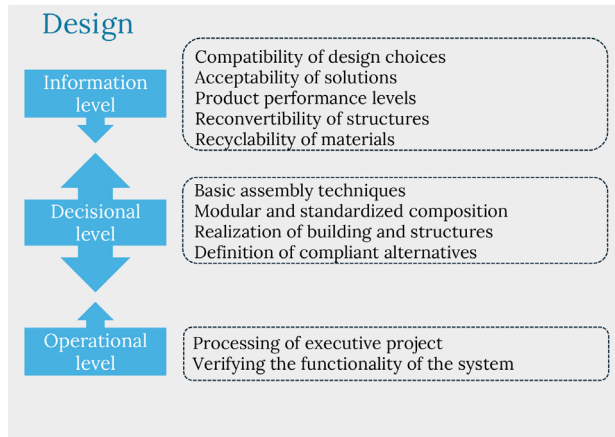


Fig. 4. The Design phase. Source: authors

The **production** phase must, therefore, include the control of the execution of the structures and equipment on the construction site but also the correct realization of the components from the industrial sector (Fig. 5).

**Key factors** at this stage are:

- \_the size of the intervention and logistics, given the location;
- \_the characteristics of the project;
- \_the specialization of the workers;
- \_the timing for the implementation of activities.

The **use** of the asset is the phase in which the verification of the hypothesized project performance takes place. It is necessary to foresee, right from the design phase, all those requisites aimed at guaranteeing the full usability of the structures and equipment by the users (Fig. 6).

**Key factors** at this phase are:

- \_maintaining quality over time;
- \_ease of maintenance operations;
- \_sustainability of maintenance costs in relation to the user.

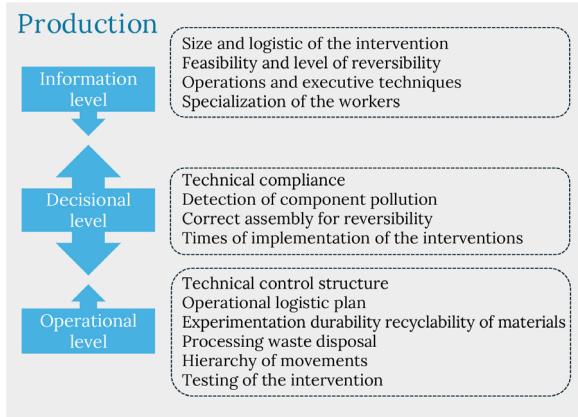


Fig. 5. The Production phase. Source: authors

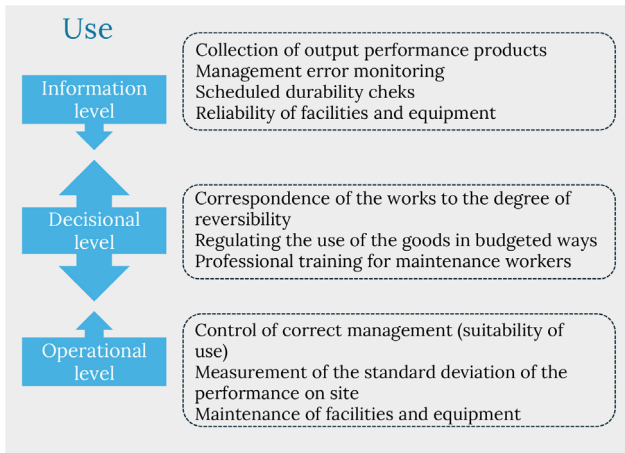


Fig. 6. The Use phase. Source: authors

During the disposal phase, problems may arise for the health of the workers, such as noise pollution and the production of both inorganic and organic dusts. Furthermore, demolition leads to the difficulty of removing the rubble as it is difficult to distinguish and separate the different materials (Fig. 7).

**Key factors** at this stage are:

- \_the logistic/dimensional analysis of the intervention area;
- \_the analysis and survey of the artefacts present on the site;
- \_the identification of the materials to be recycled;
- \_different levels of difficulty in disassembly;
- \_the economic evaluation of the intervention in relation to the revenues from the sale of the recovered materials.

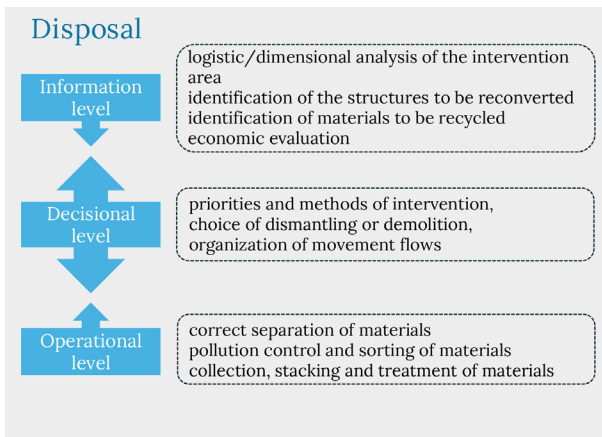


Fig. 7. The Disposal phase. Source: authors

### How - The type of error

Conceptual errors in architecture are, first of all, the result of cognitive distortions; deformations in the perception and interpretation of information can derive from preconceptions, stereotypes or cognitive limitations, and can lead to conceptual errors in the creative process. The consequences of such errors can be significant, influencing the aesthetics, functionality and usability of the designed spaces (Fomenko and Danylov, 2017). Reflection

on the nature of these conceptual errors contributes to understanding the relationship between the human mind and architecture, highlighting how cognitive distortions can influence the quality of architectural design.

Cognitive distortions can manifest themselves in various ways, such as inadequacy to social needs, misunderstandings of the function of space, incorrect choices of materials, accessibility problems and can be attributed to incorrect analysis of users categories, to incorrect assessment of the region's raw material resources, and of the ecosystem to which they belong.

Mainly we can categorize errors in morphological, structural and functional, considering that each of them can affect different scales of the design, such as detail, building, or environmental scale (Fig. 8).

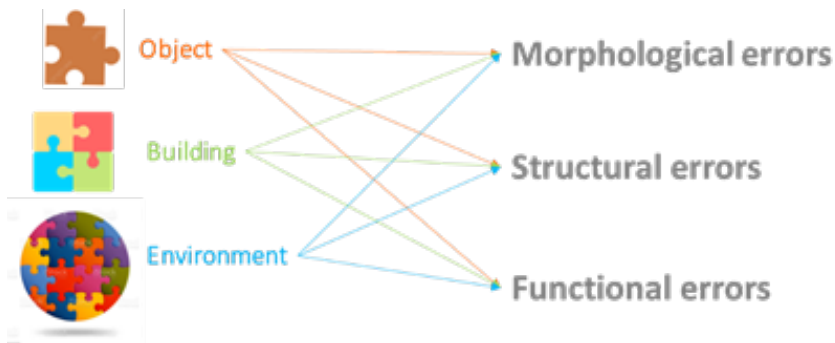


Fig. 8. Categories of errors. Source: authors

The seriousness of the error depends on the relationship between the provided services and the expected needs.

The logical question arises: how to minimize the gap between cognitive maps of perception of a problem and the real situation. The answer lies in the plane of the multidisciplinary research. When several cognitive maps of a problem existing in the perception of experts in different fields of knowledge are combined, it is possible to identify the objective and subjective clusters, the analysis of which will help to find the closest approach to the real assessment of the problem.

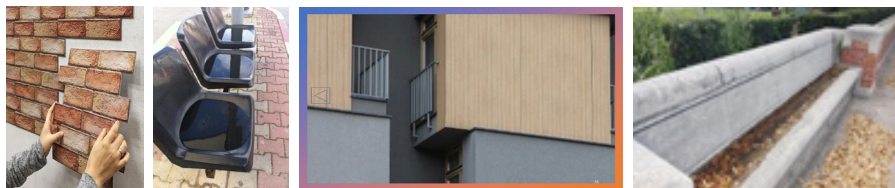


Fig. 9. Details – Morphological errors. Sources, from the left: Creative Commons License; unlocomqx/Reddit; u/Snoo\_90160/Reddit; BedrockPanda/Reddit



Fig. 10. Details – Structural errors. Sources, from the left: acvdk/Reddit; Hell\_Awaitz/Reddit; xFlinchyu/Reddit; TeresaKitsu/Reddit



Fig. 11. Details – Functional errors. Sources, from the left: Paarnahkrin/Reddit; PrestigiosoZombie531/Reddit; unfederica/Reddit



Fig. 12. Details – Buildings – Morphological errors. Source: Authors' archive.





Fig. 13. Buildings – Structural errors. Source: Authors' archive.



Fig. 14. Buildings – Functional errors. Source: Authors' archive.



Fig. 15. Environment – Morphological errors. Source: Authors' archive.



Fig. 16. Environment – Structural errors. Source: Authors' archive.



Fig. 17. Environment – Functional errors. Sources, from the left: <https://www.fanpage.it/attualita/decreto-sviluppo-la-tav-torino-lione-diviene-un-opera-di-interesse-strategico/>; Creative commons License

## Conclusions

a work that does not contain contradictions within itself is not “living”, it is not vital because it is not “true”: true things, Creation, reality, history contain contrary principles within themselves, which “coexist” in them

...error is the high sign of human intellect, the emblem of its inequality:  
an error today may not be an error tomorrow

Gio Ponti (1957)

The discussion on errors in architectural projects prompts a reflection on the concept of “error” for an architect, exploring the various forms in which errors can manifest. Errors, mistakes, and failures are deviations from good practice, caused by poor reasoning, carelessness, or insufficient knowledge. The distinction between a mistake, an error, and a failure lies in the nature of the deviation.

According to Adolf Loos, “good practice” in architecture is akin to the farmer’s law, emphasizing the measure of necessity and correspondence with the ecosystem, fostering peace and harmony. Harmony between architecture and the environment is multifaceted, involving integration for sustainable regeneration, the aesthetic-ecological link, and the provision of cultural ecosystem services that convey identity and belonging.

The consequences of errors in design can manifest at different scales: detail, building, and environmental. Even a small mistake in a minor component can significantly impact a broader context. Severity is measured by the extent of impact on tangible and intangible resources within the ecosystem.

Errors can lead to compromised functionality, safety, and aesthetics in objects, buildings, or landscapes. Design errors in everyday objects can result in poor functionality and rapid deterioration. In buildings, structural problems may arise, jeopardizing safety. Aesthetically, poorly designed structures can negatively impact the urban landscape. In landscapes, design errors can compromise ecological balance and sustainability.

The timing of errors is crucial, with early-phase errors potentially compromising the entire process. Governance, through successive and scheduled checks, is essential. Planning involves recognizing tangible and intangible resources, tools, and intervention limits. Design aims at a single vision optimizing all needs, while production must include on-site and industrial component control. The use phase involves verifying hypothesized project performance, ensuring usability, quality maintenance, and ease of maintenance. Disposal presents challenges related to health, noise pollution, and material separation difficulties.

The type of error is often conceptual, stemming from cognitive distortions such as preconceptions or stereotypes. These distortions affect aesthetics, functionality, and usability. Categorizing errors as morphological, structural, or functional helps assess their impact on different design scales. Minimizing the gap between cognitive maps and the real situation requires multidisciplinary research, combining expert perspectives to approach a more accurate problem assessment. In essence, understanding, identifying, and mitigating errors in architectural projects necessitate a holistic and multidimensional approach.



## References

- Rossi, A. (1987). *Spoken Into The Void. Collected Essays by Adolf Loos, 1897–1900*, MIT Press.
- Tengberg, A., Fredholm, S., Eliasson, I., Knez, I., Saltzman, K., & Wetterberg, O. (2012). Cultural ecosystem services provided by landscapes: Assessment of heritage values and identity, *Ecosystem Services*, Vol. 2, pp. 14–26, ISSN 2212-0416, <https://doi.org/10.1016/j.ecoser.2012.07.006>.
- Kaltenborn, B. P., Bjerke, T. (2002). Associations between environmental value orientations and landscape preferences, *Landscape and Urban Planning*, Vol. 59, Issue 1, pp. 1–11, ISSN 0169-2046, [https://doi.org/10.1016/S0169-2046\(01\)00243-2](https://doi.org/10.1016/S0169-2046(01)00243-2).
- Fomenko, O., & Danylov, S. (2017). Conceptual mistakes in architecture as a consequence of cognitive contortions. *Przestrzeń i Forma*, No. 29, pp. 51–66.
- Gaskin, M. (2020). Design in Context. In A. Orbaşlı and M. Vellinga (Eds.), *Architectural Regeneration*. <https://doi.org/10.1002/9781119340379.ch13>
- Ponti, G. (1957). *Amate l'Architettura. L'Architettura è un cristallo*, Genova
- Gobster, P.H., Nassauer, J.I., Daniel, T.C. et al. (2007) The shared landscape: what does aesthetics have to do with ecology? *Landscape Ecol.*, 22, pp. 959–972. <https://doi.org/10.1007/s10980-007-9110-x> (access 01/10/24)
- Gallaccini, T. (1621 – published posthumously in 1767) *Degli errori degli architetti*, Venezia.