

## A Safe Space. Architecture and preparedness in the era of uncertainty.

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The research aims to investigate how to design a safe space facing unpredictable and uncertain events.

It considers the project of safe spaces which, by embodying a potential emergency, are designed to be inhabitable before, during and after a catastrophe. By focusing on those strategies, projects and actions which address the design of critical infrastructures and by investigating the relation between design and uncertainty, safety and inhabitability, duration and transience, the work aims to study the design possibilities which underpin the architectural project in vulnerable and uncertain conditions.

Today, risks such as floods and earthquakes are more and more threatening the human environment. In the environmental crisis of the climate change, the increase in the risk generates on the one hand new vulnerable territories to which will correspond a growing need for security, on the other hand a global interest in the concept of preparedness.

According to Andrew Lakoff preparedness does not seek to prevent the occurrence of disastrous event, but rather assumes that the event will happen. It enacts a vision of the dystopian future in order to develop a set of operational criteria for response. It organizes a set of techniques for maintaining order and safety in a time of emergency. It considers the disaster not as a fracture, but as an important event in the biography of a context which lives its continuity through changes (Bassoli 2015). From a design perspective, it challenges architecture as a research for determination of a *certain* space (Bertagna 2010) by introducing the dialogue with possible scenarios and principles such as flexibility, duration, adaptability, interconnectedness.

In particular in the Italian inner areas grafted into the Appennins, the vulnerability is increased by multiple factors that overlap and intersect each other. The high seismic risk, depopulation and abandonment of agriculture and silvo-pastoral activities generate a complex realm that strongly depends on the spatial construction of safety. In these areas, characterized by a permanent 'security state' (Agamben 2015), protective infrastructures overwrite and transform the environment, shaping cities and the way people produce, understand and inhabit spaces and places. Protective walls, secured building as well as red zones can be barriers, voids, artifacts of exclusion that generate interruptions in the context. At the debris and provisional architectures which characterize the uninhabitable ghost town of the red zones correspond new safe and standardized settlements in which the displacement from the original site and the lack of site specificity increase the fragility in spatial, social and cultural terms. Here, the post-disaster construction of safety follows the logic of separation, generating spatial – and temporal – fracture between -pre and post- disaster spaces. This leads on the one hand to consider the spatial design in forecasting scenarios for natural disaster, on the other hand to couple disaster resources with daily-life amenities (Mazereeuw 2017).

But if the natural disasters, which are predictable in the probability of happening, are unpredictable in time, form, scale and effects, what does it mean to design a safe space able to exist – and resist – before, during and after a potential catastrophe? Considering a disaster as an event in the biography of a space, how can catastrophes be embodied by the architectural project? What does imply, from a design perspective, to be prepared?

If the safety is given, from a physical point of view, by a series of ‘lifelines’ infrastructures which are necessary for the daily lives of citizens as well as recovery efforts (Mazereeuw 2017), it emerges that often the technocratic and mono-functional nature of infrastructural design can generate additional and social vulnerabilities. In fact, a primary concern in dealing with natural disasters is failure and disrupted access to critical infrastructures, system whose functioning is understood to be vital for the existence of an environment. In addition, in disaster scenarios, the quality and inhabitability of the space, the site specificity and the cultural embedded systems are decisive to build the resistance of a certain community. Starting from the design of critical infrastructures as dual-functions integrated infrastructures that increase interconnectedness and adjust to unpredictable risks, the research focuses on the design of safe spaces which, considering different scenarios and duration, are designed to be inhabitable in daily-life as well as during and after catastrophic events.

The research will be composed by an analytic phase and a practical phase.

A prodromal theoretical dissertation and literature review on architecture and uncertainty, spaces for survival and the role of critical infrastructures in the design of safety will illuminate preparedness, inhabitability and safety as key concepts on which the research is built.

The lack of site specificity, accessible open space and local embedded systems which characterize of the red zones of the Italian inner areas lead to the definition of three typologies of safe spaces that are considered at the scale of the building, the open space and the widespread system. Beyond inhabitability, intersystemic capability and cultured-based solutions, their spatial declination of duration, and therefore the phase of emergency addressed by each of them (response, recovery, reconstruction), will be considered as qualitative and comparative criteria in order to identify variable and invariable design principles. In the practical phase a prototyping work will be lead as experimental research on the field. Through a creation of a Collective group, the collaboration with local realms and the civil protection, and experimental design campaign will be lead in a small town of the Italian inner region Umbria to test the analytical research and to tackle, by design, the reflection on the architectural project, preparedness and design of safe spaces able of sustaining the resistance and the growth of endangered environments.

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## Design Driven Research

Investigating how to design a safe space facing unpredictable and uncertain events such as natural disasters means to deal with what Rob Roggema defined as ‘wicked problems’ which have no final solutions as well as no single, accepted formulation.

Drawing on his definition of research by design, the research is structured in three different macro-phases which are not linearly subsequent, but fluidly interrelated.

A prodromal phase of understanding, a pre-design phase, is composed by the formulation of a theoretical framework through a selection of case studies. These are conceived as tools to introduce input, questions and themes to inform the theoretical dissertation. The case studies share the same design strategies, but present different sites, scales, forms and are organized according to their spatial declination of the duration. A comparative analysis between them will illuminate variable and invariable design principles which will lead to a design phase. This is not conceived as a separating thinking, but as an interwoven phase to test and inform the

preliminary investigation. A prototyping work will be developed as experimental research on the field. Through a creation of a Collective group, the collaboration with local realms and the civil protection, a program and a proposal will be developed in a small town of the Italian inner region Umbria. Finally, a synthesis of the work will be developed in order to define a possible, reasoned and structured solution.

Keywords\_ Preparedness; safe space; critical infrastructures

### Bio

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### Short Bio:

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*Japanese Tsunami Seawall. Kim Kyung-hoon, 2011.*